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**Intersections of Gender, Ethnicity, and
Socioeconomic Position in Health in England:
A Mixed Methods Study**

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Thesis Submitted for the Degree of Doctor of Philosophy

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Abstract

Background: Social inequalities in health represent one of the greatest challenges to public health today. Traditionally, studies investigating health inequalities have treated gender, ethnicity, and socioeconomic position as independent and additive explanatory variables. Consequently, important health inequalities that exist at the intersection of social groups remain invisible and unaccounted for.

Aim: An intersectionality framework was employed to investigate the role of intersections of gender, ethnicity and socioeconomic position in explaining health inequalities among adults living in England. The objectives of the study were firstly, to establish whether intersections of gender, ethnicity, and socioeconomic position in health are present among adults in England, and secondly, to explore the contextual and explanatory factors perceived to underlie these intersections.

Methods: A sequential explanatory mixed methods design comprising a quantitative phase followed by a qualitative phase was employed. In the quantitative phase, data from the Health Survey for England 2004 were analysed to test for significant interaction effects between gender, ethnicity, and socioeconomic indicators, with three measures of subjective health. In the qualitative phase, a subset of significant interactions relating to Pakistani and White English survey participants were explored using semi-structured interviews with 25 Pakistani and White English women recruited in South Yorkshire.

Findings: The quantitative analysis identified 15 significant interaction effects ($P < 0.05$). Each dimension of inequality (i.e. gender, ethnicity, socioeconomic position) was found to significantly interact with at least one other on one or more health outcome. The qualitative analysis revealed how overlapping systems of discrimination were perceived to underlie the burden of poor health experienced among Pakistani women living in England.

Conclusions: This thesis demonstrates both quantitative and qualitative evidence for intersections of gender, ethnicity, and socioeconomic position in health inequalities in England. These findings highlight the need for policies seeking to reduce social inequalities in health to take account of intersectionality.

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List of Abbreviations

CAPI	Computer aided personal interviewing
CI	Confidence interval
CIS-R	Revised Clinical Interview Schedule
CSDH	Commission on Social Determinants of Health
df	Degrees of freedom
EMPIRIC	Ethnic Minority Illness Rates in the Community
EQ-5D	EuroQol EQ-5D
FNSEM	Fourth National Survey of Ethnic Minorities
GHQ-12/28	General Health Questionnaire (12 item / 28 item version)
HADS	Hospital Anxiety and Depression Scale
HRQoL	Health-related quality of life
HSE	Health Survey for England
HSE 2004	Health Survey for England 2004
HWF	Hierarchically well-formulated (regression model)
MM	Mixed methods
N	Total sample size
NHS	National Health Service
NS-SEC	National Statistics Socio-Economic Classification
OR	Odds ratio
P	Alpha level of significance
PSE	Present State Examination
PSU	Primary sampling unit
QUAL	Qualitative
QUAN	Quantitative
RR	Relative risk (risk ratio)
SD	Standard deviation
SE	Standard error
SEP	Socioeconomic position
SF-12/36	Short Form Health Survey (12 item / 36 item version)
UK	United Kingdom
WHO	World Health Organisation

Chapter 1 Introduction

1.1 Rationale

Within societies worldwide, the opportunity to experience good health is constrained by systems of social stratification including gender, ethnicity, and socioeconomic position (Commission on Social Determinants of Health, 2008). Whilst this fact is clearly unfair and unjust, it is neither irrevocable nor unavoidable. As such, the persistence of social inequalities in health presents one of the greatest challenges to public health today (Mackenbach & Bakker, 2003; Mullings & Schulz, 2006; Whitehead, 2007; Mazzucco & Suhrcke, 2010). The latest research findings for the adult population of England demonstrate systematic inequalities in health in relation to gender, ethnicity and socioeconomic position, with women, people of Pakistani and Bangladeshi ethnicity, and people positioned in the lowest socioeconomic groups experiencing the greatest disadvantages in health (Sproston & Mindell, 2006a; Deverill & King, 2009; Craig & Hirani, 2010).

Efforts to understand and address social inequalities in health have traditionally focused on the examination of gender, ethnic, and socioeconomic inequalities in health as independent and additive processes. Consequently, inequalities in health which exist at the intersection of gender, ethnicity, and socioeconomic position remain hidden and unaccounted for. Furthermore, policies aimed at reducing inequalities in health between social groups may fail to have an impact where multiple dimensions of inequality are present within social groups. This thesis seeks to address these issues by adopting a new approach to the investigation of social inequalities in health. This approach is based on the theoretical perspective of intersectionality, which advocates the need to understand social inequalities as mutually constitutive and formed within socio-historical contexts.

1.2 Research aim and objectives

The aim of this study is to examine the role of intersections of gender, ethnicity, and socioeconomic position in explaining health inequalities among adults living in England. The two main objectives of the study are as follows:

- i. To identify intersections of gender, ethnicity, and socioeconomic position in health among adults living in England; and

- ii. To explore the contextual and explanatory factors perceived to underlie intersections of gender, ethnicity, and socioeconomic position in health.

To complement the quantitative and qualitative nature of research objectives (i) and (ii), respectively, a mixed methods research design is employed in the investigation. The first phase of the study utilises quantitative methods to demonstrate ‘what’ intersections exist between gender, ethnicity, and socioeconomic position with health. The second phase of the study then uses qualitative methods to explore ‘how’ and ‘why’ these intersections in health might arise. By addressing these objectives, this study seeks to build a more comprehensive understanding as to how and why social inequalities operate and intersect to produce inequalities in health. These insights may in turn contribute to the development of better targeted policies and programmes that ensure health inequalities are addressed both between and within social groups.

1.3 Overview of the thesis

The thesis is comprised of a further seven chapters. Chapter 2 provides the background to the study, and begins with a description of the key concepts under investigation, followed by a historical review of the wider health inequalities literature within which the study is set. The theoretical framework of intersectionality is then introduced, accompanied by a review of the empirical evidence on intersections of social inequalities in health. Given the relative infancy of intersectionality research in health in the UK, Chapter 3 presents the findings from a systematic review of the UK literature to identify the patterning of social inequalities in health, and to explore the potential for social inequalities to intersect with health in the UK adult population.

Chapter 4 provides an overview of the research design employed in this study, and outlines the rationale for adopting a mixed methods approach, followed by a description of the sequential explanatory design employed. A visual model illustrating how the quantitative and qualitative phases of the design connect and relate to the research aim and objectives is also presented. Chapter 5 then comprises the first, quantitative, phase of the study, and reports the findings from a secondary analysis of data from the Health Survey for England, to identify intersections of gender, ethnicity, and socioeconomic position in health among adults in the UK. Chapter 6 connects the quantitative and qualitative phases of the study, and describes a subset of statistically significant intersections relating to people of Pakistani and White English ethnicity, selected for further exploration using qualitative methods. Chapter 7 comprises the second, qualitative, phase of the study, and reports the findings from a thematic analysis of semi-

structured interviews held with a sample of Pakistani and White English women from South Yorkshire, to explore the contextual and explanatory factors perceived to underlie the selected intersections.

The thesis concludes with Chapter 8 which provides a summary of the principal findings drawn from the quantitative and qualitative analyses and a discussion of their contribution to the wider literature. The strengths and limitations to the study are then considered, followed by recommendations for future research, policy and practice.

Chapter 2 Background

2.1 Introduction

The aim of this chapter is to provide the background to the study, beginning with a description of the key concepts under investigation. The following section presents a brief historical review of the key literature on social inequalities in health in the UK, and questions the extent to which intersections in social inequalities in health have been addressed. The theoretical framework of intersectionality is then introduced, accompanied by a review of empirical research investigating intersections of social inequalities in health. The chapter concludes by highlighting the gaps in the current literature that this study aims to address.

2.2 Definition of key concepts

The aim of the current study was to examine the role of intersections of gender, ethnicity, and socioeconomic position in explaining health inequalities among adults living in England. Given the complex and multi-dimensional nature of the concepts under investigation, clarification as to how each term was defined in the context of this thesis is provided below. Further details as to how the concepts were operationalized in the study can be found in the methods sections of Chapters 5 and 7.

2.2.1 Health

Health is a complex, multidimensional, and evolving concept, and as such can be defined in many different ways. Two of the most influential definitions of health include the ‘biomedical model’ and ‘social model’ of health (Blaxter, 2010). The biomedical model narrowly defines health as the absence of disease, whereby disease is conceived of as an objectively and medically defined abnormality in the function or structure of a bodily process or system (Macintyre, 1986). Critiques of the biomedical model of health have problematized its ability to account for positive dimensions of health, subjective experiences of health and illness, and subjectivity in the diagnosis of disease itself (Macintyre, 1986; Blaxter, 2010). By contrast, the social model adopts a far broader conceptualisation of health, incorporating positive dimensions of health such as psychological wellbeing and quality of life, as well as locating health within the social environment (Townsend et al., 1992). Notably, the World Health Organisation’s definition of health as ‘a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity’ (WHO, 1948), whilst idealistic, clearly advocates the

social model of health. To complement the focus of the current study on the social context of inequalities in health, a social model of health is adopted in this thesis.

With respect to the measurement of health, population health in Britain has historically been measured on the basis of mortality rates and life expectancy (Graham, 2007). Whilst important measures in their own right, neither mortality nor life expectancy provides a direct assessment of people's health whilst alive. Consequently, measures of subjective health status have been developed and are now routinely used in national surveys in the UK to capture people's assessments of their own health at a given point in time (Nazroo, 1997a; Erens et al., 2001; Sproston & Mindell, 2006a; Office for National Statistics, 2006). This thesis focuses on three popular measures of subjective health status, namely, self-reported general health, psychological wellbeing, and health-related quality of life. A brief description of these measures is provided below, with further details presented in Chapter 5 on pages 111 to 113.

Self-reported general health, also referred to as self-assessed, self-rated, or self-perceived health, provides a broad measure of global health captured using a single-item question. The 2011 census, for example, asks respondents 'How is your health in general?' and provides a rating scale of 'very good, good, fair, bad or very bad' (Office for National Statistics, 2011). Whilst self-reported general health can be criticised for not capturing the dynamic nature of health as it changes across the life course, several studies have shown it to be a strong and independent predictor of mortality (Mossey & Shapiro, 1982; Idler & Benyamini, 1997; Burstrom & Fredlund, 2001; McFadden et al., 2009), and to have good test re-test reliability for men and women (Lundberg & Manderbacka, 1996). Self-reported general health has also been shown to be a valid measure of health status in different ethnic groups (Strawbridge & Wallhagen, 1999; Chandola & Jenkinson, 2000). For example, Chandola and Jenkinson (2000) found no evidence for associations of self-reported general health with more objective measures of morbidity (e.g. hypertension, cardiovascular disease, diabetes, limiting health, and number of visits to a doctor) to differ significantly between ethnic groups in the UK.

Measures of psychological wellbeing, also referred to as psychological health (Sproston & Mindell, 2006a), are used to screen for common mental disorders such as anxiety and depression (Bowling, 2001). It is helpful to distinguish psychological wellbeing from the related but broader dimension of health known as 'subjective wellbeing'. Whereas psychological wellbeing focuses predominantly on psychological 'morbidity', subjective wellbeing represents a more positive concept which incorporates dimensions of happiness, life satisfaction, morale, self-esteem and sense of coherence (Bowling, 2005a). The General Health Questionnaire (GHQ) developed by Goldberg (Goldberg, 1972; Goldberg & Williams, 1988) is one of the

most widely used measures of psychological wellbeing (Bech et al., 2001; Bowling, 2005a). It has been validated for use in general and clinical populations in the UK and worldwide (Werneke et al., 2000).

The third measure of subjective health status examined in this thesis is health-related quality of life (HRQoL). In contrast to self-reported general health and psychological wellbeing, HRQoL is more explicitly multidimensional, being designed to capture assessments of social, psychological and physical health (Bowling, 2005b). One of the most widely used measures of HRQoL in population surveys is the EuroQoL EQ-5D (Brooks, 1996; Harries & Stiggelbout, 2005). The EQ-5D is a generic standardised measure of health status that provides a simple descriptive profile across five dimensions of health (mobility, self-care, usual activity, pain/discomfort, and anxiety/depression) by asking respondents to rate their health state that day for each of the dimensions. Studies have demonstrated the EQ-5D to have good test-retest reliability; construct validity; and the ability to detect expected differences between population subgroups including gender and indicators of socioeconomic position (Brazier et al., 1993; Van Agt et al., 1994; Kind et al., 1998).

2.2.2 Social inequalities in health

Within the UK context, the term ‘health inequalities’ is commonly used to refer to differences in health which are judged to be unfair and unjust (Whitehead, 2007). In Europe and the United States, such differences are more often described using the terms ‘health inequities’ or ‘health disparities’, whereas ‘health inequalities’ functions as a descriptive term for differences in health which need not imply a moral judgement (Kawachi et al., 2002; Whitehead, 2007; Graham, 2009). More universally, the term ‘social inequalities in health’ is used to refer to ‘health disparities, within and between countries, that are judged to be unfair, unjust, avoidable, and unnecessary... and that systematically burden populations rendered vulnerable by underlying social structures and political, economic, and legal institutions’ (Krieger, 2001, p.698). Adopting Krieger’s definition, this thesis focuses on three dimensions of social inequalities in health, namely, gender, ethnicity, and socioeconomic position.

The measurement of social inequalities in health is commonly achieved by comparing the levels of health reported between more and less socially advantaged groups. For example, gender inequalities in health are established by comparing the health of women against men. Likewise, ethnic inequalities in health are determined by comparing the health of ethnic minority groups against an ethnic majority group. And socioeconomic inequalities in health are examined by comparing the health of those in lower socioeconomic positions against those in the highest

socioeconomic positions. In the context of the UK, reference categories assigned to people who are male, White British, and of high socioeconomic position (e.g. degree level education, economically active, professional & managerial occupations, high income) are selected on the basis that they represent the most privileged positions within each dimension of social stratification. However, it is important to recognise that this division of social groups can have unintended consequences such as normalising the health of these reference groups and judging the health of less privileged groups as deviations from the 'norm' (Graham, 2007).

2.2.3 Gender

The term 'gender' refers to the socially constructed roles, behaviours and values that are used to differentiate boys from girls and men from women within a given society (Pollard & Hyatt, 1999). By distinction, the term 'sex', refers to the inherent biological and physiological characteristics that distinguish males from females (WHO, 2010). Gender is therefore conceptualised as a set of social relations as opposed to an attribute of individuals (Mullings & Schulz, 2006). Drawing an absolute distinction between 'gender' and 'sex' in the context of health can, however, be difficult (Pollard & Hyatt, 1999). To aid clarification, the term 'sex difference' is employed in this thesis where explanations for health disparities between men and women are more obviously biological (e.g. pregnancy and menopause).

The measurement of gender in social and health survey research is most commonly reduced to a 'tick box' choice between the categories of 'male' and 'female'. This simple binary classification is arguably limited to capturing the 'sex' of the individual, with the exception of individuals who prefer to be classified as transsexuals or intersexuals (Pollard & Hyatt, 1999). As a result, gender can easily be conveyed as an individual attribute detached from its social and historical foundations, rather than as a set of socially structured relations.

In the context of social inequalities in health, gender can be understood to operate as a major form of social stratification, through the unequal distribution of power, prestige, resources and responsibilities, which in turn produces health-damaging effects on men and women (Ostlin, 2002). The asymmetry of power between the genders is particularly evident in the context of paid work and unpaid work (e.g. household labour and caregiving responsibilities). As such, gender divisions of labour can be seen to structure the roles and responsibilities expected of men and women which, in turn, moderate the risk of poor health (Llácer et al., 2007). For example, studies have shown that women are more likely to occupy lower paid and lower status occupations than men (Arber, 1997; Hibbett & Meager, 2003; Hills, 2010), in addition to taking on the added responsibilities of child care and domestic labour (Cooper, 2002a).

The focus of this thesis is on social inequalities in subjective measures of health which, in the case of gender, typically highlight the disadvantaged position of women compared to men. However, it is important to acknowledge the paradox that exists in the relationship between gender and health more broadly, namely, that in many western countries women experience greater longevity than men, yet are more likely to live their lives in poorer health (Verbrugge, 1982; Tsuchiya & Williams, 2005). Research exploring this phenomenon has yielded important insights into the dynamics of gender and health (e.g. Pollard & Hyatt, 1999). However, leading researchers in the field of gender and health have highlighted how this persistent paradox can act as ‘oversimplified established wisdom about gender and health’ (Annandale & Hunt, 2000, p.i). The oversimplification essentially arises in directing attention primarily on differences in health between men and women, at the cost of the much needed focus on the social divisions that exist among men and women (Walby, 1990; Maynard, 1994; Cooper, 2002a).

2.2.4 Ethnicity

The term ethnicity derives from the Greek word ‘ethnos’, meaning people or nation (Bolaffi et al., 2003). In the context of epidemiological research, ethnicity can be defined as a group that people belong to and/or are perceived by others to belong to, because of shared culture, language, diet, religion, ancestry and physical features (Bhopal, 2009). Consequently, ethnicity is a complex and multidimensional concept that changes across contexts and time (Senior & Bhopal, 1994; Bhopal et al., 2000; Karlsen & Nazroo, 2000; Pilkington, 2003). The same person may, for example, describe their ethnicity as Black, Asian, South Asian, Pakistani, or British Muslim depending on their chosen frame of reference.

In conceptualising ethnicity it is important to draw a distinction between the terms ‘ethnicity’ and ‘race’ which, whilst overlapping concepts, hold important historical differences in meaning (Bhopal, 2004). In the sixteenth century, the term ‘race’ first appeared in the English language to refer to groups of people sharing a common descent or origin (Fernando, 2002). Then in the early nineteenth century, reflecting the popularity of biological determinism in scientific thought, ‘race’ evolved into a biological concept. As such, the human species was conceived to consist of separate ‘races’ or sub-species, differentiated in terms of visible physical characteristics and behavioural attributes (Karlsen & Nazroo, 2006). The acceptance of race as a biological concept led to the racialization of epidemiological research, whereby variation in population health was explained primarily on the basis of racial difference alone (Bhopal, 1997). In response to the controversial nature of the concept of ‘race’ and growing recognition of the importance of social determinants of health, use of the term ‘race’ has largely been

superseded by the term ‘ethnicity’ in the UK and European literature (Bhopal, 1997). In the US literature, the terms ‘race’ or ‘race/ethnicity’ remain prevalent in the literature (Bhopal, 2004), but with increasing acknowledgement of their conceptualisation as social constructs (Krieger, 2001).

The study of ethnic patterns in health in the UK has traditionally been restricted to investigating mortality rates by country of birth as recorded on death certificates (e.g. Marmot et al., 1984; Balarajan & Bulusu, 1990). However, the use of country of birth as a proxy for ethnic identity has a number of shortcomings. As described by Nazroo (1997a), these issues include inconsistency and inaccuracies in the recording of country of birth on death certificates; the misclassification of ethnic minority people born in Britain and of Britons born overseas; and the masking of diverse ethnic groups born within the same country such as the Indian subcontinent. Whilst ethnic identity is still not recorded on death certificates, a question on self-assigned ethnic group was added to the 1991 census, and expanded in the 2001 census to capture a wider range of categories including White minority and Mixed ethnicity categories, as illustrated in Figures 2.1 and 2.2.

Figure 2.1 England 1991 census question on ethnicity

11 Ethnic group

Please tick the appropriate box.

White	<input type="checkbox"/>
Black-Caribbean	<input type="checkbox"/>
Black-African	<input type="checkbox"/>
Black-Other	<input type="checkbox"/>
<i>Please describe</i>	
Indian	<input type="checkbox"/>
Pakistani	<input type="checkbox"/>
Bangladeshi	<input type="checkbox"/>
Chinese	<input type="checkbox"/>
Any other ethnic group	<input type="checkbox"/>

If you are descended from more than one ethnic or racial group, please tick the group to which you consider you belong, or tick the 'Any other ethnic group' box and describe your ancestry in the space provided.

Figure 2.2 England 2001 census question on ethnicity

What is your ethnic group? Choose ONE section from A to E, then tick the appropriate box to indicate your ethnic group.

A White
 British
 Irish
 Any other White background, please write in _____

B Mixed
 White and Black Caribbean
 White and Black African
 White and Asian
 Any other Mixed background, please write in _____

C Asian or Asian British
 Indian
 Pakistani
 Bangladeshi
 Any other Asian background, please write in _____

D Black or Black British
 Caribbean
 African
 Any other Black background, please write in _____

E Chinese or other ethnic group
 Chinese
 Any other, please write in _____

As with gender, the classification of ethnicity relies predominantly on a ‘tick box’ approach, with limited scope for a detailed description of ethnic identity, as highlighted by Karlsen and Nazroo (2006, p.29):

Relying on ethnic classifications alone encourages the use of crude and inflexible assessments of ethnicity that treat the categories as undifferentiated groups, even when such schemes carry an implicit acknowledgement of this by the inclusion, for example, of ‘mixed’ categories... ‘ethnicity’ is in no way predetermined, objective or absolute.

Further key issues regarding the classification of ethnic groups in health surveys are discussed in detail in Chapter 5, Section 5.2.3.

Notwithstanding the measurement limitations described above, ethnic monitoring in health is of increasing importance in the UK, given the growing ethnic minority population. For instance, the estimated figures for the non-White population in the UK increased from 100,000 people in

1951 to 1.2 million people in 1971, and then to 3.1 million people in 1991 (Owen, 2003). More recently, data from the 2001 census recorded 4.6 million non-White people to be living in the UK, representing approximately 8 per cent of the total UK population (Nazroo, 2006). Focusing on the 2001 census data for England alone, 13 per cent of the population identified themselves as belonging to an ethnic minority group. The largest ethnic minority groups were White minority – excluding Irish (1.3 million), followed by Indian (1 million), Pakistani (706,000), mixed ethnicity (643,000), Irish (624,000), and Black Caribbean (561,000).

2.2.5 Socioeconomic position

Socioeconomic position (referred to hereon in as SEP) is a multidimensional concept used to describe the social and economic factors that influence a person's or a group's position within the structure of society (Lynch & Kaplan, 2000). More specifically, SEP can be conceptualised as representing actual resources as well as status or prestige-related characteristics. As explained by Krieger and colleagues (1997), actual resources refer to whether or not, for example, a person has a university degree, or an income sufficient to enable physical survival and social participation in familial and societal roles and obligations. Prestige-related characteristics, by comparison, refer to a person's relative position in socially ranked hierarchies which in turn afford a given level of access to and consumption of goods, services, and knowledge. The processes through which SEP manifests in people's lives can be both extrinsic and intrinsic in nature. For example, Graham (2007, p.40) describes how SEP can be conceived of as 'the product of social structures which exist outside and independent of people, bearing in on them as they make their way through their lives'. At the same time, SEP can be seen to be 'actively produced' by ourselves and 'integrated into how we feel and how we act as we grow up and live our lives' (Graham, 2007, p.42).

SEP can be measured using a range of indicators, the most common being occupational social class¹, education, income, employment status, housing tenure and housing amenities (Galobardes et al., 2007). Each indicator captures different but often related dimensions of socioeconomic stratification which may vary in their relevance to the population and outcome under study (Galobardes et al., 2006; Graham, 2007). In particular, studies have shown that measures of SEP such as the Registrar General's social class (see Figure 2.3) have limited equivalence across social groups, subsequently masking variation within socioeconomic strata. For example, findings from the Fourth National Survey of Ethnic Minorities demonstrated that within each social class band², the weekly equivalised household income for Pakistani and

¹ The term 'social class' is used in this thesis to refer to occupational social class.

² Social classes were banded into: I/II; IIINM; IIIM; and IV/V.

Bangladeshi people was approximately half that of their White counterparts (Nazroo, 2006). More generally, the survey data suggested that within a given social class, ethnic minority groups were more likely than their White counterparts to have poorer job security, more stressful working conditions, and work unsocial hours (Nazroo, 1997a).

Figure 2.3 Registrar General's social classes

Social class:	
I	Professional occupations
II	Managerial and intermediate occupations
III NM	Skilled occupations (non-manual)
III M	Skilled occupations (manual)
IV	Partly-skilled occupations
V	Unskilled occupations

A further measurement issue concerning SEP relates to whether indicators are taken at the individual or household level. This has been a particularly contentious issue for the measurement of women's social class, where traditionally women would be assigned the social class of the 'man of the house', commonly their husband or father (Graham, 2007, p.52; Krieger, 1999). This method of measurement risks masking gender inequalities which may exist in the division of labour both inside and outside of the home. The measurement of income is also commonly made at the household level, which can lead to the assumption that all members of the household will receive equal benefits from the available funds, when this may not be the case. In light of the implications of relying on single imperfect measures of SEP, the use of multiple indicators can offer a more robust and comprehensive assessment of SEP (Cooper, 2002a).

Throughout this thesis, references to measures of education level, economic status, and social class are represented at the individual level, unless stated otherwise. Conversely, references to measures of income level are represented at the household level, unless stated otherwise.

2.2.6 Intersection and interaction

In addition to defining the terms, gender, ethnicity, and SEP in their own right, a further clarification of key importance to this study concerns the way in which these social constructs are conceptualised in relation to one another. As highlighted in the later sections of this chapter, the associations between gender, ethnicity, and SEP with health are most commonly investigated independently of one another. Conversely, the central premise of this thesis is to

examine the associations between gender, ethnicity, and SEP with health simultaneously, to explore whether and how they intersect.

The term ‘intersection’ is used in this thesis to represent the interdependent as opposed to exclusively independent relationships between gender, ethnicity and SEP in the context of health. To help illustrate this distinction, Figure 2.4(a) presents a visual model of these social constructs as having solely independent and potentially additive (+) relationships, whilst Figure 2.4 (b) demonstrates how these dimensions might also have interdependent and multiplicative (×) relationships.

Figure 2.4(a) Independent relationships

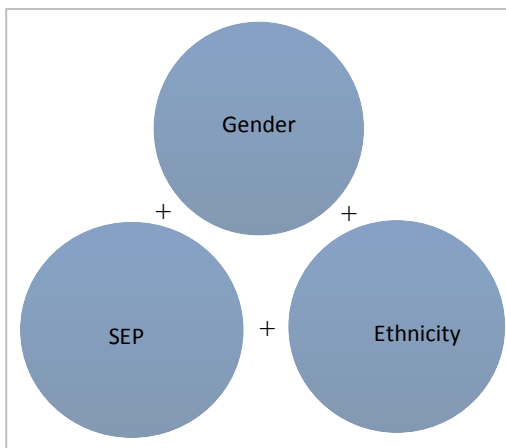
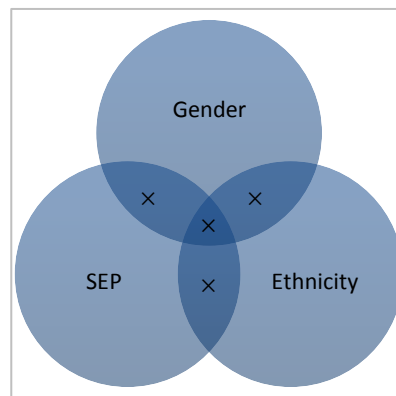


Figure 2.4(b) Intersectional relationships



The assumption underlying Figure 2.4(b) therefore conceives that social identities including, but not restricted to, gender, ethnicity, and SEP, can interact with one another to produce qualitatively different meanings and experiences (Warner, 2008). Taking the intersection of gender and ethnicity as an example, the meaning and experience of masculinity and femininity may vary when applied to different ethnic groups, whilst the meaning and experience of a given ethnicity may vary between men and women (Mullings & Schulz, 2006). This conceptualisation of multiple social identities forms the central premise of intersectionality theory, which is discussed in further detail in Section 2.4.1.

The terms ‘intersection’ and ‘interaction’ are often used interchangeably, the latter term more commonly used in quantitative studies exploring intersections by testing for interaction effects between variables (e.g. Dubrow, 2008; Sen et al., 2009; Veenstra, 2011). In statistical analysis, an interaction effect represents the conditional relationship between two or more variables as a function of an additional variable. An interaction effect can be said to exist when the association

between an independent variable and a dependent variable is moderated by a second independent variable. For example, an interaction effect between ethnicity and gender with poor health can be said to exist when the association between gender and poor health varies by ethnic group.

The terms ‘interaction’ and ‘intersection’ are both used throughout this thesis, to refer to the interdependent or conditional nature of the social constructs in question, as associated with health, in quantitative or qualitative contexts.

2.3 Historical review of social inequalities in health in the UK

Having clarified the key concepts which form the focus of this investigation, the following section presents a brief historical review of the key literature on social inequalities in health in the UK. Whilst much of the early literature focused on inequalities in life expectancy and mortality rates, the focus of the review will, where possible, relate specifically to subjective measures of health as defined above.

2.3.1 1830s: Chadwick and Engels

Concern with social inequalities in health has a long tradition in the UK, dating back over 150 years (Macintyre, 1997; Oliver, 2008). In the 1830s, an influenza and typhoid epidemic in London prompted the government to commission an independent report on the sanitary conditions of the working population of Great Britain. Conducted by the social reformer Edwin Chadwick and published in 1842, the report revealed stark inequalities in life expectancy between the social classes (Chadwick, 1842). In Liverpool, for example, the average age at death was 35 years for the gentry and professional people, 22 years for tradesmen and their families, and 15 years for labourers, mechanics and servants. Chadwick concluded that the burden of sickness and premature mortality among the lowest social classes resulted from the damp, filth and overcrowded living conditions in which they lived. It was also in 1842 that Friedrich Engels began his study of the working class population in Manchester. Documented in his book ‘The condition of the working class in England in 1844’, Engels highlighted the plight of the Irish immigrant working class population, whose poorer health he attributed to the impoverished conditions in which the majority lived (Engels, 1845). Engels’ work thus represents one of the earliest examples of ethnic inequalities in health documented in the UK (Davey Smith et al., 2000).

Dramatic improvements in population health have been achieved since Victorian times, notably with the passing of the Public Health Act in 1848 which led to marked improvements in sanitation (Rosen, 1993; Hamlin & Sheard, 1998). A century later, the National Health Service (NHS) was established, introducing universal health care for the first time to the UK (Oliver, 2008). Whilst the founding of the NHS was hoped to resolve health inequalities, it later became apparent that access to health care remained socially patterned, as illustrated in the writings of Titmuss (1968, p.196):

We have learnt from 15 years' experience of the [National] Health Service that the high income groups know how to make better use of the service; they tend to receive more specialist attention; occupy more of the beds in better equipped and staffed hospitals; receive more elective surgery; have better maternal care; and are more likely to get psychiatric help and psychotherapy than low-income groups, particularly the unskilled.

Reflecting these concerns, Tudor Hart hypothesised in his inverse care law that 'the availability of good medical care tends to vary inversely with the need for the population served' (Tudor Hart, 1971, p.405).

2.3.2 1970s: Black Report

Increasing concern with the persistence of social inequalities in health in Britain in the mid-1970s, in contrast to the improvements in health being made elsewhere, subsequently led the Labour government to commission a review of the evidence for inequalities in health between the social classes (Acheson, 1998). Chaired by Douglas Black³ and published in 1980, the Black Report documented marked differences in mortality and morbidity between the social classes for both men and women at all ages (Townsend et al., 1992). Self-reported rates of long-standing illness in England and Wales, for instance, were found to be three times as high among unskilled manual men and women as compared with their professional class counterparts⁴. Given the lack of national level data on morbidity outcomes at the time, the evidence presented for gender inequalities in health was based predominantly on mortality rates, demonstrating poorer outcomes for men across the ages.

Less than two pages of the Black Report were devoted to the topic of 'race, ethnicity and health', attributable perhaps to the lack of available data on ethnic minorities or, as asserted by Ahmad (1993), the marginalisation of 'race' in the health inequalities debate at the time. The

³ President of the Royal College of Physicians.

⁴ Data source: General Household Survey 1976 (Townsend et al., 1992, p.55).

report acknowledged the importance of racial inequality in contemporary Britain, highlighting evidence of racial discrimination in housing and employment experienced by ‘non-white’ minority groups. On this premise, the authors hypothesised that ethnic inequalities in health might therefore be expected, but concluded that further research was necessary to provide confirmation (Townsend et al., 1992).

A key component of the Black Report focused on establishing an understanding the association between social class and health in Britain (Townsend et al., 1992). In so doing, the authors put forward four theoretical explanations, namely: artefact; natural or social selection; materialist/structuralist; and cultural/behavioural. In summary, the artefactual explanation proposed social class differences in health to be the by-product of measurement errors or errors of definition. The natural or social selection explanation proposed that the upper classes were ‘made up by the strongest and most robust men and women in the population’ whilst the lower classes comprised the ‘weakest and most frail people’ (Townsend et al., 1992, p.105). Notably more indicative of a natural selection theory, this explanation essentially implied that class differences in health were genetically determined. The materialist/structuralist explanation claimed that economic and socio-structural factors shape the distribution of health between social classes. Finally, the cultural/behavioural explanation suggested ‘people harm themselves or their children by the excessive consumption of harmful commodities, refined foods, tobacco and alcohol, or by lack of exercise, or by their under-utilisation of preventive health care, vaccination, ante-natal surveillance or contraception’ (Townsend et al., 1992, p.110). Whilst the authors asserted that ‘in some respect each one of these approaches sheds light on the observed relationships between class and health in present-day Britain’, the materialist/structuralist explanation was put forward as the strongest contender (Townsend et al., 1992, p.104).

2.3.3 1980s: Health Divide

An update of the evidence on inequalities in health generated since the Black Report in 1980 was commissioned by the Health Education Council in 1986. The subsequent report, published in 1987 and later updated in 1992, confirmed the persistence of serious social inequalities in health throughout the 1980s (Whitehead, 1992). In line with the Black Report, social class inequalities in health formed the key focus of the review. For instance, data from the Health and Life-style Survey of 1986 found rates of fair or poor self-perceived health among men increased from 12 per cent in the professional class to 36 per cent in the unskilled manual class, with similar patterns reported when using income and education as measures of SEP (Blaxter, 1987). The same study demonstrated higher rates of ‘malaise’ (in other words, poor psychological

wellbeing) among the lower social classes, with socioeconomic gradients being steepest for middle aged women and older men.

In relation to gender inequalities in health, evidence to suggest that women's physical and mental health varies as a function of their SEP was highlighted in the review. A study of women living in south London, for example, found rates of depression to be three times as high among working-class women compared to professional-class women. The authors suggested this excess may stem from the greater social isolation experienced by women living in disadvantaged conditions (Brown & Harris, 1982). A later study using data from the 1985 and 1986 General Household Surveys found that health status is likely to be poorer among socioeconomically disadvantaged women than men, particularly among unemployed women living in local authority housing (Arber, 1991).

Evidence for ethnic inequalities in health was again shown to be limited, with data collection issues, such as the lack of information available on the health of British-born ethnic minorities due to the reliance on country of birth as a measure of ethnicity, reiterated in the review. Health outcomes were limited to mortality rates and health-related behaviours including smoking and alcohol consumption, with data mostly combined for men and women.

2.3.4 1990s: Acheson Report

In a renewed effort to tackle health inequalities, the Independent Inquiry into Inequalities in Health, more commonly known as the Acheson Report, was commissioned by the government and published in 1998. The aims of the report were to summarise the growing body of evidence on inequalities in health in England and Wales, identify trends, and recommend priority areas for future policy. The report concluded that 'inequalities by socioeconomic group, ethnic group and gender can be demonstrated across a wide range of measures of health and the determinants of health' (Acheson, 1998). The 39 recommendations put forward by the report were organised under key areas for future policy development, including income, education, employment, ethnicity and gender. However, the recommendations essentially addressed gender, ethnic, and socioeconomic inequalities in health as separate issues.

Looking firstly at the evidence for socioeconomic inequalities in health, the report highlighted marked social classes differences in psychological morbidity. For example, a study by Meltzer and colleagues (1995) found prevalence rates for neurotic disorders such as anxiety and depression to be more common among women in social classes IV and V (24%) than in classes I and II (15%), whilst the same pattern was not observed for men. Evidence from cohort studies

for educational inequalities in health was also cited, with findings for an association between low levels of educational achievement and poor adult health (e.g. Montgomery & Schoon, 1997; Bynner & Parsons, 1997). In relation to income inequalities in health, people with a household income of £200 or less per week were found to have significantly higher rates of self-reported long standing illness than those with a household income of £350 or more per week (Office for National Statistics, 1997).

With respect to gender inequalities in health, the report called into question the generalisation that women report higher rates of morbidity, given the recent evidence to suggest that gender differences in general health and were relatively modest and varied with age, whereas findings for a female excess in psychological distress were more consistent (Macintyre et al., 1996). Whilst the Acheson report highlighted the disadvantaged SEP of women and certain ethnic minority groups, it gave little recognition to ways in which gender and ethnicity might intersect to influence health.

Evidence for ethnic inequalities in health was cited from the Fourth National Survey of Ethnic Minorities (FNSEM) conducted between 1993 and 1994, demonstrating that people from ethnic minority groups were more likely to report having fair or poor health than the 'White' ethnic majority, with Pakistani and Bangladeshi groups reporting the poorest health (Nazroo, 1997a). The FNSEM also found that SEP (using a composite measure of material deprivation) explained some of the difference in health reported between ethnic groups (Acheson, 1998). One limitation to the FNSEM was in the inclusion of White ethnic minority groups within the 'White' majority category. The implications of employing such heterogeneous ethnic group categories becomes apparent where within-group differences in health remain untested. Notably, data from the 1991 census for Britain have revealed prevalence rates for long standing illness to be significantly higher for the Irish ethnic group compared to the 'White' majority ethnic group (Owen, 1995).

2.3.5 2000s: WHO Commission on Social Determinants of Health

The recent international focus on social inequalities in health promoted by the World Health Organisation (WHO) has also had an impact on the health inequalities agenda in the UK. In 2005, the WHO established the Commission on Social Determinants of Health (CSDH) to support countries worldwide address the social factors leading to ill health and inequities (WHO, 2011). Over the following three years the CSDH conducted a review of the evidence on what can be done to reduce health inequalities within and between countries and to present its

findings in a final report. Chaired by Michael Marmot⁵ and published in 2008, the CSDH final report concluded that social inequalities in health arise because of inequalities in the conditions of daily life and the structural drivers that give rise to them, namely inequities in power, money and resources (CSDH, 2008). Notably, the structural explanation advocated by the CSDH report highlights the significance of the materialist/structuralist explanation for health inequalities promoted some decades earlier by the Black Report.

2.3.6 2010: Marmot Review

In response to the CSDH final report, the Labour government commissioned an independent review, also chaired by Michael Marmot, to propose the most effective evidence-based strategies for reducing health inequalities in England from 2010. The subsequent report, known as the Marmot Review, highlighted the following key messages: ‘reducing health inequalities is a matter of fairness and social justice’; ‘there is a social gradient in health’; and ‘health inequalities result from social inequalities’ (Marmot, 2010, p.15). In addition, the review emphasised the pervasive nature of social inequalities in health, as illustrated in the following quote introducing the chapter on health inequalities:

In England, inequalities in health exist across a range of social and demographic indicators, including income, social class, occupation and parental occupation, level of education, housing condition, neighbourhood quality, geographic region, gender and ethnicity. Inequalities are evident in many health outcomes, including mortality, morbidity, self-reported health, mental health, death and injury from accidents and violence.

(Marmot, 2010, p.45)

Whilst appearing to take an all-encompassing approach, examples of ethnic and gender inequalities in health were somewhat lacking in the review. In addition, much of the evidence was based on life expectancy and mortality outcomes, reflecting the existing national health inequalities targets set by the Department of Health (2003).

In relation to socioeconomic inequalities in health, the review presented evidence for significant social gradients in morbidity as measured by limited long-term illness rates by both social class and educational attainment, with people positioned in higher SEPs reporting better health outcomes. Evidence for a social gradient in psychological wellbeing was also presented for

⁵ Director of the International Institute for Society and Health and Head of Department of Epidemiology and Public Health at University College London.

unemployment and household income level. With respect to unemployment, the review cited findings from a study of the British Household Panel Survey which demonstrated that transitions from paid employment to unemployment or long-term sick leave were associated with increased psychological distress among women and men (Thomas et al., 2005). With respect to household income, a social gradient in income quintiles was reported for psychological wellbeing among women, based on data from the 2001 and 2006 Health Surveys for England. The authors also commented on how the graded nature of the relationship between income and health demonstrates how ‘a person’s relative position in the social hierarchy is important for health’ (Marmot, 2010, p.76).

With regards to gender inequalities in health, the review described how there are ‘systematic gender inequalities in health outcomes’ and acknowledged that ‘Many of the consultation responses submitted to the Review documented particular exposures and discriminatory practices that compound existing socioeconomic disadvantage’ (Marmot, 2010, p.39). Evidence of gender inequalities in subjective measures of health were not, however, featured in the review. Similarly, with regards to ethnic inequalities in health, the review merely commented that, ‘While worse health outcomes for some ethnic groups are associated with their socioeconomic status, for others outcomes are worse than would be expected from their economic status’ (Marmot, 2010, p.39).

2.3.7 Implications for further research

Despite the apparent lack of evidence on social inequalities in subjective measures of health, the Marmot Review highlighted a number of important limitations in current policies aimed at reducing health inequalities in England. Firstly, the reliance on tackling ‘proximal causes’ of health inequalities, such as smoking, was criticised as having little effect on health inequalities, when efforts would be better directed upstream, ‘addressing the fundamental causes’, namely the social determinants of health (Marmot, 2010, p.86). Secondly, in relation to the focus on measuring inequalities in terms of life expectancy and infant mortality, the authors highlighted the need to include measures of health status and wellbeing across the life course. Thirdly, the authors stressed that existing targets do not capture ‘the more complex patterning of health associated with other groups (for example, ethnic groups)’, adding that ‘other inequalities intersect in important and complex ways with SEP in shaping people’s health status’ (Marmot, 2010, p.88). A further feature which stands out in the literature reviewed in the preceding sections is the predominance of research on socioeconomic inequalities in health over and above gender and ethnicity; a trend largely explained by the interests of the white, male, dominant social group traditionally topping the research agenda (Graham, 2007). Based on these gaps in

the current literature, an investigation into the intersections of gender, ethnicity, and SEP in health is clearly warranted and timely.

2.4 Intersectional research into social inequalities in health

The majority of mainstream research on social inequalities in health and wellbeing has to date employed a biomedical paradigm based on a positivist epistemology (Weber, 2006). Research within this paradigm typically aims to investigate the independent effects of different social inequalities, providing separate interpretations for each social construct. In studies which aim to combine social inequalities, an additive framework is commonly adopted, whereby the researcher assesses the accrual of disadvantage. Theoretical models put forward to explain the accumulative disadvantage have included the ‘double jeopardy’ and ‘triple jeopardy’ hypotheses (National Urban League, 1964; Dowd & Bengtson, 1978; Norman, 1985). To illustrate, in the triple jeopardy hypothesis, the perceived disadvantages associated with being, for example, female *and* from an ethnic minority group *and* unemployed, are treated as separate dimensions which are then added together to form a triple dose of disadvantage (Sherman & Schiffman, 1984).

Questions the additive framework does not easily address, however, include whether social inequalities *intersect* in the production of health? And if so, through what processes are these interactions generated and maintained? For example, the well-established literature on socioeconomic inequalities in health demonstrates that people positioned at the bottom of the socioeconomic hierarchy are worse off in terms of health outcomes than those higher up the hierarchy (Marmot et al., 1984; Davey Smith et al., 1990; Davey Smith & Egger, 1992; Adler, 1994; Adler & Ostrove, 1999). Far fewer studies, however, consider whether the burden of this inequality is borne equally between different gender and ethnic groups among the uneducated, unemployed, unskilled social class, or poor in a given society (Krieger et al., 1997; Macintyre & Hunt, 1997; Iyer et al., 2008; Graham, 2009).

2.4.1 Intersectionality theory

Intersectionality theory offers a promising direction from which to capture important insights into how multiple social inequalities shape the health of societies, communities and individuals (Weber, 2006; Hankivsky et al., 2010). Intersectionality can be defined as the ‘mutually constitutive relations among social identities’, whereby social identities interact to create specific meanings and experiences that cannot be explained by individual identities alone (Warner, 2008, p.454). As a theoretical framework, intersectionality examines the advantages

and disadvantages associated with categories of social identity *simultaneously*, and explores how these dimensions *interact* with one another. In contrast to additive frameworks such as the double and triple jeopardy hypotheses, intersectionality theory considers social constructs to vary as a function of each other. As illustrated in Cooper's example for gender and ethnicity, the way in which the social world is experienced will differ for men and women according to their ethnic group, and within ethnic groups according to their gender:

What it means to be a White woman will, for example, differ from a Bangladeshi woman who differentially experiences the status of 'woman' and 'minority' simultaneously in the context of paid employment, home and community life. At the same time, the lived experience of a Bangladeshi woman will not be the same as that of a Bangladeshi man owing to gendered socialisation and roles that are acceptable within the bounds of that ethnic group membership.

(Cooper, 2002a, p.5)

The term 'intersectionality theory' was first coined in the 1970's by Kimberlé Crenshaw, an American law scholar who recognised the colour-blindness of the US legal system and subsequent implications for 'women of colour' (Nash, 2008). Over the following 20 years, intersectionality became a central principle of Black feminist theory in the field of women's studies (Collins, 1990; McCall, 2005). The concept of intersectionality has, however, been traced back to the 1850s, as documented in the experiences of the Black women born into slavery (Bowleg, 2008; Lekan, 2009). As illustrated in Figure 2.5, Sojourner Truth, a Black woman abolitionist, preacher, and women's rights advocate, questioned the privileges afforded to wealthy White men and women in contrast to her own position as a Black female slave, in her address to a women's rights convention in 1851.

Figure 2.5 'Ain't I a Woman?' speech delivered by Sojourner Truth in 1851



Sojourner Truth (c.1864)

Source: US Library of Congress, Prints and Photos Division

Women's Convention in Akron, Ohio, 1851

Well, children, where there is so much racket there must be something out of kilter. I think that 'twixt the negroes of the South and the women at the North, all talking about rights, the white men will be in a fix pretty soon. But what's all this here talking about? That man over there says that women need to be helped into carriages, and lifted over ditches, and to have the best place everywhere. Nobody ever helps me into carriages, or over mud-puddles, or gives me any best place! And ain't I a woman?

Look at me! Look at my arm! I have ploughed and planted, and gathered into barns, and no man could head me! And ain't I a woman? I could work as much and eat as much as a man - when I could get it - and bear the lash as well! And ain't I a woman? I have borne thirteen children, and seen most all sold off to slavery, and when I cried out with my mother's grief, none but Jesus heard me! And ain't I a woman?

Then they talk about this thing in the head; what's this they call it? [member of audience whispers, "intellect"] That's it, honey. What's that got to do with women's rights or negroes' rights? If my cup won't hold but a pint, and yours holds a quart, wouldn't you be mean not to let me have my little half measure full? Then that little man in black there, he says women can't have as much rights as men, 'cause Christ wasn't a woman! Where did your Christ come from? Where did your Christ come from? From God and a woman! Man had nothing to do with Him. If the first woman God ever made was strong enough to turn the world upside down all alone, these women together ought to be able to turn it back, and get it right side up again! And now they is asking to do it, the men better let them.

Obliged to you for hearing me, and now old Sojourner ain't got nothing more to say.

Sojourner Truth (1851)

2.4.2 Applying intersectionality theory to health inequalities research

Proponents of intersectionality theory have recently called for its application to the investigation of inequalities in health (Weber & Parra-Medina, 2003; Weber, 2006; Mullings & Schulz, 2006; Cummings & Jackson, 2008; Iyer et al., 2008; Kelly, 2009; Scott-Samuel, 2010; Hankivsky et al., 2010). From a moral perspective, both intersectionality scholarship and health inequalities research are driven by the pursuit of social justice (Weber, 2006; Commission on Social Determinants of Health, 2008). The most recent review of health inequalities in England, for example, opens with the statement that ‘Reducing health inequalities is a matter of fairness and social justice’ (Marmot, 2010, p.16). Yet the way in which health inequalities are understood and addressed can itself have implications for social justice, as Iyer and colleagues (2008, p.21) contend:

Insufficient attention to intersectionality, in much of the health literature, has had, we believe, significant human costs, because those affected most negatively tend to be those who are poorest and most oppressed by gender and other forms of social inequality.

Similarly, Weber and Parra-Medina (2003, p.222) have warned that health inequalities are certain to persist, if not widen, without further research to build broader understandings of the social, cultural, economic and political processes of social inequality that influence the nature and extent of inequalities in health. In comparing intersectional and traditional positivist approaches to health inequalities research, they conclude:

On the one hand, intersectional approaches complicate the traditional models of health and illness by incorporating more dimensions, situationally specific interpretations, group dynamics and an explicit emphasis on social change. On the other hand, they provide a powerful alternative way of addressing questions about health disparities that traditional approaches have been unsuccessful in answering.

From a policy perspective, the findings from empirical research into the intersections of social inequalities in health may, in turn, lead to better targeted health and social policy where inequalities exist both between and within social groups (Sen et al., 2009).

2.4.3 Empirical evidence for intersections of social inequalities in health

Empirical studies incorporating an intersectionality framework to investigate social inequalities in health are beginning to emerge but remain relatively rare (Iyer et al., 2008; Iyer et al., 2010; Hankivsky et al., 2010). Explanations for this gap in the literature have included the dominance

of the biomedical paradigm in mainstream health research focusing on social inequalities as independent processes and the need for a more clearly defined intersectional methodology for researchers to employ (Weber, 2006; Nash, 2008). The following sections provide a review of the available evidence for intersections of social inequalities in health from the international and UK literature. In keeping with the scope of the current study, the review focuses predominantly on studies examining the intersections of gender, ethnicity, and SEP in measures of general health and psychological wellbeing among adults. Reviews of intersectional empirical research covering other dimensions of health and access to health care are available elsewhere (see Iyer et al., 2008; Hankivsky et al., 2010; Iyer et al., 2010).

2.4.3.1 International literature

A limited number of empirical studies using an intersectional approach to investigate social inequalities in health have recently been conducted in the United States (Zambrana & Dill, 2006; Martin, 2006; Jackson & Williams, 2006; Cummings & Jackson, 2008) and Sweden (Wamala et al., 2009). Cummings and Jackson (2008), for example, employed an intersectionality framework to explore changes in self-assessed health at the intersection of 'race', gender and socioeconomic status, using nationally representative survey data from 1974 to 2004. Based on a sample of 'Black' (n= 3,952) and 'White' (n= 23,698) adults, their analyses revealed significant three-way interaction effects for 'race', gender and education, and for 'race', gender and income, after having adjusted for age. The results for education showed that White male and female college graduates reported substantially higher ratings of health than their high school diploma counterparts, whereas Black male and female college graduates did not appear to share the same health advantage over their high school diploma counterparts. Thus as education level increased, Black men and women experienced lower returns to their health, compared to White men and women. The greatest disadvantage in health was found for Black female college graduates, who reported substantially lower ratings of health than White men and women and Black men at the lower education level of high school diploma. The findings for household income showed ratings of health increased with household income level for each 'race'-gender group, with the steepest gradient found for White women. At the highest level income, ratings of health were highest for White women, whereas Black women again reported the poorest health outcomes.

In response to the burden of poor health identified among Black women, a call for further research employing an intersectionality approach was made by the authors 'to better understand the ways in which multiple statuses may converge to shape the experiences, opportunities and life chances of vulnerable populations' (Cummings & Jackson, 2008, p.160). The study has

since received criticism for treating the ordinal outcome variable for self-assessed health (poor, fair, good, or excellent) as a continuous variable in order to employ the ordinary least squares regression method (Sen et al., 2009, p.413). Cummings and Jackson (2008), however, state that logistic regression analyses which treated self-assessed health as a binary variable produced the same general patterns unless otherwise indicated.

Wamala and colleagues (2009) conducted a similar study in Sweden to evaluate intersections of gender, ethnicity and SEP in a range of outcomes including self-rated health and psychological distress, using data from the Swedish National Public Health Survey of 2006. Based on a sample of 51,638 adults born in Sweden and 5,063 adults born outside of Sweden, their analyses identified significant three-way interaction effects for gender, ethnicity and household income, after having adjusted for age, family status, education level, employment status and long-term illness. The interaction analyses compared eight combinations of gender (men/women), ethnicity (born in Sweden/born outside of Sweden) and household income (high/low), with high income men born in Sweden representing the reference category.

The results for self-rated health, for example, showed that both men and women born outside of Sweden had a greater risk of poor health than men and women born inside Sweden. The patterning of income inequalities in health revealed the expected gradient among men born outside of Sweden, with low household income associated with significantly higher odds of poor health. However, among women born outside of Sweden the reverse pattern was found, with low household income associated with significantly lower odds of poor health. For psychological distress, the intersection of gender, ethnicity and income demonstrated a pattern of multiplicative disadvantage. The highest risk of psychological distress was therefore reported for low-income women born outside of Sweden, followed by their high income counterparts, followed by low income men born outside of Sweden, high income men born outside of Sweden, low income women born in Sweden, and so on.

The authors highlighted the need for future studies to simultaneously evaluate combinations of social constructs to provide an evidence base from which to build a better understanding of health inequalities and more effective strategies to tackle them. Key limitations to the study included the crude measure of ethnicity which failed to identify second generation migrants born in Sweden in addition to the countries of migrants born outside of Sweden. Furthermore, the survey materials were only available in Swedish, and therefore sampling was biased towards migrants proficient in the Swedish language.

A small number of studies have recently investigated intersections in social inequalities in health without explicitly employing an intersectionality framework. Almeida-Filho and colleagues (2004), for example, investigated inequalities in depressive disorder along the dimensions of gender, ethnicity, and social class⁶ in a representative urban sample of adults living in Bahia, Brazil. Based on a sample of White (n=340), Moreno⁷ (n=1047), Mulatto⁸ (n=364), and Black (n=472) adults, the authors identified a significant three-way interaction in prevalence of depressive disorder between gender, ethnicity, and social class. Among the upper-middle class group, none of the ethnic groups revealed a gender difference in depressive disorder, whereas among the working-class poor group, Moreno, Mulatto and Black women were significantly more likely to report depressive disorder than their male counterparts. By contrast, odds of depressive disorder did not show a significant gender difference among working-class poor Whites. A further significant three-way interaction was reported when the ethnic groups were collapsed into 'White' and 'non-White' groups. Here, odds of depressive disorder were found to be substantially higher among White and non-White working-class poor women compared to upper-middle class women, whereas no class differences were reported among White and non-White men. One explanation put forward by the authors for the excess risk of depressive disorder among females was the effects of role overload and role conflict among working women who also hold primary responsibility for the household chores and child care, which in turn may vary between cultural groups (Almeida-Filho et al., 2004, p.1350).

A further two studies conducted in Catalonia, Spain, have examined interactions between gender, social class and place of origin with self-assessed health (Borrell et al., 2008; Malmusi et al., 2010). Based on a sample of adults born in Catalonia (n=3,106), migrants from other regions of Spain (n= 946) and migrants from countries outside of Spain (n=162), Borrell and colleagues (2008) found a significant interaction between migration status, social class, and gender with poor health. After adjusting for age and marital status, women in the highest social class (owners, manager, supervisors and professionals) who originated from other areas of Spain reported significantly worse health than their Catalonia born counterparts. This pattern was found to hold after further adjustment for working conditions, material deprivation at home and household labour. In the second study, based on more recent population survey data from Catalonia, Malmusi and colleagues (2010) found both male and female migrants from poorer

⁶ Social class was measured at the household level and based on the head of household's occupation and education level. Upper-middle class families were represented by university or high school education and an occupation as an employer or employee in a permanent formally contracted job. Working class families were represented by elementary school education and an occupation as self-employed, in stable work or unemployed.

⁷ Defined as 'a light-brown skinned person of mixed 'race' with facial features neither distinctly African nor European'.

⁸ Defined as 'a medium-brown and dark-brown skinned person of mixed 'race''.

areas of Spain were significantly more at risk of poor health than their Catalan born counterparts, after having adjusted for age. This excess risk was reduced and became non-significant after adjusting for measures of SEP (social class, material assets, individual income, and economic status) among males, but remained significant among females.

2.4.3.2 UK literature

Empirical research on social inequalities in health from an intersectionality perspective has yet to become established in the UK. A growing awareness of its value to health inequalities research is, however, emerging in the academic community (Scott-Samuel, 2010). The limited number of studies that have considered the intersection of social inequalities in health have not explicitly adopted an intersectionality framework, and have focused predominantly on the dimensions of gender and SEP (Popay et al., 1993; Arber, 1997; Matthews et al., 1999; Emslie et al., 1999; Griffin et al., 2002; Drever et al., 2004).

In the earliest of these studies, Popay and colleagues (1993) examined the intersection of gender and SEP⁹ (as measured by social class, employment status and household income) in affective disorder, based on samples of adults (aged 18-39 and 40-59) from the Health and Lifestyles Survey (Blaxter, 1990). Rates of affective disorder (as measured by the 30-item General Health Questionnaire) were found to be significantly higher among women compared to men in both age groups. After adjusting for limiting long-standing illness, a significant interaction between gender and employment status in affective disorder was identified among the older age group. Specifically, older unemployed men were found to report markedly high rates of affective disorder compared to older full-time employed men. By contrast, older unemployed women reported only marginally higher rates of affective disorder than their full-time employed contemporaries. The categories for part-time employment and housewives were, however, excluded from the analysis due to the absence of men in these categories. The authors concluded that the overall female excess in affective disorder could not be fully explained by gender differences in the relationship between SEP and psychological wellbeing. They suggested that the excess may in part reflect the concentration of women in SEPs associated with greater psychological morbidity, such as being housewives and working part-time, and highlighted the need to consider the 'possible interactions between formal and domestic labour in women's lives' (Popay et al., 1993, p.31).

⁹ Social class was measured at the individual level for single women and allocated on the basis of their husband for married women. Employment status was measured at the individual level for women and men and income was measured at the household level.

In a more recent study based on data from the 2001 census, Drever and colleagues (2004) found that the gender gap in self-reported general health varied by social class, as measured by the National Statistics Socio-economic Classification (NS-SEC). The greatest gender difference was reported within the higher managerial and professional social class, where rates of 'not good health' for women were over 25 per cent higher than their male counterparts. Within gender groups, the findings also revealed slightly larger class differences in health for men than women, where the rate ratio of 'not good health' between the higher managerial and professional social class and routine social class was 2.7 for men and 2.2 for women.

An implication of treating men and women as homogeneous social groups is that within-group variations in health related to other dimensions of social inequality, such as ethnicity, are essentially unaccounted for (Walters, 1993; Iyer et al., 2008). The same argument holds true for research which fails to account for gender variations within socioeconomic or ethnic inequalities in health, and for socioeconomic variations within gender and ethnic inequalities in health. For researchers examining social inequalities in health in an ethnically diverse society such as the UK, the need to simultaneously address gender, socioeconomic *and* ethnic inequalities is an increasingly important issue.

2.5 Chapter Summary

This chapter has presented the background to the current study by firstly defining the key concepts under investigation. In essence, the understanding of social inequalities in health advocated in this thesis conceives dimensions of social inequalities (such as gender, ethnicity, and SEP) to represent 'dynamic elements of social structures' rather than 'stable attributes of individuals' (Graham, 2007, p.36). Furthermore, the term 'health' is used to refer to the subjective experience of health captured by the self-assessed measures of general health, health-related quality of life, and psychological wellbeing, as commonly employed in population surveys.

The historical review of the key literature on social inequalities in health in the UK demonstrates the persistence of SEP, gender, and ethnic inequalities in health dating from the 1830s to the present decade. Notable features highlighted in this literature include: the setting of health inequalities targets focused primarily on measures of mortality rather than subjective health; the predominance of research on socioeconomic inequalities in health over and above gender and ethnic inequalities; and the tendency for social inequalities to be treated as discrete rather than intersectional processes.

The theory of intersectionality is put forward as a promising direction from which to capture important insights into how multiple social inequalities may operate to shape subjective health, based on the premise that dimensions of social inequality are mutually constitutive. Empirical studies incorporating an intersectionality framework to investigate social inequalities in health are beginning to emerge in the international literature, typically utilising data sets large enough to enable the testing of two- and three-way interaction effects between gender, ethnicity, and SEP in health.

The volume of literature on intersections of gender, ethnicity, and SEP in health within the UK context is, however, considerably limited. In light of this issue, the following chapter presents the findings from a systematic review of the UK literature to identify the evidence on how gender, ethnicity, and SEP influence and potentially intersect with self-reported general health and psychological wellbeing in the UK adult population.

Chapter 3 Systematic Review of the UK Literature

3.1 Introduction

The study of social inequalities in health from an intersectionality perspective has received increasing attention in the international literature in recent years (Weber & Parra-Medina, 2003; Schulz & Mullings, 2006; Sen et al., 2009). Research in the UK literature has by contrast been far less prolific, reflecting a tendency to treat dimensions of social inequality as separable rather than intersecting constructs (Sen et al., 2009). Given the relative infancy of intersectionality research in health in the UK, a systematic review was conducted to identify the patterning of social inequalities in health and explore the potential for intersections of social inequalities with health.

3.1.1 Review objective

The objective of the systematic review was specifically to examine the evidence from the quantitative, qualitative, and mixed methods literatures for associations and intersections of gender, ethnicity, and socioeconomic position with self-reported general health and psychological wellbeing in the UK adult population.

3.1.2 Methodology

The review incorporated an emerging methodology designed for the concomitant examination of quantitative, qualitative, and mixed methods studies, known as ‘mixed studies reviews’, ‘mixed methods systematic reviews’, and ‘mixed approaches to synthesis’ (Pope et al., 2007; Pluye et al., 2009; Hemingway & Brereton, 2009). This approach was employed alongside well-established guidelines for conducting systematic reviews in health care (Centre for Reviews and Dissemination, 2009). Full details of the specific methods used are outlined below.

3.2 Methods

3.2.1 Search strategy

A comprehensive search strategy was developed in consultation with an information scientist from the University of Sheffield. The search strategy incorporated an initial scoping exercise

followed by a series of complementary search methods, including databases searches, hand searches, and ancestry and citation searches. Details of each method are described below.

3.2.1.1 Scoping exercise

The scoping exercise was performed to enhance the sensitivity and specificity of the literature search (EPPI-Centre, 2008) and to fully exploit the range of advanced search facilities built into the different bibliographic databases. A list of search terms were generated for the key concepts under review, as illustrated in Table 3.1. This was achieved by conducting a scoping search on the databases and identifying the most popular keywords indexed in the studies meeting the inclusion criteria for the review.

Table 3.1 Literature search terms

Concept	Literature search terms
Gender	gender, men, women.
Ethnicity	ethnic*, minorit*, race, racial, immigrant*, migrant*.
Socioeconomic position	socioeconomic, [socio-economic], social class, education, income, employment, and social inequalit*.
General health	assessed health, rated health, reported health, global health, life satisfaction, quality of life, morbidity, EQ-5D, SF-36, SF-12.
Wellbeing	wellbeing: wellbeing, [well-being], [well being]; general health questionnaire, GHQ 12.

Notes: *: truncation for alternative word endings; [...]: alternative spellings.

3.2.1.2 Literature searches

A comprehensive search of the published and unpublished UK literature was performed using bibliographic databases, selected journals, and grey literature sources. The literature searches were conducted between July and December 2008. The review was later updated by running searches of the bibliographic databases for the period of July 2008 to May 2010. This update retrieved one additional study which has been incorporated into the current findings.

(i) Bibliographic databases

Searches of the published literature were performed using the following bibliographic databases from the relevant disciplines of health and social science: MEDLINE; EMBASE; ASSIA; SSCI; Econlit; PsycINFO; and the Cochrane Library. A search of the Copac library catalogue was also performed to identify relevant books held in the UK library collections. Specific search

strategies were devised for each database using a combination of: free text search terms (identified in the scoping exercise); medical subject headings (MeSH); mapped terms; and thesaurus terms, where available. Searches were restricted to the titles, keywords, and abstracts of English language publications where search limiters were provided. Full details of the databases and search strategies are reported in Appendix A.1, A.3 - A.10.

(ii) Selected journal hand search

Hand searches of key journals were performed to identify further relevant studies missed in the bibliographic database searches due to inaccurate indexing, time lags in updates, or mismatches with the search strategy (NHS CRD, 2001). Copies of the *Journal of Epidemiology and Community Health*, *Social Science and Medicine*, and *Ethnicity and Health* from the previous five years (2003-2008) were selected for the hand search.

(iii) Grey literature sources

A search of the grey literature was conducted to identify relevant unpublished works such as theses, reports, and on-going research projects. The databases of grey literature selected for the search included:

- Index to Theses;
- Health Management Information Consortium;
- Turning Research into Practice;
- NHS Specialist Library: Ethnic Minority Health; and
- Google Scholar web search engine.

Due to the less sophisticated search facilities available in the above sources, broader search strategies based on the literature search terms identified in the scoping exercise were employed. Full details of the grey literature sources and search strategies are reported in Appendix A.2, A.11-A.15. A search of the author's personal reference collection was also conducted at this stage of the review.

3.2.1.3 Study selection

The collection of references retrieved from the literature searches was carefully examined to identify all references meeting the inclusion criteria for the review. Full details of this procedure are outlined below in Section 3.2.2.

3.2.1.4 Ancestry and citation searches

Following the study selection phase, ancestry and citation searches were performed, where possible, on each of the studies selected for inclusion in the review. The ancestry searches were conducted by checking the reference list of each study for relevant earlier works. The citation searches were performed using the Science Citation Index Expanded (1900 to Nov 2008) and Social Science Citation Index (1956 to Nov 2008) to identify further relevant works citing the original studies. These searches were repeated for subsequent relevant studies identified from the ancestry and citation searches.

3.2.1.5 Reference management

All references retrieved from the searches were entered into a reference database using the software package Reference Manager® (Version 11). The final collection of references was then carefully examined to remove entries containing duplicate references.

3.2.2 Study selection

Studies retrieved from the literature searches were selected for inclusion into the review if they were published in the English language and met each of the criteria, (i) to (iv), set out below.

(i) Participants

Eligible participants were required to be: men and/or women aged 16 years or older; sampled from the general population; living in the United Kingdom; and defined as belonging to one or more ethnic minority groups. Data from participants belonging to an ethnic majority group (e.g. White British) were also included when reported alongside data for an ethnic minority group. Regarding the classification of ethnicity, studies focusing solely on minority groups defined as ‘non-White’ or ‘other’ were excluded due to the likelihood of ethnic heterogeneity within such broad categories (Aspinall, 1997).

Studies sampling participants characterised by specific health-related conditions or behaviours (e.g. patient groups, menopausal women, smokers) were excluded to avoid potential confounding. Similarly, samples comprising an occupational group were excluded due to the risk of confounding from the healthy worker effect (Bailey et al., 2007).

(ii) Exposure variables

Socioeconomic position (SEP) was the main exposure variable of interest. Studies were required to measure one or more of the following indicators of SEP at either the individual or household level: education level; employment status; social class; income level; housing tenure; household amenities; car access/ownership; or standard of living. Area-level measures of SEP, such as the Townsend Deprivation Index (Townsend et al., 1988), were excluded due to problems in comparability between area-level and individual-level measures of SEP (Geronimus, 2006).

(iii) Outcome measures

The two outcomes of interest were self-reported general health and psychological wellbeing. Studies were required to include at least one measure of general health or psychological wellbeing as a main outcome variable. Examples of the eligible measures of general health and psychological wellbeing included: the EuroQol EQ-5D (EuroQol Group, 1990); the 36-item and 12-item short-form health surveys (Ware et al., 1993; Ware et al., 1995; Jenkinson et al., 1996); the Present State Examination (Wing et al., 1974); the 12-item and 28-item General Health Questionnaires (Goldberg & Williams, 1988); the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983); the Revised Clinical Interview Schedule (Lewis et al., 1992); and single item measures of global health and psychological wellbeing. Broader measures of quality of life, wellbeing, social health, functional ability and disease-specific measures were beyond the scope of this review, and therefore excluded.

(iv) Study design

Eligible studies were required to have employed one of the following types of research design: systematic review; meta-analysis; cross-sectional study; cohort study; mixed methods study; or qualitative study.

Narrative literature reviews were excluded from the review after being screened for relevant original studies cited within. Similarly, editorial and methodological papers were excluded but, where relevant, used to inform the background to the thesis. Conference abstracts were also excluded due to the difficulty in obtaining further information within the timeframe of the review.

3.2.2.2 Study selection process

The titles and abstracts of all studies retrieved in the searches were assessed against the inclusion and exclusion criteria using the series of questions outlined in Figure 3.1 below. This sequential process was designed such that narrative reviews of relevance to the research topic and background literature could be easily identified. For qualitative studies, the wording of the criteria were modified to: Q:5 Does the study explore the concept of general health or psychological wellbeing?; and Q:6 Does the study explore the concept of socioeconomic position?

Figure 3.1 Sequential application of inclusion and exclusion criteria

Q:1	Is the study population based in the UK?	No	⇒	Exclude study
		Yes	⇒	Next question
Q:2	Does the study employ a general population sample?	No	⇒	Exclude study
		Yes	⇒	Next question
Q:3	Does the study report the findings for an ethnic minority group?	No	⇒	Exclude study
		Yes	⇒	Next question
Q: 4	Is the study population aged 16 years or above?	No	⇒	Exclude study
		Yes	⇒	Next question
Q:5	Does the study include an eligible measure of general health or psychological wellbeing as a main outcome variable?	No	⇒	Exclude study
		Yes	⇒	Next question
Q:6	Does the study include an eligible measure of socioeconomic position as a main exposure variable?	No	⇒	Exclude study
		Yes	⇒	Next question
Q:7	Does the study employ an eligible research design?	No	⇒	Exclude study
		Yes	⇒	<u>Include study in review</u>

3.2.2.3 Multiple publications from the same data

Exclusion of multiple publications presenting the same findings has been recommended when undertaking a systematic review (NHS CRD, 2001). Whilst this is of particular importance for reviews incorporating a meta-analysis (Egger & Smith, 1998), the duplication of findings within other forms of data synthesis arguably risks misleading the reader and introducing bias.

In the current review eligible studies were checked to identify any multiple publications. Where multiple publications comprised findings from theses and subsequent journal publications, the published (or peer-reviewed) version of the study was selected. Where multiple publications comprised findings in journal articles that were subsequently published in book chapters, the earliest peer-reviewed publication was selected.

3.2.3 Critical appraisal

All studies meeting the inclusion criteria for the review were critically appraised to provide an assessment of their methodological quality. Separate methods of assessment were applied to the quantitative, qualitative and mixed methods studies to accommodate the differences in methodology and study design (Pluye et al., 2009).

3.2.3.1 Critical appraisal of quantitative studies

The quantitative studies were appraised for internal and external validity using a 20-item checklist (see Appendix A.16). The checklist was developed from two established critical appraisal tools: the Critical Appraisal Skills Programme '12 questions to help you make sense of a cohort study' (CASP, 2004); and the Scottish Intercollegiate Guidelines Network 'Methodology checklist 3: cohort studies' (SIGN, 2004). The reliance on cohort-specific tools was due to the scarcity of available checklists for cross-sectional study designs. Generic items relevant to cross-sectional designs were selected from the tools and adapted to reflect the topic under review. A further three items examining the measurement of ethnicity, were incorporated into the checklist.

3.2.3.2 Critical appraisal of qualitative studies

The qualitative studies were appraised for rigour, credibility, and transferability using a 12-item checklist (see Appendix A.18). The checklist was adapted from the CASP tool - '10 questions to help you make sense of qualitative research' (CASP, 2006), with a further two items added to evaluate the classification of ethnic groups.

3.2.3.3 Critical appraisal of mixed methods studies

Guidelines for the evaluation of mixed methods research recommend that studies are appraised against quantitative, qualitative and mixed methods quality criteria (Creswell & Plano Clark, 2007). Therefore, the critical appraisal checklists for quantitative and qualitative studies were employed to appraise the quantitative and qualitative components of mixed methods studies included in the review. In addition, the mixed methods studies were assessed against a short 5-item mixed methods critical appraisal checklist (see Appendix A.20), adapted from the quality standards put forward by Creswell and Plano Clark (2007).

3.2.3.4 Quality assessment

The three checklists were completed by selecting 'yes', 'no', 'unclear', or 'not applicable' for each item. A score of '1' was given for each 'yes' rating and a score of '0' for each 'no' or 'unclear' rating. The total score for each study was then converted into a percentage for the number of applicable checklist items rated 'yes'. Supporting notes were provided for each checklist item and used to inform the decision process and ensure consistency (see Appendix A.17, A.19 & A.20 for details).

Given the rudimentary nature of the scoring system and the reliance on one reviewer, the quality assessment was not employed as tool to exclude studies of poor methodological quality. Rather, it was used to assess the variability in methodological quality across the studies included in the review and to highlight areas for improvement in future research.

3.2.4 Data extraction

Studies meeting the inclusion criteria for the review were systematically examined to retrieve all information of relevance to the review objective and quality assessment. This process was facilitated through the use of data extraction forms, set up as spreadsheets in Microsoft Excel[®], thus enabling the tabulation of results within study designs. The forms comprised a series of variables recording information under the following headings: (1) study identification; (2) quality assessment; (3) study characteristics; (4) study results; and (5) additional notes.

3.2.5 Data synthesis

The data extracted from the studies included in the review were analysed using narrative synthesis, a framework of methods applicable to the synthesis of both quantitative and

qualitative data (Pope et al., 2007) and commonly used in mixed studies reviews in health science (Pluye et al., 2009). Narrative synthesis primarily employs a textual approach to summarise and explain the findings of multiple studies (Popay et al., 2006). This method was considered the most appropriate given the mix of quantitative and qualitative data, and given the range of outcomes reported in the quantitative data making a meta-analysis impractical.

In the preliminary synthesis, the studies were firstly grouped according to research design, with the quantitative and qualitative evidence summarised separately¹. Tables of the key characteristics were presented for each set of studies. The quantitative results of interest were tabulated to show the direction and size of effects for each study, whilst the qualitative findings were synthesised using a thematic analysis. In the second stage of the synthesis, the quantitative and qualitative findings from the studies were integrated to explore how the evidence as a whole addressed the review objective. To achieve this, a series of concept maps were developed to illustrate both the associations and intersections of gender, ethnicity, and SEP with general health and psychological wellbeing.

3.3 Description of the studies

3.3.1 Study selection

The literature search identified a total of 9,794 references from which 24 studies were selected for inclusion in the review. A flowchart of the study selection process is provided in Figure 3.2. Following the identification and exclusion of duplicate references (n=2,573), the titles and abstracts of the remaining 7,212 references were screened against the inclusion/exclusion criteria. The full papers of references meeting the inclusion criteria were then examined to confirm eligibility and to check for multiple publication status.

3.3.1.1 Studies included in the review

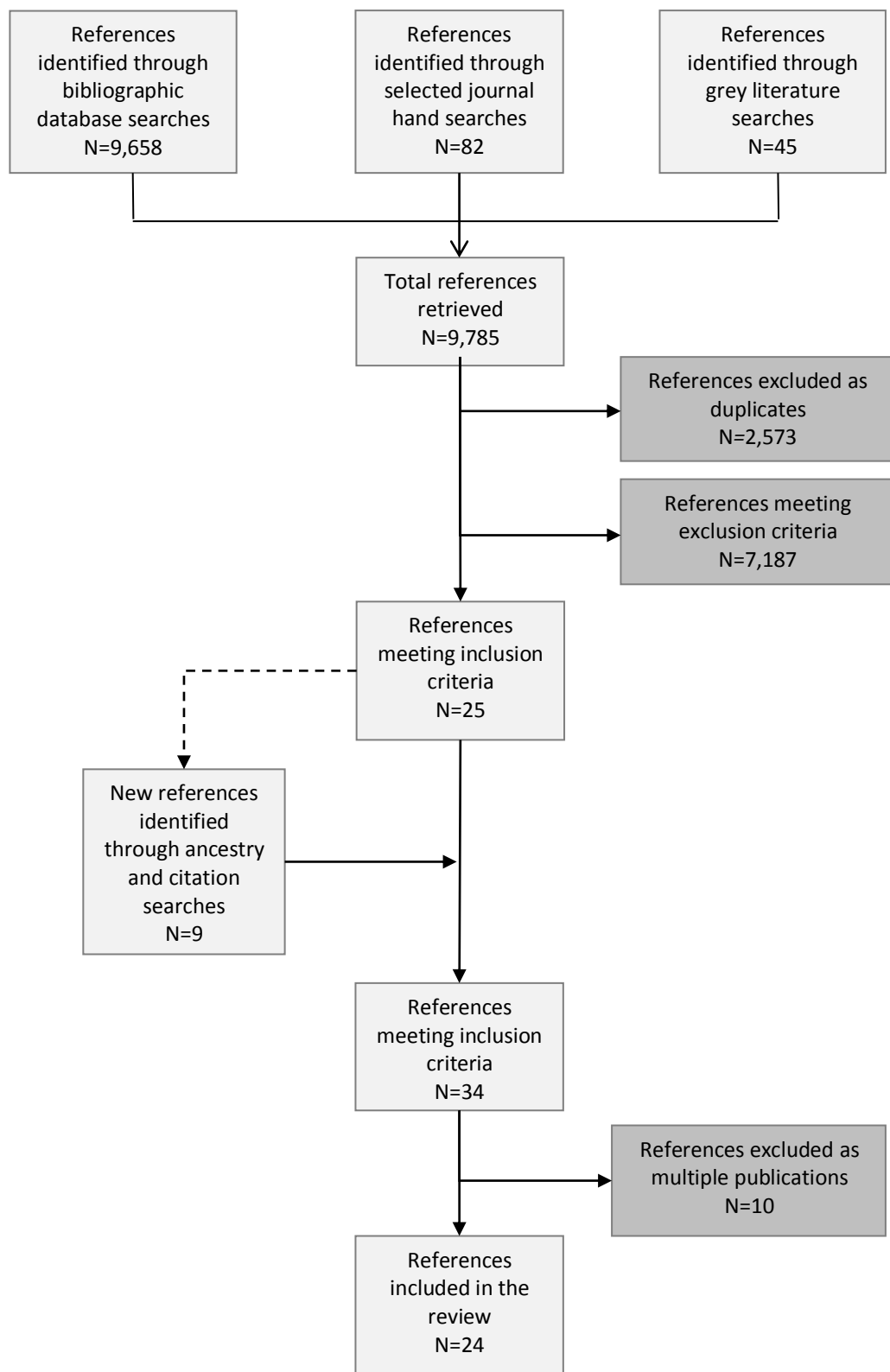
The final selection of 24 studies comprised references originating from each of the literature search methods. Eleven of the studies were retrieved from the bibliographic database searches, one from the hand search, five from the grey literature searches including one from the researcher's personal collection, and a further seven from the ancestry and citation searches. The results thus illustrate the benefits of employing a combination of different search methods. Bibliographical details of the 24 studies are listed at the end of this chapter in Table 3.13.

¹ Data from the quantitative and qualitative components of the mixed methods studies were incorporated into the relevant quantitative and qualitative groupings.

3.3.1.2 Studies excluded from the review

A total of 7,187 studies were excluded from the review based on the sequential exclusion criteria set out in Section 3.2.2. Studies conducted outside the UK accounted for 95% (n=6,824) of those excluded. Of the remaining 363 UK studies, 126 were excluded for not employing a general population sample, 37 for not reporting results for an ethnic minority group, and 16 for not reporting findings for participants aged 16 years or above. A further 116 studies were excluded for not including an outcome measure of interest, 53 for not including an exposure measure of interest, and 15 for not adopting an eligible research design. Of the 34 studies meeting the inclusion criteria for the review, ten were identified as multiple publications and subsequently excluded.

Figure 3.2 Flow diagram of the study selection process



3.3.2 Study characteristics

The 24 studies included in the review were published between 1981 and 2009 and comprised 19 quantitative studies, two qualitative studies, and three mixed methods studies. To facilitate a comparative description of the study characteristics and findings, the studies have been grouped according to quantitative or qualitative design in the following sections. The quantitative and qualitative components of the mixed methods studies have been incorporated in the quantitative study and qualitative study sections below and are identified in the tables by the acronym 'MM'.

Reference to the studies in the text is made numerically using the study identification number, as listed in Table 3.13 on page 93. For example, the study by Cochrane & Stopes-Roe (1981) appears as [1] and the study by Fenton et al. (1995) appears as [4]. Frequencies are presented in text form (e.g. eleven studies) to avoid confusion with study identification numbers.

3.3.2.1 Quantitative study characteristics

The key characteristics of the quantitative studies included in the review are described below and summarised in Table 3.2.

(i) Design

The quantitative studies were all cross-sectional in design. Fourteen of the studies employed national-level survey data, with sample sizes ranging from 1,824 to over 13,000 participants. These surveys included the Fourth National Survey of Ethnic Minorities (FNSEM) [6, 7, 10, 13, 14, 17], the Health Survey for England (HSE) [11, 12, 16, 17, 22], the Ethnic Minority Psychiatric Illness Rates in the Community (EMPIRIC) [15, 19], and the National Psychiatry Morbidity Survey of Great Britain [5]. The remaining eight studies collected regional-level data from community samples ranging from 113 to 673 participants in size [1-4, 8, 9, 20, 21].

(ii) Gender groups and age range

The studies sampled both male and female participants, with the exception of two studies which only included men [3, 14]. With respect to age, the studies most commonly employed samples of adults aged from 18 (± 2 years) to 60 (± 5 years), whilst two of the studies focused specifically on older adults aged 55 years or above [9, 18].

(iii) Ethnic groups

Ethnic group coverage and sample size varied across the studies. Samples of Pakistani [1, 3-7, 9-19, 21, 22], Indian [1, 4-7, 10-19, 21, 22], Bangladeshi [3-7, 9-19, 22] and Black Caribbean [4-7, 11-19, 21, 22] participants were included in the majority of studies. Ten of the studies incorporated a Chinese² sample [5-7, 11, 13, 16-18, 20, 22] and only three studies included a Black African [5, 9, 18] or an African Asian [6, 7, 17] sample. Participants of 'Black other' ethnicity were included in two studies [5, 18], whilst participants defined as Greek-Cypriot [2], South Asian [8], White minority [16], mixed [18] and 'other' [18] ethnicity were included in single studies. Coverage of the Irish ethnic group was more difficult to establish. Whilst five of the studies identified Irish participants as a separate ethnic group [11, 15, 17, 19, 22], two of the studies combined Irish participants with White British and 'White other' participants [6, 7]. A further seven studies did not clarify whether the White/general population sample included Irish participants or not [5, 8-10, 12, 14, 21]. A White or general population reference group was employed in seventeen studies [1, 5-12, 14-19, 21, 22]. A further study used comparative data from the ethnic group population living in the country of origin [20], whilst the remaining four studies did not incorporate a reference group in their analyses [2-4, 13].

Analyses of combined samples of ethnic groups were employed in eight of the studies. The most frequent combinations were of samples of Pakistani, Bangladeshi and Indian participants [3, 10, 13, 14, 21]. In one study Black Caribbean, Black African and 'Black other' participants were combined into an 'Afro-Caribbean/African' group, whilst Indian, Pakistani, Bangladeshi and Chinese participants were combined into an 'Asian/Oriental' group [5]. The implications of using combined ethnic group samples in studies of health inequalities are raised in Section 3.3.3.1 on Quality assessment and addressed in the discussion in Section 3.5.

(iv) SEP indicators

A range of indicators of SEP were employed in the studies, the most common being social class, followed by employment status, income level and education level. Other indicators included housing tenure, standard of living, economic activity, car access/ownership and household amenities. Sixteen of the studies measured SEP using a combination of indicators whilst the remaining six used a single indicator. As illustrated below, considerable variation in the measurement of each indicator of SEP was found between studies.

² Chinese samples were included in a further two studies [6, 7] but were too small to include in the analyses exploring socioeconomic factors.

Six studies [1, 5-7, 11, 22] measured social class using the British Registrar General's Scale (General Register Office, 1971), two studies [10, 18] used the recently developed National Statistics Socio-Economic Classification (NS-SEC) (Office for National Statistics, 2005), one study [2] used the Hope-Goldthorpe scale (Goldthorpe & Hope, 1974), and another study [12] used the Socio-Economic Group classification (Office for National Statistics, 2009). A further four studies [4, 13, 15, 19] used unspecified measures separating non-manual and manual workers, with three of these studies including an 'other' or 'no full-time worker' class.

Further variation occurred between the studies in the choice of class groupings used for the social class measures. For example, a six-level classification of the Registrar General's Scale (I, II, III_{nm}, III_m, IV, V) was employed in one study [5], whilst a three-level classification (non-manual, skilled-manual, semi/unskilled manual) was employed another study [1]. A further three studies [6, 7, 11] used the two-level version (non-manual, manual) with two of those studies adding a 'no full-time worker' category to this [6, 7].

Household-level social class was reported in nine of the studies [1, 4-7, 11, 13, 15, 19] whilst the remaining five studies reported social class at the individual level [2, 10, 13, 18, 22]. Among the studies reporting household-level social class, female participants were assigned the social class of their husband, partner or father in five of the studies [1, 5-7, 13]. In the remaining four household-level studies and in all individual level studies, female participants were assigned a social class based on their own occupation where available.

Eleven of the studies included employment status as an indicator of SEP [2-5, 12, 14-17, 19, 20]. With the exception of two studies, which used a simple employed/unemployed classification, a different measure of employment status was used by each study. For example, in one study employed participants were divided into employee and self-employed groups, whilst in another they were divided into full-time and part-time employment groups.

Three measures of education level were used in the studies, namely: highest educational qualification; completed level of education; and school leaving age. Six of the studies [12, 14, 15, 17, 19, 22] used a highest educational qualification measure but differed both in the number and grouping of qualifications reported. Two of the studies used a completed level of education measure, with one of the studies using a three-level variable (primary; secondary/college; and University/graduate) [20] and the other study using a two-level variable (secondary or below; above secondary) [21].

A range of different measures of household income level were included in the studies, including weekly household income in four studies [6, 9, 14, 17] and annual household income in another four studies [11, 16, 18, 22]. For the weekly and annual household income measures, equivalised income was used in four studies [6, 11, 16, 22] and gross income in one study [14].

A further four indicators of SEP were incorporated in the studies. These included housing tenure, household amenities, car access, and standard of living. Housing tenure was measured in five of the studies [6, 15, 16, 19, 21] by distinguishing participants who owned (or were buying) their homes from those who rented (or who were part renting and part buying) their homes. A measure of household amenities (i.e. presence of central heating; house often too cold in the winter; house is too expensive to keep warm in the winter) was included in one study [4] and car access (measured by car ownership) was included in one study [21].

Four of the studies included a composite indicator for standard of living or material deprivation [6, 8, 10, 12]. A standard of living index (rated: poor, medium, or good) in two studies combined measures of overcrowding, household amenities, consumer durables and car access [6, 10]. In one study an index (rated: low to high) was measured using household income, car ownership and consumer durables [8], whilst in another study a material deprivation index (scored: 0 to 5) measured the absence of central heating, a telephone, car access, home ownership, and the receipt of income support [12].

(v) Outcomes

Eleven of the studies [4, 6, 10-13, 15,16, 18, 21, 22] reported outcomes for self-reported general health and fourteen of the studies reported outcomes for self-reported psychological wellbeing [1-3, 5, 7-9, 11, 14, 15, 17, 19-21].

Self-reported general health was assessed using a single-item measure. Three different types of single-item measures were identified among the studies. In one of the studies the measure incorporated an age reference frame [4]: ‘Would you say that for someone of your age your own health in general is: excellent, good, fair, poor?’ In another two studies the measure incorporated an age and a time reference frame [6, 10]: ‘Please think back over the last 12 months about how your health has been. Compared to people your own age, would you say that your health has on the whole been: excellent, good, fair, poor, or very poor?’ In a further two studies neither an age nor a time reference frame was used [12, 16]: ‘How is your health in general? Would you say it was: very good, good, fair, bad or very bad?’ The wording of the single-item measure used in the remaining five studies was not reported [11, 13, 18, 21, 22].

As illustrated above, the measures also varied in the number and choice of response categories provided. For instance, a four-level response scale (excellent, good, fair, or poor) was employed in one study [4], whilst three different types of five-level response scales were employed in the remaining studies. The response scales in all eleven studies were dichotomised into a binary outcome. For eight of the studies the response scales were split at the 'good' versus 'fair' levels [6, 10, 12, 13, 16, 18, 21, 22]. In another study the authors chose to compare the 'very good' and 'good' responses against the 'bad' and 'very bad' responses whilst omitting all 'fair' responses [11]. In addition to the single item measure, one study used the Short Form 36 health survey (SF-36), a multi-dimensional measure of health status [18]. Here, the authors focused on the general health item of the scale, reporting the proportion of participants who rated their health as good [18].

Outcomes for self-reported psychological wellbeing included a wide range of standardised and non-standardised measures. Of the standardised measures, the most popular were the 12-item General Health Questionnaire (GHQ-12) employed in four of the studies [3, 8, 11, 17] and the Revised Clinical Interview Schedule (CIS-R) used in another five studies [5, 7, 13, 15, 19]. A further three studies [2, 7, 13] employed the Present State Examination (PSE), and two used the Langner 22-item Index [1, 2]. Also employed in single studies were the GHQ-28 [20], Zung Self-rating Anxiety and Depression Scales [3], and the Scale of Anxiety and Depression (SAD) [9].

One study employed a single-item measure of psychological wellbeing, where participants were asked whether they were currently anxious, worried or depressed [21]. A further two studies derived an index of psychological wellbeing from a set of six questions considered to mirror items from the General Health Questionnaire [14, 17].

In addition to the range of measures employed, the studies which used the same measure of psychological wellbeing showed considerable variation in their application of the measure. For example, three of the studies using the GHQ-12 incorporated a cut-off point in the scores to determine caseness for psychiatric disorder. However, in one study [8] the threshold was set at scores of ≥ 3 , whilst in another study a threshold of ≥ 4 was employed [11]. In another study the authors employed a threshold of ≥ 1 to identify those respondents not reporting complete psychological wellbeing [17]. A further study summed the scores across the 12 items of the GHQ to produce a continuous scale of psychological wellbeing, where higher scores indicated poorer wellbeing [3].

3.3.2.2 Qualitative study characteristics

The key characteristics of the qualitative studies and qualitative components of the mixed methods studies are described below. A summary of the study aim, sample size, data collection and sample characteristics are presented in Table 3.3.

(i) Research aim

Regarding the research aims, three of the studies focused on exploring participants' experiences in relation to their general health or quality of life [18, 23, 24], whilst two of the studies focused on participants' experiences and expressions of mental health [15, 20]. Each of the studies also set out to examine how aspects of SEP might be associated with participants' health.

(ii) Sample size and data collection

The sample sizes of the studies ranged from 24 to 170 participants. Data were collected by semi-structured interviews in two of the studies [18, 20], with the addition of focus groups in a further two studies [23, 24], and with unstructured interviews in the remaining study [15].

(iii) Sample characteristics

With respect to the sample characteristics, three of the studies interviewed men and women [15, 18, 20], whilst the remaining two studies interviewed women only [23, 24]. The participants were aged 18 years and above, with older adults being the focus of two of the studies [18, 23]. The setting also varied between studies, with nationwide samples recruited in three of the studies [15, 18, 23] and regional samples in the other two [20, 24].

The qualitative studies covered a range of ethnic groups with three studies sampling a combination of ethnic minority groups [15, 18, 23] and two studies focusing on a single ethnic minority group (i.e. Chinese [20]; Bangladeshi Muslim [24]). A White British or English ethnic group sample was also included in three of the studies [15, 18, 23].

Table 3.2 Quantitative study characteristics

Study	Design & setting	Gender groups	Age range	Ethnic groups	N	SEP indicators	Outcomes
[1] Cochrane & Stopes-Roe (1981)	Cross-sectional, primary data, England.	Men & women	20-60	Pakistan-born Indian-born England-born	200 200 240	Social class	Psychological disorder (Langner scale)
[2] Mavreas & Bebbington (1987)	Cross-sectional, primary data, London.	Men & women	18-64	Greek-Cypriot	291	Social class Employment status	Psychiatric disorder (PSE)
[3] Shams & Jackson (1994)	Cross-sectional, primary data, Sheffield.	Men	18-55	Pakistani & Bangladeshi	155	Employment status	Psychological wellbeing (GHQ12; Zung Scales)
[4] Fenton et al. (1995)	Cross-sectional, primary data, Bristol.	Men & women	18+	Black Caribbean Indian Pakistani Bangladeshi	237 94 145 36	Social class Employment status Housing amenities	Fair/poor health (single-item measure)
[5] Jenkins et al. (1997)	Cross-sectional, primary data, National Survey of Psychiatric Morbidity, Great Britain.	Men & women	16-64	Asian/Oriental Afro-Caribbean White	299 148 9,179	Social class Employment status	Neurotic disorder (CIS-R)
[6] Nazroo (1997a)	Cross-sectional, primary data, FNSEM, England & Wales.	Men & women	16+	Caribbean Indian African Asian Pakistani Bangladeshi Chinese White	1,205 1,273 728 1,185 591 214 2867	Social class Income level Housing tenure Standard of living	Fair/poor health (single-item measure)
[7] Nazroo (1997b)	Cross-sectional, primary data, FNSEM, England & Wales.	Men & women	16-54	Caribbean Indian African Asian Pakistani Bangladeshi Chinese White	1,205 1,273 728 1,185 591 214 2867	Social class	Neurotic disorder (PSE; CIS-R)

Study	Design	Gender groups	Age range	Ethnic groups	N	SEP indicators	Outcomes
[8] Williams & Hunt (1997)	Cross-sectional, secondary analysis, West of Scotland Twenty-07 data, Glasgow.	Men & women	30-40	General population South Asian	319 159	Standard of living	Psychological distress (GHQ12)
[9] Silveira & Ebrahim (1998)	Cross-sectional, primary data, East London.		60-82	Somali Bengali White	72 75 127	Income level	Anxiety/depression (SAD scale)
[10] Chandola (2001)	Cross-sectional, secondary analysis, FNSEM data, England & Wales.	Men & women	16+	Indian Pakistani & Bangladeshi White	1,268 1,771 2,860	Social class Standard of living	Fair/poor health (single-item measure)
[11] Erens et al. (2001)	Cross-sectional, primary data, 1999 HSE, England.	Men & women	16+	Black Caribbean Indian Pakistani Bangladeshi Chinese Irish General population	1,291 1,281 1,263 1,096 662 1,245 7,797	Social class Income level	Bad/very bad health (single-item measure) Psychiatric disorder (GHQ12)
[12] Cooper (2002)	Cross-sectional, secondary analysis, 1993-1996 HSE data, England.	Men & women	20-60	Black Caribbean Indian Pakistani Bangladeshi White	519 900 430 116 41,500	Education level Social class Employment status Material deprivation	Less than good health (single-item measure)
[13] Karlsen & Nazroo (2002)	Cross-sectional, secondary analysis, FNSEM data, England & Wales.	Men & women	NR	Caribbean Indian Pakistani & Bangladeshi Chinese	582 973 848 104	Social class	Fair/poor health (single-item measure)
[14] Shields & Wailoo (2002)	Cross-sectional, secondary analysis, FNSEM data, England & Wales.	Men	22-64	Black Caribbean Indian, Pakistani & Bangladeshi White	224 739 861	Education level Employment status Income level	Psychological distress (6-item measure)

Study	Design	Gender groups	Age range	Ethnic groups	N	SEP indicators	Outcomes	
[15] Sproston & Nazroo (2002) ^{MM}	Cross-sectional, mixed methods, primary data, EMPIRIC, England.	Men & women	16-74	Black Caribbean	694	Education level	Physical health (SF12)	
				Indian	643	Social class		
				Pakistani	724	Employment status		
				Bangladeshi	650	Housing tenure		Common mental disorders (CIS-R)
				Irish	733			
White	837							
[16] Nazroo (2003)	Cross-sectional, secondary analysis, 1999 HSE data, England.	Men & women	NR	Caribbean	NR	Economic activity	Fair/bad health (single-item measure)	
				Indian	NR	Income level		
				Pakistani	NR	Housing tenure		
				Bangladeshi	NR			
				Chinese	NR			
				White minority	NR			
				White English	NR			
[17] Shields & Price (2003)	Cross-sectional, secondary analysis, FNSEM and 1999 HSE data, England & Wales.	Men & women	16-64	Black Caribbean	982	Education level	Psychological wellbeing (GHQ12; 6-item measure)	
				Indian	1,120	Employment status		
				African Asian	878	Income level		
				Pakistani	1,021			
				Bangladeshi	817			
				Chinese	658			
				UK-born whites	7,967			
				White immigrants	208			
				Irish immigrants	209			
				[18] Moriarty & Butt (2004) ^{MM}	Cross-sectional, mixed methods, primary data, England & Scotland.	Men & women		55+
Black African	7	Income level						
Chinese	11							
Asian-Indian	NR							
Asian-Pakistani	13							
Asian-Bangladeshi	5		Good health (single-item measure)					
Mixed Heritage	3							
Black Other	2							
Other ethnic groups	6							
White British	38							

Study	Design	Gender groups	Age range	Ethnic groups	N	SEP indicators	Outcomes
[19] Weich et al. (2004)	Cross-sectional, primary data, EMPIRIC, England.	Men & women	16-74	Black Caribbean Indian Pakistani Bangladeshi Irish White	694 643 724 650 733 837	Education level Social class Employment status Housing tenure	Common mental disorders (CIS-R)
[20] Huang & Spurgeon (2006) ^{MIM}	Cross-sectional, mixed methods, primary data, Birmingham.	Men & women	21+	Chinese	113	Education level Employment status Economic status	Mental health status (GHQ28)
[21] Kelaher et al. (2008)	Cross-sectional, primary data, Leeds.	Men & women	18-59	African Caribbean Indian & Pakistani White	213 233 227	Education level Income level Car ownership Home ownership	Fair/poor health (single-item measure) Anxiety/depression (single-item measure)
[22] Smith et al. (2009)	Cross-sectional, secondary analysis, 1999 & 2004 HSE data, England.	Men & women	16-55	Black Caribbean Indian Pakistani Bangladeshi Chinese Irish White	1,231 1,252 1,355 1,128 620 1,955 18,407	Education level Social class Income level	Fair/poor health (single-item measure)

Notes: HSE: Health Survey for England; FNSEM: Fourth National Survey of Ethnic Minorities; EMPIRIC: Ethnic Minority Illness Rates in the Community; PSE: Present State Examination; GHQ12: 12-item General Health Questionnaire; GHQ28: 28-item General Health Questionnaire; CIS-R: Revised clinical interview schedule; NR: not reported.

Table 3.3 Qualitative study characteristics

Study	Research Aim	Sample Size	Data Collection	Sample Characteristics
[23] Wray (2003)	To compare the experiences of older women from different ethnic groups in relation to their perceptions and evaluations of quality of life.	170	In-depth semi-structured interviews and focus groups.	Participants were women aged between 60 and 80 years, living in Britain, and were of African-Caribbean, Dominican, Indian, Pakistani, Bangladeshi, English, British Muslim, British-Irish and British-Polish, ethnic origin.
[24] Barn & Sidhu (2004)	To examine the impact of ethnicity, gender, and socioeconomic status on health and access to service provision as experienced among Bangladeshi women living in East London.	54	Semi-structured interviews and focus groups.	Participants were women aged between 18 and 55 years, with dependent children and living in Tower Hamlets. The women were all of Bangladeshi Muslim ethnic origin.
[15] Sproston & Nazroo (2002) ^{MM}	To investigate cross-cultural validity in the EMPIRIC survey by examining ethnic differences in the way people experience and express mental distress.	116	In-depth unstructured interviews.	Participants were men and women aged between 25 and 50 years, living in England and were of Black Caribbean, Indian, Pakistani, Bangladeshi, Irish or White British ethnic origin. Participants were also selected according to migration history, main language spoken, and experience of mental distress.
[18] Moriarty & Butt (2004) ^{MM}	To explore the experiences of older people from different ethnic groups with respect to factors affecting their quality of life.	120	Semi-structured interviews.	Participants were men and women aged 55 years and older, living in England and Scotland, and of Black Caribbean, Black African, Asian, Chinese or White British ethnic origin.
[20] Huang & Spurgeon (2006) ^{MM}	To explore the experiences of life adjustment to migration and its association with mental health among Chinese immigrants living in a large city area.	24	Semi-structured interviews.	Participants were men and women aged between 24 and 63 years, living and working in the Birmingham area and of Chinese ethnic origin. Participants were also selected according to their generation, country of origin and length of residence in the UK.

Notes: ^{MM}: mixed methods study.

3.3.2.3 Section summary

- The majority of evidence included in the review came from cross-sectional quantitative studies using national-level survey data sets, typically the FNSEM and HSE.
- Samples commonly comprised Black Caribbean, Indian, Pakistani and Bangladeshi men and women and a White reference group.
- SEP was commonly measured using social class, employment status, income level and education level, but with wide variation occurring in the measurement of each indicator.
- Fair/poor health from a single-item rating scale was the most common outcome used for self-reported general health.
- A range of outcomes were employed for self-reported psychological wellbeing. The GHQ and CIS-R were the most common but again varied widely in their measurement.
- Participants' experiences of health captured through semi-structured interviews and focus groups formed the body of qualitative evidence.
- The qualitative studies varied in terms of the setting (regional/national) and ethnic group sample (single/multiple) employed.

3.3.3 Quality assessment

The quality assessment of the studies included in the review was performed using the critical appraisal checklists for quantitative, qualitative and mixed methods studies, described in Section 3.2.3. A summary of the results from each of the three checklists is presented below. Full details of the results for individual studies are provided in Appendix A.21-23.

3.3.3.1 Quantitative study quality

The overall quality of the quantitative evidence showed considerable variation, as illustrated in Table 3.4. Based on the relative proportion of checklist items given a 'yes' rating for each study, the overall quality percentage ranged from 24% to 72%.

On the individual quality criteria, all of the studies addressed a clearly focused research question and employed an appropriate study design. In terms of selection bias factors, a random or

probability sample was employed in sixteen of the studies. Fifteen of the studies reported the response rate, whereas only seven studies reported testing for differences between responders and non-responders. Furthermore, only thirteen of the studies were considered to have employed a sample representative of the target population [5-8, 10-16, 19, 22].

Table 3.4 Quality assessment results for the quantitative evidence

Study	'Yes' ratings	Overall quality percentage
[5] Jenkins et al. (1997)	13/18	72%
[12] Cooper (2002)	13/18	72%
[22] Smith et al. (2009)	13/18	72%
[6] Nazroo (1997a)	12/18	67%
[7] Nazroo (1997b)	12/18	67%
[19] Weich et al. (2004)	12/18	67%
[10] Chandola (2001)	11/18	61%
[17] Shields & Price (2003)	11/18	61%
[13] Karlsen & Nazroo (2002)	12/20	60%
[15] Sproston & Nazroo (2002) ^{MM}	12/20	60%
[2] Mavreas & Bebbington	10/18	56%
[4] Fenton et al. (1995)	9/16	56%
[8] Williams & Hunt (1997)	10/18	56%
[11] Erens et al. (2001)	11/20	55%
[1] Cochrane & Stopes-Roe (1981)	9/17	53%
[14] Shields & Wailoo (2002)	9/18	50%
[20] Huang & Spurgeon (2006) ^{MM}	8/17	47%
[9] Silveira & Ebrahim (1998)	8/18	44%
[16] Nazroo (2003)	7/18	39%
[3] Shams & Jackson (1994)	6/18	33%
[21] Kelaher et al. (2008)	5/20	25%
[18] Moriarty & Butt (2004) ^{MM}	4/17	24%

The measurement of ethnicity raised a number of quality issues. Firstly, six of the studies failed to provide a clear description of the method used to assign participants to ethnic groups [1, 3, 8, 9, 16, 20]. This was rated as unclear in a further two studies [14, 21] and clearly described in the remaining fourteen studies [2, 4-7, 10-13, 15, 17-19, 22]. Secondly, of the studies providing a clear description of ethnic group assignment, none were rated as employing an accurate measure of participant ethnicity (defined here as the participant providing their own description of ethnic origin). Rather, self-assigned ethnicity from a predefined list of ethnic groups was employed in eight of the studies [4, 6, 13, 14, 17, 19, 21, 22], with a further five studies using responses to a set of questions enquiring about participants' family origins [7, 8, 12, 15, 22]. The remaining study

which sampled Greek-Cypriot participants used a name-based measure of ethnicity by identifying Greek names from the electoral register [2]. Accuracy in the measurement of mixed ethnicity was also problematic. Whilst sample sizes for mixed ethnicity participants were small, three studies acknowledged their decision, where applicable, to override the participants' 'White' origins and categorise them by their ethnic minority origins [6, 7, 11].

The third quality issue was the limited use of separate and specific ethnic group categories, a strategy adopted by only seven of the studies [1, 2, 4, 16, 17, 20, 22]. As mentioned in the previous section, eight of the studies used combined samples of ethnic groups in their analyses. Five of these studies justified this measure as a means of overcoming the small sample sizes [5-7, 10, 13]. Of these studies, only one reported having first tested for similarities between the combined ethnic groups [13]. The remaining three studies provided no rationale for using combinations of ethnic groups [3, 14, 21]. One such study did test for differences between the combined samples of African Asian, Pakistani, Bangladeshi and Indian men [14]. Here, the authors reported a significant difference in happiness levels between the Bangladeshi and Indian men, but failed to provide further discussion.

A related problem was the use of broad ethnic group categories, such as 'White' [5-7, 9, 10, 12, 14, 15, 19, 21], 'South Asian' [8], 'Black other' [18], and 'other' [18], present in half of the studies. The 'White' ethnic group category, for example, fails to differentiate between White minority groups whose health may systematically differ from the White majority. Similarly, significant differences in the health of Indian, Pakistani and Bangladeshi populations may exist but remain invisible when represented as a South Asian population sample. Notably, only two of the studies using a 'White' ethnic group category acknowledged that participants of Irish and White other ethnicity were also represented within this category [6, 7].

Measures of SEP were clearly defined in fourteen of the studies [1, 2, 4-10, 12, 13, 16, 17, 22]. A further five studies provided a partial description [11, 14, 15, 18, 21], whilst the remaining three studies provided no description of the measures used [3, 19, 20]. None of the studies reported evidence of the validity and reliability of the measures of SEP employed.

Of the eleven studies using a self-reported general health outcome measure, only seven of the studies clearly defined the measure and response scale used [4, 6, 10, 12, 15, 16, 22]. In the remaining four studies, all of which employed a single-item measure, only one reported the complete response scale [11], whilst none provided the wording of the single-item measure [11, 13, 18, 21]. Only five studies cited evidence of the validity of the general health measure used [4, 6, 10, 18, 22], and just two studies cited evidence of the measure's reliability [10, 12]. In contrast,

of the fifteen studies employing a psychological wellbeing outcome measure only two failed to provide a clear description of the measure and response scales used [3, 21]. Evidence of the validity of the psychological wellbeing measures was provided in ten of the studies [1-3, 7-9, 11, 13, 15, 19, 20], with evidence of the measures' reliability reported in just two studies [2, 7].

The quality criteria for statistical analysis included the treatment of confounding and chance. Sixteen of the studies identified age and gender as potential confounders [3-8, 10-15, 17, 19, 20, 22]. Three studies identified gender but not age [1, 2, 18], two studies identified age but not gender [9, 21] and the remaining study reported neither age nor gender [16]. Despite the majority of studies having identified both age and gender as confounders, only eleven of the studies controlled for the effects of both confounders in their design and/or analyses [4-7, 11-14, 17, 19, 22]. With respect to chance, only twelve of the studies reported the level of statistical significance (P value) for outcome results [1-3, 8, 9, 12, 17-22]. A further two studies provided P values for a limited number of significant findings [7, 15], whilst P values were unreported in the remaining seven studies [5, 6, 10, 11, 13, 14, 16]. Odds ratios were reported in ten studies, with corresponding 95% confidence intervals (CIs) provided by six of the studies [5, 8, 9, 13, 21, 22]. A further four studies reported risk ratios accompanied by 95% CIs in two studies [15, 19] and standard errors (SEs) in the other two studies [11, 15]. In another study the author chose to tabulate the log odds and SEs 'for simplicity of presentation' but referred to odds ratios and 95% CIs in the text 'for ease of interpretation'. However, only two odds ratio values were then described (without 95% CIs values), making interpretation particularly difficult [10].

For the final quality criterion which assessed external reliability, the results from nine of the studies were rated as being generalisable to the target population [5, 6, 8, 10, 12-15, 22]. This criterion was not met in six studies [4, 9, 17, 18, 20, 21] and was rated as unclear in seven studies [1-3, 7, 11, 16, 19]. Threats to the generalizability of the studies included small sub-group sample sizes [4, 21], over-representation of female participants [4], and selection bias through variation in sampling methods between ethnic groups [9].

3.3.3.2 Qualitative study quality

The overall quality rating of the qualitative evidence ranged from 50% to 100%, as illustrated in Table 3.5. Full details of the results for individual studies are provided in Appendix A.22.

On the individual quality criteria, each study provided a clear statement of the research aim and employed an appropriate design. A full description of how and why participants were selected was provided in all except two of the studies [20, 23]. The method of assigning participants to

ethnic groups was clearly described in all except one study [20], as was the use of separate and specific ethnic group categories [18]. The data collection methods were clearly described in all except one study [20], with a justification for the choice of method provided by three of the studies [15, 18, 20].

Table 3.5 Quality assessment results for the qualitative evidence

Study	'Yes' ratings	Overall quality percentage
[15] Sproston & Nazroo (2002) ^{MM}	12/12	100%
[18] Moriarty & Butt (2004) ^{MM}	9/12	75%
[24] Barn & Sidhu (2004)	8/12	67%
[23] Wray (2003)	7/12	58%
[20] Huang & Spurgeon (2006) ^{MM}	6/12	50%

The weakest areas of quality for the qualitative studies were research ethics, data analysis and reflexivity. Only one study was rated to have provided an adequate report of ethical issues [15], with a further study providing limited information [18]. Sufficiently rigorous data analysis was identified in only one study [15], with a further two studies providing a limited description of the analysis and limited supporting data [18, 20]. Similarly only two of the studies provided a critical examination of the relationship between the researcher and participants [15, 18], with a partial description offered in another study [20]. In contrast, all five studies were rated as providing a clear statement of the findings and offering a valuable contribution to the literature.

3.3.3.3 Mixed methods study quality

The three mixed methods studies included in the review were assessed using the quantitative, qualitative, and mixed methods critical appraisal checklists. For the mixed methods checklist, the overall quality scores were 60% for two of the studies [15, 20] and 20% for one study [18], as illustrated in Table 3.6. Full details of the quality assessment results for the mixed methods studies are provided in Appendix A.23.

Table 3.6 Quality assessment results for the mixed methods studies

Study	'Yes' Ratings	Overall Quality Percentage
[15] Sproston & Nazroo (2002) ^{MM}	3/5	60%
[20] Huang & Spurgeon (2006) ^{MM}	3/5	60%
[18] Moriarty & Butt (2004) ^{MM}	1/5	20%

When identifying the mixed methods approach, two of the studies explicitly referred to using ‘quantitative and qualitative’ methods [15, 20], whilst the remaining study only made an indirect reference to ‘the value of using qualitative data to inform quantitative data’ in the discussion section [18]. A rationale for collecting qualitative and quantitative data was provided in two of the studies [15, 20]. A clear description of the specific mixed methods research design employed was not provided by any of the studies.

With respect to the reporting of the quantitative and qualitative results, all three studies presented the findings in combination, or in sequence with reference to the first set of results. Finally, the strengths and weaknesses of mixed methods research per se were partially addressed by only two studies, both of which highlighted the value of collecting qualitative data to inform quantitative findings [18, 20].

3.3.3.4 Section summary

- Results from the critical appraisal checklists revealed marked variation in methodological quality across the quantitative, qualitative, and mixed methods studies.
- The main quality issues to arise were:
 - (i) the frequent use of broad heterogeneous ethnic group categories and use of combined samples of ethnic groups without prior testing for subgroup differences;
 - (ii) the lack of evidence cited in the studies supporting the validity and reliability of the chosen exposure and outcome measures employed;
 - (iii) the lack of reporting on issues concerning research ethics and reflexivity in the qualitative studies; and
 - (iv) the lack of description of study design reported in the mixed methods studies.

3.4 Findings

The following sections present the evidence of the associations and intersections of gender, ethnicity, and SEP with self-reported general health and psychological wellbeing from the studies under review. Section 3.4.1 presents the findings from the quantitative evidence, whilst Section 3.4.2 presents the findings from the qualitative evidence. Section 3.4.3 then integrates

the quantitative and qualitative findings. As in the previous section, reference to the studies included in the review is made using the study identification number, e.g. [4, 5, 7-9].

3.4.1 Findings from the quantitative evidence

3.4.1.1 Gender patterns in general health and psychological wellbeing

Twenty of the quantitative studies included samples of men and women. However, only five of these studies reported findings for gender patterns in self-reported general health [4, 6, 10, 12, 13] and a further seven studies reported findings for gender patterns in psychological wellbeing [1, 2, 5, 7, 8, 15, 20]. The overall pattern demonstrated poorer outcomes among women compared to men for both general health and psychological wellbeing.

(i) Gender patterns in general health

Table 3.7 presents the findings for gender patterns in general health within individual and combined samples of ethnic groups. Significantly higher prevalence rates for fair/poor health and fair/bad health were reported among women compared to men after adjusting for age in three of the studies [10, 12, 13]. Rates of fair/poor health were also marginally higher among women (49.2%) but not significantly different to men (44%) in another study which notably had a smaller sample size and had not adjusted for age [4]. In the remaining study, a higher prevalence of fair/poor health among women compared to men was reported within samples of Caribbeans, Indians, Pakistanis, Bangladeshis, Chinese and Whites, however tests of statistical differences were not reported for these findings [6].

(ii) Gender patterns in psychological wellbeing

Findings for gender patterns in psychological wellbeing are reported in Table 3.8. Significant gender differences in psychological wellbeing were reported in three studies, with higher rates of psychological disorder (Langer scale), psychiatric disorder (CIS-R and PSE), and neurotic disorder (CIS-R) reported among women compared to men within individual (British-born, Indian-born, Greek-Cypriot) and combined (Asian/Oriental, Afro-Caribbean, White) ethnic group samples [1, 2, 5]. Prevalence of psychological distress (GHQ-28) was also marginally higher among Chinese women (66.7%) but not significantly different to men (54.8%) in one study [20], possibly reflecting the small sample size (n=99). In another study, psychological distress (GHQ-12) was also more prevalent among South Asian and general population women compared to men, however tests of significance were not reported [8].

Prevalence rates for anxiety and neurotic depression (CIS-R) were higher among Caribbean, Indian/African Asian, Bangladeshi, Chinese, Irish/White other and White women compared to men in a study which adjusted for age [7]. In the Pakistani sample, however, rates of anxiety were similar between men and women and neurotic depression was higher among men. Another study reported a higher prevalence of common mental disorders (CIS-R) among women compared to men within samples of Black Caribbeans, Indians, Pakistanis, and Whites, with similar rates reported for Irish and Bangladeshi men and women [15]. Neither of these two studies, however, reported tests of difference for the findings.

3.4.1.2 Ethnic patterns in general health and psychological wellbeing

Differences in self-reported general health and/or psychological wellbeing between ethnic minority groups and a White or general population reference group were tested in fifteen of the studies. Interestingly, different patterns were found to emerge for general health and psychological wellbeing. For general health, ethnic minority groups were more likely to report similar or significantly poorer outcomes than Whites, whereas for psychological wellbeing outcomes were more likely to be similar or significantly better than Whites. Variation between the ethnic minority groups was also highlighted in the findings for both outcomes.

(i) Ethnic patterns in general health

As presented in Table 3.9, prevalence of fair/poor health³ was significantly higher among Pakistani, Bangladeshi and Indian samples when compared with a White or general population sample [6, 10, 11, 12, 21, 22]. By contrast, samples of Chinese, Irish and Indian/African-Asians did not differ significantly from the White/general population on fair/poor health [6, 11, 22]. Findings for Black Caribbeans were less consistent, with four studies reporting significantly poorer outcomes [6, 11, 12, 22] and three studies reporting no significant difference in outcomes when compared with a White/general population sample [11, 15, 21]. Notably, none of the ethnic minority groups reported significantly lower rates of fair/poor health when compared with a White/general population.

(ii) Ethnic patterns in psychological wellbeing

In contrast to the pattern for self-reported general health, ethnic minority groups were more likely to report similar or significantly lower rates of poor psychological wellbeing when

³ Including similar outcomes 'fair/bad' and 'bad/very bad' health.

compared to a White/general population reference group. As illustrated in Table 3.10, this was notably the case for the Indian and Chinese ethnic groups [7, 15, 17, 19, 21].

The majority of findings for the Black Caribbean ethnic group reported no significant difference to the White/general population on measures of poor psychological wellbeing [5, 14, 15, 17, 19, 21]. The findings for the Pakistani ethnic group were more variable. One study reported significantly higher scores for psychological distress among Pakistanis compared to UK-born Whites, but at the $P < 0.10$ level [17]. Another study reported a significantly higher risk of common mental disorders among Pakistani women when compared to White women at the $P < 0.05$ level, but no significant difference among Pakistani men and White men [19]. Two studies found no significant difference between Pakistani and White participants for prevalence of common mental disorders, anxiety and depression [15, 21], whilst a further two studies reported significantly lower rates of anxiety among Pakistanis and psychological distress among Pakistani women when compared to Whites [7, 17].

The findings for ethnic patterns in psychological wellbeing should be interpreted tentatively, due to the range of different outcome measures employed and the potential for confounding by age in six of the studies.

3.4.1.3 Socioeconomic patterns in general health and psychological wellbeing

Nine of the studies reported findings for socioeconomic patterns in self-reported general health and psychological wellbeing within ethnic groups. A clear socioeconomic gradient in general health was observed within the ethnic groups, with poorer health reported among participants in lower socioeconomic positions. The same overall pattern was observed for psychological wellbeing. However, findings were less consistent, with the reverse gradient reported in some ethnic groups.

(i) Socioeconomic patterns in general health

The findings for patterns in self-reported general health by social class, income level, and housing tenure are presented in Table 3.11. Two studies found a clear socioeconomic gradient in fair/poor health within Indian or African Asian, Pakistani or Bangladeshi, and White ethnic group samples, with significantly higher rates of fair/poor health reported at the lower social class level [6, 13]. The same pattern was reported within the Caribbean group in one of the two studies [6], whilst no clear association was reported for the Chinese ethnic group [13].

A clear socioeconomic gradient in income level and health among Caribbeans, Indians, Pakistanis, Bangladeshis, Chinese and Whites, was also reported in one study [16]. Here rates of fair/bad health were shown to increase between households in the middle and bottom income tertiles. Notably, for the Bangladeshi ethnic group, similarly high rates of fair/bad health were reported among households in the middle and bottom income tertiles.

For housing tenure, significantly higher rates of fair/poor health ($P < 0.001$) were reported by tenants compared to home owners among samples of Caribbeans, Indian and African Asians, Pakistani and Bangladeshis, and Whites in one study [6].

(ii) Socioeconomic patterns in psychological wellbeing

Table 3.12 presents the findings for patterns in self-reported psychological wellbeing by social class, employment status, and income level. For indicators of social class, three of the studies reported the expected socioeconomic gradient, with rates of poor psychological wellbeing increasing among the lower social class positions within ethnic groups [2, 7, 11]. In one of the studies, however, the reverse gradient was reported for a sample of Bangladeshi women, whereby risk of psychiatric disorder was greater among non-manual households compared to manual households [11]. Similarly, in a study which compared rates of psychological disorder among semi- and unskilled manual, skilled manual, and non-manual classes, the same reverse gradient was reported among Indian-born participants. No clear relationship was observed for Pakistani-born participants, whilst for British-born participants psychological disorder decreased as social class position increased [1].

For employment status, two studies reported significantly lower rates of psychological wellbeing among unemployed Greek-Cypriot men and women [2] and British Asian men [3] when compared to their employed counterparts. For income level, significantly higher rates of anxiety and depression ($P < 0.05$) were negatively correlated with lower income levels for Somalis [9]. Similarly, risk of psychiatric disorder was negatively correlated with lower income tertiles among Black Caribbean, Pakistani, Bangladeshi, Irish and general population men and for Indian, Chinese, Irish and general population women. This pattern did not however hold for Indian and Chinese men, or for Black Caribbean, Pakistani and Bangladeshi women [11].

3.4.1.4 Interactions between gender, ethnicity, and SEP with poor psychological wellbeing

Evidence on intersections between gender, ethnicity, and SEP with measures of general health and psychological wellbeing was notably lacking in the UK literature. Only one study

investigated the interactions between gender, ethnicity, and SEP with poor psychological wellbeing [1]. Here, samples of participants born in Indian (n=200), Pakistan (n=200), and England (n=240) were assessed for prevalence of psychological disorder by non-manual, skilled-manual, and semi/unskilled social class. A statistically significant interaction between ethnic group and SEP was reported ($F=3.6$, $df=4$, $P<0.01$), demonstrating the effect of ethnicity on symptoms levels of psychological disorder was significantly different for social class groups. The English group showed the expected relationship with symptom levels increasing from high to low social class. By contrast, the reverse relationship was reported for the Indian group, with those of higher social status reporting higher symptom levels, whilst no clear relationship was reported for the Pakistani group.

To explore this pattern further, a second analysis was carried out using an age and gender matched sample of the Indian and English participants [1]. Statistically significant interactions were reported between ethnicity and SEP ($F=6.4$, $df=2$, $P<0.01$) and between ethnicity, gender and SEP ($F=3.1$, $df=2$, $P<0.05$) on scores of psychological disorder. Inspection of the mean scores revealed higher levels of psychological disorder among English participants from the skilled-manual and semi/unskilled manual groups. For the ethnicity, gender and SEP interaction, no clear relationship was reported in either group of male participants. However, English women demonstrated a negative association in increased psychological disorder with lower social class position, whilst Indian women demonstrated a positive association with psychological disorder increasing in the higher social class positions.

3.4.1.5 Section summary

- The overall pattern for gender demonstrated poorer outcomes for both general health and psychological wellbeing among women compared to men.
- Ethnic patterns in general health revealed Pakistanis, Bangladeshis and Indians were more likely to report poorer health than Whites. Similar rates of poor health were reported among the Chinese and Irish compared to Whites, whilst no clear pattern was found for Black Caribbeans.
- Ethnic patterns in psychological wellbeing were less clear but revealed Indians and Chinese were most likely to report similar or significantly better outcomes than Whites. Similar levels of psychological wellbeing were reported between Black Caribbeans and Whites, whereas findings for Pakistanis varied by study and outcome measure used.

- The socioeconomic pattern in health within the ethnic groups revealed a clear gradient with rates of poor health increasing from high to low socioeconomic positions.
- A socioeconomic gradient in psychological wellbeing within ethnic groups was also demonstrated, but less consistently. Notably, findings for the reverse pattern were observed among Indian, Bangladeshi and Pakistani women, with lower rates of psychological wellbeing reported among the women belonging to higher socioeconomic positions.
- The intersection of gender, ethnicity, and SEP was investigated in only one study. Significant interactions in gender, ethnicity and socioeconomic position were found, with higher levels of psychological distress reported among Indian women in higher social class positions in contrast to the reverse pattern among English women.

Table 3.7 Gender patterns in self-reported general health within ethnic groups.

Study	Ethnic groups	Women	Men	N	Covariates	Outcome	Results
[4]	(Black Caribbean, Indian, Pakistani)	362	150	512	-	Fair/poor health	Prevalence of fair/poor health was not significantly different between women (49.2%) compared to men (44%) (P=NR).
[6]	Caribbean Indian African Asian Pakistani Bangladeshi Chinese White			1,201 1,268 728 1,181 590 214 2,860	-	Fair/poor health	Prevalence of fair/poor health was higher among women compared to men for Caribbeans (39%; 33%), Indians (32%; 26%), Pakistanis (38%; 34%), Bangladeshis (41%; 35%), Chinese (28%; 20%), and Whites (32%; 26%), with similar rates were reported for African Asian women and men (27%; 26%).
[10]	(White, Indian, Pakistani, Bangladeshi)	2,724	3,175	5,899	Age Ethnicity	Fair/poor health	Log odds of fair/poor health were significantly higher among women compared to men (LO=0.30, SE=0.06, P<0.001).
[12]	(White, Black Caribbean, Indian, Pakistani, Bangladeshi)	23,923	20,793	44,716	Age	Fair/bad health	Prevalence of fair/bad health was significantly higher among women (19%) compared to men (18%), (RR=1.06, P<0.001).
[13]	(Caribbean, Indian, Pakistani, Bangladeshi, Chinese)			2,507	Age Social class Racial harassment Discrimination	Fair/poor health	Odds of fair/poor health were significantly higher for women compared to men (OR=1.61, CI=1.28-2.01, P=NR).

Notes: N= sample size for women & men combined. P=alpha level of significance; NR=not reported; LO=log odds; SE=standard error; RR=risk ratio; OR=odds ratio; CI=95% confidence interval.

Table 3.8 Gender patterns in self-reported psychological wellbeing within ethnic groups.

Study	Ethnic group	Women	Men	N	Covariates	Outcome	Results
[1]	British-born Indian-born	110 110	90 90	200 200	-	Psychological disorder (Langner scale)	A significant gender difference was found for psychological disorder ($F=8.5$, $df=1$, $P<0.01$), with higher scores reported for British women ($\bar{X}=4.5$) compared to men ($\bar{X}=3.0$) and for Indian women ($\bar{X}=2.1$) compared to men ($\bar{X}=1.8$).
[2]	Greek-Cypriot	144	147	291	-	Psychiatric disorder (CIS-R ID 5+) (PSE)	Prevalence of psychiatric disorder was significantly higher among Greek-Cypriot women (19.5%) compared to men (8.8%) ($\chi^2=5.91$, $df=1$, $P<0.02$). PSE scores were also significantly higher for Greek-Cypriot women (5.61) compared to men (2.73) ($t=-3.74$, $P<0.001$).
[5]	(White, Asian/Oriental, Afro-Caribbean)	4,933	4,859	9,792	Age Social class Household size	Neurotic disorder (CIS-R scores 13+)	Odds of neurotic disorder were significantly higher for women (OR=1.76, CI=1.57-1.97, P=NR) and remained significant after adjustment for age, social class and household size (OR=1.72, CI=1.53-1.93, P=NR).
[7]	Caribbean Indian or African Asian Pakistani Bangladeshi Chinese White Irish or other White			614 988 584 289 104 2,654 213	Age	Anxiety (CIS-R 2+ symptoms or panic attacks) Neurotic depression (CIS-R)	Prevalence of anxiety was higher among women compared to men for Caribbeans (14%; 11%), Indian/African Asians (11%; 8%), Pakistanis (11%; 10%), Bangladeshis (7%; 2%), Chinese (10%; 5%), Whites (23%; 12%), and Irish/other Whites (32%; 23%). Prevalence of neurotic depression was also higher among women compared to men for Caribbeans (6.4%; 5.6%), Indian/African Asians (3.2%; 2.5%), Bangladeshis (2.2%; 1.6%), Chinese (1.7%; 1.6%), Whites (4.8%; 2.7%), and Irish/other Whites (6.8%; 5.8%), with the exception of Pakistanis (2.9%; 3.8%).
[8]	South Asian General Population	84 178	75 141	159 319	-	Psychological distress (GHQ 12 scores 3+)	Prevalence of psychological distress was higher among women compared to men for South Asians (25%, 22%) and the general population (29%, 21%).
[15]	Black Caribbean Indian Pakistani Bangladeshi Irish White	414 328 387 338 404 469	280 315 337 312 329 368	694 643 724 650 733 837	-	Common mental disorders (CIS-R)	Prevalence of common mental disorders were higher among women compared to men for Black Caribbeans (19.8%; 13.8%), Indians (23.8%; 12.1%), Pakistanis (26.0%; 12.6%), and Whites (19.0%; 11.6%), with similar rates for Bangladeshis (12.3%; 12.9%) and Irish (18.6%; 18.4%).
[20]	Chinese	57	42	99	-	Psychological distress (GHQ28 scores 5+)	Prevalence of psychological distress was not significantly different between Chinese women (66.7%) and men (54.8%) ($\chi^2=1.45$, $df=1$, $P<0.23$).

Table 3.9 Ethnic patterns in self-reported general health

Study	Ethnic group	Women	Men	N	Covariates	Outcome	Results
[4]	Black Caribbean	184	53	237	Age	Fair/poor health	Prevalence of fair/poor health was highest among Pakistanis (62.6%), followed by Bangladeshis (48.0%), Black Caribbeans (41.0%) and Indians (38.6%).
	Indian	67	27	94	Gender		
	Pakistani	90	55	145			
	Bangladeshi	21	15	36			
[6]	Caribbean			1,201	Age	Fair/poor health	Prevalence of fair/poor health was significantly higher among Pakistanis & Bangladeshis (39%) and Caribbeans (34%) compared to Whites (27%) (P=NR). No significant differences were found between Indian & African Asians (27%), Chinese (26%) and Whites.
	Indian			1,268	Gender		
	African Asian			728			
	Pakistani			1,181			
	Bangladeshi			590			
	Chinese			214			
White			2,860				
[10]	Indian			1,268	Age	Fair/poor health	Odds of fair/poor health were significantly higher among Pakistanis & Bangladeshis (OR=1.80) and Indians (OR=1.26) compared to Whites (P<0.001).
	Pakistani & Bangladeshi			1,771	Gender		
	White			2,860			
[11]	Black Caribbean	746	545	1,291	Age	Bad/very bad health	Risk ratios for bad/very bad health were significantly higher among Pakistani (RR=3.57), Bangladeshi (RR=3.31) and Indian (RR=2.63) women compared to general population women (P=NR). No significant differences were found between Black Caribbean (RR=1.81), Chinese (RR=0.91), and Irish (RR=0.89) women compared to general population women. For men, risk ratios were significantly higher for Bangladeshis (RR=3.91), Pakistanis (RR=2.94), Indians (RR=1.64) and Black Caribbeans (RR=1.15) compared to the general population (P=NR). Irish (RR=1.30) and Chinese (RR=1.08) men did not differ significantly from general population men.
	Indian	655	626	1,281			
	Pakistani	643	620	1,263			
	Bangladeshi	563	533	1,096			
	Chinese	361	301	662			
	Irish	708	537	1,245			
	General population	4,239	3,558	7,797			
[12]	Black Caribbean	311	207	518	Age	Fair/bad health	Odds of fair/bad health were significantly higher for White women (OR=1.08, P<0.01); Black Caribbean women (OR=2.55, P<0.001) and men (OR=1.61, P<0.01); Indian women (OR=2.07, P<0.001) and men (OR=1.46, P<0.01); Pakistanis women (OR=3.24, P<0.001) and men (OR=2.31, P<0.001), Bangladeshi women (OR=2.31, P<0.01) and men (OR=2.75, P<0.001) compared to White men.
	Indian	468	431	899			
	Pakistani	216	214	430			
	Bangladeshi	50	66	116			
	White	22,233	19,323	41,556			

Study	Ethnic group	Women	Men	N	Covariates	Outcome	Results
[15]	Black Caribbean	157	88	245	Age	Physical health (SF-12)	Risk ratios for physical health were significantly lower for Pakistani (RR=0.80, SE=0.04) and Bangladeshi (RR=0.86, SE=0.05) women compared to White women. Black Caribbean (RR=0.93, SE=0.05), Indian (RR=0.96, SE=0.06) and Irish women (RR=0.93, SE=0.04) did not differ significantly from White women. Risk ratios for Bangladeshi (RR=0.85, SE=0.03), Pakistani (RR=0.87, SE=0.02), and Indian men (RR=0.94, SE=0.03) were significantly lower than White men. No significant differences were reported for Black Caribbean (RR=0.95, SE=0.03) and Irish men (RR=1.03, SE=0.02) compared to White men.
	Indian	98	114	212			
	Pakistani	121	118	239			
	Bangladeshi	71	78	149			
	Irish	155	149	304			
	White	166	129	295			
[21]	African Caribbean			212	Age	Fair/poor health	Odds of fair/poor health were significantly higher among Indians & Pakistanis (OR=1.9, CI=1.3-3.0, P<0.05) compared to Whites. Odds of fair/poor health were not significantly different between African Caribbeans and Whites.
	Indian & Pakistani			233			
	White			247			
[22]	Black Caribbean			1,231	Age Gender	Fair/poor health	Odds of fair/poor health were significantly higher among 1 st and 2 nd generation Black Caribbeans (OR=1.41, CI=1.03-1.93; OR=1.44, CI=1.19-1.74), Indians (OR=1.44, CI=1.17-1.77; OR=1.34, CI=1.06-1.69), Pakistanis (OR=1.45, CI=1.12-1.89; OR=1.46, CI=1.13-1.89), and Bangladeshis (OR=2.75, CI=2.14-3.56; OR=1.58, CI=1.17-2.13) compared to White English. Odds for 1 st and 2 nd generation Chinese (OR=0.93, CI=0.69-1.26; OR=0.83, CI=0.56-1.23) and Irish (OR=0.74, CI=0.51-1.07; OR=0.95, CI=0.78-1.15) did not differ significantly to White English (P<NR).
	Indian			1,252			
	Pakistani			1,355			
	Bangladeshi			1,128			
	Chinese			620			
	Irish			1,955			
	White English			18,407			

Notes: Notes: P=alpha level of significance; NR=not reported; RR=risk ratio; SE=standard error; OR=odds ratio; CI=95% confidence interval.

Table 3.10 Ethnic patterns in self-reported psychological wellbeing

Study	Ethnic group	Women	Men	N	Covariates	Outcome	Results
[5]	Asian/Oriental Afro-Caribbean White			299 148 9,179	-	Neurotic disorder (CIS-R scores 13+)	Odds of neurotic disorder were not significantly different for Afro-Caribbeans (OR=1.43, CI=0.98-2.08) and Asian/Oriental (OR=1.12, CI=0.79-1.58) compared to Whites (P=NR).
[7]	Caribbean Indian or African Asian Pakistani Bangladeshi Chinese White Irish or other White			614 988 584 289 104 2,654 213	Age Gender	Anxiety (CIS-R 2+ symptoms or panic attacks) Neurotic depression (CIS-R)	Prevalence of anxiety was significantly higher among Irish & other Whites (28%) compared to Whites (18%) whilst rates for Caribbeans (13%), Pakistanis (11%), Indian & African Asians (9%), Chinese (7%) and Bangladeshis (5%) were significantly lower compared to Whites (P=NR). Prevalence of neurotic depression was significantly higher among Caribbeans (6.0%) compared to Whites (3.8%). Rates for Irish & other Whites (6.3%), Pakistanis (3.4%), Bangladeshis (1.7%) and Chinese (1.6%) did not differ significantly to Whites (P=NR).
[8]	South Asian General Population	84 178	75 141	159 319	-	Psychological distress (GHQ 12 scores 3+)	Prevalence of psychological distress was higher among general population women (29%) compared to South Asian women (25%), but similar between general population men (21%) and South Asian men (22%).
[9]	Bengalis Somalis Whites	23 12 67	52 60 60	75 72 127	-	Anxiety/depression (SAD scale)	Anxiety/depression was highest among Bengalis (77%), followed by Somalis (25%) and Whites (25%).
[14]	Black Caribbean South Asian White		224 739 861		-	Psychological distress (6-item measure)	Mean scores for psychological distress were significantly higher among White men (1.70) compared to South Asian men (1.06) (P<0.05). Mean scores for Black Caribbean men (1.50) did not differ significantly from White men.
[15]	Black Caribbean Indian Pakistani Bangladeshi Irish White	414 328 387 338 404 469	280 315 337 312 329 368	694 643 724 650 733 837	Age	Common mental disorders (CIS-R)	Risk ratios for neurotic disorder were significantly lower for Bangladeshi women (RR=0.64) compared to White women. Pakistani (RR=1.37), Indian (RR=1.20), Black Caribbean (RR=0.98), and Irish (RR=0.95) women did not differ significantly from White women. Risk ratios for Irish (RR=1.37), Black Caribbean (RR=1.13), Pakistani (RR=1.12), Bangladeshi (RR=1.12) and Indian (RR=1.03) men did not differ significantly from White men (P=NR).

Study	Ethnic group	Women	Men	N	Covariates	Outcome	Results
[17]	Black Caribbean	167	158	325	-	Psychological distress (6-item measure)	Mean scores for psychological distress (6-item scale) were significantly lower among Indian (1.14), African Asian (1.75), Pakistani (1.41), and Bangladeshi (1.03) women compared to white women (2.12) (P<0.10). Among men, mean scores were also significantly lower among Indians (1.19), African Asians (1.02), Pakistanis (1.00) and Bangladeshis (0.91) compared to White men (1.65) (P<0.10). Black Caribbean women (2.11) and men (1.48) did not differ significantly from White women and men.
	Indian	201	196	397			
	African Asian	147	151	298			
	Pakistani	129	139	268			
	Bangladeshi	51	42	93			
	UK-born whites	1,068	927	1,995			
	Black Caribbean	242	150	392		Psychological distress (GHQ12)	
	Indian	273	290	563			
	African Asian	83	81	164			
	Pakistani	223	292	515			
	Bangladeshi	296	280	576			
	Chinese	244	167	411			
	White immigrants	134	93	227			
Irish immigrants	115	78	193				
UK-born whites	2,873	2,452	5,325				
[19]	Black Caribbean	414	280	694	-	Common mental disorders (CIS-R)	Risk ratios for common mental disorders were significantly higher for Pakistani women (RR=1.37, CI=1.07-1.77) and lower for Bangladeshi women (RR=0.65, CI=0.47-0.92) compared to White women (P<0.05). Indian (RR=1.25, CI=0.96-1.64), Black Caribbean (RR=1.04, CI=0.80-1.37) and Irish (RR=0.98, CI=0.74-1.29) women did not differ significantly from White women. Among men, risk ratios were significantly higher for Irish (RR=1.59, CI=1.11-2.28) compared to White men (P<0.05). Black Caribbean (RR=1.19, CI=0.80-1.79), Bangladeshi (RR=1.10, CI=0.73-1.64), Pakistani (RR=1.07, CI=0.72-0.84) and Indian men (RR=1.03, CI=0.69-1.56) did not differ significantly from White men.
	Indian	328	315	643			
	Pakistani	383	337	720			
	Bangladeshi	338	312	650			
	Irish	404	329	733			
	White	469	368	837			
[21]	African Caribbean			212	Age	Anxiety/depression (single-item measure)	Odds of anxiety/depression did not significantly differ between the ethnic groups.
	Indian & Pakistani			233			
	White			247			

Notes: Notes: P=alpha level of significance; NR=not reported; RR=risk ratio; OR=odds ratio; CI=95% confidence interval.

Table 3.11 Socioeconomic patterns in self-reported health within ethnic groups

Study	SEP Indicator	Levels	Outcome	Ethnic groups (N)	Results
[6]	Social class	No full-time worker/ manual/non-manual	Fair/poor health	Caribbean (1,060) Indian & African Asian (1,782) Pakistani & Bangladeshi (1,592) White (2,110)	Significant differences in rates of fair/poor health between social class positions were reported within each ethnic group ($P < 0.001$), with rates of fair/poor health increasing with lower social class positions.
[13]	Social class	No full-time worker/ manual/non-manual	Fair/poor health	Caribbean (582) Indian (973) Pakistani & Bangladeshi (848) Chinese (104)	Odds of fair/poor health were significantly higher for households with no full-time worker compared to non-manual households within the Indian ($OR = 2.58$, $CI = 1.63-4.09$) and Pakistani & Bangladeshi ($OR = 2.84$, $CI = 1.62-4.98$) ethnic groups. Odds of fair/poor health were also significantly higher for manual households compared to non-manual households within the Indian ethnic group ($OR = 1.86$, $CI = 1.20-2.90$). No significant differences in health by social class were found for the Caribbean or Chinese ethnic groups ($P = NR$).
[16]	Income level	Bottom/middle/top tertile	Fair/bad health	Caribbean Indian Pakistani Bangladeshi Chinese White (not English) White English	Rates of fair/bad health were found to increase as income decreased within each ethnic group. For the Bangladeshi group, rates of fair/bad health were high for households positioned in both the bottom and middle income tertiles.
[6]	Housing tenure	Tenant/ owner-occupied	Fair/poor health	Caribbean (1,077) Indian & African Asian (1,848) Pakistani & Bangladeshi (1,692) White (2,173)	Significant differences in rates of fair/poor health between housing tenure positions were reported within each ethnic group ($P < 0.001$), with higher rates of fair/poor health among tenants compared to owner-occupiers.

Table 3.12 Socioeconomic patterns in self-reported psychological wellbeing within ethnic groups

Study	SEP Indicator	Levels	Outcome	Ethnic groups (N)	Results
[1]	Social class	Semi & unskilled manual/skilled manual/non-manual	Psychological disorder (Langner scale)	Indian (200) Pakistani (200) British (240)	Psychological disorder was found to increase between lower and higher social class positions for the British ethnic group. The reverse pattern was found for the Indian ethnic group and no clear pattern was reported for the Pakistani ethnic group.
[2]	Social class	Working class/middle class	Psychiatric disorder (CIS-R)	Greek-Cypriot (291)	Rates of psychiatric disorder were significantly higher among Greek-Cypriots in working class occupations compared to middle class occupations ($P < 0.02$). Gender-stratified analyses were non-significant.
[7]	Social class	No full-time worker/manual/ non-manual	Neurotic depression (CIS-R)	Caribbean (614) South Asians (1,861) White (2,867)	Odds of depression were significantly higher among household with no full-time worker compared to non-manual households within the Caribbean ($OR = 1.8$, $P < 0.05$), South Asian ($OR = 2.0$, $P < 0.05$), and White ($OR = 2.5$, $P < 0.01$) ethnic groups. Odds of depression were also significantly higher among manual compared to non-manual households within the White ethnic group ($OR = 1.7$, $P < 0.01$).
[11]	Social class	Manual/non-manual	Psychiatric disorder (GHQ12)	Black Caribbean (1,178) Indian (1,111) Pakistani (952) Bangladeshi (826) Chinese (592) Irish (1,199) General population (7,441)	Risk of psychiatric disorder was higher for manual compared to non-manual households within each ethnic group, with the exception of Bangladeshi women for whom the reverse pattern was observed.
[2]	Employment status	Retired/ non-employed /employed	Psychiatric disorder (CIS-R)	Greek-Cypriot (291)	Rates of psychiatric disorder were significantly higher among non-employed compared to employed Greek-Cypriots ($P < 0.02$). Gender-stratified analyses were non-significant.
[3]	Employment status	Unemployed/ employed	Psychological wellbeing (GHQ12; Zung scales)	British Asian (139)	Psychological wellbeing was significantly poorer among unemployed compared to employed British Asians ($P < 0.01$).
[9]	Income level	Weekly income	Anxiety/ Depression (SAD scale)	Somali (72) Bengali (75) White (127)	Anxiety and depression were negatively correlated with weekly income for Somalis ($\rho = -0.25$), Bengalis ($\rho = -0.1$), and Whites ($\rho = -0.11$). The correlation was only statistically significant for the Somali ethnic group ($P < 0.05$).
[11]	Income level	Low/middle/high income tertile	Psychiatric disorder (GHQ12)	Black Caribbean (1,178) Indian (1,111) Pakistani (952) Bangladeshi (826) Chinese (592) Irish (1,199) General population (7,441)	Risk of psychiatric disorder was negatively correlated with income level for Black Caribbean, Pakistani, Bangladeshi, Irish, and general population men and for Indian, Chinese, Irish, and general population women.

3.4.2 Findings from the qualitative evidence

The following section provides a summary of the qualitative research findings from five of the studies included in the review [15, 18, 20, 23, 24]. The findings discussed here relate to participants' perceptions of general health and psychological wellbeing, and their experiences of health in the context of gender, ethnicity, and SEP. Further findings presented here include the impact of racism on health - an important interrelated theme to emerge from the qualitative studies; and intersections of gender, ethnicity, and SEP within participants' accounts of health.

3.4.2.1 Perceptions of general health and psychological wellbeing

The qualitative findings revealed interesting insights into participants' perceptions of health which contrasted with the Western view of physical and mental health as separate dimensions (Lin & Cheung, 1999). For instance, in a study of Bangladeshi Muslim women living in East London, the authors described how a holistic perspective of health emerged, which conceptualised health as more than the absence of illness or disease [24]. The Bangladeshi women saw the mind as part of the body and described their worries through the expression of physical symptoms. However, a clear distinction was made between psychological health conditions and being possessed by Jinn (spirits), Shaitan (Satan/satanic beings), and Farishta (angels). The accepted treatment for people possessed was described as being provided either by traditional healers or imams, as one woman commented:

I know a woman whose daughter has seen death. If that happens you should get a holy man to say special prayers and get rid of the bad spirits. [24]

Connections between physical health concerns and mental distress were made by the participants in another study [15]. Here, an Indian man described how he experienced back pain and digestive problems when under stress and a Bangladeshi man described experiencing greater stress at work as a result of his diabetes and high blood pressure.

A further two studies explored participants' expectations of health in old age and attitudes towards deteriorating health. In the first study, the authors noted how older participants from ethnic minority groups described more positive attitudes towards the ageing process than White participants [18]. Whilst ethnic minority participants appeared to experience greater ill health than their White counterparts, they also expressed lower expectations of the health they might experience in old age. In the second study, which sampled women aged between 60 and 80 years, the authors described how the majority of women were not necessarily debilitated by ill health as they entered old age [23]. For example, a British Jamaican woman with high blood pressure and arthritis commented:

Well I really can't sit around and think about what I have because if you sit and think of what you have got you get sick more. You just have to try and cope. [23]

Similarly, a 66-year old British/Irish woman who had suffered a broken knee described how despite no longer being able to run, she could still dance. Likewise, a 61-year old Dominican woman with high blood pressure described the benefits she felt since going to the gym:

And my doctor used to say to me, 'you should exercise'. And then I started going to the gym and it's been a lot... lower. You get addicted to it because you feel so good. At dinnertime I run up the steps and they say 'who's that?' [23]

3.4.2.2 Perceptions of the association between gender roles and health

Two of the studies described the relationship between gender roles and health from the perspective of participants of South Asian ethnic origin. The study of Bangladeshi Muslim women living in East London, for example, described how the women's primary roles were based in the home, as wife, mother and housewife [24]. By contrast, the men's roles were based predominantly outside the home in employment, sometimes involving long periods of time spent away in Bangladesh. The relationship between gender roles and health was described in the context of social and economic deprivation, whereby a lack of material resources and social support prevented the women from fulfilling their roles of childcare and taking care of the home. This in turn was described by the women as a key source of worry and distress, exacerbated by a feeling of isolation from not wishing to burden the husband with these difficulties. Where women had experienced domestic violence, this too was suffered in isolation. In another study, women of South Asian origin described the imbalance in gender roles in terms of their frustration and isolation in not being allowed to work, have friends, or be included in key decision making [15].

3.4.2.3 Perceptions of the association between ethnicity, culture and health

Ethnicity and cultural background were perceived as being positively and negatively associated with general health and psychological wellbeing. Two of the studies highlighted how belonging to a collective identity was important for ethnic minority participants. Bangladeshi Muslim women, for example, described their shared experiences of migration, socioeconomic hardship and racism, and how their religion provided their main source of support towards their overall wellbeing [24]. Similarly in another study, women of African-Caribbean, West Indian, Pakistani, British-Polish and Indian ethnic origin described the importance of religion in providing a sense of common identity and influencing their happiness and fulfilment in old age [23]. Shared

experiences of racism also formed part of this common identity as described by a 71-year old African-Caribbean woman:

We gets older... when I came, I came here in 1962, and things wasn't beautiful... but at least we got over the hatred. And we tried to forgive and tried to live because we put God in front of us we were Christians before we came here. But we go deeper into Christianity here more than at home. Because the things that we met when we come here we didn't have at home, the abuse the neglect, you know? [23]

With respect to cultural background, a study of Chinese immigrants living in Birmingham highlighted the stress and isolation arising from the difficulties faced when interacting with English people and integrating into English society. One participant, for example, described their experience at work:

We choose the people from the same ethnicity to relax and share time with because we speak the same language and we know what to expect... I may need to guess and worry about what English people think when we interact. [20]

Another participant described his feelings having lived in Birmingham for 20 years:

Even now I don't like being in the UK. It is agonising to live here. Maybe it's because I don't know English at all. Also I don't have a good friend here. The living conditions are now getting better but I still feel the sense of alienation, loneliness and suffering. [20]

By contrast, another Chinese man described a more positive outlook:

In my opinion I've come to the UK to learn, not to teach. I can't simply say 'everything in my country is always great – look at this place!'...We have to be close to English culture here. It is a tacit understanding. If you do not understand the culture here you can't make it. [20]

3.4.2.4 Perceptions of the association between socioeconomic position and health

A strong association between socioeconomic position (SEP) and health was conveyed in the accounts of the participants. In terms of employment status, for instance, participants recounted how becoming unemployed led to feeling 'hopeless' and the belief they were no longer 'achieving in life' [15]. Among the employed, having a lack of job security was a source of considerable mental distress [15, 20]. This was a particular issue for participants needing a work permit in order to remain working in the United Kingdom, as this Chinese professional described [20]:

Some friends of mine didn't get a job but their contract was nearly due to finish. Frankly, the stress was rather awful... If you want to build up your career in the UK, or anywhere abroad, you have to get a job first of all. Then you can think of what to do next. [20]

In contrast, a study of older women explored the positive effects of employment on health [23]. The benefits of being in paid or voluntary work included being mentally active, in control, interacting with others, and participating in society. For example, a White English 65-year old woman described what she gained from working:

Oh I like the company I like the challenge and uh I'm not one to sit at home, I wouldn't find it easy. Well if I retired from that I'd be doing something voluntary. It uh well it keeps your mind active doesn't it? Well uh if you sat about like a potato that wouldn't be any good, well it wouldn't be any good for me. [23]

Income level was another indicator of SEP found by the studies to be strongly associated with health. For example, the effects of loss of income through bankruptcy on mental health were highlighted in one study [15]. Specifically, a 37-year old Pakistani man described how having his shop repossessed led him to feel 'very small among friends', and explained how 'you lose your self-confidence, afraid to meet people, lose your self-respect'. Similarly, two of the studies described how low income and poverty led to poor housing conditions [15, 24]. This, in turn, was shown to impact on participants' health, as described by a Bangladeshi Muslim woman:

Some people are not healthy because they've got problems with housing, overcrowding... My daughter's got asthma. She has to share the room with another three family members, because I've only got a two bedroom flat. Four people in one bedroom. There's nothing you can do. Overcrowding is causing health problems. [24]

3.4.2.5 Perceptions of the impact of racism on health

A theme which featured in each of the qualitative studies was the impact of racism on health and wellbeing. Direct forms of racism, such as verbal and physical attacks, were associated with long-term damage to participants' physical and particularly mental health. For example, a Bangladeshi Muslim woman described how her disabled son was racially attacked and consequently 'suffers from terrible nightmares' [24]. In another study, an Asian man described how a racial attack, which resulted in long-term damage to his health, also undermined his confidence to visit certain places [18]:

This drunken man, he hit me from behind. I fell down and he hit me again. ...[I was taken] to the hospital. ...The doctor witnessed my situation and gave a report, then the police phoned and asked if they could come round. After that, I have not gone [to the area where attacked]. If I go [there], I go on the bus. [18]

Similarly, a Black Caribbean man in his forties described his fears of being in public places as an ethnic minority:

...it's quite messy going out there... you end up getting killed, end up getting stabbed. [15].

Several accounts of institutional racism were also prevalent across the qualitative studies, notably in the context of employment. Common experiences included underemployment, failed career promotions and limited job prospects. In particular, people from ethnic minorities described having to work in jobs 'below their qualifications' which led to a sense of underachievement and, in the case of an Indian accountant, feelings of 'stagnation and boredom' [15]. Similarly, a Chinese professional described the stress related to underemployment [20]:

In the beginning my supervisors wouldn't give me complicated work to do. Sometimes they couldn't find adequate work for me to do. Nothing was too hard for me. It was more stressful than being busy. [20]

3.4.2.6 Intersections of gender, ethnicity, and socioeconomic position in health

Whilst none of the qualitative studies made specific reference to intersectionality theory *per se*, indications of intersections between gender, ethnicity, and socioeconomic position (SEP) in the production of poor health were evident in three of the five studies. Notably, in the study entitled 'Understanding the interconnections between ethnicity, gender, social class and health: experiences of minority ethnic women in Britain' [24], intersectionality formed the main focus of investigation. In their introduction, for instance, the authors highlighted the tendency of previous research to adopt an additive approach, in exploring social concepts as independent entities:

Research studies exploring the lives of minority ethnic women in Britain have tended to emphasise 'race', culture, and gender in a highly parochial and fragmented fashion preventing an understanding of the interrelationship between these variables. [24]

Their own research they described to be ‘a qualitative study examining how ethnicity, gender, and socio-economic status combine to impact upon health and access to service provision, as experienced by Bangladeshi women in East London’. Paradoxically, the authors then went on to stress the difficulty in substantiating ‘the relative influence’ of each social construct. Furthermore, their findings for the effects of gender, ethnicity, and socio-economic status on health were for the most part presented independently, despite having acknowledged that the participants described their identities to be mutually constitutive:

...the women in our study did not describe clear and concise parameters to their identity. A composite picture emerged which presented the complexity of the women’s lives and health needs. [24]

The presentation of intersections is in itself a complex issue. However, a promising finding from this systematic review was of the potential intersections embedded within the qualitative study data. Firstly, in relation to the intersection of gender and ethnicity with health, the authors of the aforementioned study described how ‘the experience of being Bangladeshi was perceived to be different for men and women’ [24]. Specifically, they attributed the perceived gender differences among Bangladeshis to ‘the distinct roles men and women were required to undertake within their family and community’. For example, one Bangladeshi woman described the detrimental impact these expected roles had on her health:

I suffer from migraines very frequently and I constantly get muscular aches and pains. Sometimes I feel I cannot cope with the pressures of family life. It’s never ending – the cooking and cleaning... [24]

Whilst this account highlights gender inequalities in health among Bangladeshis, evidence to demonstrate that this experience is not also true of women in other ethnic groups would be needed to confirm the intersection of gender and ethnicity. The Bangladeshi women in this study were also said to perceive Bangladeshi men to be more likely than themselves to speak English, which consequently ‘afforded greater respect, independence, and accessibility to a range of facilities’ [24]. Language barriers therefore represented a source of disadvantage for Bangladeshi women, with potential implications for general health.

Secondly, a further two studies revealed accounts of the intersection between ethnicity and SEP [15, 20]. The first study described how a participant perceived the experience of discrimination to relate to his identity in terms of age, ethnicity, and occupational social class.

The kind of attitude people have as well is that you're young and you're Asian and that you're a taxi driver so you have got to be a troublemaker... [15]

Furthermore, he described experiences of discrimination which were primarily racially orientated:

...you're pulled up and blamed for something as soon as because of your colour... there are people who do not even consider you to be a human being if you're not white. [15]

In the second study, based on a sample of Chinese men and women working in Birmingham, the authors described how 'some Chinese immigrants felt they experienced a degree of unfair treatment at work'. By contrast, the participants were said to perceive this to stem from a competitive environment in which 'the indigenous people hold and use many more resources than do the immigrants', rather than from deliberate racial discrimination [20]. These two examples therefore demonstrate the variation both in how people interpret experiences of discrimination, and in whether such experiences are perceived to arise from intersectional or independent sources of difference.

Lastly, an example of the intersection of gender, ethnicity, and SEP with health and wellbeing was observed in the study of Bangladeshi women living in East London. Specifically, the authors noted the distress experienced by Bangladeshi women in struggling to fulfil their expected roles as wife, mother, and housewife, given the constraints of living with poor housing conditions and a low income. Furthermore, they commented on the women's anger towards a racially discriminatory housing system, seen to allocate Bangladeshi families to high rise tower blocks regardless of the needs of children, disabled, or elderly family members [24]. Their accounts thus revealed how multiple forms of disadvantage may be experienced simultaneously among Bangladeshi women of low SEP. Furthermore, the authors concluded by stressing that 'an understanding of the interconnections between gender, social class, ethnicity, and health' is paramount to the development of health and social policies targeting social inequalities in health and wellbeing [24].

3.4.2.7 Section summary

- The key themes to emerge from the qualitative evidence were the impact of gender roles, ethnicity, culture, SEP, and racism on health. Variations in perceptions of health between ethnic groups were also apparent in the studies.
- Intersections of gender, ethnicity, and socioeconomic position with health were not explicitly identified in the studies. However, several examples of potential intersections were embedded within participants' accounts.

3.4.3 Synthesis of the quantitative and qualitative findings

The following synthesis integrates the findings from both the quantitative and qualitative evidence to address the review objective of examining the associations and intersections of gender, ethnicity, and socioeconomic position with self-reported general health and psychological wellbeing.

3.4.3.1 Associations between gender, ethnicity, and SEP with health

Conceptual models were developed from the quantitative and qualitative evidence presented above to illustrate the associations found between gender, ethnicity, and SEP with self-reported general health and psychological wellbeing. The model for general health is presented in Figure 3.3 below. Based on the quantitative evidence for general health, being male, belonging to the ethnic majority group, and having a high SEP, were found to be associated with a decreased risk of poor health. Conversely, being female and having a low SEP were found to be associated with an increased risk of poor health. The association between ethnic minority group status and health was found to vary by ethnic minority group (as indicated by the dashed arrow in Figure 3.3). Two potential moderators of the relationship between ethnicity and health were identified from the qualitative evidence. Firstly, experiences of racism were described as having a negative impact on the health of ethnic minority participants. Secondly, having lower expectations of health in old age was seen as having a positive influence on the self-reported health of older ethnic minority participants.

In the model for psychological wellbeing, presented in Figure 3.4, the quantitative evidence revealed a similar relationship for gender and SEP, whereby being male and having a high SEP were associated with a decreased risk of poor psychological wellbeing, whilst being female and having a low SEP were associated with an increased risk of poor psychological wellbeing. However, the association between ethnicity and psychological wellbeing was found to vary for

both ethnic majority and minority statuses. Findings from the qualitative evidence identified three potential moderators of this relationship. In addition to racism, language and cultural barriers were perceived to increase the risk of poor psychological wellbeing among ethnic minority participants. Conversely, religion was described by ethnic minority women as having a positive influence on their psychological wellbeing, in terms of providing social support and a common sense of identity.

Figure 3.3 Associations between gender, ethnicity, and SEP with poor general health

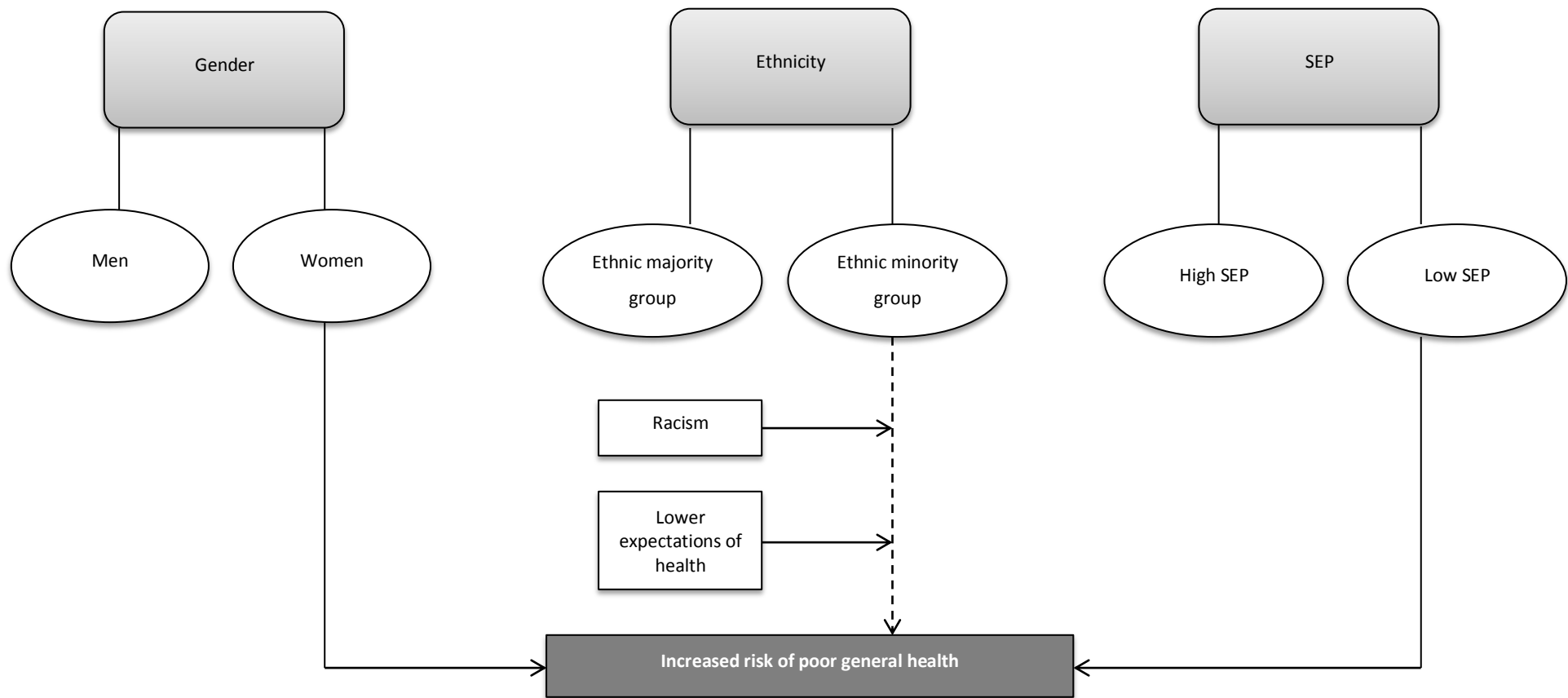
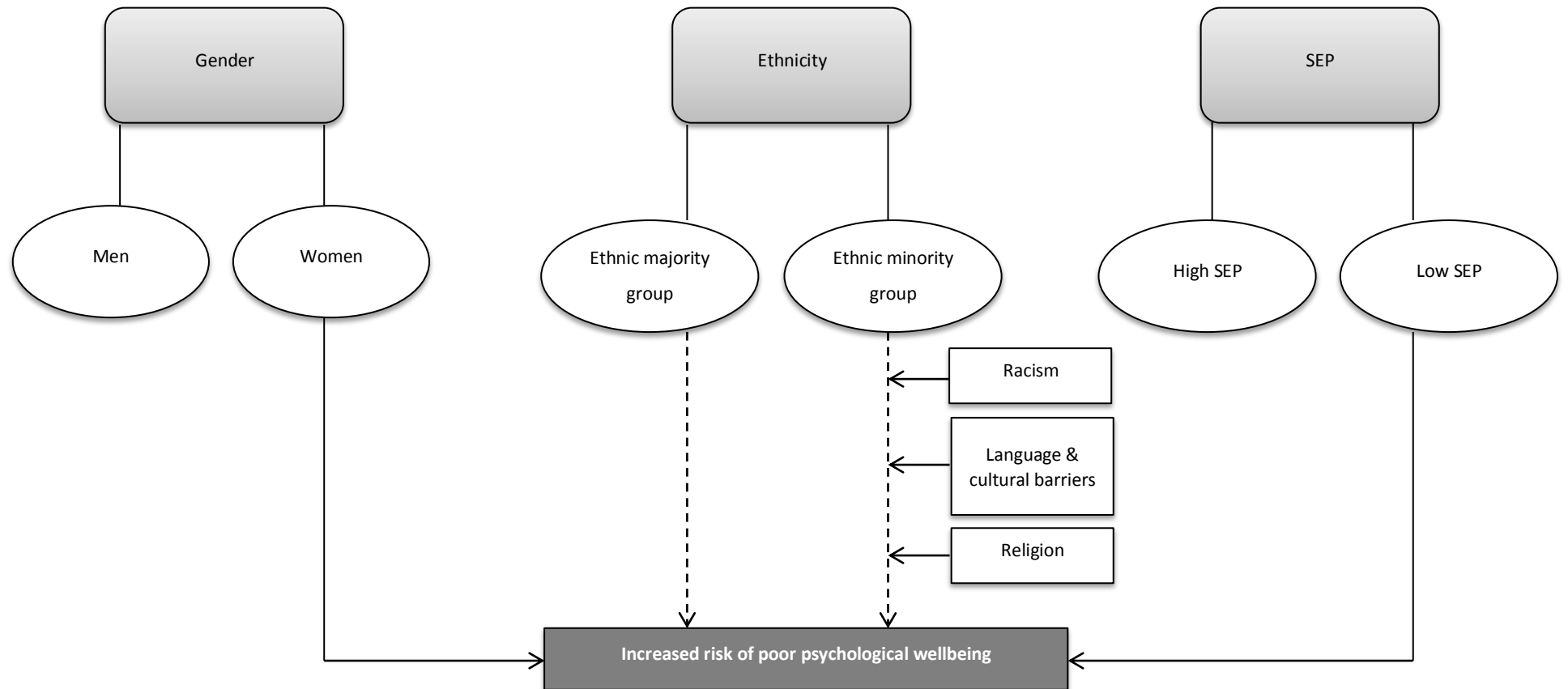


Figure 3.4 Associations between gender, ethnicity, and SEP with poor psychological wellbeing

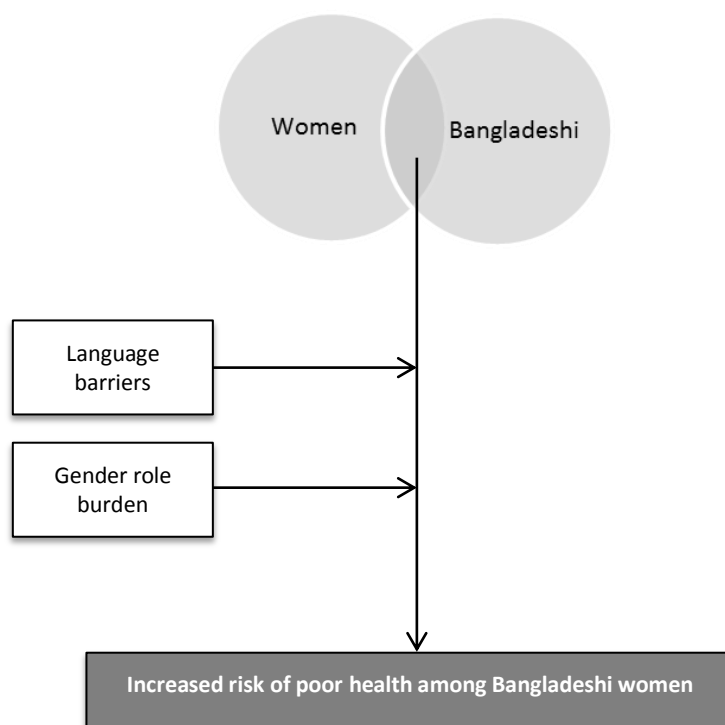


3.4.3.2 Intersections of gender, ethnicity, and SEP with health

The second stage of the synthesis was to integrate the quantitative and qualitative evidence on intersections between gender, ethnicity, and SEP with general health and psychological wellbeing. As highlighted in the findings, quantitative tests of interactions and qualitative exploration of intersections in the studies under review were few and far between. Consequently, the following synthesis is restricted to tentative suggestions as to where intersections may exist based on the limited evidence available.

Looking firstly at the intersection of gender and ethnicity with general health, Figure 3.5 below presents an example of how gender and ethnicity may intersect to produce poorer health among Bangladeshi women than Bangladeshi men and White men and women.

Figure 3.5 Intersection between gender and ethnicity with general health for Bangladeshi women

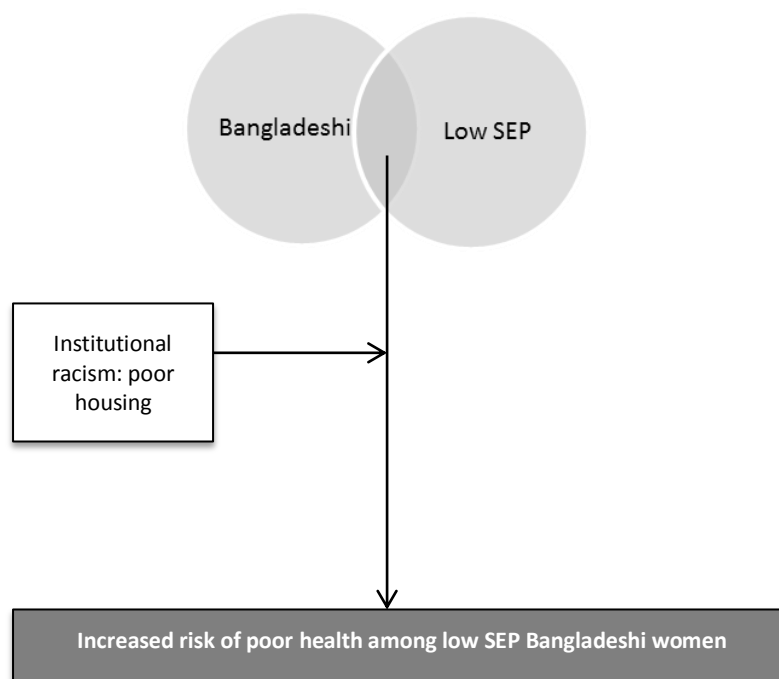


As established in the quantitative evidence, women and Bangladeshis were at a higher risk of reporting poor general health, relative to men and Whites [6, 10-13, 22]. Evidence from the qualitative literature further suggested that Bangladeshi women may experience poorer health as a consequence of the pressures of being a wife, mother and home-maker, relative to the pressures of work placed on Bangladeshi men [24]. The qualitative evidence also suggested Bangladeshi men were more likely to have learnt English than Bangladeshi women, potentially

having implications for health where language barriers impede access to health care and resources and reduce independence and social interaction for the women [24]. Further evidence is, however, needed to confirm the greater influence of gender role burden on Bangladeshi women relative to White women and the greater influence of language barriers on Bangladeshi women relative to Bangladeshi men.

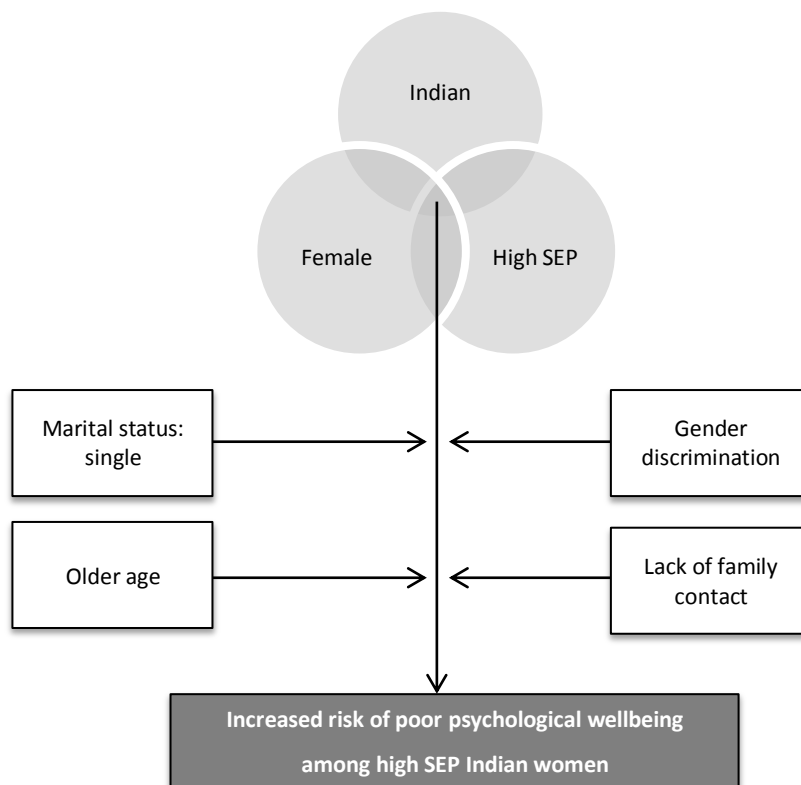
Limited evidence was also reported for a potential intersection between ethnicity and SEP with general health in the case of Bangladeshis in low socioeconomic positions. As previously mentioned in the quantitative evidence, Bangladeshis were found to have a greater risk of poor health relative to Whites [6, 10-12, 22]. Similarly, participants with a lower SEP also had a greater risk of poor general health relative to those with a higher SEP [6, 13]. Evidence from the qualitative literature, as illustrated in Figure 3.6, further suggested that Bangladeshis in low SEP experienced poorer housing conditions than their White counterparts as a result of institutional racism in the housing system [24]. As a consequence, overcrowding was described by Bangladeshi participants as having a detrimental effect of their health. Evidence of better health among low SEP Whites was not cited and therefore this intersection should be interpreted with caution.

Figure 3.6 Intersection between ethnicity and SEP with general health for low SEP Bangladeshis



Evidence of an intersection between gender, ethnicity, and SEP with psychological wellbeing was apparent in the case of Indian women with high SEP, as illustrated in Figure 3.7 below. Quantitative findings of a significant interaction between gender, ethnicity, and SEP revealed that Indian women with high SEP reported significantly poorer psychological wellbeing relative to Indian women of low SEP [1]. In contrast, the reverse pattern was reported among White women. Potential explanatory factors for this intersection included being older, single, and having less family contact, each of which may lead to greater isolation and subsequently poorer psychological wellbeing. Evidence from the qualitative literature also cited how South Asian women felt frustrated and isolated from restrictions placed on them in not being allowed to work, meet up with friends, nor be included in key decisions [15].

Figure 3.7 Intersections between gender, ethnicity, and SEP with psychological wellbeing for high SEP Indian women



3.5 Discussion

A systematic review of the quantitative, qualitative and mixed methods evidence was conducted to examine the associations and intersections of gender, ethnicity, and SEP with self-reported general health and psychological wellbeing in the UK adult population. The review identified 24 studies which varied considerably in design, population, measurement, and methodological quality. Given the substantial degree of heterogeneity between the studies, the conclusions drawn from the evidence should be treated as tentative.

3.5.1 Principal findings

The evidence synthesised in the current systematic review identified significant associations between gender, ethnicity, and SEP with measures of general health and psychological wellbeing among adults living in the UK. The quantitative evidence for gender patterns in health demonstrated a higher prevalence of poorer health reported among women relative to men across ethnic groups. This finding highlights the persistence of gender inequalities in health in the UK and raises implications for studies which fail to examine or control for the effects of gender when reporting ethnic differences in health.

The relationship between ethnicity and health was found to vary by ethnic minority group and by outcome measure. The findings for general health suggested that Pakistanis, Bangladeshis, and Indians were at a greater risk of poor health relative to Whites. Notably none of the ethnic minority groups were significantly more likely to report better health than Whites. In contrast, the findings for psychological wellbeing suggested that participants belonging to ethnic minority groups were more likely to report similar or significantly better outcomes relative to Whites. This pattern was most often observed for Indians and Chinese relative to Whites. Black Caribbeans were also found to report similar rates to Whites, whilst no clear pattern was established for Pakistanis.

The heterogeneous patterning of health among ethnic minority groups has serious implications for studies which report findings for combined or broadly defined ethnic group samples, without having first tested for sub-group differences. The combination of ethnic groups without prior testing for between-group differences is particularly problematic. Firstly, without the benefit of supporting evidence, the reader is required to adopt the authors' assumption that the combined groups are necessarily homogeneous. Secondly, any true differences existing between the ethnic groups are likely to be masked in the analysis of aggregated data. This in turn may lead to the under- or over-estimation of outcome effect sizes. Similarly, the use of crude ethnic groupings

such as ‘South Asian’ and ‘White’, represent markedly heterogeneous groups and suffer the same problems outlined above for combined ethnic groups. Moreover, the range of ethnic groups represented within such broad categories is rarely acknowledged or made explicit.

The critical appraisal criterion for ethnic group classification in the current review advocated ‘self-defined’ ethnic group membership to be the most accurate measure of ethnicity. The degree of accuracy that can be associated with a dynamic and contextual concept such as ethnicity is, however, highly contestable. Notwithstanding this issue, Bhopal and colleagues have argued that ‘unless scientific publications define race and ethnicity with greater precision, based on a rational classification of groups, and fully describe the nature of populations studied, their findings cannot be compared across time or place’ thus reducing the scientific value of the research (Bhopal et al., 2000, p.79).

The patterning of general health by SEP within ethnic groups reflected the expected socioeconomic gradient, with participants in lower socioeconomic positions reporting poorer outcomes relative to participants in higher socioeconomic positions. Evidence for a socioeconomic gradient across ethnic minority and gender groups was less consistent for measures of psychological wellbeing, with findings of the reverse gradient reported among Indian, Pakistani and Bangladeshi women.

Findings from the limited qualitative evidence confirmed the significance of gender, ethnicity and socioeconomic disadvantage in the patterning of health. A synthesis of the quantitative and qualitative data further revealed how racism, gender roles, and language and cultural barriers were perceived to influence the health of specific ethnic minority and gender groups.

The review identified an important gap in the current evidence base, with regards to studies testing for intersections between gender, ethnicity, and SEP with general health and psychological wellbeing in the UK. This finding may reflect the limited availability of representative data sets with sample sizes large enough to carry out interaction analyses. It may also be reflective of the trend in health research to focus on gender, ethnicity and SEP as separable rather than intersecting social constructs (Sen et al., 2009). The integrative synthesis of the quantitative and qualitative data did identify potential intersections between gender, ethnicity and SEP with general health and psychological wellbeing. However, further work is needed to develop and replicate these findings before definitive conclusions can be drawn.

A further gap in the literature identified by the current review was the lack of systematic reviews and meta-analyses examining associations or intersections of gender, ethnicity, and SEP

with health in the UK. This finding may be reflective of the tendency for systematic reviews in health research to focus more narrowly on the effectiveness of interventions as supported by organisations such as the Cochrane and Campbell collaborations and the UK Centre for Reviews and Dissemination (Pope et al., 2007), rather than broader issues of social inequality.

3.5.2 Strengths and limitations of the review

To strengthen the methodological quality of the review, recommended guidelines for conducting systematic reviews, mixed studies reviews, and critical appraisal were followed where possible (NHS CRD, 2001; SIGN, 2004; CASP, 2004; Popay et al., 2006; CASP, 2006; Pope et al., 2007; Creswell & Plano Clark, 2007; Pluye et al., 2009; Centre for Reviews & Dissemination, 2009). Despite the comprehensive search strategy employed, it is possible that the review did not identify all relevant studies. For instance, the literature searches were restricted to readily available resources, whereas additional time invested in contacting key researchers in the field may have identified further studies. The quality of the review may also have been constrained in being conducted by the researcher alone, whereas a team of independent reviewers may have lessened the risk of bias in the critical appraisal of the studies.

3.5.3 Recommendations for future research

The findings from the systematic review highlighted important gaps in the UK literature. Firstly, very few studies were found to have investigated the intersection of gender, ethnicity, and socioeconomic position with health and wellbeing in the UK. The limited evidence from the few studies that had, suggests intersections do indeed exist and play an important role in shaping experiences of health and wellbeing for disadvantaged social groups. To build on these initial findings, further research is needed to establish the manifestation and operation of intersectionality and its implications for policies aiming to reduce social inequalities in health and wellbeing.

Secondly, whilst both quantitative and qualitative evidence were found to offer valuable insights into the review topic, only five of the studies had employed a qualitative or mixed methods research design. This finding is likely to reflect the relatively recent development and advocacy of mixed methods research in health science, a discipline traditionally grounded in quantitative methodology (O’Cathain et al., 2007). Given the benefits of combining quantitative and qualitative evidence and the suitability of mixed methods research to the study of complex intersections in social inequalities, further studies adopting a mixed methods design are highly recommended (Weber, 2006).

Thirdly, a major limiting factor to emerge from the quantitative studies in the review was the lack of available data providing large representative samples across a wide range of ethnic minority groups. Several of the methodological weaknesses identified in these studies were likely to have resulted from the limited sub-group sample sizes available for analysis. Further studies employing data sets with larger representative samples and coverage of a wider selection of ethnic minority groups – notably Black African, Chinese, White minority, and mixed ethnicity groups, would therefore enable more definitive conclusions to be drawn from analyses.

Finally, the review findings suggest that patterns of social inequality may vary as a result of the SEP indicators and outcome measures employed. Thus, to gain a clearer picture of patterns for different SEP indicator and outcome measures, future studies would benefit from incorporating a range of measures where possible.

3.5.4 Conclusions

Evidence from the recent quantitative, qualitative and mixed methods literatures indicates that gender, ethnic and socioeconomic inequalities in health continue to shape the lives of adults living in the UK. The question as to whether these social inequalities in health intersect with one another remains an under-investigated area. Tentative findings derived from the limited evidence presented in this synthesis do, however, suggest that intersections of gender, ethnicity, and socioeconomic position in health are highly plausible. Further work to confirm these initial indications is therefore recommended.

Table 3.13 List of studies included in the systematic review

Study ID	Quantitative Studies
[1]	Cochrane, R. & Stopes-Roe, M., 1981. Social class and psychological disorder in natives and immigrants to Britain. <i>International Journal of Social Psychiatry</i> , 27, p.173-83.
[2]	Mavreas, V. G. & Bebbington, P. E., 1987. Psychiatric morbidity in London's Greek-Cypriot immigrant community. I. Associations with sociodemographic variables. <i>Social Psychiatry</i> . 22 (3), p.150-159.
[3]	Shams, M. & Jackson, P. R., 1994. The impact of unemployment on the psychological well-being of British Asians. <i>Psychological Medicine</i> . 24 (2), p.347-55.
[4]	Fenton, S., Hughes, A., & Hine, C. E., 1995. Self-assessed health, economic status and ethnic origin. <i>New Community</i> , 21 (1), p.55-68.
[5]	Jenkins, R. et al., 1997. The national psychiatric morbidity surveys of Great Britain - initial findings from the household survey. <i>Psychological Medicine</i> , 27, p.775-89.
[6]	Nazroo J.Y., 1997a. <i>The health of Britain's ethnic minorities</i> . London: Policy Studies Institute.
[7]	Nazroo, J. Y., 1997b. <i>Ethnicity and mental health: findings from a national community survey</i> . London: Policy Studies Institute.
[8]	Williams, R. & Hunt, K., 1997. Psychological distress among British South Asians: the contribution of stressful situations and subcultural differences in the West of Scotland Twenty-07 Study. <i>Psychological Medicine</i> , 27 (5), p.1173-81.
[9]	Silveira, E. R. T. & Ebrahim, S., 1998. Social determinants of psychiatric morbidity and well-being in immigrant elders and whites in East London. <i>International Journal of Geriatric Psychiatry</i> , 13 (11), p.801-12.
[10]	Chandola, T., 2001. Ethnic and class differences in health in relation to British South Asians: using the new National Statistics Socio-Economic Classification. <i>Social Science & Medicine</i> , 52 (8), p.1285-96.
[11]	Erens, B., Primatesta, P., & Prior, G., 2001. <i>Health survey for England 1999: the health of minority ethnic groups</i> . London: HMSO.
[12]	Cooper, H., 2002. Investigating socio-economic explanations for gender and ethnic inequalities in health. <i>Social Science and Medicine</i> , 54 (5), p.693-706.
[13]	Karlsen, S. & Nazroo, J. Y., 2002. Relation between racial discrimination, social class, and health among ethnic minority groups. <i>American Journal of Public Health</i> , 92 (4), p.624-31.
[14]	Shields, M. A. & Wailoo, A., 2002. Exploring the determinants of unhappiness for ethnic minority men in Britain. <i>Scottish Journal of Political Economy</i> , 49 (4), p.445-66.
[15]	Sproston, K. & Nazroo, J., 2002. <i>Ethnic Minority Psychiatric Illness Rates in the Community (EMPIRIC)</i> . London: The Stationary Office.
[16]	Nazroo, J. Y., 2003. The structuring of ethnic inequalities in health: economic position, racial discrimination, and racism. <i>American Journal of Public Health</i> , 93 (2), p.277-84.
[17]	Shields, M. A. & Price, S. W., 2003. <i>The labour market outcomes and psychological well-being of ethnic minority migrants in Britain</i> . Home Office.
[18]	Moriarty, J. & Butt, J., 2004. Inequalities in quality of life among older people from different ethnic groups. <i>Ageing & Society</i> , 24, p.729-53.
[19]	Weich, S. et al., 2004. Common mental disorders and ethnicity in England: the EMPIRIC Study. <i>Psychological Medicine</i> , 34 (8), p.1543-51.

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- [20] Huang, S. L. & Spurgeon, A., 2006. The mental health of Chinese immigrants in Birmingham, UK. *Ethnicity & Health*, 11 (4), p.365-87.
- [21] Kelaher, M. et al., 2008. The impact of different measures of socioeconomic position on the relationship between ethnicity and health. *Annals of Epidemiology*, 18, p.351-56.
- [22] Smith, N.R., et al., 2009. Intergenerational continuities of ethnic inequalities in general health in England. *Journal of Epidemiology and Community Health*, 63, p.253-258.

Study ID Qualitative Studies

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- [23] Wray, S., 2003. Women growing older: agency, ethnicity and culture. *Sociology-the Journal of the British Sociological Association*, 37 (3), p.511-27.
- [24] Barn, R. & Sidhu, K., 2004. Understanding the interconnections between ethnicity, gender, social class and health: experiences of minority ethnic women in Britain. *Social Work in Health Care*, 39 (1-2), p.11-27.

Study ID Mixed Methods Studies

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- [15] Sproston, K. & Nazroo, J., 2002. *Ethnic Minority Psychiatric Illness Rates in the Community (EMPIRIC)*. London: The Stationary Office.
- [18] Moriarty, J. & Butt, J., 2004. Inequalities in quality of life among older people from different ethnic groups. *Ageing & Society*, 24, p.729-53.
- [20] Huang, S. L. & Spurgeon, A., 2006. The mental health of Chinese immigrants in Birmingham, UK. *Ethnicity & Health*, 11 (4), p.365-87.
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Chapter 4 Overview of the Research Design

4.1 Introduction

The preceding chapters of this thesis have highlighted important gaps in our understanding of the intersectional nature of social inequalities in health in the UK. As proposed in Chapter 2, the application of intersectionality theory to the investigation of inequalities in health presents a promising perspective from which to address these gaps. Beyond the UK, empirical studies adopting an intersectionality approach to examine social inequalities in health have begun to emerge and yield new insights into ways in which social inequalities operate in shaping health. By contrast, very few studies have to date explored intersections of gender, ethnicity, and SEP in health in the UK. Notably, the findings from the systematic review of the UK literature presented in Chapter 3 highlighted the need for further research to identify intersections of social inequalities in health and understand how and why they might arise. Focusing on this important gap in the literature and building on the recommendations identified in the systematic review, a mixed methods study was designed and conducted to attain a comprehensive examination into the intersections of gender, ethnicity, and SEP in health in England.

The aim of this chapter is to provide an overview of the research design employed in this mixed methods study. The following sections set out the aim and objectives of the study, the rationale for using mixed methods, and a description and visual model of the sequential explanatory design employed.

4.2 Research aim and objectives

As outlined in Chapter 1, the aim of this research study was to examine the role of intersections of gender, ethnicity, and SEP in explaining health inequalities among adults living in England. The two main objectives of the study were as follows:

- i. To identify intersections of gender, ethnicity, and SEP in health among adults living in England; and
- ii. To explore the contextual and explanatory factors perceived to underlie intersections of gender, ethnicity, and SEP in health.

4.3 Mixed methods rationale

To address the research aim and objectives, the study adopted a mixed methods approach (Creswell & Plano Clark, 2007). The term ‘mixed methods’ can be defined as a procedure of collecting, analysing, and integrating both quantitative and qualitative data within a single investigation (Bryman, 2007; Tashakkori & Creswell, 2007). This definition therefore distinguishes mixed methods studies from multi-method studies incorporating only quantitative components or only qualitative components, and from studies which incorporate both quantitative and qualitative components but with no evidence of ‘mixing’ (Bryman, 2007; Teddlie & Tashakkori, 2009).

The rationale for adopting a mixed methods approach was driven by the need for both quantitative and qualitative methods to fully explore intersections of gender, ethnicity, and SEP in health. The use of quantitative methods was chosen to first demonstrate ‘what’ intersections exist between gender, ethnicity, and SEP with health. The use of qualitative methods was then chosen to explore ‘how’ and ‘why’ these intersections might arise. By using quantitative and qualitative methods in combination, the study sought to provide a more comprehensive understanding of the research topic than could be achieved having used either method alone (Morse, 2003; Creswell & Plano Clark, 2007). Furthermore, the mixing of quantitative and qualitative methods in this study demonstrates how the contextual and in-depth nature of qualitative findings can be used to complement the representativeness and generalizability of quantitative findings (Greene & Caracelli, 2003).

4.4 Sequential explanatory mixed methods design

A wide range of approaches to combining quantitative and qualitative methods using mixed methods research has been identified in the literature (Tashakkori & Teddlie, 2003; Bryman, 2006). The mixed methods research design best suited to meet the research objectives of the current study was a sequential explanatory design (Ivankova et al., 2006), also known as a sequential mixed design or qualitative follow-up design (Morgan, 1998; Teddlie & Tashakkori, 2009). The purpose of this design is to use qualitative data to enrich and expand upon findings generated using quantitative data (Creswell & Plano Clark, 2007).

The sequential explanatory design incorporates two phases of data collection and analysis conducted in a quantitative, then qualitative sequence (Ivankova et al., 2006). In the first phase of the study, quantitative data are collected and analysed to provide a general understanding of the research problem. In the second phase of the study, qualitative data are collected and

analysed to provide further explanation of the findings identified in the initial quantitative phase (Teddlie & Tashakkori, 2009). The quantitative and qualitative methods are mixed at the intermediate stage between the two phases, where significant quantitative findings are selected for further qualitative explanation and used to inform the design of the qualitative phase. Further mixing then occurs following the collection and analysis of the qualitative data, where findings from both the quantitative and qualitative phases are synthesised to provide a more comprehensive picture of research problem.

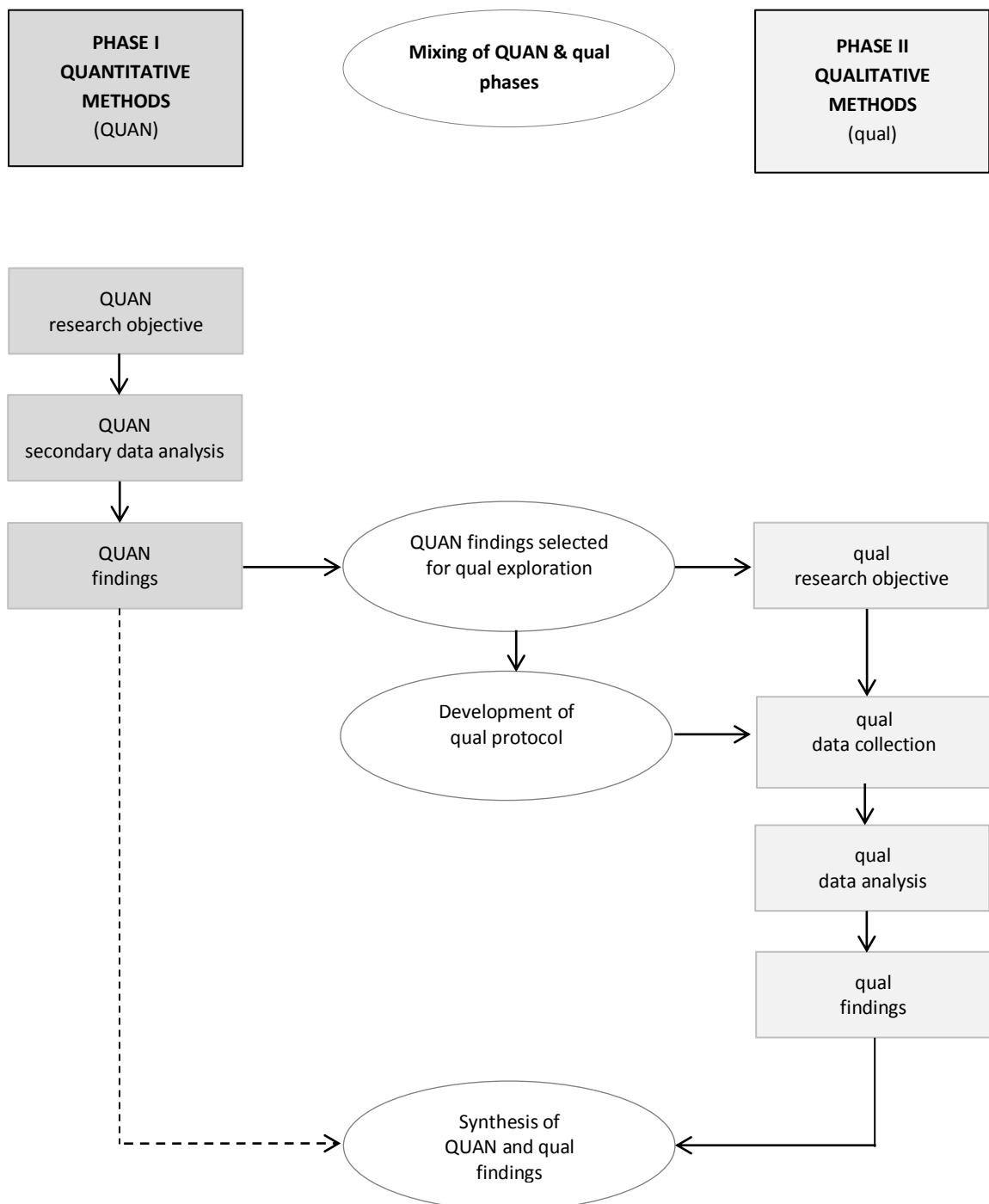
Several examples of mixed methods studies employing a sequential explanatory design can be found in the health research literature (Rank, 1989; Way et al., 1994; Schillaci et al., 2004; Fetters et al., 2007; Carr, 2009; Rigg & Ibanez, 2010). Rank (1989), for example, conducted a mixed methods study to explore the incidence and determinants of fertility among women on welfare in a U.S. state. Using records from official statistics, Rank demonstrated that women on welfare have a substantially lower fertility rate than women in the general population. To explain why this pattern might exist, Rank conducted interviews with a sample of 50 welfare recipients to explore issues including 'family dynamics, employment, and issues of getting on and off welfare' (*ibid.*, p.298). Based on the interview findings, Rank suggests that: 'The economic, social, and psychological situation that women on welfare find themselves in is simply not conducive to desiring more children. Becoming pregnant and having a child is perceived as making the situation worse, not better.' (*ibid.*, p.302). Through the mixing of quantitative and qualitative methods, Rank thus illustrates how the in-depth interviews 'provide a potential explanation' for the lower fertility rate reported for women on welfare (*ibid.*, p.303).

In the current study, a sequential explanatory design was employed to examine intersections of gender, ethnicity, and SEP in health among adults living in England. In the first, quantitative, phase of the study, data from the Health Survey for England 2004 were analysed to identify intersections between gender, ethnicity, and SEP with subjective measures of health. A subset of statistically significant intersections was identified for further exploration using qualitative methods. Building on these quantitative findings, the second, qualitative, phase of the study explored the contextual and explanatory factors perceived to underlie the selected intersections. This was achieved through semi-structured interviews carried out with a purposive sample of women from ethnic and socioeconomic groups corresponding to the intersections under study. Findings from the quantitative and qualitative phases of the study were then synthesised to provide a contextualised and deeper understanding of intersections of gender, ethnicity, and SEP in health.

A visual model of the study design is presented in Figure 4.1 to help illustrate the sequence of quantitative and qualitative methods and stages at which the methods were mixed (Ivankova et al., 2006; Creswell & Plano Clark, 2007). The QUAN (quantitative) and qual (qualitative) terms incorporated in the model are derived from the mixed methods notation system developed by Morse (1991). Here, the use of uppercase and lowercase letters is used to signify whether one of methodological component has priority (e.g. QUAN → qual) or whether both have equal weighting (e.g. QUAN → QUAL). In sequential explanatory designs, the initial quantitative component of a study is typically given the dominant status (QUAN) over the smaller proceeding qualitative (qual) component, as was the case in the current study (Morgan, 1998; Ivankova et al., 2006). However, depending on the research aims, researchers may instead give priority to the qualitative phase (Ivankova & Stick, 2007), or give equal priority to the quantitative and qualitative phases (O’Cathain et al., 2007).

Reflecting the sequential design of the study, the quantitative and qualitative phases and intermediate stage of the study are presented in the thesis in three consecutive chapters. Phase I of the study is presented in Chapter 5 and reports full details of the quantitative methods and statistical findings. The intermediate stage of the study is presented in Chapter 6 and outlines the quantitative findings identified for further qualitative exploration. Phase II of the study is then presented in Chapter 7 and reports full details of the qualitative methods, followed by a synthesis of the qualitative and quantitative findings.

Figure 4.1 Visual model of the current mixed methods study design



Notes: QUAN: quantitative; qual: qualitative; Secondary data from an existing national survey were employed.

4.5 Chapter Summary

This chapter provides an overview of the research design employed in the current study. The central aim of the study was to examine the role of intersections of gender, ethnicity, and SEP in explaining health inequalities among adults living in England. Specifically, the objectives of the study were firstly to identify what intersections between gender, ethnicity and SEP with health are present among adults living in England, and secondly to explore how and why these intersections might exist.

The study adopted a mixed methods approach and employed a sequential explanatory design to complement the quantitative and qualitative nature of the research objectives. The design incorporated two phases, conducted in a quantitative, then qualitative sequence. The first phase of the study comprised a quantitative analysis of data from the Health Survey for England (2004) to identify intersections between gender, ethnicity, and SEP with measures of poor health. A subset of statistically significant intersections from the quantitative findings was then identified for further exploration using qualitative methods. The second phase of the study comprised a qualitative analysis of interview data to explore the contextual and explanatory factors perceived to underlie these intersections. Here, semi-structured interviews were conducted with a purposive sample of women from ethnic and socioeconomic groups corresponding to the intersections under study.

The following three chapters of this thesis present the methods and findings for the quantitative phase (Chapter 5), connecting stage (Chapter 6), and qualitative phase (Chapter 7) of this mixed methods study.

Chapter 5 Phase I: Quantitative Analysis of the Health Survey for England 2004

5.1 Introduction

This chapter reports on the methods and findings from the first phase of the mixed methods investigation, which sought to examine whether intersections of gender, ethnicity and SEP in health were present among adults living in England. To meet this objective, data from the Health Survey for England 2004 (HSE 2004) were modelled using binary logistic regression to test for significant interaction effects between gender, ethnicity, and indicators of SEP with three measures of subjective health.

The chapter begins with a description of the research methods, including details of the quantitative design, survey data, key variables and data analysis strategy employed. Section 5.3 then provides a description of the HSE 2004 sample characteristics in terms of age, gender, ethnicity, and SEP. Section 5.4 reports the findings from the quantitative analyses, presenting a comprehensive assessment of the independent and intersectional relationships found between gender, ethnicity, and SEP with general health, psychological wellbeing, and health-related quality of life. The chapter then concludes in Section 5.5 with a summary of the key findings.

5.2 Methods

5.2.1 Quantitative design

To enable the examination of intersections of gender, ethnicity, and SEP in health, the study required a data set which captured the key outcome and exposure variables of interest from a sample large enough to allow the analysis of higher order interaction effects. Given the lack of longitudinal data sets with adequate coverage of ethnic minority groups, the best available data source identified at the time of the investigation was the HSE 2004. The cross-sectional design of the HSE 2004 meant that the analyses tested for evidence of statistical associations between the variables of interest, rather than evidence of cause and effect. The implications associated with cross-sectional data analysis are discussed in further detail in Chapter 8, Section 8.4.1.

5.2.2 Health Survey for England 2004

The Health Survey for England is a series of annual surveys undertaken since 1991 when first commissioned by the Department of Health (DoH, 2007; NatCen, 2010). Central to the aims of the survey are the collection of data on the health of the population, associated risk factors, and differences between population subgroups. The survey comprises a set of core questions on topics including general health, psychological wellbeing, and socioeconomic and demographic indicators. These are supplemented by a series of more specific questions on a given health condition or population group of special interest. The focus for the Health Survey for England conducted in 2004 (HSE 2004) was the health of ethnic minority groups living in England. The first Health Survey for England to examine the health of the ethnic minority population was conducted in 1999 and included representative samples of the six most populous ethnic minority groups in England (i.e. Black Caribbean, Indian, Pakistani, Bangladeshi, Chinese, and Irish) and a sample of the general population (Erens et al., 2001). The objective of the HSE 2004 was to build on the information gathered in the 1999 survey and to expand the number of ethnic groups to include participants of Black African origin (Sproston & Mindell, 2006a).

The following sections summarise the key design features of the HSE 2004 pertinent to this investigation. Full details of the methods and documentation used in the HSE 2004 can be found elsewhere (see Information Centre, 2006; Sproston & Mindell, 2006b).

5.2.2.1 Sampling methods

The HSE 2004 was designed to collect information from a nationally representative sample of the general population living in private households in England. A separate ethnic minority boost sample and additional Chinese boost sample were also drawn to ensure sufficient numbers of participants from ethnic minority groups were recruited (Sproston & Mindell, 2006b). Participants from the general population were recruited using a multi-stage probability sampling design. The small user Postcode Address File formed the sampling frame and census wards were used as the primary sampling units (PSU). A total of 6,552 addresses were selected and interviews conducted with up to ten adults (aged 16 years or above) and up to two children¹ in each participating household. The ethnic minority boost sample was designed to recruit additional participants from the Black Caribbean, Black African, Indian, Pakistani, Bangladeshi, Chinese, and Irish ethnic groups. An additional 408 PSUs were selected according to density of ethnic minority groups. A total of 41,436 addresses were screened for residents belonging to the eligible ethnic minority groups and interviews conducted with up to four adults and three

¹ Children aged 13-15 were interviewed themselves. Parents of children aged 0-12 answered questions on behalf of their children.

children from each participating household. Finally, the additional Chinese boost sample was drawn from a further 75 PSUs selected on the basis of the proportion of residents with 'Chinese sounding' surnames (Sproston & Mindell, 2006b). A total of 3,901 addresses were selected and interviews conducted with all adults and up to three children from each participating household.

5.2.2.2 Sample size and response rate

A total of 12,758 adults aged 16 years and older were interviewed in the HSE 2004. Of these, 114 participants were excluded for not meeting the ethnic group criteria. In the remaining sample of 12,644 adults, 6,704 of the participants were recruited from the general population sample and a further 5,940 participants recruited from the ethnic minority boost samples. In terms of the response rate, 72 per cent of eligible households from the general population sample took part in the survey, with 90 per cent of adults from these households taking part. A slightly higher response rate was reported for women (95%) compared to men (84%). For the ethnic minority boost sample, 69 per cent of eligible households took part in the survey, with 88 per cent of adults from these households taking part. The response rates among the ethnic minority groups were highest for the Irish group (92%) and lowest for the Chinese and Pakistani groups (84%). Response rates were again slightly higher for women compared to men in the ethnic minority group boost sample, with the largest difference reported between Black Caribbean women (91%) and men (82%) (Sproston & Mindell, 2006a).

5.2.2.3 Data collection

The data collection methods employed in the HSE 2004 included interviews with the household representative and individual members of the household. The household interview collected data on topics such as the size and composition of the household, relationships between its members, household income, car ownership, and accommodation tenure. The individual interview covered a wide range of topics related to the health, ethnicity and socioeconomic circumstances of the participant. Items included general health, psychosocial health, ethnic origin and country of birth, educational achievement, economic status, and occupation. A nurse visit was also carried out to collect physiological measurements and blood samples from members of households in the ethnic minority boost sample.

5.2.2.4 Translation of survey materials

The survey materials were translated by agencies from English into seven languages: Urdu, Punjabi, Gujarati, Hindi, Bengali, Mandarin and Cantonese. The translated materials were then checked against the English for 'accuracy, consistency and sense' by bilingual interviewers from the UK National Centre of Social Research (Blake, 2004, p.2). African language

translations were omitted due to the large number of different African languages and the smaller proportion of participants expected to speak these (Blake, 2004). Participants wishing to complete the survey in one of the available languages were allocated to an interviewer able to speak the appropriate language in addition to English. Participants were also given the choice of completing the survey using a combination of English and one of the available languages (Sproston & Mindell, 2006b). Table 5.1 Part (a) shows the percentage of participants in the sample used in the current analysis who completed their interview wholly in English, partly in English and in another language, or wholly in another language. Part (b) of the table provides a breakdown of the languages used by the participants who did not complete their interview wholly in English. The figures are presented for the four ethnic groups given the choice of different languages. Interviews held with participants from the Black Caribbean, Black African and Irish ethnic groups were all conducted in English.

Table 5.1 Language of interview chosen by the ethnic groups given a choice of language

Part (a)	Indian		Pakistani		Bangladeshi		Chinese	
	N	(%)	N	(%)	N	(%)	N	(%)
Language of interview								
Wholly in English	980	(89.1)	727	(78.0)	584	(66.2)	612	(91.6)
Partly in English	22	(2.0)	70	(7.5)	120	(13.6)	14	(2.1)
Wholly in another language	98	(8.9)	135	(14.5)	178	(20.2)	42	(6.3)
Missing data	1							
Column Totals	1101		932		882		668	

Part (b)	Indian		Pakistani		Bangladeshi		Chinese	
	N	(%)	N	(%)	N	(%)	N	(%)
Language of interview								
Urdu	8	(6.7)	107	(52.2)	19	(6.4)		
Punjabi	54	(45.0)	92	(44.9)	1	(0.3)		
Gujarati	51	(42.5)	1	(0.5)				
Hindi	6	(5.0)	1	(0.5)				
Bengali	1	(0.8)	1	(0.5)	271	(90.9)		
Sylheti					7	(2.3)		
Mandarin							7	(12.5)
Cantonese							48	(85.7)
Other (not reported)			3	(1.5)			1	(1.8)
Column totals	120		205		298		56	

5.2.3 Operationalisation of ethnicity

The accurate classification of ethnic groups was of key importance to the current investigation. A careful examination of the ethnic group classification system incorporated in the HSE 2004 data set was therefore carried out prior to analysis. The system was subsequently found to be unsuitable for the purposes of the current investigation due to the degree of data inaccuracy and heterogeneity within ethnic group categories. To address these matters, a revised ethnic group classification system was developed and employed throughout the analyses. Details of the HSE 2004 ethnic group classification system, its limitations, and the revised classification system are outlined below.

5.2.3.1 Ethnic group classification in the HSE 2004

The HSE 2004 interview asked participants a series of questions relating to their ethnic, cultural and family background, as shown in Figure 5.1. Responses to questions were captured using computer aided personal interviewing (CAPI). The CAPI system automatically assigned each participant to one of nine ethnic group categories which appear in the HSE 2004 data set as the derived ethnicity variable (Dmethn04). The nine ethnic group categories were labelled: Black Caribbean, Black African, Indian, Pakistani, Bangladeshi, Chinese, Irish, White, and other.

To assess the validity of this CAPI classification system, a comparison was made between the ethnic group category assigned to each participant and the participant's original responses to the survey questions on ethnicity (see Figure 5.1). Table 5.2 presents the findings of the comparison and reveals that the CAPI classification system aggregated participants from multiple ethnicities in forming the nine ethnic group categories. Across the sample of 12,758 participants, 349 participants were identified as having selected a different ethnic group to that assigned by the CAPI system. Among the ethnic minority groups, the rate of discordance was 4.9 per cent (338 cases out of 6,930 participants). A further 24 participants were assigned to ethnic groups despite having missing data on the questionnaire items relating to ethnicity, resulting in a total of 373 incidences of discordance as shown in Table 5.2.

Figure 5.1 HSE 2004 Individual Questionnaire items on ethnic, cultural and family origins

Q.1: Can I check, to which of the groups on this card do you consider you belong? [Code only one]

White (Go to Q.2)
 Mixed ethnic group (Go to Q.2 and Q.3)
 Black (Go to Q.6)
 Black British (Go to Q.6)
 Asian (Go to Q.7)
 Asian British (Go to Q.7)
 Any other group (Go Q.8 and Q.9)

Q.2: Can I just check were you or either of your parents born in Ireland?

Yes
 No
 Don't know

Q.3: What is your cultural background? [Code all that apply]

White and Black Caribbean
 White and Black African
 White and Indian
 White and Pakistani
 Any other cultural background (Go to Q.4 and Q.5)

White and Bangladeshi
 White and Indian Caribbean
 White and African-Indian
 White and Chinese

Q.4: What is your (natural) mother's cultural background?

Black Caribbean
 Black African
 Indian
 Pakistani
 Bangladeshi
 Chinese
 Or any other cultural background

Q.5: White is your (natural) father's cultural background?

Black Caribbean
 Black African
 Indian
 Pakistani
 Bangladeshi
 Chinese
 Or any other cultural background

Q.6: What is your cultural background? Is it: [Code all that apply]

Caribbean
 African
 Any other cultural background (specify)

Q.7: What is your cultural background? Is it: [Code all that apply]

Indian
 Pakistani
 Bangladeshi
 Indian Caribbean
 African Indian
 Any other cultural background (specify)

Q.8: What is your cultural background? Is it: [Code apply that apply]

Chinese
 Japanese
 Philippino
 Vietnamese
 Any other cultural background (specify)

Q.9: Does your family have origins which are... [Code all that apply]

Black Caribbean
 Black African
 Indian
 Pakistani
 Bangladeshi
 Chinese
 Indian Caribbean
 African Indian
 Any other cultural background (specify)

Source: (Sproston & Mindell, 2006b).

Table 5.2 Comparison of the HSE 2004 ethnic group classification and participant-selected ethnic groups

Participant-selected ethnic groups	HSE 2004 CAPI Classification System (Dmethn04)									Row Totals
	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish	White (not Irish)	Other	
Black Caribbean	946	*1					*1			948
Black African		807	*1							808
Indian	*1		1099	*1						1101
Pakistani			*3	929						932
Bangladeshi				*1	881					882
Chinese						668				668
White Irish							1136	10		1146
White (not Irish)							*5	5814	*7	5826
Other ethnicity	1					8	1	1	60	71
African Indian			34							34
Indian Caribbean			11							11
Vietnamese						3			1	4
Japanese									2	2
Philippino						2			9	11
Asian other						4			20	24
Black other	13	3				1			5	22
White & Black Caribbean	98									98
Black Caribbean & other ethnicity	3									3
White & Black African	*1	36								37
Black African & other ethnicity		7								7
White & Indian		*1	19							20
Indian & other ethnicity			10							10
White & Pakistani				8						8
Pakistani & other ethnicity				1						1
White & Bangladeshi					4					4
White & Chinese						33				33
Chinese & other ethnicity						3				3
White & African Indian			1							1
White & Indian Caribbean			3							3
Other mixed ethnicity		1					7		8	16
Missing data	4	3	3	1	4	1	3	3	2	24
<i>Column totals</i>	<i>1067</i>	<i>859</i>	<i>1184</i>	<i>941</i>	<i>889</i>	<i>723</i>	<i>1153</i>	<i>5828</i>	<i>114</i>	<i>12758</i>
<i>Discordance (inc. missing data)</i>	<i>121</i>	<i>52</i>	<i>85</i>	<i>12</i>	<i>8</i>	<i>55</i>	<i>17</i>	<i>14</i>	<i>9</i>	<i>373</i>

Notes: * Misclassification.

The differences between the CAPI classification system and participants' responses to the questionnaire items are illustrated below using the CAPI Indian ethnic group category as an example. As shown in Table 5.2, 1184 participants were assigned to this category by the CAPI system. An examination of the individual questionnaire items (questions 1 to 9 in Figure 5.1) revealed that 1099 participants had selected question responses which were in agreement with this category. As illustrated in Figure 5.2, 1094 participants had said they belonged to the 'Asian' or 'Asian British' category and that their cultural background was Indian. A further five participants had said they belonged to the 'Any other group' category and that they had Indian family origins.

Figure 5.2 Questionnaire responses for participants in the CAPI Indian ethnic group who selected 'Indian'

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]	
	<input type="checkbox"/> White	(Go to Q.2)
	<input type="checkbox"/> Mixed ethnic group	(Go to Q.2 and Q.3)
	<input type="checkbox"/> Black	(Go to Q.6)
	<input type="checkbox"/> Black British	(Go to Q.6)
	<input checked="" type="checkbox"/> Asian	(Go to Q.7)
	<input checked="" type="checkbox"/> Asian British	(Go to Q.7)
	<input checked="" type="checkbox"/> Any other group	(Go Q.8 and Q.9)
Q.7:	What is your cultural background? Is it: [Code all that apply]	
	<input checked="" type="checkbox"/> Indian (n=1094)	<input type="checkbox"/> Indian Caribbean
	<input type="checkbox"/> Pakistani	<input type="checkbox"/> African Indian
	<input type="checkbox"/> Bangladeshi	<input type="checkbox"/> Any other cultural background (specify)
Q.9:	Does your family have origins which are... [Code all that apply]	
	<input type="checkbox"/> Black Caribbean	<input type="checkbox"/> Chinese
	<input type="checkbox"/> Black African	<input type="checkbox"/> Indian Caribbean
	<input checked="" type="checkbox"/> Indian (n=5)	<input type="checkbox"/> African Indian
	<input type="checkbox"/> Pakistani	<input type="checkbox"/> Any other cultural background (specify)
	<input type="checkbox"/> Bangladeshi	

Several participants assigned to the CAPI Indian ethnic group category had not, however, selected Indian as their cultural or family background, as illustrated in Figures 5.3 and 5.4. These included participants who had instead selected Indian Caribbean (n=10), African Indian (n=33), Pakistani (n=3), or Black African (n=1) as their cultural or family background. The latter two cases appear to be incidences of misclassification or data input error. A further 33 participants had said they belong to mixed ethnicity groups, including White and Indian, White and Indian Caribbean, White and African Indian, and Indian and other ethnicity (not specified). Finally, another three participants assigned to the CAPI Indian ethnic group had missing data on each of the question items relating to ethnicity.

Figure 5.3 Questionnaire responses for participants in the CAPI Indian ethnic group who did not select 'Indian'

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]	
	<input type="checkbox"/> White	(Go to Q.2)
	<input type="checkbox"/> Mixed ethnic group	(Go to Q.2 and Q.3)
	<input type="checkbox"/> Black	(Go to Q.6)
	<input type="checkbox"/> Black British	(Go to Q.6)
	<input checked="" type="checkbox"/> Asian	(Go to Q.7)
	<input checked="" type="checkbox"/> Asian British	(Go to Q.7)
	<input checked="" type="checkbox"/> Any other group	(Go Q.8 and Q.9)
Q.7:	What is your cultural background? Is it: [Code all that apply]	
	<input type="checkbox"/> Indian	<input checked="" type="checkbox"/> Indian Caribbean (n=10)
	<input checked="" type="checkbox"/> Pakistani (n=3)	<input checked="" type="checkbox"/> African Indian (n=33)
	<input type="checkbox"/> Bangladeshi	<input checked="" type="checkbox"/> Any other cultural background (specify)
Q.9:	Does your family have origins which are... [Code all that apply]	
	<input type="checkbox"/> Black Caribbean	<input type="checkbox"/> Chinese
	<input checked="" type="checkbox"/> Black African (n=1)	<input checked="" type="checkbox"/> Indian Caribbean (n=1)
	<input type="checkbox"/> Indian	<input checked="" type="checkbox"/> African Indian (n=1)
	<input type="checkbox"/> Pakistani	<input type="checkbox"/> Any other cultural background (specify)
	<input type="checkbox"/> Bangladeshi	

Figure 5.4 Questionnaire responses for participants in the CAPI Indian ethnic group who selected mixed ethnic groups

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]	
	<input type="checkbox"/> White	(Go to Q.2)
	<input checked="" type="checkbox"/> Mixed ethnic group	(Go to Q.2 and Q.3)
	<input type="checkbox"/> Black	(Go to Q.6)
	<input type="checkbox"/> Black British	(Go to Q.6)
	<input type="checkbox"/> Asian	(Go to Q.7)
	<input type="checkbox"/> Asian British	(Go to Q.7)
	<input type="checkbox"/> Any other group	(Go Q.8 and Q.9)
Q.3:	What is your cultural background?	[Code all that apply]
	<input type="checkbox"/> White and Black Caribbean	<input type="checkbox"/> White and Bangladeshi
	<input type="checkbox"/> White and Black African	<input checked="" type="checkbox"/> White and Indian Caribbean (n=3)
	<input checked="" type="checkbox"/> White and Indian (n=19)	<input checked="" type="checkbox"/> White and African-Indian (n=1)
	<input type="checkbox"/> White and Pakistani	<input type="checkbox"/> White and Chinese
	<input checked="" type="checkbox"/> Any other cultural background (Go to Q.4 and Q.5)	
Q.4:	What is your (natural) mother's cultural background?	
	<input type="checkbox"/> Black Caribbean	<input type="checkbox"/> Bangladeshi
	<input type="checkbox"/> Black African	<input type="checkbox"/> Chinese
	<input checked="" type="checkbox"/> Indian (n=7)	<input type="checkbox"/> Or any other cultural background
	<input type="checkbox"/> Pakistani	
Q.5:	White is your (natural) father's cultural background?	
	<input type="checkbox"/> Black Caribbean	<input type="checkbox"/> Bangladeshi
	<input type="checkbox"/> Black African	<input type="checkbox"/> Chinese
	<input checked="" type="checkbox"/> Indian (n=3)	<input type="checkbox"/> Or any other cultural background
	<input type="checkbox"/> Pakistani	

Whilst none of the participants in the CAPI Indian ethnic group selected more than two categories on the multiple choice questions, there were incidences where this occurred in other CAPI ethnic groups. For example, ten participants selected that they belonged to the Black or Black British group and that they had both Caribbean and African cultural backgrounds (see Q1 and Q6, Figure 5.1). Nine of these participants were assigned to the CAPI Black Caribbean ethnic group and one to the CAPI Black African ethnic group. This finding shows that the CAPI

classification system selected one response over the other but was inconsistent its choice of response. Further details of the classification of the nine CAPI ethnic groups are provided in Appendix B.1, B.2, and B.3.

The ethnic group classification system utilised by the HSE 2004 appears to have been driven by the need to maximise the sample sizes of the ethnic minority groups. As illustrated above, this came at the cost of increased heterogeneity in ethnic group categories which, in many cases, overrode participant selected ethnic identity. Whilst large ethnic group samples are an important requirement of quantitative survey research into the ethnic patterning of health, the HSE 2004 data set can be criticised for its lack transparency in failing to inform users of the full range of different cultural backgrounds represented within its ethnic group categories.

5.2.3.2 Revised ethnic group classification system

The current investigation sought to employ a more valid and homogeneous classification system by eliminating misclassification, imputed classification (in the case of missing data), and aggregation of multiple ethnic groups. To achieve this, an expanded classification system was developed based on participants' responses to the nine questionnaire items outlined in Figure 5.1. The ethnicity questions identified 31 different ethnic group categories that participants could select, including 15 mixed ethnicity categories. The right-hand column in Table 5.2 shows the breakdown of the sample according to the expanded classification system. Details of the question item responses forming each of these ethnic group categories are provided in Appendix B.4.

A requirement of the current investigation was to run analyses on ethnic groups with large enough sample sizes to enable the analysis of intersections. For this reason, ethnic group categories with small sample sizes were excluded from analysis. The analysis also sought to minimise the heterogeneity of the 'White (not Irish)' reference group. This group was subsequently divided into the following four categories based on participants' country of birth: 'White and born in England' (n=5351), 'White and born in Scotland' (n=127), 'White and born in Wales' (n=81), and 'White and born in other countries' (n=261). This was the best available means of identifying a 'White English' ethnic group, given the lack of question items on White ethnicity present in the survey. The final sample of 11,836 participants included the following eight ethnic groups: Black Caribbean, Black African, Indian, Pakistani, Bangladeshi, Chinese, White Irish, and White English.

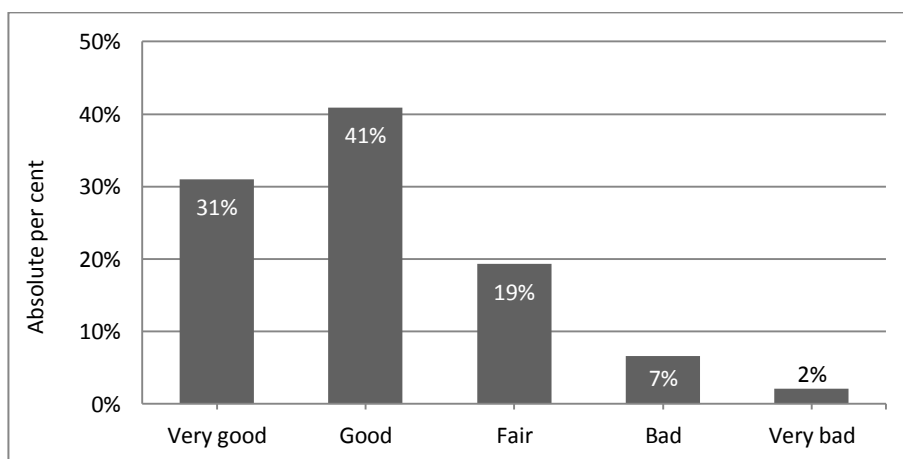
5.2.4 Measures of health

Three outcome measures were selected from the HSE 2004 to provide a comprehensive picture of the patterning of social inequalities across different dimensions of health. These included subjective measures of general health, psychological wellbeing, and health-related quality of life, as discussed previously in Chapter 2, Section 2.2.1.

5.2.4.1 Self-reported general health

Self-reported general health was assessed using a single-item measure of global health. The measure employed in the HSE 2004 asked participants: “How is your health in general – would you say it was very good, good, fair, bad or very bad?” Figure 5.5 shows the percentage of participants who reported having very good, good, fair, bad, or very bad general health.

Figure 5.5 Distribution of ratings for self-reported general health in the HSE 2004 adult sample



The responses were dichotomised into ‘very good or good’ and ‘fair, bad, or very bad’. This choice of dichotomy has been employed in previous HSE studies (Cooper, 2002; Nazroo, 2003; Smith et al., 2009) and studies using similar response scales (Fenton et al., 1995; Nazroo, 1997a; Chandola & Jenkinson, 2000). The combined responses ‘fair, bad or very bad’ are referred to as ‘poor general health’ in the following analyses.

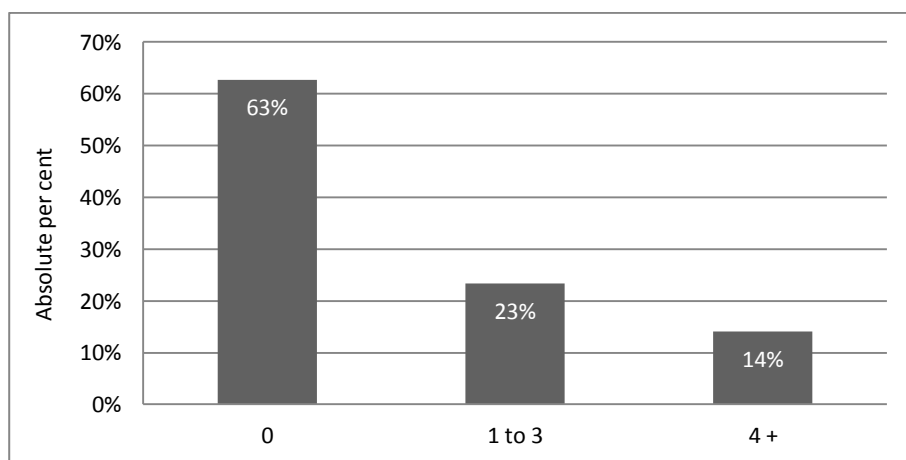
5.2.4.2 Psychological wellbeing

Psychological wellbeing was assessed using the 12-item version of the General Health Questionnaire (Goldberg & Williams, 1988), the GHQ-12. The measure comprises 12 questions on general levels of happiness, depression, anxiety, sleep disturbance, and ability to cope over the past few weeks, as shown in Appendix C.11. Respondents rate each question on a 4-point scale, for example, ‘better than usual’, ‘same as usual’, ‘less than usual’, or ‘much less than usual’. The 12 items can be scored using a bi-modal system with a score of 0 for ‘better than

usual' and 'same as usual' responses and a score of 1 for 'less than usual' and 'much less than usual' responses (see Appendix B.6 for illustration). This scoring system produces a maximum total score of 12, representing the worst level of psychological wellbeing; and a minimum score of 0, indicating the best level of psychological wellbeing. A threshold point is then applied to the total score to identify participants considered to be suffering from a psychiatric disorder. A threshold score of 3 was employed in the HSE 1999 and HSE 2004, with scores of 4+ referred to as 'high scores', indicative of psychiatric morbidity (Erens et al., 2001; Sproston & Mindell, 2006).

Figure 5.6 shows the distribution of GHQ-12 scores (0, 1-3, and ≥ 4) reported for the HSE 2004 adult sample. As illustrated below, only 14 per cent of participants ($n=1,407$) scored above the threshold for psychiatric morbidity. The current analyses adopted the same threshold point of 3/4 and dichotomised the scores into 'good psychological wellbeing' (scores of 0 to 3) and 'poor psychological wellbeing' (scores of 4 and above), with poor psychological wellbeing representing the outcome of interest.

Figure 5.6 Distribution of GHQ-12 scores for the HSE 2004 adult sample



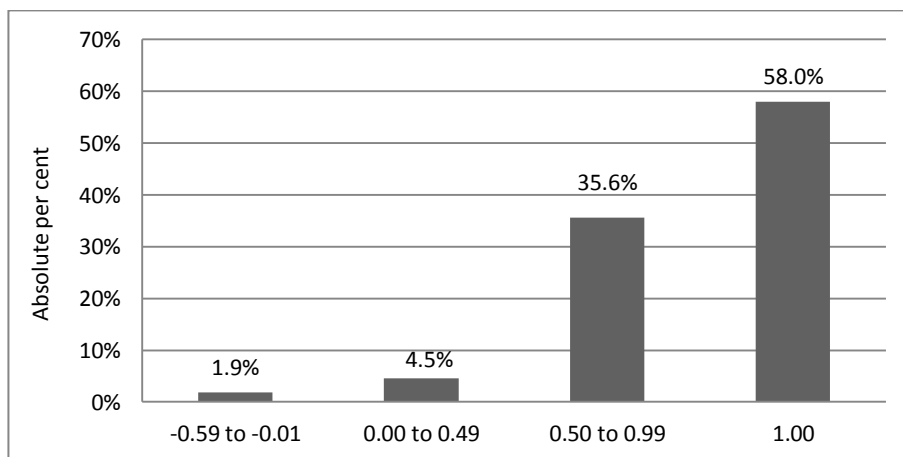
5.2.4.3 Health-related quality of life

Health-related quality of life (HRQoL) was measured using the EQ-5D (EuroQol Group, 1990). The EQ-5D provides a simple descriptive profile across five dimensions of health: mobility, self-care, usual activity, pain/discomfort, and anxiety/depression, as shown in Appendix B.7. The instrument asks participants to describe their state of health that day for each dimension by selecting one of three statements. The responses for each dimension are scored 1 to 3, with a score of 1 indicating no problems, a score of 2 indicating moderate problems, and a score of 3 indicating extreme problems, as perceived by the respondent. The scores from the five

dimensions are then recorded in order to give a five-digit health state code. For example, a person in optimal health reporting no problems across all five dimensions would have a health state code of 11111. In contrast, a person in the worst state of health reporting extreme problems for each dimension would have a health state code of 33333. Each health state code can be converted into a single index value which rates the specific health state on an interval scale ranging from -0.59 for worst health to 1.00 for perfect health. The conversion is made using an EQ-5D value set derived from a representative sample of the general population (EuroQol Group, 2009).

The distribution of EQ-5D index scores for the HSE 2004 adult sample is presented in Figure 5.7. The chart reveals that the data were skewed towards the best health state score of 1.00, with 58 per cent (n=5,873) of participants scoring 1.00. The mean EQ-5D index score for the sample was 0.86, with two participants scoring the worst possible health state of -0.59. Given the skewed distribution of the data, the EQ-5D index scores were dichotomised into a binary variable comprising scores of 1.00 and scores of <1.00. Participants with scores of 1.00 were defined as having ‘no problems with HRQoL’ and participants with scores of <1.00 were defined as having ‘problems with HRQoL’. This binary variable presents the outcome for HRQoL used in the following analyses.

Figure 5.7 Distribution of EQ-5D index scores for the HSE 2004 adult sample



5.2.5 Indicators of socioeconomic position

A range of socioeconomic indicators were selected from the HSE 2004 for use in the following analyses, to help capture the multidimensional nature of socioeconomic position (SEP). The indicators included education level, economic status, social class, and income level. A description of the construction and measurement of each indicator of SEP is provided below.

5.2.5.1 Education level

Education level was measured using the highest educational qualification attained by the participant. Specifically, the HSE 2004 asked participants to identify the qualifications they held from a list of 29 educational and professional qualifications (see Appendix B.8). If participants did not select any of the qualifications, they were asked whether they held other qualifications not mentioned on the list. The data from this question were aggregated into three levels of attainment: no qualifications, GCSEs/A-levels, and degree or above, with equivalent qualifications included in these categories. Participants in full-time education or with qualifications below GCSE/A level were excluded from the analyses. Participants whose highest qualifications were foreign were also excluded as information on the equivalence of their qualifications was not available. Table 5.3 reports the breakdown of the HSE 2004 adult sample by education level and shows similar proportions of participants were represented across the three levels.

Table 5.3 Education level breakdown for HSE 2004 adult sample

Education level	N	(%)
No qualifications	3,597	(36.6)
GCSE/A level	3,064	(31.2)
Degree or above	3,159	(32.2)
Excluded from analyses:		
- Full-time education	1,350	
- Foreign qualifications	137	
- Other qualifications (below GCSE/A level)	484	

5.2.5.2 Economic status

The HSE 2004 asked participants to indicate their current economic and employment situation from a list of options, as illustrated in Table 5.4. A measure of economic status was formed by aggregating these options into the following three categories: economically active, economically inactive, and retired. Participants who were in full-time education or doing something else were excluded from the analyses. The majority of participants were represented by the economically active category (56%). Participants who were economically inactive accounted for 23 per cent of the sample and included those who were looking after the home or family, actively job seeking or those out of work due to ill-health. A further 21 per cent of the sample reported being retired.

Table 5.4 Economic status breakdown for HSE 2004 adult sample

Economic status	N	(%)	Categories included
Economically active	5,993	(56)	In paid employment or self-employment (or away temporarily) Doing unpaid work for a business that you own, or that a relative owns On a Government training scheme for employment training
Economically inactive	2,575	(23)	Looking after home or family Waiting to take up work already obtained Looking for paid work or a Government training scheme Intending to look for work but prevented by temporary sickness or injury Permanently unable to work because of long-term sickness or disability
Retired	2,217	(21)	Retired
Excluded from analyses:			
- Full-time education	984		
- Doing something else	47		

5.2.5.3 Social class

Social class was measured in the HSE 2004 using the National Statistics Socio-economic Classification (NS-SEC) system (Office for National Statistics, 2005). The NS-SEC is an occupation-based classification tool but additionally includes the identification of persons who have never worked or are in long-term unemployment, who are full-time students, or who are in occupations not stated or adequately described. The NS-SEC can be broken down into an eight, five, or three class version. Only the three class version can be considered a hierarchical scale and is the version used in the current analyses (Office for National Statistics, 2005, p.15). Participants who reported to have never worked or were in long-term unemployment were added to the routine/manual category due to the relatively small number of participants in this group (n=944). Participants in full-time education or who were unable to be classified were excluded from the analyses. As illustrated in Table 5.5, half of the sample was represented by the routine/manual/never worked category (50%). Managerial and professional occupations were occupied by 29 per cent of participants, whilst intermediate occupations were occupied by 21 per cent of participants.

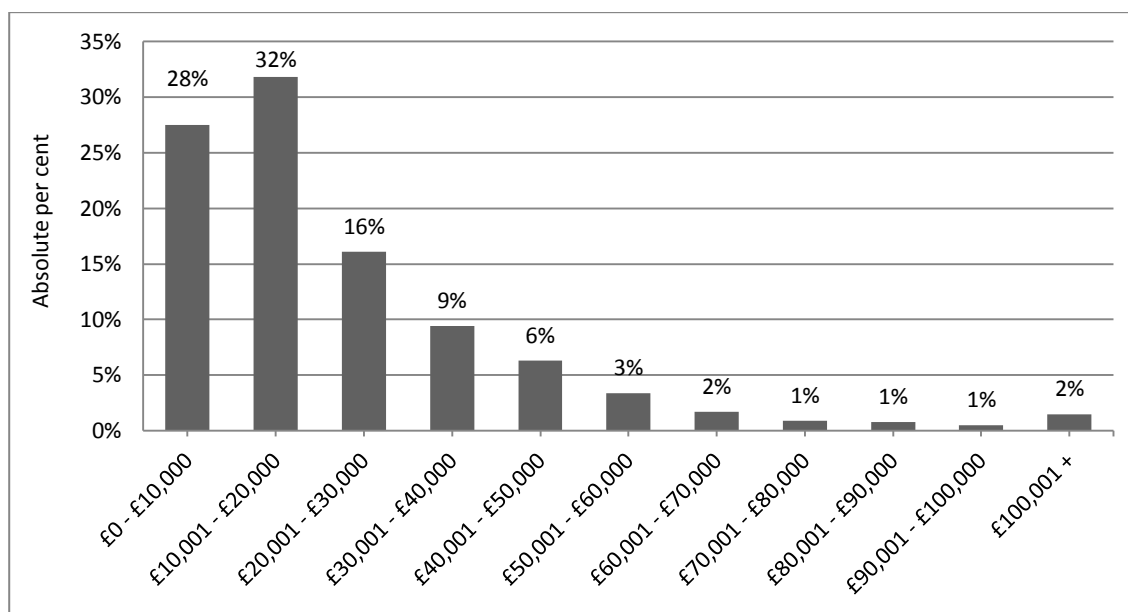
Table 5.5 Social class breakdown for HSE 2004 adult sample

Social Class	N	(%)
Managerial & professional	3,247	(29)
Intermediate	2,299	(21)
Routine/ manual/never worked	5,691	(50)
Excluded from analyses:		
- Full-time education	538	
- Unclassified	27	

5.2.5.4 Income level

Income level was measured using equivalised household annual income. The HSE 2004 asked participants to identify their gross household income level from a choice of income bands ranging from less than £52 per annum to £150,000 or more per annum. The income data were then transformed into an equivalised household income measure which adjusted for the number of persons in the household using the McClements scoring system, as described in Appendix B.9. The distribution of equivalised household income for the HSE 2004 adult sample is presented in Figure 5.8. The mean equivalised household income for the sample was £23,372, with a range of £153 to £262,295. The income distribution for the sample was divided into tertiles, lower (\leq £10,881), middle (£10,882-£24,098), and upper (\geq £24,099), to form the income level measure used in the following analyses.

Figure 5.8 Distribution of equivalised household income for HSE 2004 adult sample



5.2.6 Data analysis

The quantitative analysis entailed a comprehensive assessment of the independent and intersectional nature of gender, ethnic, and socioeconomic inequalities in health. Separate analyses were run for the three health outcome measures, general health, psychological wellbeing, and HRQoL, as described above. The analyses were conducted in four stages. In the first stage, aged standardised prevalence rates were calculated for the three outcomes to show the distribution of health across gender, ethnic, and socioeconomic groups. In the second stage, a series of bivariate logistic regression models were conducted to test for significant

associations between gender, ethnicity and SEP, with each of the outcomes. In the third stage, a series of additive logistic regression models were run to test for the independent effects of gender, ethnicity, and SEP with each of the outcomes. In the final stage of the analysis, a series of interaction models were run to test for intersections between gender, ethnicity, and SEP with each of the outcomes. Further details relating to the statistical techniques employed in the analyses are outlined below and in Appendix B where indicated. The statistical analyses were performed using PASW Statistics Version 18 for Windows and the alpha level for statistical significance was defined as $P < 0.05$.

5.2.6.1 Descriptive statistics

Descriptive analyses were performed to show the characteristics of the sample in relation to age, gender, ethnicity, and SEP. Differences between groups were tested using chi-square tests for categorical variables and independent *t*-tests for continuous variables. Analyses comparing ethnic groups used age standardised data to adjust for the different age profiles of the ethnic groups as shown in Section 5.3.2. Age standardisation was performed using the direct standardisation method. Calculations were based on 10-year age bands using the mid-2004 population estimates for England as the standard population. Age standardised weights were calculated for each of the ethnic groups by age-band as shown in Appendix B.10. Three sets of weights were created for each ethnic group: (i) men and women combined; (ii) women only; and (iii) men only. The first set was employed where results were pooled across the genders and the gender specific sets were employed where analyses were stratified by gender.

5.2.6.2 Binary logistic regression

Inequalities in health outcomes between gender, ethnic, and socioeconomic groups were tested using regression analysis. Logistic regression is designed for use with binary outcome variables and was therefore selected as the appropriate method of regression to model the outcomes under investigation. Binary logistic regression predicts the probability of an outcome occurring (denoted as π) using a logit transformation of the best linear combination of predictors, as illustrated in equation 1.1 below. On the left-hand side of the equation, logit (π) refers the logit function of the probability of π and equals the natural log of $\pi / (1 - \pi)$. On the right-hand side of the equation, $\alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$, refers to the linear combination of predictors, where α is the constant, β_1 is the coefficient of the first predictor variable X_1 , β_2 is the coefficient of the second predictor variable X_2 , and β_k is the coefficient of the *k*th predictor variable X_k . Equation 1.1 therefore describes the log odds that $Y=1$ as a function of the values of the predictors, X .

$$\text{logit}(\pi) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k \quad [1.1]$$

To solve the equation, the model produces estimated values for the coefficients of each predictor variable in the model. These parameters are estimated by fitting models based on the available predictors, to the observed data. The values of the parameters are estimated using maximum likelihood estimation, which selects coefficients that make the observed values most likely to have occurred (Field, 2009).

(i) Outcome and predictor variable coding

The following three dichotomous outcome variables were modelled in the regression analyses: general health (poor or good), psychological wellbeing (poor or good), and HRQoL (problems or no problems). As shown in Table 5.6, a score of 1 was given for poor general health, poor psychological wellbeing, and problems with HRQoL, and a score of 0 was given for good general health, good psychological wellbeing, and no problems with HRQoL.

Table 5.6 Coding used for outcome variables

Outcome	Category	Code	Measurement
General health	Poor	1	Fair, bad, very bad ratings
	Good	0	Good, very good ratings
Psychological wellbeing	Poor	1	GHQ12 scores of ≥ 4
	Good	0	GHQ12 scores of 0-3
HRQoL	Problems	1	EQ-5D scores of < 1.00
	No problems	0	EQ-5D scores of 1.00

The following six categorical predictor variables were included in the analyses: gender, ethnicity, education level, economic status, social class, and income level. These were transformed into dummy variables using indicator coding as shown in Table 5.7.

Table 5.7 Dummy variable coding used for predictor variables

Predictor variable	Dummy variable coding						
Gender	D _{fem}						
- Women	1						
- Men	0						
Ethnicity	D _{car}	D _{afr}	D _{ind}	D _{pak}	D _{ban}	D _{chi}	D _{iri}
- Black Caribbean	1	0	0	0	0	0	0
- Black African	0	1	0	0	0	0	0
- Indian	0	0	1	0	0	0	0
- Pakistani	0	0	0	1	0	0	0
- Bangladeshi	0	0	0	0	1	0	0
- Chinese	0	0	0	0	0	1	0
- White Irish	0	0	0	0	0	0	1
- White English	0	0	0	0	0	0	0
Education	D _{no qual}	D _{GCSE}					
- No qualifications	1	0					
- GCSE/A level	0	1					
- Degree or above	0	0					
Economic status	D _{retire}	D _{inact}					
- Retired	1	0					
- Inactive	0	1					
- Active	0	0					
Social class	D _{rout}	D _{inter}					
- Routine/manual/never worked	1	0					
- Intermediate	0	1					
- Professional/managerial	0	0					
Income level	D _{low}	D _{mid}					
- Lower tertile	1	0					
- Middle tertile	0	1					
- Upper tertile	0	0					

(ii) Assessing the goodness-of-fit of a model

The goodness-of-fit of each model was assessed using the log-likelihood statistic. The log-likelihood is an indication of how many observations remain unexplained after the model has been fitted; the larger the value of the log-likelihood statistic, the poorer the fit of the model. In practice, the log-likelihood of the baseline model (when only the constant is included) is compared against the log-likelihood for a new model which includes one or more predictor variables as illustrated in equation 1.2 below:

$$\chi^2 = 2[\text{LL}(\text{new}) - \text{LL}(\text{baseline})] \quad [1.2]$$

$$(\text{df} = k_{\text{new}} - k_{\text{baseline}})$$

Here, LL(new) represents the log-likelihood for the new model and LL(baseline) represents the log-likelihood for the baseline model. The two models are compared by calculating the difference in their log-likelihoods. The difference is then multiplied by 2 to create a statistic that is distributed as chi-square (χ^2). The degrees of freedom (df) are equal to the number of

parameters in the new model (k_{new}) minus the number of parameters in the baseline model (k_{baseline}).

(iii) Assessing the importance of predictor variables

The Wald statistic was used to assess whether individual variables were significant predictors of the outcome. The Wald statistic shows whether the β coefficient for a given predictor is significantly different from zero. If the coefficient is significant from zero, this indicates that the predictor is making a significant contribution to the prediction of the outcome (Field, 2009). P values for the Wald statistic were reported at α levels of 0.05, 0.01, and 0.001.

Parameter estimates for the predictor variables were reported as odds ratios for ease of interpretation. The odds ratio (OR) provides an indication of the change in the odds of an outcome occurring resulting from a unit change in the predictor. Where the predictor variable is categorical, the exponent of the parameter estimate will equal an odds ratio where the predicted odds for the category scoring 1 on the dummy variable is divided by the predicted odds for the reference category, holding all other predictor variables constant in the equation. If the two odds are identical, the odds ratio will equal 1. A value greater than 1 indicates that the odds of the outcome occurring are greater for the predictor category than the reference category. A value less than one indicates the odds of the outcome occurring are greater for the reference category than the predictor category. Each odds ratio is reported with its associated 95 per cent confidence interval (95% CI). This represents the limits within which there is a 95 per cent chance that the true population parameter lies (Field, 2009). A 95% CI which does not include the value of 1.0 indicates that the given parameter estimate is statistically significant at the $P < 0.05$ level.

(iv) Assessing data limitations

Goodness-of-fit tests in logistic regression require that expected cell frequencies are greater than 1 and that no more than 20 per cent of cells have frequencies of less than 5 (Tabachnick & Fidell, 1996). To ensure this condition was met by the data, multi-way crosstabulations of categorical predictor variables were checked for each outcome variable prior to analysis. None of the variables were found to have more than 20 per cent of cells with frequencies of less than 5 or cell frequencies of < 1 .

Multicollinearity refers to a strong correlation between two or more predictor variables in a regression model which can compromise the stability of the analysis (Tabachnick & Fidell, 1996). The data were screened for multicollinearity by checking for tolerance values of less than

0.1 and variance inflation factor (VIF) values of greater than 10 (Field, 2009). Bivariate correlations between the predictor variables were also performed to check for strong correlations of 0.8 and above. The findings from the multicollinearity checks confirmed that evidence of collinearity between the predictor variables was not found in the data (see Appendix B.11 and B.12 for results).

5.2.6.3 Bivariate models

A series of bivariate regression models were conducted first to determine the association between each predictor variable and each of the outcome variables after having controlled for the effects of age. The models were formed using the direct entry method which enters the selected predictor variable(s) and control variable(s) into the model simultaneously, as illustrated in Table 5.8.

Table 5.8 Summary of bivariate regression models

Model	Predictors	Equation
1	Gender	$\text{Logit}(\pi) = \alpha + \beta_1 \text{age} + \beta_2 D_{\text{fem}}$
2	Ethnicity	$\text{Logit}(\pi) = \alpha + \beta_1 \text{age} + \beta_2 D_{\text{car}} + \beta_3 D_{\text{afr}} + \beta_4 D_{\text{ind}} + \beta_5 D_{\text{pak}} + \beta_6 D_{\text{ban}} + \beta_7 D_{\text{chi}} + \beta_8 D_{\text{iri}}$
3	Education level	$\text{Logit}(\pi) = \alpha + \beta_1 \text{age} + \beta_2 D_{\text{GCSE}} + \beta_3 D_{\text{no qual}}$
4	Economic status	$\text{Logit}(\pi) = \alpha + \beta_1 \text{age} + \beta_2 D_{\text{retire}} + \beta_3 D_{\text{inact}}$
5	Social class	$\text{Logit}(\pi) = \alpha + \beta_1 \text{age} + \beta_2 D_{\text{int}} + \beta_3 D_{\text{rout}}$
6	Income level	$\text{Logit}(\pi) = \alpha + \beta_1 \text{age} + \beta_2 D_{\text{mid}} + \beta_3 D_{\text{low}}$

5.2.6.4 Additive models

A series of additive models (also known as main effects models) were then run to test whether the associations between gender, ethnicity and SEP with the three outcomes were independent of each other. The socioeconomic indicators were modelled separately to minimise the risk of over-fitting and to manage the complexity of the subsequent interaction analyses (Tabachnick & Fidell, 1996; McCall, 2005). The additive models were also formed using the direct entry method in which combinations of the predictor variables and the covariate age were entered into the model simultaneously, as illustrated in Table 5.9 below.

Table 5.9 Additive logistic regression models testing for social inequalities in health

Model	Predictors	Equation
7	Gender + ethnicity	$\text{Logit}(\pi) = \alpha + \beta_1 \text{age} + \beta_2 D_{\text{fem}} + \beta_3 D_{\text{car}} + \beta_4 D_{\text{afr}} + \beta_5 D_{\text{ind}} + \beta_6 D_{\text{pak}} + \beta_7 D_{\text{ban}} + \beta_8 D_{\text{chi}} + \beta_9 D_{\text{iri}}$
8	Gender + ethnicity + education	$\text{Logit}(\pi) = \alpha + \beta_1 \text{age} + \beta_2 D_{\text{fem}} + \beta_3 D_{\text{car}} + \beta_4 D_{\text{afr}} + \beta_5 D_{\text{ind}} + \beta_6 D_{\text{pak}} + \beta_7 D_{\text{ban}} + \beta_8 D_{\text{chi}} + \beta_9 D_{\text{iri}} + \beta_{10} D_{\text{GCSE}} + \beta_{11} D_{\text{no qual}}$
9	Gender + ethnicity + economic status	$\text{Logit}(\pi) = \alpha + \beta_1 \text{age} + \beta_2 D_{\text{fem}} + \beta_3 D_{\text{car}} + \beta_4 D_{\text{afr}} + \beta_5 D_{\text{ind}} + \beta_6 D_{\text{pak}} + \beta_7 D_{\text{ban}} + \beta_8 D_{\text{chi}} + \beta_9 D_{\text{iri}} + \beta_{11} D_{\text{retire}} + \beta_{11} D_{\text{inact}}$
10	Gender + ethnicity + social class	$\text{Logit}(\pi) = \alpha + \beta_1 \text{age} + \beta_2 D_{\text{fem}} + \beta_3 D_{\text{car}} + \beta_4 D_{\text{afr}} + \beta_5 D_{\text{ind}} + \beta_6 D_{\text{pak}} + \beta_7 D_{\text{ban}} + \beta_8 D_{\text{chi}} + \beta_9 D_{\text{iri}} + \beta_{10} D_{\text{int}} + \beta_{11} D_{\text{rout}}$
11	Gender + ethnicity + income level	$\text{Logit}(\pi) = \alpha + \beta_1 \text{age} + \beta_2 D_{\text{fem}} + \beta_3 D_{\text{car}} + \beta_4 D_{\text{afr}} + \beta_5 D_{\text{ind}} + \beta_6 D_{\text{pak}} + \beta_7 D_{\text{ban}} + \beta_8 D_{\text{chi}} + \beta_9 D_{\text{iri}} + \beta_{10} D_{\text{mid}} + \beta_{11} D_{\text{low}}$

5.2.6.5 Interaction models

Having tested for independent associations between gender, ethnicity, and indicators of SEP with each of the health outcomes, the final stage of the quantitative analysis was to test for intersectionality. This was achieved using hierarchical logistic regression models to test for significant interactions between gender, ethnicity, education level, economic status, social class, and income level with the outcomes, general health, psychological wellbeing, and HRQoL. Interactions between the indicators of SEP were not considered.

In statistical analysis, an interaction effect describes the conditional relationship between two or more variables as a function of an additional variable. A two-way interaction effect can be said to exist when the association between one predictor variable and an outcome is moderated by a second predictor variable. For example, a two-way interaction effect between ethnicity and education level with poor health can be said to exist when the association between education level and poor health varies by ethnic group. A three-way interaction effect can be said to exist when the influence of the second predictor variable on the relationship between the first predictor variable and the outcome is moderated by a third predictor variable. For example, a three-way interaction between gender, ethnicity and education level with poor health can be said to exist when ethnic differences in the relationship between education level and poor health vary by gender.

(i) Modelling interactions

The interaction analyses were performed by adding multiplicative interaction terms, referred to as product terms, to the additive models. Product terms represent the interaction of two or more predictors such as gender, ethnicity, and education level, as illustrated in Table 5.10.

Table 5.10 HWF model product terms for the gender × ethnicity × education level interaction

Interaction	Product term for interaction
Gender × ethnicity	$D_{fem}D_{car} + D_{fem}D_{afr} + D_{fem}D_{ind} + D_{fem}D_{pak} + D_{fem}D_{ban} + D_{fem}D_{chi} + D_{fem}D_{iri}$
Gender × education level	$D_{fem}D_{GCSE} + D_{fem}D_{no\ qual}$
Ethnicity × education level	$D_{car}D_{GCSE} + D_{afr}D_{GCSE} + D_{ind}D_{GCSE} + D_{pak}D_{GCSE} + D_{ban}D_{GCSE} + D_{chi}D_{GCSE} + D_{iri}D_{GCSE} + D_{car}D_{no\ qual} + D_{afr}D_{no\ qual} + D_{ind}D_{no\ qual} + D_{ban}D_{no\ qual} + D_{chi}D_{no\ qual} + D_{iri}D_{no\ qual}$
Gender × ethnicity × education level	$D_{fem}D_{car}D_{GCSE} + D_{fem}D_{afr}D_{GCSE} + D_{fem}D_{ind}D_{GCSE} + D_{fem}D_{pak}D_{GCSE} + D_{fem}D_{ban}D_{GCSE} + D_{fem}D_{chi}D_{GCSE} + D_{fem}D_{iri}D_{GCSE} + D_{fem}D_{car}D_{no\ qual} + D_{fem}D_{afr}D_{no\ qual} + D_{fem}D_{ind}D_{no\ qual} + D_{fem}D_{pak}D_{no\ qual} + D_{fem}D_{ban}D_{no\ qual} + D_{fem}D_{chi}D_{no\ qual} + D_{fem}D_{iri}D_{no\ qual}$

The interactions were entered into the regression using hierarchically well-formulated (HWF) models, in which all lower order components of the highest order interaction term were included in the model (Jaccard, 2001). For example, to test for interactions between gender, ethnicity, and education, the HWF model comprised the following three blocks of predictor and control variables:

- Block 1: age + gender + ethnicity + education
- Block 2: gender × ethnicity, gender × education, ethnicity × education
- Block 3: gender × ethnicity × education

Here, Block 1 represents the additive model and enters all the predictor and control variables into the model first. Block 2 then adds the two-way interactions into the model, followed by Block 3 which adds the three-way interaction to the model. Together the three blocks form the HWF model for gender × ethnicity × education. As illustrated in Table 5.11, a series of five HWF models were run to test for the following two-way and three-way interactions with each of the outcome variables.

Table 5.11 Logistic regression models testing for interactions in social inequalities in health

Model	Block 1	Block 2	Block 3
12	Gender + ethnicity	Gender × ethnicity	-
13	Gender + ethnicity + education	Gender × education; Ethnicity × education; Gender × ethnicity;	Gender × ethnicity × education
14	Gender + ethnicity + economic status	Gender × economic status; Ethnicity × economic status; Gender × ethnicity;	Gender × ethnicity × economic status
15	Gender + ethnicity + social class	Gender × social class; Ethnicity × social class; Gender × ethnicity;	Gender × ethnicity × social class
16	Gender + ethnicity + income level	Gender × income level; Ethnicity × income level; Gender × ethnicity;	Gender × ethnicity × income level

(ii) Testing for significant interactions

The hierarchical entry method enabled the significance of the interaction models to be evaluated by backwards comparison using the goodness-of fit test. To test the significance of a three-way interaction model, for example, the log-likelihood statistic for Block 3 was compared against that for Block 2. A significant difference in the fits of the two models was indicated by a significant chi-square value ($P < 0.05$) for Block 3. The statistical significance of individual interaction terms was tested using the Wald statistic associated with the interaction parameter estimate.

(iii) Interpretation of interaction effects

To facilitate the interpretation of the interaction effects, the results for significant interactions are presented using tables of odds ratios to indicate which social groups contributed to the interaction effect. Line graphs plotting the predicted odds for outcomes derived from the additive and interaction models are also employed to illustrate the direction and magnitude of the intersections.

5.3 Sample characteristics

The analyses presented in the following sections were based on a sample of 11,836 adults, aged 16 years and above, who participated in the HSE 2004. Participants with missing data on responses to questions on ethnic group membership were excluded from analyses (N=57), as were participants belonging to ethnic group categories with sample sizes too small for interaction analysis (N=922), as outlined in Section 5.2.3.2.

5.3.1 Ethnic and gender group profile

The sample comprised men and women of Black Caribbean, Black African, Indian, Pakistani, Bangladeshi, Chinese, White Irish, and White English ethnicity. Participants were classified into ethnic groups according to their responses to a series of survey questions relating to ethnic, cultural and family backgrounds and country of birth, as described in Section 5.2.3.2 and Appendix B.4. A breakdown of the sample size by ethnic group and gender group is provided in Table 5.12 below.

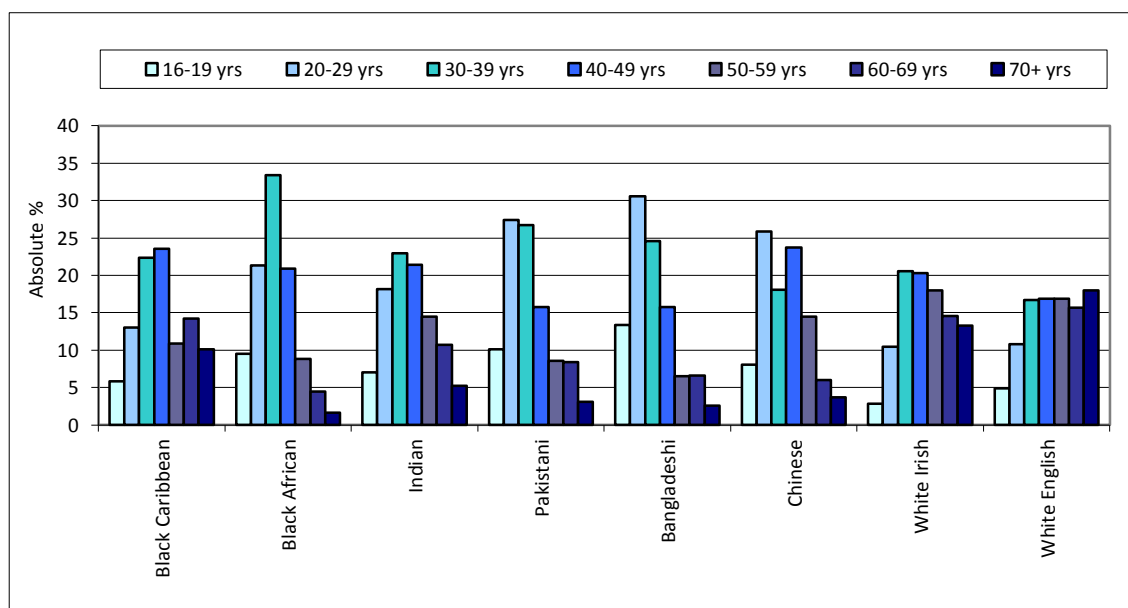
Table 5.12 Ethnic and gender group sample sizes

	Men N	Women N	All N
Ethnic group			
Black Caribbean	376	572	948
Black African	363	445	808
Indian	512	589	1,101
Pakistani	432	500	932
Bangladeshi	407	475	882
Chinese	316	352	668
White Irish	495	651	1,146
White English	2,307	3,044	5,351
All ethnic groups	5,208	6,628	11,836

5.3.2 Age profile by ethnic and gender group

Participants in the sample ranged from 16 to 102 years of age, with a mean age of 45 years (SD=18 years) for both men and women. Figure 5.9 below shows the variation in age profiles between the ethnic groups. With the exception of the White Irish group, a younger age distribution was observed among the ethnic minority groups compared to the White English group. Considerable variation in age was also evident between the ethnic minority groups, reflecting differences in migration patterns. For example, over 40 per cent of Bangladeshi and Pakistani participants fell into the 16-29 age range, compared to less than 20 per cent of Black Caribbean and White Irish participants.

Figure 5.9 Percentage of participants in each age band by ethnic group



Age differences between ethnic groups are also illustrated in Table 5.13, which reports the mean ages of participants by ethnic and gender group. Independent samples *t*-tests confirmed that the mean age for each of the ethnic minority groups was significantly younger than that of the White English group (see Appendix B.13 for results). Within ethnic groups, mean ages were similar for men and women. The only significant gender difference in mean age was reported for Bangladeshis, where women were on average younger than men ($t=-3.178$, $df=880$, $P<0.01$).

Table 5.13 Mean age by ethnic and gender group

Gender group	Men			Women		
	Mean age in years	(SD)	N	Mean age in years	(SD)	N
Ethnic group						
Black Caribbean	46	(18)	376	45	(16)	572
Black African	37	(13)	363	36	(13)	445
Indian	42	(16)	512	41	(15)	589
Pakistani	38	(15)	432	36	(14)	500
Bangladeshi	36	(15)	407	33	(14)	475
Chinese	38	(15)	316	39	(15)	352
White Irish	49	(17)	495	48	(17)	651
White English	50	(19)	2,307	50	(19)	3,044
All ethnic groups	45	(18)	5,208	45	(18)	6,628

The marked variation in ages between ethnic groups highlights the risk of confounding when comparing age-related outcome measures, such as health and wellbeing, between ethnic groups. Consequently, data were standardised or adjusted for age where comparative analyses between ethnic groups were conducted, as described in Section 5.2.6.1.

5.3.3 Socioeconomic positioning of ethnic and gender groups

Table 5.14 shows the socioeconomic positioning of the ethnic and gender groups in the sample after having standardised the data for age. As described in Section 5.2.5, four different indicators were chosen to capture SEP. These included highest educational qualification, economic status, social class, and equivalised household income level.

5.3.3.1 Education level

The first part of Table 5.14 shows the distribution of participants by their highest educational qualification within ethnic-gender groups. The percentages of participants having attained a degree or above were found to be highest for Chinese men (54%) and women (42%) and Black African men (53%) and women (34%). By contrast the lowest percentages of participants having reached degree level were reported for Bangladeshi men (18%) and women (7%) and Pakistani men (25%) and women (13%). The Bangladeshi and Pakistani ethnic groups also held the highest proportions of participants with no qualifications and therefore represented the most disadvantaged groups in terms of educational profile. The distribution of participants by education level was also gendered, with fewer women than men having attained a degree or above and fewer men than women having attained no qualifications. This pattern was observed across the ethnic groups, with two exceptions being the Black Caribbean and White Irish groups, for which similar rates were reported for men and women.

5.3.3.2 Economic status

The second part of Table 5.14 reports the rates of individual economic activity, inactivity and retirement across the ethnic-gender groups. For the White English group, 70 per cent of men and 54 per cent of women reported being in paid employment. Slightly lower rates were reported for the Indian, Chinese, Black African and White Irish ethnic groups, with slightly lower rates again reported for the Black Caribbean group. By far the worst off was the Bangladeshi group with only 44 per cent of men and 11 per cent of women in paid employment. Similarly for the Pakistani ethnic group, only 55 per cent of men and 16 per cent of women were in paid employment. Economic status was also gendered with higher percentages of men than women in paid employment and higher rates of economic inactivity among women than men.

5.3.3.3 Social class

The third part of Table 5.14 shows the positioning of ethnic-gender groups by individual social class. Percentages of participants positioned in the professional/managerial class were highest for Chinese men (45%) and White Irish women (33%) and lowest for Bangladeshi men (13%)

and women (4%). This pattern of advantage and disadvantage was also reflected in the routine/manual/never worked class. Class distributions were also found to vary by gender, with higher percentages of men represented in the professional/managerial class across the ethnic groups. Two exceptions to this pattern were observed in the Black Caribbean and White Irish groups, for which similar proportions of men and women were represented in the professional and managerial class.

5.3.3.4 Income level

The last part of Table 5.14 shows the positioning of participants according to their equivalised household income, split into tertiles on the basis of the whole sample distribution. The household level of this measure meant gender differences were less likely than if the measure had been taken at the individual level. However, marked variations in income level by ethnic group were evident, with approximately three-quarters of Bangladeshi participants positioned in the lowest income tertile (equivalised annual household income of less than £10,881). Pakistani men and women were similarly disadvantaged with approximately 62 per cent of participants positioned in the lower income tertile. By contrast, just 17 per cent of White English men and 26 per cent of White English women were positioned in the lowest income tertile.

The patterning of SEP reported above highlights the advantaged position of men relative to women across the indicators of SEP. This pattern was observed across the ethnic groups, with the exception of the Black Caribbean and White Irish groups on the highest levels of education and social class. The socioeconomic patterning of ethnic groups revealed that Black African and Indian men, Chinese and White English men and women and White Irish women were located in the most advantaged positions. By comparison, Pakistani and Bangladeshi men and women were located in the most disadvantaged SEPs.

Table 5.14 Distribution of ethnic and gender groups by indicators of SEP

Ethnic group Gender	Black Caribbean		Black African		Indian		Pakistani		Bangladeshi		Chinese		White Irish		White English	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Education level †																
- Degree or above	29.2	28.2	52.9	33.6	44.9	32.6	25.2	13.1	18.0	7.1	53.7	42.0	31.7	32.4	37.5	26.4
- GCSE or A-level	30.7	31.9	27.4	26.4	24.5	23.1	21.3	15.8	15.4	16.1	14.9	19.3	31.0	30.1	36.7	39.4
- No qualifications	40.1	40.0	19.7	40.0	30.6	44.3	53.5	71.1	66.6	76.8	31.4	38.7	37.3	37.5	25.8	34.2
(Column totals N)	(311)	(476)	(272)	(368)	(425)	(508)	(354)	(438)	(342)	(422)	(256)	(291)	(428)	(558)	(1,915)	(2,570)
Economic status †																
- Active	59.0	47.1	65.2	39.7	68.7	46.4	55.0	15.8	43.9	10.8	67.7	50.3	63.9	52.4	70.1	54.3
- Inactive	19.0	25.4	14.2	36.6	10.7	33.2	22.6	64.0	33.2	76.0	6.5	25.3	16.7	23.3	9.4	21.7
- Retired	22.0	27.5	20.6	23.6	20.6	20.5	22.4	20.2	22.9	13.2	25.8	24.3	19.3	24.3	20.5	24.0
(Column totals N)	(345)	(571)	(306)	(399)	(458)	(533)	(376)	(464)	(360)	(436)	(264)	(301)	(464)	(606)	(2,161)	(2,864)
Social class †																
- Professional/ managerial	23.9	25.8	31.5	17.8	33.3	21.5	15.8	6.6	13.0	4.3	45.3	29.6	31.2	32.8	38.3	28.8
- Intermediate	18.7	23.1	11.3	14.7	20.2	15.9	27.4	7.9	15.3	7.0	25.5	27.1	18.1	24.0	19.2	24.0
- Routine/manual/ never worked	57.4	51.1	57.1	67.5	46.5	62.6	56.8	85.6	71.1	88.7	29.2	43.3	50.7	43.2	42.5	47.2
(Column totals N)	(376)	(538)	(329)	(413)	(483)	(562)	(395)	(473)	(372)	(440)	(293)	(323)	(482)	(630)	(2,244)	(2,977)
Income level ‡																
- Upper tertile	31.3	20.4	20.6	19.0	31.1	27.8	9.4	9.3	3.0	3.4	37.9	34.0	42.8	38.0	47.8	38.6
- Middle tertile	33.7	32.8	32.5	37.0	34.4	30.6	28.0	28.7	20.0	22.1	30.3	26.8	29.3	31.2	35.2	35.8
- Lower tertile	35.0	46.8	46.9	44.0	34.5	41.6	62.7	62.0	77.0	74.4	31.8	39.3	27.8	30.8	17.0	25.7
(Column totals N)	(282)	(418)	(285)	(347)	(377)	(439)	(316)	(324)	(263)	(299)	(212)	(231)	(413)	(542)	(2,004)	(2,586)

Notes: Data represent age standardised column percentages and column totals. †: Individual level indicator of SEP; ‡ household level indicator of SEP.

5.4 Findings

5.4.1 Prevalence rates

In the first stage of the analysis the distribution of poor general health, poor psychological wellbeing, and problems with health-related quality of life (HRQoL) across gender, ethnic and socioeconomic groups in the HSE 2004 was assessed. To recap, poor general health represented participants who rated their general health as fair, bad or very bad. Poor psychological wellbeing represented participants who scored 4 or above on the General Health Questionnaire (GHQ-12). Problems with HRQoL represented participants who reported having problems on at least one of the five dimensions of the EuroQoL EQ-5D measure.

The age standardised prevalence rates for each outcome by gender, ethnic and socioeconomic group are reported in Table 5.15. The findings for gender show higher rates of poor general health (33.1%), poor psychological wellbeing (15.8%) and problems with HRQoL (47.1%) were reported among women compared to men. The patterning of health for ethnic groups revealed considerable variation across the groups. For example, a two-fold increase in prevalence of poor general health was observed between the White English (24.3%) and Bangladeshi (51.8%) groups. Similarly, for poor psychological wellbeing, prevalence rates were almost twice as high for the Pakistani group (22.3%) compared to the Chinese group (11.5%). Prevalence rates were again highest for the Pakistani group (51.6%) and lowest for the Chinese group (33.2%) for problems with HRQoL. The findings for social class and income level demonstrated a socioeconomic gradient in health with prevalence rates steadily increasing from high to low socioeconomic positions. Similarly, for economic status, higher prevalence rates were observed for the inactive and retired groups compared to the active group. The patterning of health by education level revealed less of a distinction between participants in the degree/above and GCSE/A level categories, but marked increases in poor health outcomes for the no qualification group.

5.4.1.1 Section summary

The patterning of poor health outcomes within social groups highlighted the disadvantaged position of women relative to men; of the Pakistani, Bangladeshi and Black Caribbean ethnic groups relative to the White English, Chinese and White Irish ethnic groups; and of people in the lowest socioeconomic positions relative to those in the highest socioeconomic positions. Overall, similar patterns were observed for each of the health outcomes.

Table 5.15 Prevalence rates and frequencies for poor health by social group

Health outcome	Poor general health		Poor psychological wellbeing		Problems with HRQoL	
	N	(%)	N	(%)	N	(%)
Social group						
Gender						
- Women	2188	(33.1)	863	(15.8)	2568	(47.1)
- Men	1463	(28.1)	566	(13.0)	1630	(37.8)
Ethnic group						
- Black Caribbean	367	(38.8)	116	(16.1)	328	(47.0)
- Black African	245	(30.3)	77	(14.0)	237	(42.3)
- Indian	391	(35.5)	140	(15.4)	402	(43.9)
- Pakistani	397	(42.8)	137	(22.3)	314	(51.6)
- Bangladeshi	456	(51.8)	100	(21.6)	232	(49.5)
- Chinese	188	(28.1)	65	(11.5)	188	(33.2)
- White Irish	315	(27.5)	148	(14.6)	389	(38.8)
- White English	1298	(24.3)	655	(13.1)	2107	(42.5)
Education level						
- Degree or above	556	(18.5)	355	(12.8)	953	(34.3)
- GCSE/A level	735	(24.2)	354	(12.8)	1081	(38.8)
- No qualifications	2018	(52.7)	519	(19.4)	1639	(61.8)
Economic status						
- Active	944	(16.1)	558	(10.6)	1673	(31.7)
- Retired	1306	(53.8)	272	(15.0)	1198	(66.4)
- Inactive	1298	(50.5)	515	(26.9)	1140	(60.1)
Social class						
- Professional/managerial	583	(18.5)	331	(11.5)	990	(34.4)
- Intermediate	605	(26.8)	269	(13.5)	816	(41.1)
- Routine/manual/never worked	2415	(40.9)	791	(17.5)	2298	(50.7)
Income level						
- Upper tertile	408	(13.1)	288	(9.8)	918	(30.9)
- Middle tertile	896	(29.2)	392	(14.8)	1128	(43.1)
- Lower tertile	1470	(46.5)	502	(20.8)	1343	(55.6)

Notes: Data represent age standardised percentages and frequencies.

5.4.2 Bivariate models

In the second stage of the analysis, a series of separate bivariate models were performed to establish the association between each predictor variable with each of the outcomes, after having adjusted for age. Tables 5.16 to 5.18 present the results for poor general health (models 1a to 6a), poor psychological wellbeing (models 1b to 6b), and problems with HRQoL (models 1c to 6c), respectively. Statistical significance for each predictor variable was assessed using the Wald statistic as described in Section 5.2.6.2.

5.4.2.1 Gender inequalities in health outcomes

Gender was found to be significantly associated with poor general health ($\chi^2 = 12.640$, $P < 0.001$), poor psychological wellbeing ($\chi^2 = 17.176$, $P < 0.001$), and having problems with HRQoL ($\chi^2 = 67.747$, $P < 0.001$), after having adjusted for age. The findings for general health revealed that women were 17 per cent more likely than men to report having poor general health

(model 1a). Similarly, women were 28 per cent more likely than men to report having poor psychological wellbeing (model 1b). The greatest gender difference was reported for HRQoL, with odds of having problems with HRQoL being 43 per cent higher among women compared to men (model 1c).

5.4.2.2 Ethnic inequalities in health outcomes

Ethnicity was also found to be significantly associated with poor general health ($\chi^2 = 300.212$, $P < 0.001$), poor psychological wellbeing ($\chi^2 = 31.154$, $P < 0.001$), and having problems with HRQoL ($\chi^2 = 67.431$, $P < 0.001$), after adjustment for age. The findings for poor general health revealed that, with the exception of the Chinese, belonging to an ethnic minority group was associated with significantly higher odds of poor general health compared to the White English group (model 2a). The greatest risk of poor general health relative to the White English group was predicted for Bangladeshis (OR 3.17), followed by Pakistanis (OR 2.48) and Black Caribbeans (OR 2.20). In contrast to the results for poor general health, the association between ethnic minority groups and poor psychological wellbeing was less pronounced, with no significant differences reported between the Indian, Chinese, and White Irish groups relative to the White English group (model 2b). Odds of poor psychological wellbeing were significantly higher for Pakistanis (OR 1.68) and Bangladeshis (OR 1.48), and to a lesser degree for Black Africans (OR 1.34) and Black Caribbeans (OR 1.30) relative to the White English. The findings for HRQoL reported odds of problems with HRQoL to be 47 per cent higher among Pakistanis and Bangladeshis, and 33 per cent higher among Black Caribbeans relative to the White English (model 2c). By contrast, a significantly lower odds of problems with HRQoL was reported for the Chinese group relative to the White English group (OR 0.68), whilst no significant differences were reported between the Black African, Indian, and White Irish groups relative to the White English group.

5.4.2.3 Socioeconomic inequalities in health outcomes

Socioeconomic inequalities in health and wellbeing were captured using the following four indicators of SEP: highest education level, economic status, social class, and equivalised household income level. The results for each indicator are described below.

(i) Education level

Education level was found to be a significant predictor of poor general health ($\chi^2 = 422.665$, $P < 0.001$), poor psychological wellbeing ($\chi^2 = 48.042$, $P < 0.001$), and having problems with HRQoL ($\chi^2 = 143.640$, $P < 0.001$), after adjusting for age, as shown in models 3a, 3b, and 3c,

respectively. Having attained GCSEs or A levels was associated with significantly higher odds of poor general health (OR 1.58) and problems with HRQoL (OR 1.29) compared to having attained a degree or above. However, no significant difference in odds of poor psychological wellbeing was reported between these education levels. Having attained no qualifications was associated with significantly higher odds of poor general health (OR 3.36), poor psychological wellbeing (OR 1.63), and problems with HRQoL (OR 2.04) relative to having attained a degree or above. As expected, the poorest outcomes for health were reported for those in the lowest SEP as measured by education.

(ii) Economic status

Models 4a, 4b, and 4c confirm that economic status was also found to be a significant predictor of poor general health ($\chi^2 = 754.047$, $P < 0.001$), poor psychological wellbeing ($\chi^2 = 245.556$, $P < 0.001$), and problems with HRQoL ($\chi^2 = 358.851$, $P < 0.001$), after adjusting for age. Odds of poor general health (OR 1.96), poor psychological wellbeing (OR 1.29), and problems with HRQoL (OR 1.51) were significantly higher for the retired group compared to the economically active group. Greater inequalities were found between the economically inactive and active groups. For general health, the inactive group was over four times as likely as the active group to report having poor general health (OR 4.43). Similarly, odds of poor psychological wellbeing (OR 2.89) and problems with HRQoL (OR 2.87) were nearly three times greater for the inactive group compared to the active group.

(iii) Social class

Social class was also identified as a significant predictor of poor general health ($\chi^2 = 357.784$, $P < 0.001$), poor psychological wellbeing ($\chi^2 = 43.520$, $P < 0.001$), and having problems with HRQoL ($\chi^2 = 148.792$, $P < 0.001$), after adjusting for age, as shown in models 5a, 5b, and 5c. Compared to the professional/managerial class, odds of poor general health (OR 1.55) and having problems with HRQoL (OR 1.29) were significantly higher for the intermediate class. Odds of poor psychological wellbeing did not, however, significantly differ between these classes. Differences between the professional/managerial and routine/manual/never worked classes were significant across the three outcomes. Specifically, odds of poor general health (OR 2.73), poor psychological wellbeing (OR 1.53), and problems with HRQoL (OR 1.84) were significantly higher for the routine/manual/never worked class compared to the professional/managerial class. The magnitude of inequality was again found to increase with lower SEP.

(iv) Income level

The last set of models (6a, 6b, and 6c) present the findings for equivalised household income level and show that it too was a significant predictor of poor general health ($\chi^2 = 533.855$, $P < 0.001$), poor psychological wellbeing ($\chi^2 = 112.035$, $P < 0.001$), and having problems with HRQoL ($\chi^2 = 222.928$, $P < 0.001$). Significant differences between the upper and middle income tertiles were reported for poor general health (OR 2.35), poor psychological wellbeing (OR 1.58), and problems with HRQoL (OR 1.52). Significant differences between the upper and lower income tertiles were also reported for poor general health (OR 4.58), poor psychological wellbeing (OR 2.33), and having problems with HRQoL (OR 2.41). The findings therefore demonstrated a clear socioeconomic gradient, with inequalities in health and wellbeing increasing as income level decreased.

5.4.2.4 Section summary

The findings from the bivariate models confirmed that gender, ethnicity, education level, economic status, social class, and income level were each significantly associated with poor general health, poor psychological wellbeing, and having problems with HRQoL, after adjustment for age. In the next stage of the analysis, additive models were run to assess whether these associations remained statistically significant after controlling for the remaining variables.

Table 5.16 Bivariate models for gender, ethnicity and indicators of SEP with poor general health

Predictors	Model 1a		Model 2a		Model 3a		Model 4a		Model 5a		Model 6a	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Intercept	*** 0.06		*** 0.03		*** 0.06		*** 0.05		*** 0.04		*** 0.03	
Age	*** 1.04		*** 1.05		*** 1.03		*** 1.03		*** 1.04		*** 1.04	
Gender ^a	***											
- Women	*** 1.17	1.07-1.27										
Ethnicity ^b			***									
- Black Caribbean			*** 2.20	1.89-2.58								
- Black African			** 1.37	1.13-1.66								
- Indian			*** 1.87	1.60-2.17								
- Pakistani			*** 2.48	2.10-2.93								
- Bangladeshi			*** 3.18	2.69-3.76								
- Chinese			1.21	0.98-1.49								
- White Irish			** 1.24	1.07-1.44								
Education level ^c					***							
- GCSE/A levels					*** 1.58	1.39-1.79						
- No qualifications					*** 3.36	2.98-3.78						
Economic status ^d							***					
- Inactive							*** 4.43	3.98-4.93				
- Retired							*** 1.96	1.68-2.28				
Social class ^e									***			
- Intermediate									*** 1.55	1.35-1.77		
- Routine/manual/ never worked									*** 2.73	2.45-3.05		
Income level ^f											***	
- Middle tertile											*** 2.35	2.05-2.68
- Lower tertile											*** 4.58	4.02-5.22
Overall model χ^2	1031.256, df=2, P<0.001		1321.975, df=8, P<0.001		1221.221, df=3, P<0.001		1574.243, df=3, P<0.001		1267.978, df=3, P<0.001		1368.659, df=3, P<0.001	
Cox & Snell R ²	0.083		0.106		0.117		0.136		0.107		0.136	
-2LL	13009.151		1271.432		10781.296		11539.196		12260.465		9661.853	
N	11,828		11,828		9,813		10,777		11,230		9,367	

Notes: Reference categories: ^a men, ^b White English, ^c degree or above, ^d active, ^e professional/managerial, ^f upper income tertile; OR: odds ratio; CI: 95% confidence interval of OR; Wald statistic α level for predictor variables and category coefficients ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

Table 5.17 Bivariate models for gender, ethnicity, and indicators of SEP with poor psychological wellbeing

Predictors	Model 1b		Model 2b		Model 3b		Model 4b		Model 5b		Model 6b	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Intercept	*** 0.12		*** 0.11		*** 0.17		*** 0.11		*** 0.12		*** 0.10	
Age	1.00		*** 1.01		1.00		1.00		1.00		1.00	
Gender ^a	***											
- Women	*** 1.28	1.14-1.43										
Ethnicity ^b			***									
- Black Caribbean			* 1.30	1.05-1.62								
- Black African			* 1.34	1.05-1.71								
- Indian			1.15	0.93-1.41								
- Pakistani			*** 1.61	1.29-2.01								
- Bangladeshi			** 1.48	1.15-1.90								
- Chinese			0.89	0.67-1.17								
- White Irish			1.20	0.99-1.45								
Education level ^c					***							
- GCSE/A levels					1.00	0.85-1.17						
- No qualifications					*** 1.63	1.39-1.91						
Economic status ^d							***					
- Inactive							*** 2.89	2.53-3.31				
- Retired							* 1.29	1.04-1.60				
Social class ^e									***			
- Intermediate									1.12	0.94-1.32		
- Routine/manual/ never worked									*** 1.53	1.34-1.76		
Income level ^f											***	
- Middle tertile											*** 1.58	1.34-1.86
- Lower tertile											*** 2.33	1.99-2.73
Model χ^2	21.802, df=2, P<0.001		35.050, df=8, P<0.001		48.255, df=3, P<0.001		235.259, df=3, P<0.001		45.672, df=3, P<0.001		120.112, df=3, P<0.001	
Cox & Snell R ²	0.002		0.003		0.006		0.025		0.005		0.015	
-2LL	8102.538		8089.289		6800.784		7277.176		7779.046		6587.706	
N	9,999		9,999		8,314		9,129		9,549		8,135	

Notes: Reference categories: ^a men, ^b White English, ^c degree or above, ^d active, ^e professional/managerial, ^f upper income tertile; OR: odds ratio; CI: 95% confidence interval of OR; (w): Wald statistic α level for predictor variable ***: P<0.001, **: P<0.01, *: P<0.05; Wald statistic α level for category coefficient ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

Table 5.18 Bivariate models for gender, ethnicity and indicators of SEP with problems with HRQoL

Predictors	Model 1c		Model 2c		Model 3c		Model 4c		Model 5c		Model 6c	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Intercept	*** 0.11		*** 0.12		*** 0.13		*** 0.12		*** 0.10		*** 0.09	
Age	*** 1.04		*** 1.04		*** 1.03		*** 1.03		*** 1.04		*** 1.04	
Gender ^a	***											
- Women	*** 1.43	1.13-1.56										
Ethnicity ^b			***									
- Black Caribbean			*** 1.33	1.13-1.57								
- Black African			1.08	0.89-1.30								
- Indian			1.14	0.98-1.32								
- Pakistani			*** 1.47	1.23-1.75								
- Bangladeshi			*** 1.47	1.21-1.79								
- Chinese			*** 0.68	0.56-0.83								
- White Irish			0.88	0.76-1.02								
Education level ^c					***							
- GCSE/A levels					*** 1.29	1.15-1.44						
- No qualifications					*** 2.04	1.81-2.29						
Economic status ^d							***					
- Inactive							*** 2.87	2.57-3.20				
- Retired							*** 1.51	1.29-1.76				
Social class ^e									***			
- Intermediate									*** 1.29	1.14-1.46		
- Routine/manual/ never worked									*** 1.84	1.66-2.03		
Income level ^f											***	
- Middle tertile											*** 1.52	1.36-1.70
- Lower tertile											*** 2.41	2.15-2.71
Model χ^2	1007.270, df=2, P<0.001		1007.572, df=8, P<0.001		841.653, df=3, P<0.001		1135.174, df=3, P<0.001		999.290, df=3, P<0.001		966.871, df=3, P<0.001	
Cox & Snell R ²	0.096		0.096		0.096		0.117		0.100		0.112	
-2LL	12555.758		12555.457		10527.315		11345.866		12011.221		10065.167	
N	9,969		9,969		8,296		9,103		9,523		8,114	

Notes: Reference categories: ^a men, ^b White English, ^c degree or above, ^d active, ^e professional/managerial, ^f upper income tertile; OR: odds ratio; CI: 95% confidence interval of OR; (w): Wald statistic α level for predictor variable ***: P<0.001, **: P<0.01, *: P<0.05; Wald statistic α level for category coefficient ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

5.4.3 Additive models

In the next stage of the analysis a series of additive models were run to test for the independent effects of gender, ethnicity, education level, economic status, social class, and income level on the three outcomes. The first model in the series entered gender and ethnicity as predictor variables. The second model entered gender, ethnicity, and education level. The third model entered gender, ethnicity, and economic status. The fourth model entered gender, ethnicity, and social class, and the fifth model entered gender, ethnicity, and income level. This sequence enabled the association between the outcomes and each socioeconomic indicator to be examined individually and minimised the risk of over-fitting (Tabachnick & Fidell, 1996). All of the models were adjusted for age.

5.4.3.1 Gender, ethnic and socioeconomic inequalities in poor general health

Table 5.19 on page 142 presents the results for inequalities in poor general health. Looking firstly at the findings for gender, odds of poor health were found to be significantly higher among women compared to men (OR 1.19), after having controlled for age and ethnic group (see model 7a). This gender difference remained statistically significant after adjusting for education level, social class, and income level. Interestingly, after adjusting for economic status, the reverse association was observed with women reporting significantly lower odds of poor health compared to men (OR 0.90, see model 9a).

The findings for ethnicity revealed that odds of poor general health were significantly higher for the Black Caribbean, Black African, Indian, Pakistani, Bangladeshi, and White Irish ethnic groups relative to the White English ethnic group, after having controlled for age and gender (see model 7a). Notably, the magnitude of inequality in poor general health was greatest among the Bangladeshi (OR 3.21), Pakistani (OR 2.51), and Black Caribbean (OR 2.19) groups. By contrast, no significant difference in poor general health was reported between the Chinese and White English groups. Ethnic differences in poor general health remained statistically significant for Black Caribbeans, Indians, Pakistanis, and Bangladeshis after separately adjusting for socioeconomic indicators. However, for the Black African group, adjustment for economic status, social class, and income level each reduced the odds of poor general health to non-significance. Similarly for the White Irish group, adjustment for income level removed the significant difference in poor general health. Adjustment for education level and social class was found to significantly increase odds of poor general health among the Chinese group. This finding is likely to reflect the relatively advantaged educational and social class profile of the Chinese sample compared to the White English sample (see Section 5.3.3, Table 5.14).

Education level, economic status, social class, and income level were each significantly associated with poor general health, independently of the effects of age, gender and ethnicity. Moreover, the expected socioeconomic gradient in health was clearly demonstrated, with odds of poor general health showing a significant increase with lower SEP. Notably, a four-fold increase in odds of poor health was predicted for economically 'inactive' participants (OR 4.09) compared to those in the economically 'active' group (see model 9a), and for participants positioned in the lower income tertile (OR 3.98) compared to the upper tertile (see model 11a).

5.4.3.2 Gender, ethnic and socioeconomic inequalities in poor psychological wellbeing

The results for social inequalities in psychological wellbeing are presented in Table 5.20 on page 143. For the association between gender and poor psychological wellbeing, women were again found to be disadvantaged relative to men. Women were 29 per cent more likely to report having poor psychological wellbeing than men, after adjustment for age and ethnicity (see model 7b). This finding remained statistically significant after further adjustment for education, social class, and income level, but became non-significant after adjustment for economic status.

In contrast to the results for poor general health, associations between ethnic minority groups and poor psychological wellbeing were less strong, with no significant differences reported between the Indian, Chinese, and White Irish groups relative to the White English group, after adjustment for age and gender. Odds of poor psychological wellbeing were significantly higher for Pakistanis (OR 1.65), and Bangladeshis (OR 1.50), and to a lesser degree for Black Africans (OR 1.35) and Black Caribbeans (OR: 1.29), relative to their White English counterparts. These differences held after adjustment for education, and for social class with the exception of Black Caribbeans, but became non-significant after adjustment for income level. Similarly, adjustment for economic status removed the significant differences in poor psychological wellbeing between ethnic groups, with the exception of the Pakistani group (OR 1.38).

The results for SEP again demonstrated the expected gradient for economic status and income level, with significantly higher odds of poor psychological wellbeing increasing across the lower positions, having adjusted for age, gender, and ethnicity. For education and social class, odds of poor psychological wellbeing were only significantly different between participants located in the lowest and highest socioeconomic positions. No significant differences in poor psychological wellbeing were reported between participants with GCSEs or A levels compared to those with a degree or above, or for participants in intermediate occupations compared to those in professional or managerial occupations.

5.4.3.3 Gender, ethnic and socioeconomic inequalities in problems with HRQoL

The findings presented in Table 5.21 on page 144, reveal that gender, ethnicity, and the indicators of SEP were independently associated with inequalities in HRQoL. For gender, odds of problems with HRQoL were 44 per cent higher among women compared to men, after adjusting for age and ethnicity (see model 7c). Furthermore, this finding remained statistically significant after adjustment for education (OR 1.40), economic status (OR 1.21), social class (OR 1.40), and income level (OR 1.36).

For ethnicity, odds of problems with HRQoL were significantly higher among the Pakistani (OR 1.50), Bangladeshi (OR 1.51), and Black Caribbean (OR 1.32) groups relative to the White English group, after adjustment for age and gender (see model 7c). By contrast, a significantly lower odds of problems with HRQoL was reported for the Chinese group (OR 0.69), whilst no significant differences were reported between the Black African, Indian, and White Irish groups relative to the White English group. The differences for the Black Caribbean and Chinese groups remained statistically significant after further adjustment for SEP. Differences for the Pakistani and Bangladeshi groups also remained statistically significant after adjustment for education level and social class, but became non-significant after adjustment for economic status and income level. Adjustment for economic status also resulted in a significantly lower odds of problems with HRQoL for the White Irish group (OR 0.84) relative to the White English.

The results for education level, economic status, social class, and income level again demonstrated the expected socioeconomic gradient with odds of problems with HRQoL increasing significantly across the lower positions, after adjustment for age, gender, and ethnicity. Notably the associations reported for HRQoL and SEP mirrored those for poor general health, but to a lesser magnitude.

5.4.3.4 Section summary

The findings from the additive models provided strong evidence for the presence of social inequalities in health and wellbeing among the HSE 2004 sample. Specifically, gender, ethnicity, education level, economic status, social class, and income level were each found to be independently associated with significant differences in general health, psychological wellbeing, and HRQoL, after adjustment for the effects of age. Overall, poorer health outcomes were found for women, Pakistani, Bangladeshi, Black Caribbean participants, and participants in the lowest socioeconomic positions. The magnitude of gender, ethnic and socioeconomic inequalities in health did however vary by outcome, with gender inequalities being most pronounced in

problems with HRQoL, whereas ethnic and socioeconomic inequalities were strongest in poor general health. With the exception of economic status, adjustment for SEP made little difference to gender inequalities in health. Similarly, adjustment for education level and social class made little difference to ethnic inequalities in health, whereas controlling for income level completely removed ethnic inequalities in psychological wellbeing and in HRQoL, with one exception. These findings therefore illustrate the complexity of associations between gender, ethnicity and SEP with health and highlight the need to consider variations in different health outcomes.

Table 5.19 Additive models for gender, ethnicity, and indicators of SEP with poor general health

Predictors	Model 7a		Model 8a		Model 9a		Model 10a		Model 11a	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Intercept	*** 0.03		*** 0.03		*** 0.03		*** 0.02		*** 0.02	
Age	*** 1.05	1.04 - 1.05	*** 1.04	1.03 - 1.04	*** 1.04	1.03-1.04	*** 1.04	1.04 - 1.05	*** 1.04	1.04 - 1.04
Gender^a	***		*		*		*		**	
- Women	*** 1.19	1.09 - 1.30	* 1.12	1.02 - 1.23	* 0.90	0.82 - 0.99	* 1.12	1.02 - 1.22	** 1.15	1.04 - 1.28
Ethnicity^b	***		***		***		***		***	
- Black Caribbean	*** 2.19	1.88 - 2.57	*** 2.03	1.71 - 2.41	*** 2.06	1.75 - 2.44	*** 2.08	1.77 - 2.44	*** 1.83	1.52 - 2.19
- Black African	*** 1.38	1.13 - 1.67	** 1.33	1.07 - 1.65	1.10	0.89 - 1.36	1.18	0.96 - 1.44	0.97	0.78 - 1.22
- Indian	*** 1.88	1.61 - 2.19	*** 1.82	1.54 - 2.15	*** 1.78	1.51 - 2.10	*** 1.76	1.51 - 2.07	*** 1.60	1.33 - 1.91
- Pakistani	*** 2.51	2.12 - 2.96	*** 1.98	1.65 - 2.39	*** 1.75	1.47 - 2.10	*** 2.13	1.79 - 2.53	*** 1.59	1.33 - 1.91
- Bangladeshi	*** 3.21	2.72 - 3.80	*** 2.48	2.06 - 3.00	*** 2.08	1.73 - 2.50	*** 2.72	2.28 - 3.25	*** 1.78	1.44 - 2.19
- Chinese	1.22	0.99 - 1.50	* 1.28	1.01 - 1.61	1.25	0.99 - 1.57	* 1.29	1.04 - 1.60	1.14	0.89 - 1.48
- White Irish	** 1.24	1.07 - 1.44	* 1.18	1.01 - 1.39	* 1.21	1.03 - 1.41	** 1.23	1.05 - 1.43	1.19	1.00 - 1.41
Education level^c			***							
- GCSE/A levels			*** 1.61	1.42 - 1.84						
- No qualifications			*** 2.95	2.61 - 3.34						
Economic status^d					***					
- Inactive					*** 4.09	3.65 - 4.58				
- Retired					*** 1.86	1.59 - 2.17				
Social class^e							***			
- Intermediate							*** 1.47	1.28 - 1.68		
- Routine/manual/never worked							*** 2.40	2.14 - 2.68		
Income level^f									***	
- Middle tertile									*** 2.24	1.96 - 2.57
- Lower tertile									*** 3.98	3.47 - 4.57
Model χ^2	1337.799, df=9, P<0.001		1390.926, df=11, P<0.001		1728.423, df=11, P<0.001		1489.121, df=11, P<0.001		1455.841, df=11, P<0.001	
Cox & Snell R ²	0.107		0.132		0.148		0.124		0.144	
-2LL	12702.604		10611.591		11385.016		120039.322		9574.671	
N	11,828		9,813		10,777		11,230		9,367	

Notes: Reference categories: ^a men; ^b White English; ^c degree or above; ^d active; ^e professional/managerial; ^f upper tertile; OR: odds ratio; CI: 95% confidence interval of OR; Wald statistic α level for predictor variables and category coefficients ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

Table 5.20 Additive models for gender, ethnicity, and indicators of SEP with poor psychological wellbeing

Predictors	Model 7b		Model 8b		Model 9b		Model 10b		Model 11b	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Intercept	*** 0.10		*** 0.12		*** 0.09		*** 0.09		*** 0.08	
Age	1.01	1.00-1.01	*** 1.25	1.10 - 1.41	1.00	1.00 - 1.01	1.00	1.00 - 1.01	1.00	1.00 - 1.01
Gender^a	***		***				***		***	
- Women	*** 1.29	1.15 - 1.45	*** 1.25	1.10 - 1.41	1.03	0.91 - 1.17	*** 1.27	1.13 - 1.43	*** 1.26	1.11 - 1.43
Ethnicity^b	***		***				***		***	
- Black Caribbean	* 1.29	1.04 - 1.60	** 1.41	1.12 - 1.78	1.26	1.00 - 1.57	1.25	1.00 - 1.56	1.21	0.95 - 1.54
- Black African	* 1.35	1.06 - 1.72	* 1.37	1.05 - 1.80	1.21	0.93 - 1.58	* 1.34	1.05 - 1.72	1.14	0.88 - 1.49
- Indian	1.16	0.94 - 1.42	1.18	0.94 - 1.48	1.12	0.90 - 1.39	1.16	0.94 - 1.43	1.04	0.83 - 1.32
- Pakistani	*** 1.65	1.32 - 2.06	*** 1.70	1.33 - 2.18	** 1.38	1.08 - 1.75	*** 1.72	1.37 - 2.17	1.24	0.95 - 1.62
- Bangladeshi	** 1.50	1.17 - 1.93	* 1.38	1.04 - 1.83	1.05	0.80 - 1.39	* 1.38	1.06 - 1.80	1.15	0.84 - 1.56
- Chinese	0.90	0.68 - 1.19	0.88	0.64 - 1.21	0.90	0.66 - 1.23	0.95	0.71 - 1.26	0.95	0.69 - 1.31
- White Irish	1.20	0.99 - 1.45	* 1.24	1.01 - 1.51	1.17	0.96 - 1.43	1.20	0.99 - 1.46	1.18	0.96 - 1.45
Education level^c			***							
- GCSE/A levels			0.99	0.84 - 1.16						
- No qualifications			*** 1.51	1.29 - 1.78						
Economic status^d					***					
- Inactive					*** 2.77	2.40 - 3.20				
- Retired					* 1.27	1.02 - 1.58				
Social class^e							***			
- Intermediate							1.07	0.90 - 1.27		
- Routine/manual/never worked							*** 1.44	1.25 - 1.65		
Income level^f									***	
- Middle tertile									*** 1.55	1.32 - 1.83
- Lower tertile									*** 2.20	1.87 - 2.60
Model χ^2	53.475, df=9, P<0.001		88.282, df=11, P<0.001		247.777, df=111, P<0.001		88.545, df=11, P<0.001		138.536, df=11, P<0.001	
Cox & Snell R ²	0.005		0.011		0.027		0.009		0.017	
-2LL	8070.865		6760.757		7264.657		7736.174		6569.282	
N	9,999		8,314		9,129		9,549		8,135	

Notes: Reference categories: ^a men; ^b White English; ^c degree or above; ^d active; ^e professional/managerial; ^f upper tertile; OR: odds ratio; CI: 95% confidence interval of OR; Wald statistic α level for predictor variable $\Delta\Delta\Delta$: P<0.001, $\Delta\Delta$: P<0.01, Δ : P<0.05; Wald statistic α level for category coefficient ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

Table 5.21 Additive models for gender, ethnicity, and indicators of SEP with problems in HRQoL

Predictors	Model 7c		Model 8c		Model 9c		Model 10c		Model 11c	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Intercept	*** 0.10		*** 0.10		*** 0.10		*** 0.07		*** 0.08	
Age	*** 1.04	1.04 - 1.04	*** 1.03	1.03 - 1.04	*** 1.04	1.03 - 1.04	*** 1.04	1.04 - 1.04	*** 1.04	1.03 - 1.04
Gender^a	***		***		***		***		***	
- Women	*** 1.44	1.32 - 1.57	*** 1.40	1.27 - 1.54	*** 1.21	1.11 - 1.33	*** 1.40	1.28 - 1.52	*** 1.36	1.24 - 1.50
Ethnicity^b	***		***		***		***		**	
- Black Caribbean	*** 1.32	1.11 - 1.55	*** 1.33	1.11 - 1.60	** 1.26	1.06 - 1.50	** 1.30	1.09 - 1.54	* 1.22	1.01 - 1.47
- Black African	1.09	0.91 - 1.31	1.11	0.90 - 1.36	0.97	0.79 - 1.19	1.02	0.84 - 1.24	0.85	0.69 - 1.04
- Indian	1.16	1.00 - 1.35	1.16	0.99 - 1.37	1.11	0.95 - 1.30	1.13	0.97 - 1.32	0.97	0.82 - 1.16
- Pakistani	*** 1.50	1.26 - 1.80	*** 1.48	1.21 - 1.81	1.20	0.98 - 1.46	*** 1.47	1.22 - 1.77	1.01	0.82 - 1.26
- Bangladeshi	*** 1.51	1.24 - 1.83	* 1.32	1.06 - 1.65	1.06	0.85 - 1.32	* 1.31	1.07 - 1.62	0.89	0.69 - 1.14
- Chinese	*** 0.69	0.57 - 0.84	** 0.71	0.57 - 0.88	*** 0.66	0.53 - 0.82	*** 0.72	0.58 - 0.88	** 0.69	0.55 - 0.88
- White Irish	0.88	0.76 - 1.02	0.87	0.74 - 1.01	* 0.84	0.73 - 0.98	0.88	0.75 - 1.01	0.89	0.76 - 1.05
Education level^c			***							
- GCSE/A levels			*** 1.24	1.11 - 1.39						
- No qualifications			*** 1.88	1.67 - 2.12						
Economic status^d					***					
- Inactive					*** 2.67	2.38 - 2.99				
- Retired					*** 1.44	1.23 - 1.69				
Social class^e							***			
- Intermediate							*** 1.23	1.09 - 1.39		
- Routine/manual/never worked							*** 1.72	1.55 - 1.90		
Income level^f									***	
- Middle tertile									*** 1.50	1.34 - 1.69
- Lower tertile									*** 2.38	2.10 - 2.69
Model χ^2	1077.565, df=9, P<0.001		937.673, df=11, P<0.001		1186.631, df=11, P<0.001		1103.450, df=11, P<0.001		1029.465, df=11, P<0.001	
Cox & Snell R ²	0.102		0.107		0.122		0.109		0.119	
-2LL	12485.464		10431.295		11294.409		11907.062		10002.574	
N	9,969		8,296		9,103		9,523		8 114	

Notes: Reference categories: ^a men; ^b White English; ^c degree or above; ^d active; ^e professional/managerial; ^f upper tertile; OR: odds ratio; CI: 95% confidence interval of OR; Wald statistic α level for predictor variable $\Delta\Delta\Delta$: P<0.001, $\Delta\Delta$: P<0.01, Δ : P<0.05; Wald statistic α level for category coefficient ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

5.4.4 Interaction models

Having established an understanding of the independent relationships between gender, ethnicity, and SEP with health, the final stage of the analysis sought to identify intersectional relationships between gender, ethnicity, and SEP with health. To achieve this, five sets of interaction models were performed to test for significant interaction effects between gender, ethnicity and indicators of SEP with each of the health outcomes. The interactions models were formed by adding multiplicative interaction terms to the additive models 7, 8, 9, 10 and 11, presented above. Table 5.22 below presents an overview of the five sets of interaction models, indicating which of the two-way and three-way interaction effects were found to reach statistical significance ($P < 0.05$).

Table 5.22 Overview of interaction effects for general health, psychological wellbeing, and HRQoL

	Interaction	General health	Psychological wellbeing	HRQoL
1	Gender × ethnicity	***	-	*
	Model	12a		12c
2	Gender × education	-	**	-
	Model		13b	
	Ethnicity × education	-	**	-
	Model		13b	
	Gender × ethnicity × education	-	-	-
	Model			
3	Gender × economic status	***	***	***
	Model	14a	14b	14c
	Ethnicity × economic status	***	***	*
	Model	14a	14b	14c
	Gender × ethnicity × economic status	*	-	-
	Model	14a		
4	Gender × social class	-	**	-
	Model		15b	
	Ethnicity × social class	-	-	-
	Model			
	Gender × ethnicity × social class	-	-	-
	Model			
5	Gender × income level	-	-	-
	Model			
	Ethnicity × income level	***	**	**
	Model	16a	16b	16c
	Gender × ethnicity × income level	-	-	-
	Model			

Notes: ***: $P < 0.001$; **: $P < 0.01$; *: $P < 0.05$; -: $P > 0.05$.

The results for each of the significant interaction effects are reported in the sections below. Data for the interactions with the outcome poor general health are provided in Appendix B for illustration.

5.4.4.1 Interactions between gender and ethnicity

The first series of interaction models tested for two-way interactions between gender and ethnicity with each of the health outcomes. A significant interaction effect between gender and ethnicity was found for poor general health ($\chi^2 = 28.689$, $P < 0.001$) and for problems with HRQoL ($\chi^2 = 14.560$, $P = 0.042$), as shown in Table 5.23 and Table 5.24 respectively. The interaction between gender and ethnicity for poor psychological wellbeing did not reach statistical significance ($\chi^2 = 8.432$, $P = 0.296$).

(i) Intersection of gender and ethnicity in poor general health

Table 5.23 on page 147 describes the two-way interaction between gender and ethnicity in poor general health (see model 12a). The column 'Men' presents the odds ratios for poor general health between ethnic minority group men compared to White English men. Likewise, the column 'Women' presents the odds ratios for poor general health between ethnic minority group women compared to White English women. The column entitled 'Interaction' demonstrates whether the association between ethnicity and health varied by gender by comparing the odds ratios for men and women within each ethnic minority group.

The results indicate that the interaction effect between gender and ethnicity was largely explained by the excess in poor health associated with Black Caribbean, Black African, and Pakistani women. For example, odds of poor general health were found to be significantly higher for both Pakistani men (OR 1.96) and women (OR 3.05) compared to their White English counterparts. However, the association between ethnicity and poor health was found to be significantly stronger for Pakistani women compared to Pakistani men ($3.05/1.96 = \text{OR } 1.56$). The results for the Irish ethnic group were also found to contribute to the interaction effect. In contrast to the pattern described above, the association between poor general health and Irish ethnicity demonstrated the reverse gender pattern, with odds of poor general health found to be significantly higher for White Irish men compared to White English men (OR 1.49), whereas no significant difference was found between White Irish and White English women (OR 1.07). The association between ethnicity and poor health was therefore found to be significantly stronger among White Irish men compared to White Irish women ($1.07/1.49 = \text{OR } 0.72$).

Table 5.23 Two-way interaction model for gender × ethnicity with poor general health

Model 12a Ethnic group	Men		Women		Interaction (Women/men)	
	OR	CI	OR	CI	OR	CI
White English [R]	1.00		1.00			
Black Caribbean	*** 1.67	1.30 - 2.15	*** 2.61	2.14 - 3.18	** 1.56	1.13 - 2.15
Black African	1.02	0.75 - 1.39	*** 1.70	1.33 - 2.18	** 1.66	1.13 - 2.46
Indian	*** 1.87	1.49 - 2.34	*** 1.89	1.54 - 2.32	1.01	0.75 - 1.37
Pakistani	*** 1.96	1.53 - 2.51	*** 3.05	2.46 - 3.79	** 1.56	1.13 - 2.16
Bangladeshi	*** 2.81	2.20 - 3.59	*** 3.60	2.88 - 4.50	1.28	0.93 - 1.77
Chinese	1.15	0.84 - 1.57	1.27	0.96 - 1.68	1.10	0.73 - 1.68
White Irish	*** 1.49	1.19 - 1.87	1.07	0.87 - 1.31	* 0.72	0.53 - 0.97
Model statistics						
Overall model χ^2						1366.690, df=16, P<0.001
Interaction effect χ^2						28.689, df=7, P<0.001
Cox & Snell R ²						0.109
-2LL						12673.717
N						11,828

Notes: [R]: reference category; OR: odds ratio; CI: 95% confidence interval for OR; Wald statistic α level ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

Figure 5.10 compares the additive and interaction model results for the association between gender and ethnicity with poor general health. Specifically, the figure plots the predicted odds of poor general health derived from additive model 7a (see page 142 and Appendix B.14) and from interaction model 12a (see Appendix B.17) for each of the statistically significant sub-level categories described above. In visual terms, the less parallel the male and female lines within an ethnic group, the more strongly the association between ethnicity and health varies as a function of gender. The first chart in Figure 5.10, for example, gives the predicted odds of poor general health for Black Caribbean women (0.079), Black Caribbean men (0.066), White English women (0.036) and White English men (0.030) derived from additive model 7a. A comparison of these odds to those derived from the multiplicative model demonstrates that the risk of poor general health was underestimated for Black Caribbean women (0.089) and overestimated for Black Caribbean men (0.053). The interaction between gender and ethnicity therefore indicates that in the case of Black Caribbean women, gender and ethnic inequalities were found to intersect and exacerbate the disadvantage in the health. A similar pattern was demonstrated to a lesser degree for Black African women and White Irish men, whilst the strongest pattern was observed for Pakistani women.

Figure 5.10 Predicted odds of poor general health for gender and ethnicity (Models 7a & 12a)

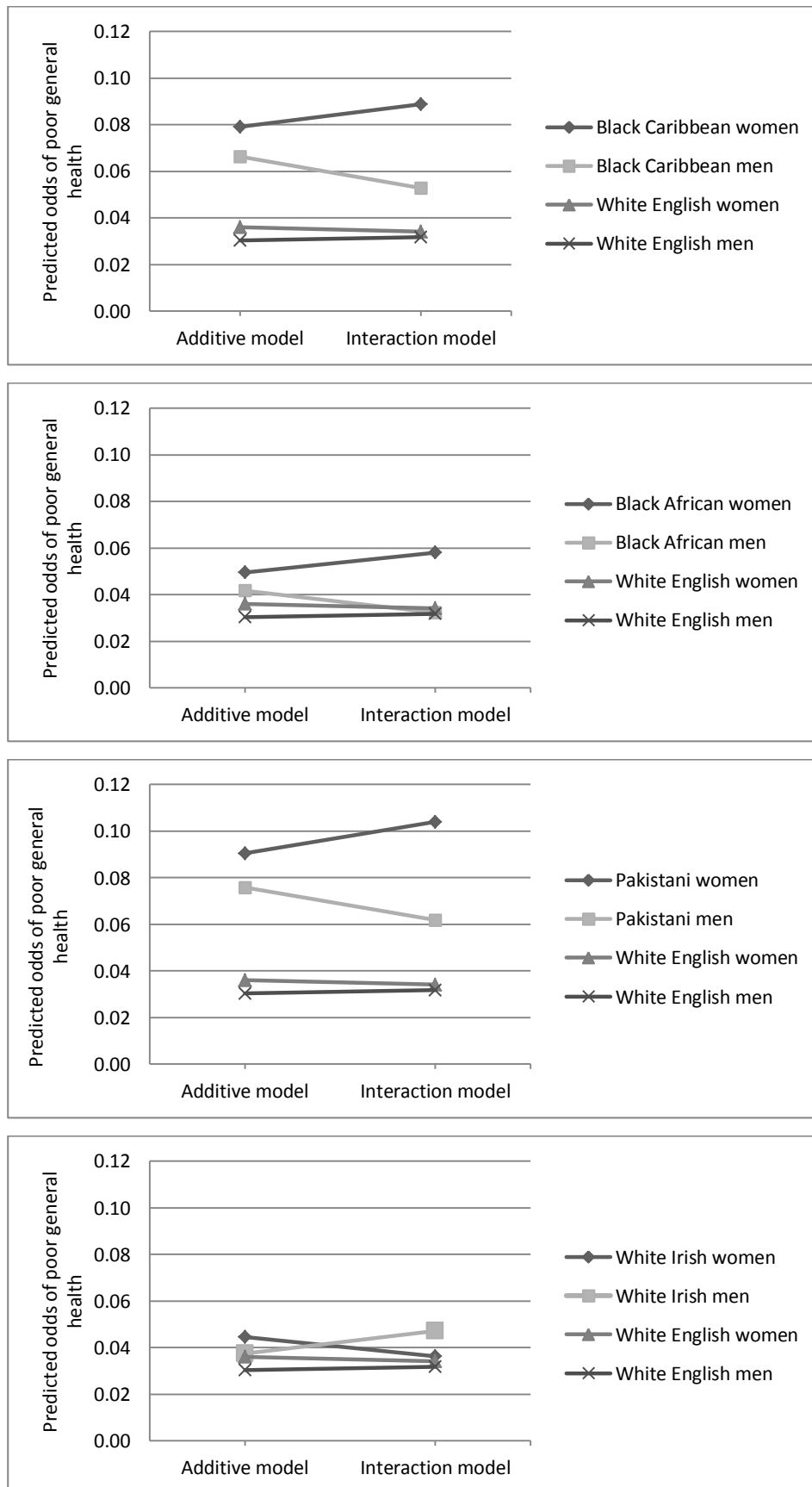
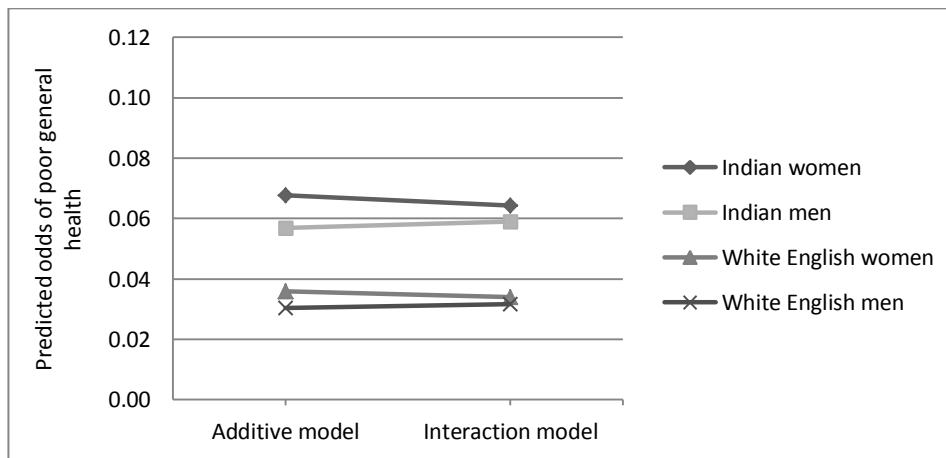


Table 5.23 (model 12a) also indicates that the findings for the Indian, Bangladeshi, and Chinese ethnic groups did not significantly contribute to the gender by ethnicity interaction effect. As illustrated for the Indian ethnic group in Figure 5.11 below, the higher odds of poor general health for Indian men and women predicted in the additive model remained consistent in the interaction model. The greater parallelism of the lines for Indian men and women thus indicates that this association did not vary significantly by gender.

Figure 5.11 Predicted odds of poor general health for Indian and White English men and women (Models 7a & 12a)



(ii) Intersection of gender and ethnicity in problems with HRQoL

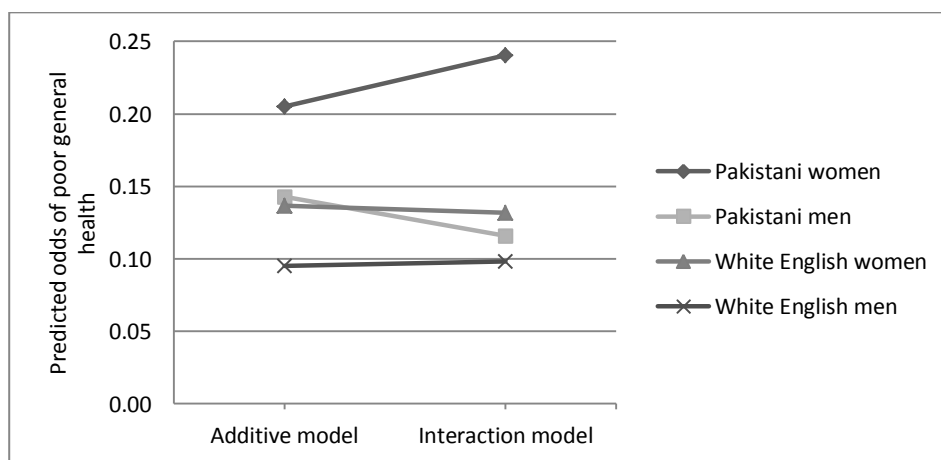
The significant two-way interaction found between gender and ethnicity in problems with HRQoL is shown in Table 5.24 (Model 12c) on page 150. The results indicate that this interaction effect was explained by the excess in problems with HRQoL associated with Pakistani women. Specifically, the difference in odds of problems with HRQoL between Pakistani and White English women was found to be significantly greater than the difference between Pakistani and White English men ($1.82/1.19 = \text{OR } 1.54$). Figure 5.12 demonstrates this pattern and highlights how the additive model underestimated problems with HRQoL among Pakistani women and overestimated problems with HRQoL among Pakistani men. As with the findings above for poor general health, the interaction between gender and ethnicity in HRQoL shows that for Pakistani women, ethnic and gender inequalities were found to intersect and exacerbate their risk of problems in HRQoL.

Table 5.24 Two-way interaction model for gender × ethnicity with problems with HRQoL

Model 12c	Men		Women		Interaction (Women/men)	
	OR	CI	OR	CI	OR	CI
White English [R]	1.00		1.00			
Black Caribbean	1.10	0.84 - 1.45	*** 1.47	1.19 - 1.82	1.33	0.95 - 1.88
Black African	1.01	0.76 - 1.35	1.15	0.90 - 1.47	1.14	0.78 - 1.64
Indian	1.11	0.89 - 1.39	1.20	0.98 - 1.46	1.08	0.80 - 1.45
Pakistani	1.19	0.91 - 1.55	*** 1.82	1.44 - 2.31	* 1.54	1.08 - 2.19
Bangladeshi	* 1.37	1.03 - 1.83	*** 1.63	1.26 - 2.11	1.19	0.81 - 2.11
Chinese	*** 0.57	0.42 - 0.77	0.80	0.62 - 1.04	1.41	0.95 - 2.11
White Irish	1.00	0.80 - 1.26	* 0.80	0.66 - 0.97	0.80	0.60 - 1.07
Model statistics						
Overall model χ^2						1092.186, df=16, P<0.001
Interaction effect χ^2						14.560, df=7, P=0.042
Cox & Snell R^2						0.104
-2LL						12470.843
N						9,969

Notes: [R]: reference category; OR: odds ratio; CI: 95% confidence interval for OR; Wald statistic α level ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

Figure 5.12 Predicted odds of problems with HRQoL for gender and ethnicity (Models 7c & 12c)



As illustrated in Section 5.4.4.1 above, the gender × ethnicity product term was also included in each of the models reported in the following sections (5.4.4.2 to 5.4.4.5). The interactions of interest in these models, however, were between gender and indicators of SEP and between ethnicity and indicators of SEP. The results for the gender × ethnicity interactions have therefore not been reported in the following tables, but are available in Appendix B.17 to B.21 for illustration.

5.4.4.2 Interactions between gender, ethnicity and education level

The second series of interaction models tested for two-way and three-way interactions between gender, ethnicity and education level (degree/above, GCSE/A level, or no qualifications) with each of the health outcomes.

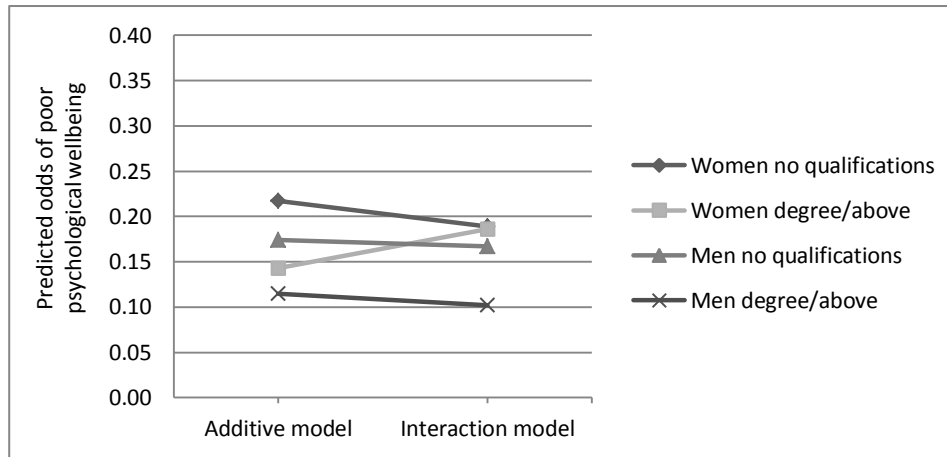
No significant interactions were reported for the outcomes of general health and HRQoL. However, for poor psychological wellbeing, significant two-way interactions were found for gender \times education level ($\chi^2 = 9.879$, $P=0.007$) and for ethnicity \times education level ($\chi^2 = 30.963$, $P=0.006$).

(i) Gender \times education level

Table 5.25 on page 155 indicates that the significant interaction effect for gender \times education level was explained by the excess in poor psychological wellbeing found for women with a degree or above (see model 13b). The association between education and poor psychological wellbeing at the no qualification level was not found to significantly differ between women and men (OR 1.11). By contrast, at the degree or above level odds of poor psychological wellbeing were found to be significantly higher among women compared to men (OR 1.83). The association between education level and poor psychological wellbeing was therefore found to vary significantly by gender ($1.11/1.83 = \text{OR } 0.61$).

Figure 5.13 shows that from the interaction model, predicted odds of poor psychological wellbeing for women with a degree or above (0.186) were similar to women with no qualifications (0.189) and higher than men with no qualifications (0.167), a pattern not anticipated by the additive model. This finding therefore suggests that the positive association between higher education and psychological wellbeing only manifests among men.

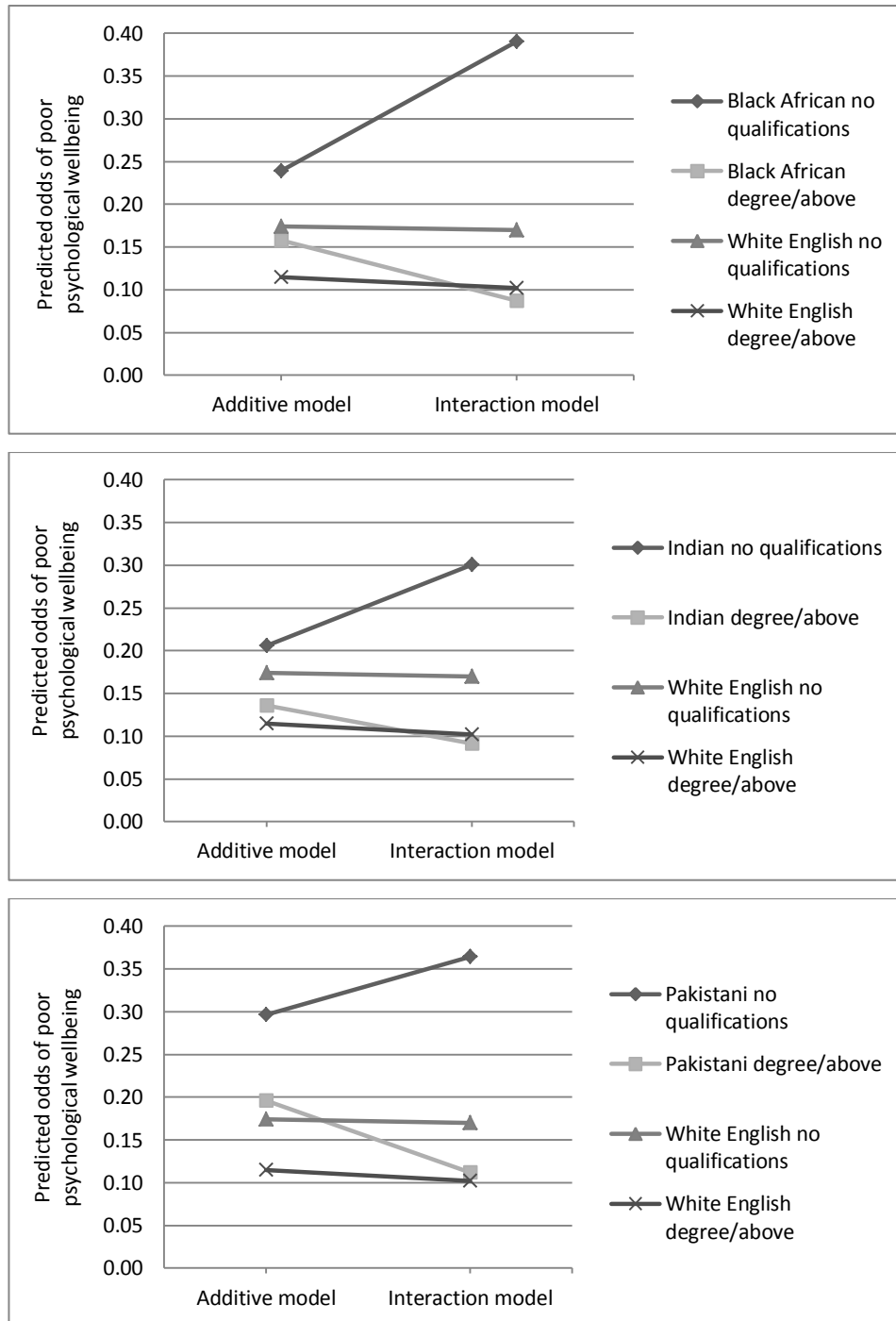
Figure 5.13 Predicted odds of poor psychological wellbeing for gender and education level (Models 8b & 13b)



(ii) Ethnicity \times education level

Table 5.25 also indicates that the significant interaction effect for ethnicity \times education level was largely explained by the excess in poor psychological wellbeing among Black Africans (OR 2.29), Indians (OR 1.77) and Pakistanis (OR 2.14) with no qualifications. For example, odds of psychological wellbeing among Black Africans with a degree or above did not significantly differ from their White English counterparts (OR 0.86). By contrast, a two-fold increase in odds of poor psychological wellbeing was found between the Black African and White English groups at the no qualification level (OR 2.29). Figure 5.14 illustrates that this pattern was also reflected in the findings for the Indian and Pakistani groups. For each of these ethnic groups, the additive model overestimated odds of poor psychological wellbeing at degree level and underestimated odds of poor psychological wellbeing at the no qualification level. These findings suggest that the having no qualifications was far more detrimental to psychological wellbeing among the Black African, Indian and Pakistani groups than among the White English group.

Figure 5.14 Predicted odds of poor psychological wellbeing for ethnicity and education level (Models 8b & 13b)



A further contribution to the interaction between ethnicity and education was the excess in poor psychological wellbeing among Indians in the GCSE/A level group. As shown in Table 5.25 and Figure 5.15 below, odds of poor psychological wellbeing were substantially higher among Indian participants with GCSEs or A levels compared to their White English counterparts (OR 1.72). By contrast, no significant difference in psychological wellbeing was reported between Indian and White English participants at degree level (OR 0.90). Lower education levels therefore appeared to have greater consequences for psychological wellbeing among the Indian group compared to the White English group.

Figure 5.15 Predicted odds of poor psychological wellbeing for ethnicity and education level (Models 8b & 13b)

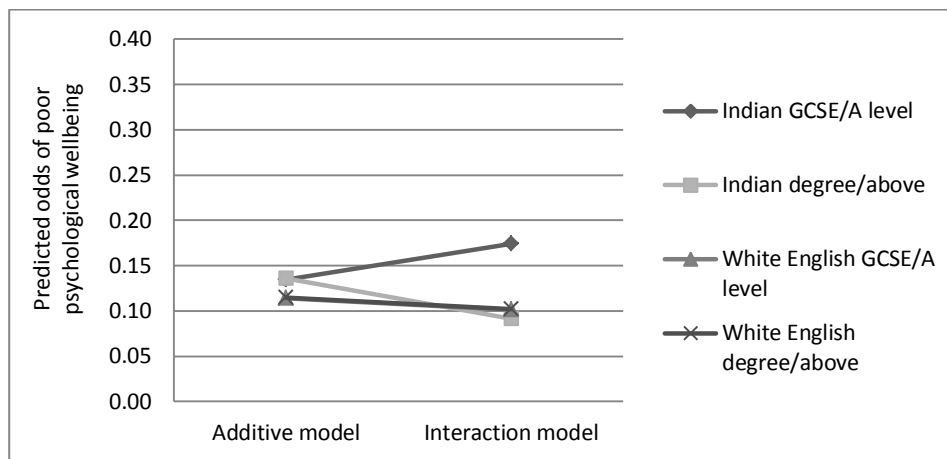


Table 5.25 Two-way interaction model for gender, ethnicity, and education level with poor psychological wellbeing

Model 13b	Degree		GCSE/A level		Interaction (GCSE/Degree)		No qualifications		Interaction (No qual/Degree)	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Two-way interactions										
Gender x Education										
Men [R]	1.00		1.00				1.00			
Women	*** 1.83	1.40-2.40	* 1.32	1.01-1.73	0.72	0.52-1.00	1.11	0.87-1.43	** 0.61	0.44-0.83
Ethnicity x Education										
White English [R]	1.00		1.00		1.00		1.00		1.00	
Black Caribbean	* 1.86	1.12-3.09	* 1.90	1.15-3.14	1.02	0.59-1.77	1.09	0.67-1.79	0.59	0.33-1.04
Black African	0.86	0.49-1.50	1.36	0.74-2.51	1.59	0.82-3.07	** 2.29	1.25-4.20	** 2.68	1.40-5.12
Indian	0.90	0.57-1.43	* 1.72	1.06-2.81	* 1.91	1.10-3.34	* 1.77	1.12-2.78	* 1.96	1.15-3.36
Pakistani	1.10	0.61-1.98	1.71	0.99-2.95	1.56	0.78-3.12	*** 2.14	1.37-3.34	* 1.95	1.04-3.65
Bangladeshi	1.58	0.80-3.10	1.58	0.81-3.08	1.00	0.42-2.38	*** 2.37	1.49-3.78	1.50	0.72-3.12
Chinese	0.97	0.55-1.73	1.32	0.63-2.77	1.35	0.63-2.90	0.58	0.25-1.33	0.59	0.25-1.40
White Irish	1.02	0.64-1.63	1.56	1.00-2.43	1.53	0.90-2.59	1.43	0.96-2.13	1.40	0.85-2.30
Gender x Ethnicity (results not shown)										
	-	-	-	-	-	-	-	-	-	-
Model statistics										
Overall model χ^2										139.052, df=34, P<0.001
Gender x education interaction effect χ^2										9.879, df=2, P=0.007
Ethnicity x education interaction effect χ^2										30.963, df=14, P=0.006
Gender x ethnicity interaction effect χ^2										6.653, df=7, P=0.466
Cox & Snell R ²										0.017
-2LL										6709.987
N										8,314

Notes: [R]: reference category; OR: odds ratio; CI: 95% confidence interval for OR; Wald statistic α level ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

5.4.4.3 Interactions between gender, ethnicity and economic status

The third series of interaction models tested for two-way and three-way interactions between gender, ethnicity, and economic status (active, inactive, or retired) with each of the health outcomes. Significant two-way interactions were found for gender \times economic status with general health ($\chi^2 = 39.947$, $P < 0.001$), psychological wellbeing ($\chi^2 = 45.686$, $P < 0.001$), and HRQoL ($\chi^2 = 53.802$, $P < 0.001$). In addition, significant two-way interactions were found for ethnicity \times economic status with general health ($\chi^2 = 81.546$, $P < 0.001$), poor psychological wellbeing ($\chi^2 = 36.203$, $P < 0.001$), and problems in HRQoL ($\chi^2 = 26.775$, $P = 0.021$). The results for the three-way interactions between gender \times ethnicity \times economic status did not reach statistical significance for psychological wellbeing ($P = 0.088$) or HRQoL ($P = 0.053$). However, a significant three-way interaction between gender \times ethnicity \times economic status was found for poor general health ($\chi^2 = 28.543$, $P = 0.012$).

(i) Gender \times economic status

The significant interaction effects for gender \times economic status with each of the outcomes were explained by an excess in morbidity among inactive men. The findings for poor general health, presented in Table 5.27 (model 14a) on page 163, show that for the economically inactive group, odds of poor general health were significantly lower among women compared to men (OR 0.48) whereas no significant gender difference was found for the economically active group (OR 0.98). For poor psychological wellbeing, the findings shown in Table 5.28 (model 14b) on page 164 demonstrate that odds of poor psychological wellbeing were also significantly lower among inactive women relative to inactive men (OR 0.56). By contrast, active women were significantly more at risk of poor psychological wellbeing than active men (OR 1.57). This pattern was also replicated for the outcome problems with HRQoL, as shown in Table 5.29 (model 14c) on page 165.

Figures 5.16 to 5.18 below present the predicted odds of poor general health, poor psychological wellbeing, and problems in HRQoL, respectively, for active and inactive men and women as derived from the additive models and interaction models. Notably, each of the figures highlights that the degree of morbidity associated with inactive men was substantially underestimated by the additive model.

Figure 5.16 Predicted odds of poor general health by gender and economic status (Models 9a & 14a)

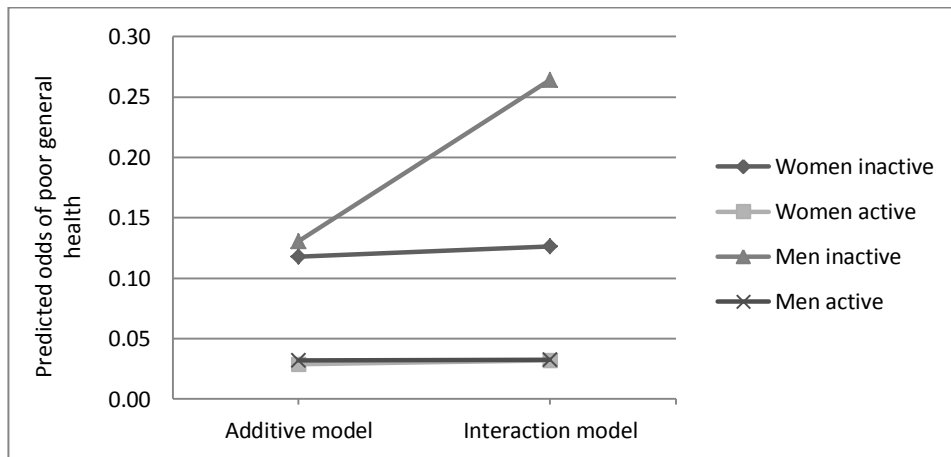


Figure 5.17 Predicted odds of poor psychological wellbeing by gender and economic status (Models 9b & 14b)

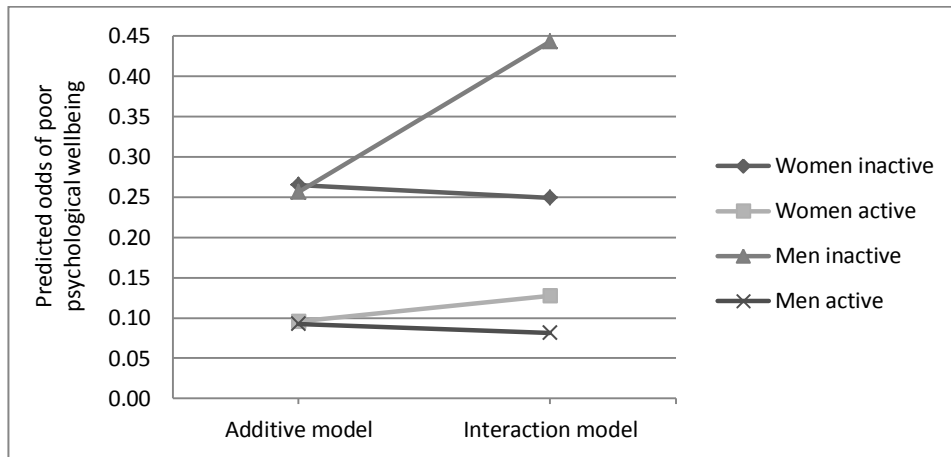
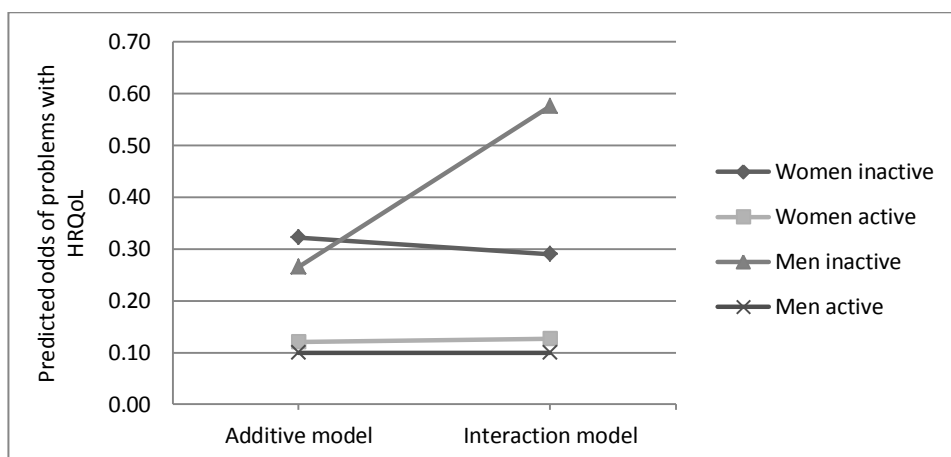


Figure 5.18 Predicted odds of problems with HRQoL by gender and economic status (Models 9c & 14c)



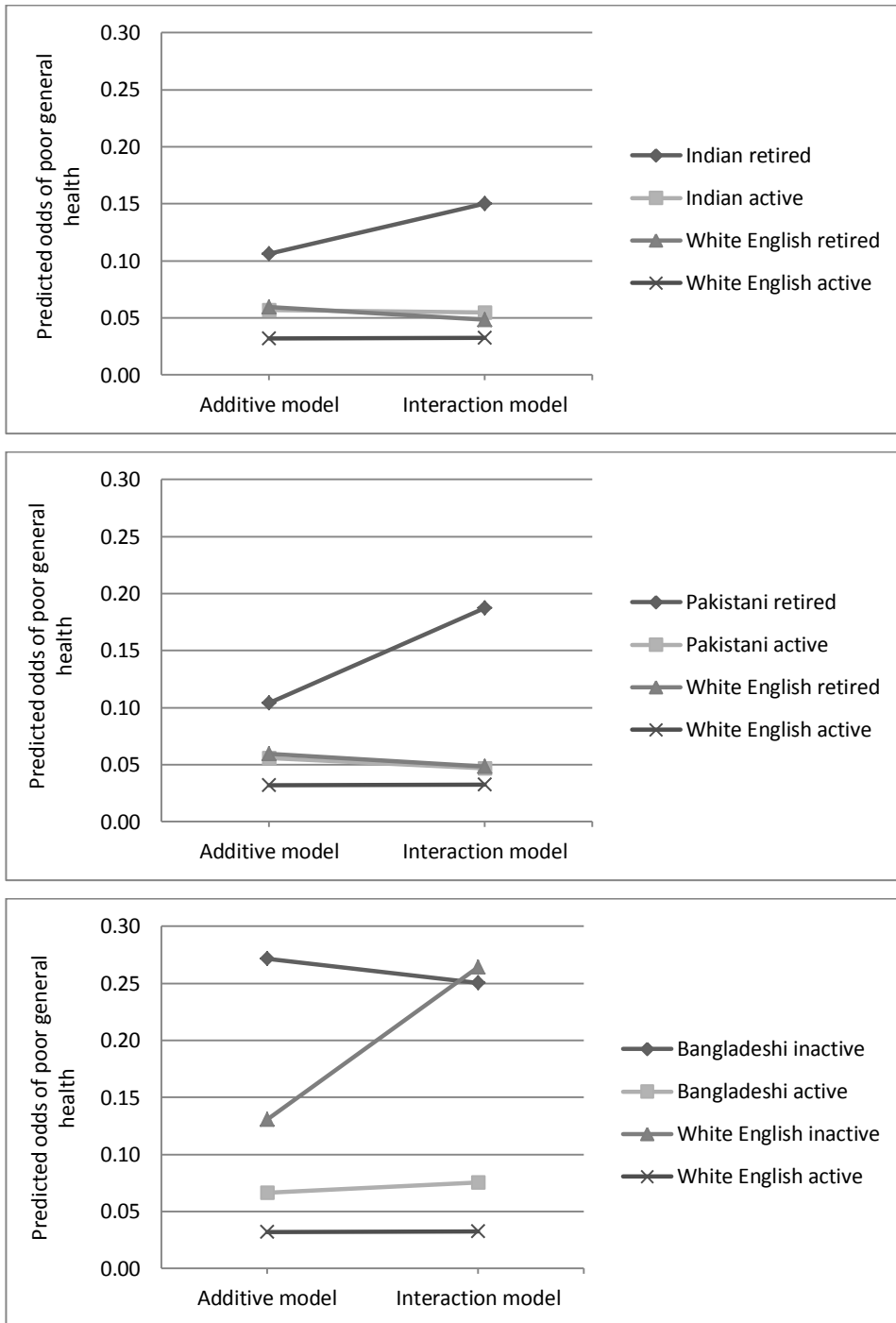
(ii) Ethnicity \times economic status

The findings for the significant interaction effect between ethnicity \times economic status with poor general health, shown in Table 5.27 (model 14a) on page 163, indicate that the association between economic status and general health varied significantly by ethnic group. In particular, being retired was associated with significantly higher odds of poor general health for Black Caribbean (OR 2.15), Indian (OR 3.11), Pakistani (OR 3.88), Bangladeshi (OR 5.10), and White Irish (OR 1.64) participants relative to retired White English participants. Furthermore, these differences were significantly higher than the differences in odds of poor general found between economically active Black Caribbean (OR 1.32), Indian (OR 1.68), Pakistani (OR 1.43), Bangladeshi (OR 2.31), and White Irish (OR 1.02) participants compared to their White English counterparts.

A further contribution to this interaction effect was the ethnic variation in the association between economic inactivity and poor general health. For example, being economically inactive was associated with significantly lower odds of poor general health for Black African participants (OR 0.50) compared to their White English counterparts. By comparison, odds of poor general health did not significantly differ between Black African and White English participants who were economically active (OR 0.82). The findings for the Bangladeshi group, by comparison, found that odds of poor general health did not significantly differ between economically inactive Bangladeshi and White English participants (OR 0.95). However, in the economically active group, odds of poor general health were significantly higher for Bangladeshi participants (OR 2.31) compared to their White English counterparts. Furthermore, the results for the White Irish group found odds of poor general health to be the same between economically active White Irish and White English participants (OR 1.02), but among economically inactive participants, general health was significantly worse for those belonging to the White Irish group (OR 1.61).

Figure 5.19 illustrates a selection of these findings, by plotting the predicted odds of poor general health for the Indian, Pakistani, Bangladeshi and White English groups, as derived from the additive and interaction models. The first two charts in Figure 5.19 highlight the marked excess in poor general health associated with retired Indian and Pakistani participants relative to retired White English participants. Interestingly the bottom chart in Figure 5.19 demonstrates a marked excess in odds of poor general health for the inactive White English.

Figure 5.19 Predicted odds of poor general health by ethnicity and economic status (Models 9a & 14a)



The results for the significant interaction between ethnicity and economic status in psychological wellbeing are described in Table 5.28 (model 14b) on page 164. In contrast to the substantial ethnic variation in the findings for poor general health, variation by ethnicity in the association between economic status and psychological wellbeing was only apparent for the retired Indian and Pakistani participants. Specifically, odds of poor psychological wellbeing were found to be significantly higher among retired Indian (OR 3.31) and Pakistani (OR 5.94) participants when compared to retired White English participants. By contrast, the odds of poor psychological wellbeing between economically active Indian, Pakistani, and White English participants were the same. Figure 5.20 illustrates these findings and highlights how the additive model underestimated the marked excess in poor psychological wellbeing found for retired Indian and Pakistani participants.

Figure 5.20 Predicted odds of poor psychological wellbeing by ethnicity and economic status (Models 9b & 14b)

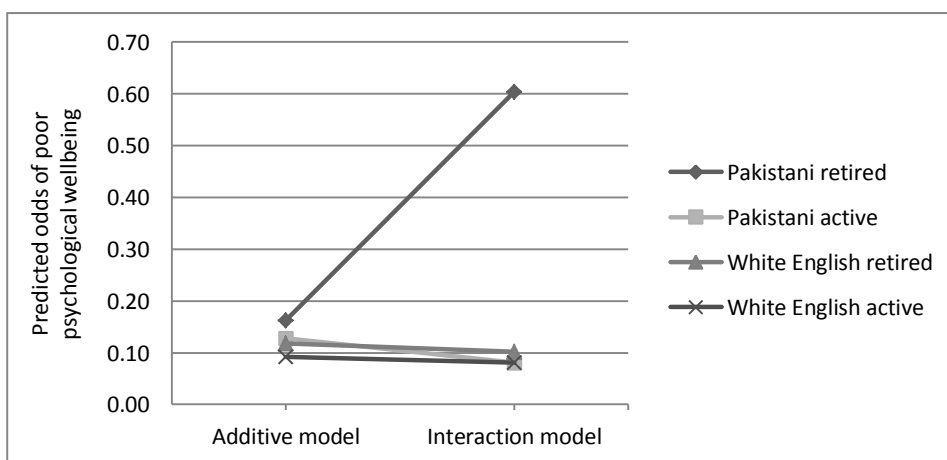
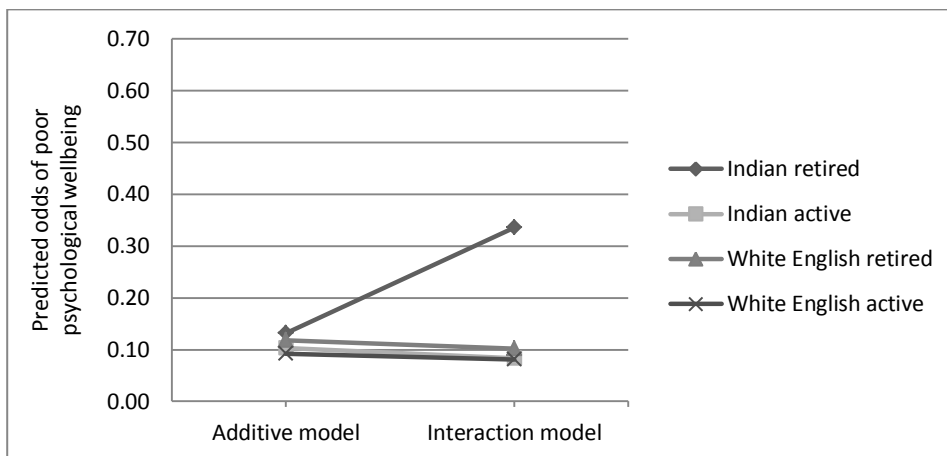
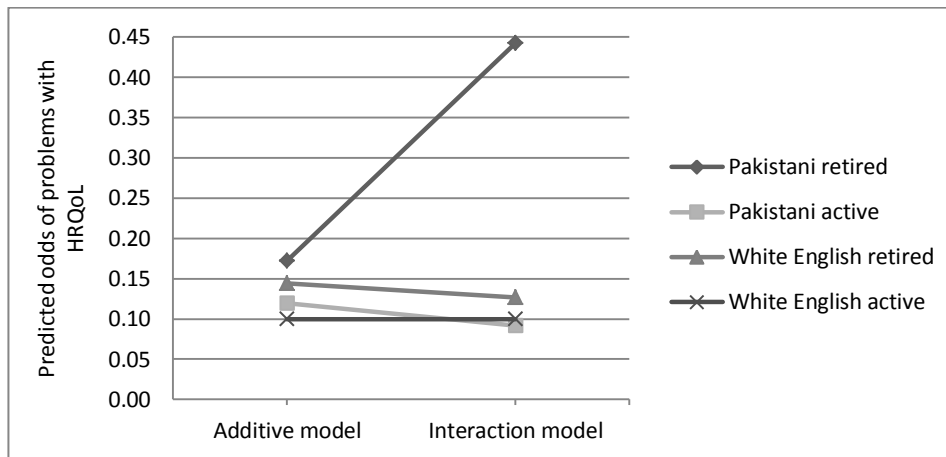


Table 5.29 (model 14c) on page 165 describes the significant interaction between ethnicity and economic status in problems with HRQoL. The results indicate that the ethnic variation in the association between economic status and HRQoL was explained by the excess in problems in HRQoL associated with retired Pakistani participants. Reflecting the findings for psychological wellbeing, a three-fold increase in odds of problems in HRQoL was found for retired Pakistanis (OR 3.31) compared to their White English counterparts. By contrast, odds of problems in HRQoL did not significantly differ between economically active Pakistani and White English participants (OR 0.92). As shown in Figure 5.21, the additive model underestimated this excess in problems in HRQoL for retired Pakistani participants.

Figure 5.21 Predicted odds of problems in HRQoL by ethnicity and economic status (Models 9c & 14c)



(iii) Gender × ethnicity × economic status

The significant three-way interaction found between gender, ethnicity, and economic status in poor general health was explained by an excess in poor general health among inactive Black Caribbean women. As described in Table 5.26, an eight-fold difference in odds of poor general health was found between the active and inactive groups for White English men, White English women and Black Caribbean men. However, the difference in odds of poor general health between active and inactive Black Caribbean women was found to be three times greater ($25.75/8.36 = \text{OR } 3.08$).

Table 5.26 Three-way interaction between gender, ethnicity, and economic status in poor general health

Odds	Women		Men		
	Black Caribbean	White English	Black Caribbean	White English	
Inactive	1.2230	0.2600	Inactive	0.4223	0.2767
Active	0.0475	0.0311	Active	0.0505	0.0331
Odds ratios	1.2230/0.0475 = 25.75	0.2600/0.0311 = 8.36	0.4223/0.0505 = 8.36	0.2767/0.0331 = 8.36	
		25.75/8.36 = 3.08		8.36/8.36 = 1.00	
Interaction	3.08/1.00 = 3.08				

Figure 5.22 illustrates these findings and highlights the magnitude of the unexpected increase in odds of poor general health for inactive Black Caribbean women relative to inactive Black Caribbean men and inactive White English men and women. The graph also shows how White English men and women were equally disadvantaged by economic inequalities in health. The association between economic inactivity and poor general health was further exacerbated by ethnic inequalities as shown for Black Caribbean men. The excess in poor general health found for Black Caribbean women in turn shows that this ethnic inequality in the association between economic inactivity and poor general health was further exacerbated by gender inequality.

Figure 5.22 Predicted odds of poor general health by gender, ethnicity, and economic status (Table 5.26)

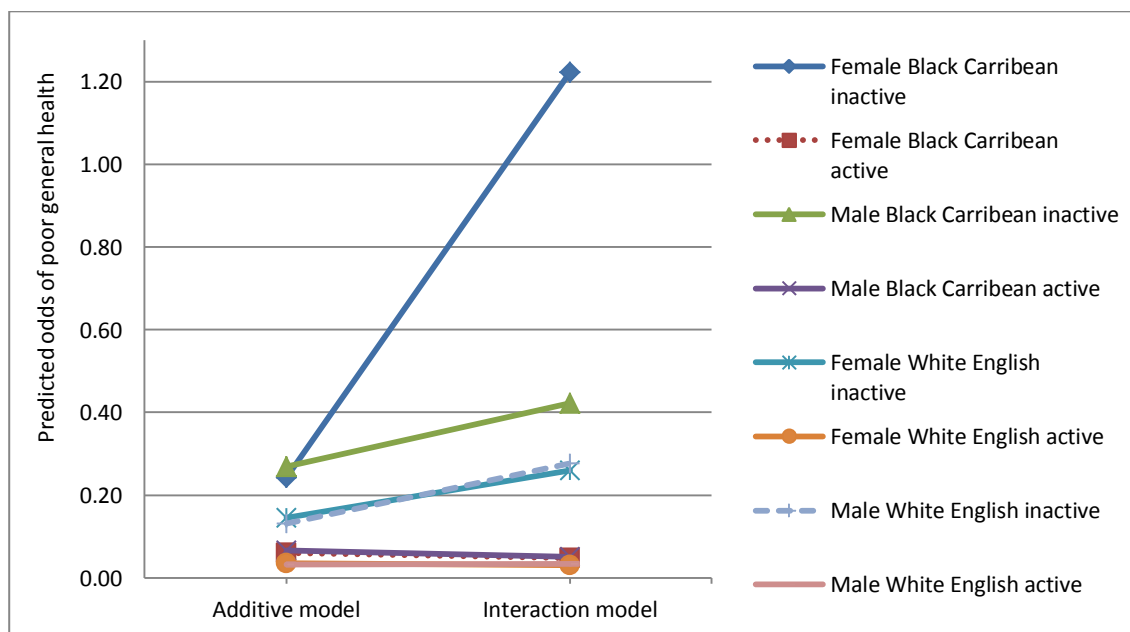


Table 5.27 Two-way interaction model for gender, ethnicity, and economic status with poor general health

Model 14a	Economically active		Economically inactive		Interaction (Inactive/Active)		Retired		Interaction (Retired/Active)	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Two-way interactions										
Gender x Economic status										
Men [R]	1.00		1.00				1.00			
Women	0.98	0.82-1.17	*** 0.48	0.38-0.61	*** 0.49	0.38-0.63	1.06	0.88-1.27	1.08	0.86-1.36
Ethnicity x Economic status										
White English [R]	1.00		1.00		1.00		1.00		1.00	
Black Caribbean	1.32	0.95 - 1.84	0.77	0.52-1.16	** 0.58	0.39 - 0.87	*** 2.15	1.48-3.12	* 1.62	1.08 - 2.45
Black African	0.82	0.55 - 1.21	** 0.50	0.31-0.81	* 0.62	0.39 - 0.98	1.66	0.76-3.62	2.04	0.92 - 4.49
Indian	*** 1.68	1.27 - 2.22	1.39	0.92-2.10	0.83	0.55 - 1.23	*** 3.11	2.02-4.78	** 1.85	1.17 - 2.92
Pakistani	* 1.43	1.01 - 2.03	1.46	0.95-2.24	1.02	0.64 - 1.63	*** 3.88	2.27-6.62	*** 2.71	1.49 - 4.95
Bangladeshi	*** 2.31	1.65 - 3.25	0.95	0.65-1.39	*** 0.41	0.27 - 0.63	*** 5.10	2.67-9.75	* 2.21	1.09 - 4.48
Chinese	1.18	0.80 - 1.74	0.57	0.31-1.03	* 0.48	0.27 - 0.84	* 1.88	1.05-3.35	1.59	0.85 - 2.97
White Irish	1.02	0.75 - 1.38	* 1.61	1.09-2.37	* 1.58	1.04 - 2.38	** 1.64	1.18-2.29	* 1.61	1.10 - 2.35
Gender x ethnicity (results not shown)										
	-	-	-	-	-	-	-	-	-	-
Model statistics										
Overall model χ^2										1868.376, df=34, P<0.001
Gender x economic status interaction effect χ^2										39.947, df=2, P<0.001
Ethnicity x economic status interaction effect χ^2										81.546, df=14, P<0.001
Gender x ethnicity interaction effect χ^2										30.474, df=7, P<0.001
Cox & Snell R ²										0.159
-2LL										11245.063
N										10,777

Notes: [R]: reference category; OR: odds ratio; CI: 95% confidence interval for OR; Wald statistic α level ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

Table 5.28 Two-way interaction model for gender, ethnicity, and economic status with poor psychological wellbeing

Model 14b	Economically active		Economically inactive		Interaction (Inactive/Active)		Retired		Interaction (Retired/Active)	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Two-way interactions										
Gender x Economic status										
Men [R]	1.00		1.00				1.00			
Women	*** 1.57	1.26-1.95	***0.56	0.42-0.74	*** 0.36	0.27-0.48	1.16	0.87-1.56	0.74	0.53-1.04
Ethnicity x Economic status										
White English [R]	1.00		1.00		1.00		1.00		1.00	
Black Caribbean	1.21	0.78 - 1.89	0.91	0.55-1.53	0.75	0.45 - 1.27	1.44	0.81-2.59	1.19	0.65 - 2.17
Black African	1.05	0.65 - 1.72	0.82	0.46-1.47	0.78	0.45 - 1.35	0.78	0.17-3.58	0.74	0.16 - 3.40
Indian	1.02	0.68 - 1.51	1.38	0.84-2.28	1.35	0.82 - 2.24	*** 3.31	1.90-5.76	*** 3.25	1.76 - 5.99
Pakistani	0.99	0.60 - 1.63	1.70	1.00-2.89	1.72	0.93 - 3.15	*** 5.94	2.87-12.34	*** 6.01	2.58 - 13.97
Bangladeshi	1.52	0.91 - 2.52	1.20	0.72-2.00	0.79	0.43 - 1.46	1.91	0.63-5.81	1.26	0.39 - 4.13
Chinese	0.92	0.54 - 1.58	0.63	0.28-1.41	0.68	0.32 - 1.45	1.47	0.61-3.52	1.59	0.64 - 3.98
White Irish	0.93	0.63 - 1.39	1.20	0.77-1.86	1.29	0.81 - 2.04	1.45	0.89-2.37	1.56	0.93 - 2.60
Gender x ethnicity (results not shown)										
	-	-	-	-	-	-	-	-	-	-
Model statistics										
Overall model χ^2										347.777, df=34, P<0.001
Gender x economic status interaction effect χ^2										45.686, df=2, P<0.001
Ethnicity x economic status interaction effect χ^2										36.203, df=14, P<0.001
Gender x ethnicity interaction effect χ^2										7.605, df=7, P=0.369
Cox & Snell R ²										0.037
-2LL										7164.657
N										9,129

Notes: [R]: reference category; OR: odds ratio; CI: 95% confidence interval for OR; Wald statistic α level ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

Table 5.29 Two-way interaction model for gender, ethnicity, and economic status with problems with HRQoL

Model 14c	Economically active		Economically inactive		Interaction (Inactive/Active)		Retired		Interaction (Retired/Active)	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Two-way interactions										
Gender x Economic status										
Men [R]	1.00		1.00				1.00			
Women	** 1.27	1.09-1.47	*** 0.50	0.39-0.66	*** 0.40	0.31-0.52	*** 1.47	1.20-1.81	1.16	0.92-1.47
Ethnicity x Economic status										
White English [R]	1.00		1.00		1.00		1.00		1.00	
Black Caribbean	0.89	0.64 - 1.24	0.74	0.47-1.16	0.82	0.53 - 1.27	1.47	0.91-2.38	1.65	0.99 - 2.73
Black African	0.87	0.62 - 1.22	* 0.59	0.36-0.97	0.68	0.43 - 1.08	1.12	0.40-3.10	1.28	0.46 - 3.59
Indian	1.02	0.79 - 1.33	0.79	0.51-1.22	0.77	0.51 - 1.16	1.59	0.95-2.67	1.56	0.90 - 2.67
Pakistani	0.92	0.66 - 1.30	0.83	0.51-1.36	0.90	0.56 - 1.45	* 3.49	1.32-9.26	** 3.78	1.37 - 10.43
Bangladeshi	1.09	0.75 - 1.59	0.71	0.45-1.13	0.65	0.40 - 1.06	1.23	0.53-2.85	1.13	0.46 - 2.75
Chinese	**0.57	0.39 - 0.83	*** 0.35	0.19-0.65	0.61	0.34 - 1.08	0.70	0.37-1.34	1.22	0.62 - 2.42
White Irish	0.88	0.67 - 1.15	1.08	0.71-1.64	1.23	0.82 - 1.84	0.82	0.57-1.17	0.93	0.64 - 1.35
Gender x ethnicity (results not shown)										
	-	-	-	-	-	-	-	-	-	-
Model statistics										
Overall model χ^2										1275.959, df=34, P<0.001
Gender x economic status interaction effect χ^2										53.802, df=2, P<0.001
Ethnicity x economic status interaction effect χ^2										26.775, df=14, P=0.021
Gender x ethnicity interaction effect χ^2										13.985, df=7, P=0.051
Cox & Snell R ²										0.131
-2LL										11205.081
N										9,103

Notes: [R]: reference category; OR: odds ratio; CI: 95% confidence interval for OR; Wald statistic α level ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

5.4.4.4 Interactions between gender, ethnicity and social class

The fourth series of interaction models tested for two-way and three-way interactions between gender, ethnicity, and social class (professional/managerial, intermediate, or routine/manual/never worked) with each of the outcomes. No significant interactions were found for the outcomes poor general health or problems with HRQoL. For poor psychological wellbeing, both the interaction between ethnicity and social class ($\chi^2 = 13.601$, $P=0.480$) and the interaction between gender, ethnicity, and social class ($\chi^2 = 10.377$, $P=0.734$) failed to reach statistical significance. However, a significant two-way interaction between gender and social class was found ($\chi^2 = 12.906$, $P=0.002$).

(i) Gender \times social class

Table 5.30 (model 15b) on page 168 shows that the interaction effect between gender and social class was explained by the excess in poor psychological wellbeing among women belonging to the professional and managerial class. Specifically, odds of poor psychological wellbeing were found to be significantly higher among women compared to men in the professional/managerial class (OR 1.83) and to a lesser extent among women compared to men in the routine/manual/never worked class (OR 1.26). For the intermediate class, no significant gender difference in psychological wellbeing was found (OR 0.96). These findings therefore suggest that the association between social class and poor psychological wellbeing was significantly stronger among professional/managerial class women compared to both intermediate class women ($0.96/1.83 = \text{OR } 0.53$) and routine/manual/never worked class women ($1.26/1.83 = \text{OR } 0.69$). As previously shown for the gender \times education interaction, the benefits to psychological wellbeing associated with the highest SEP were found to be far greater for males than for females. Figure 5.23 illustrates these findings and highlights how odds of poor psychological wellbeing were underestimated for women in the additive model.

Figure 5.23 Predicted odds of poor psychological wellbeing by gender and social class (Models 10b & 15b)

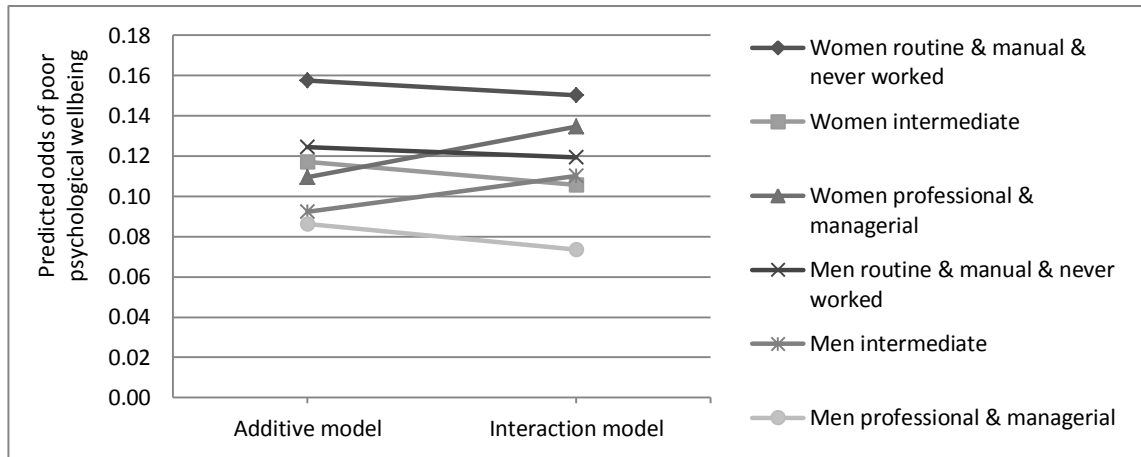


Table 5.30 Two-way interaction model for gender, ethnicity, and social class with poor psychological wellbeing

Model 15b	Professional & Managerial		Intermediate		Interaction (Professional & Managerial/Intermediate)		Routine & Manual & Never worked		Interaction (Prof & Man/Routine & Manual & Never worked)	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Two-way interactions										
Gender x Social class										
Men [R]	1.00		1.00				1.00			
Women	*** 1.83	1.41-2.38	0.96	0.72-1.29	*** 0.53	0.37 - 0.75	*1.26	1.02-1.56	* 0.69	0.51 - 0.92
Ethnicity x Social class										
(No significant effect)										
Gender x Ethnicity										
(results not shown)										
Model statistics										
Overall model χ^2										127.536, df=23, P=0.02
Gender x social class interaction effect χ^2										12.906, df=2, P=0.002
Ethnicity x social class interaction effect χ^2										13.601, df=14, P=0.480
Gender x ethnicity interaction effect χ^2										8.729, df=7, P=0.273
Cox & Snell R ²										0.013
-2LL										7697.183
N										9,549

Notes: [R]: reference category; OR: odds ratio; CI: 95% confidence interval for OR; Wald statistic α level ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

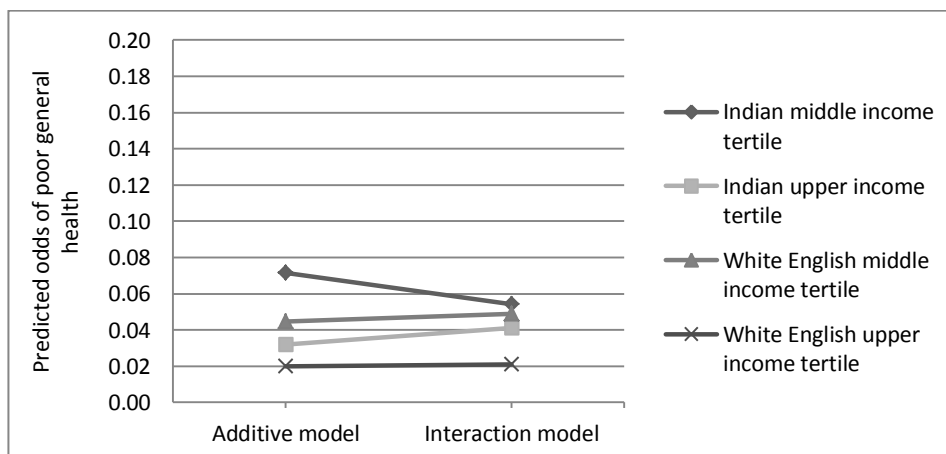
5.4.4.5 Interactions between gender, ethnicity and income level

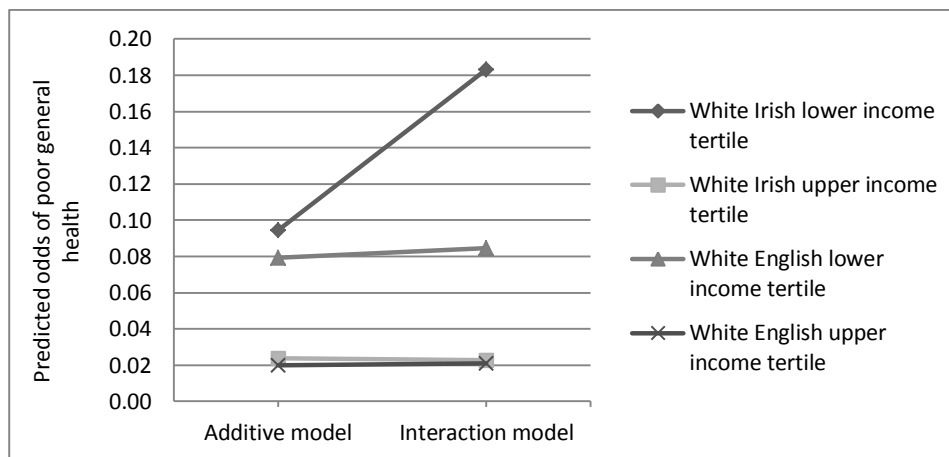
The final series of interaction models tested for two-way and three-way interactions between gender, ethnicity, and equivalised household income level (upper, middle, or lower tertiles) with each of the health outcomes. The two-way interactions between gender \times income level and the three-way interactions between gender \times ethnicity \times income level failed to reach statistical significance for each of the outcomes. However, statistically significant two-way interactions between ethnicity and income level were found for each of the outcomes, as described below.

(i) Ethnicity \times income level in general health

The significant interaction effect found between ethnicity and income level in poor general health ($\chi^2 = 35.371$, $df=14$, $P<0.001$) is presented in Table 5.31 (model 16a) on page 173. The results indicate that this interaction effect was largely explained by the two-fold increase in poor general health found for Indian participants in the upper income tertile (OR 1.96) and for White Irish participants in the lower income tertile (OR 2.16), relative to their White English counterparts. For the Indian group ethnic inequalities in poor general health were found to be significantly stronger between Indian and White English groups in the upper income tertile than the middle income tertile ($1.11/1.96 = \text{OR } 0.57$). As illustrated in Figure 5.24 below, odds of poor general health predicted by the additive model were underestimated for Indians in the upper income tertile and overestimated for Indians in the middle income tertile. For the White Irish group, the reverse trend was found, with ethnic inequalities in poor general health showing a two-fold increase within the lower income tertile compared to the upper income tertile ($2.16/1.08 = \text{OR } 2.00$), a finding not predicted by the additive model, as illustrated in the second graph in Figure 5.24 overleaf.

Figure 5.24 Predicted odds of poor general health by ethnicity and income level (Models 11a & 16a)



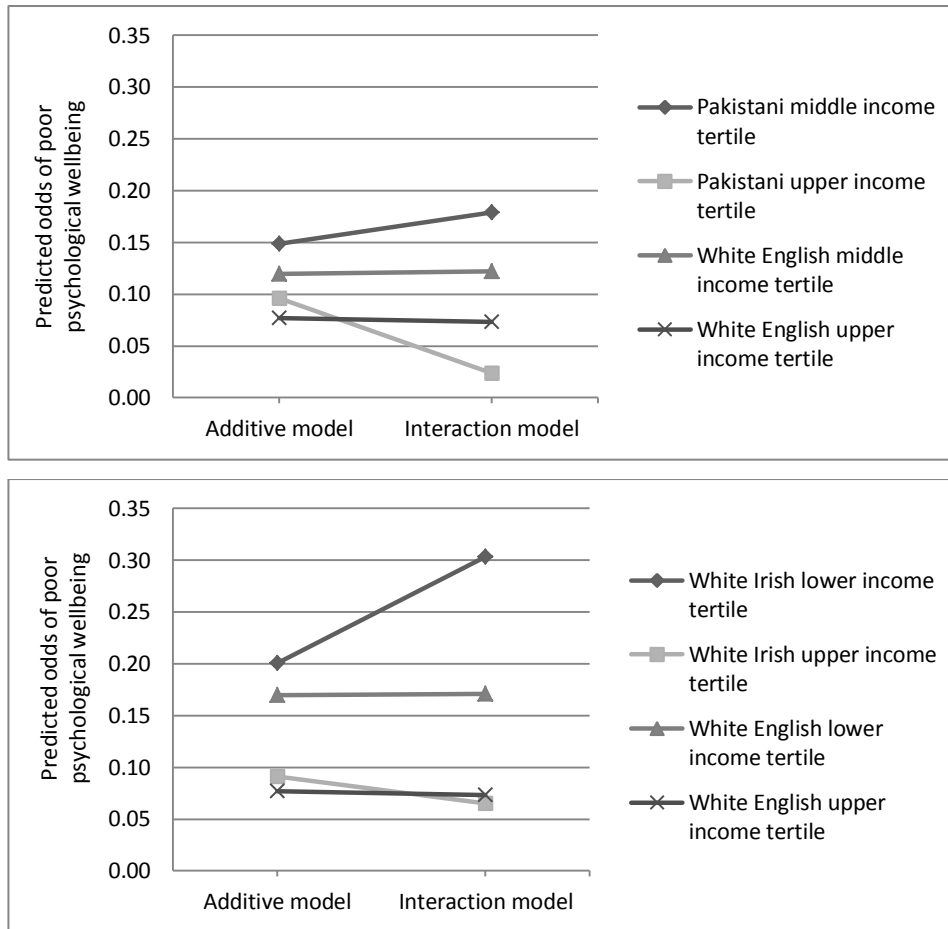


(ii) Ethnicity × income level in psychological wellbeing

The significant interaction effect for ethnicity and income level in psychological wellbeing ($\chi^2 = 29.836$, $P=0.008$) is presented in Table 5.32 (model 16b) on page 174. The two main contributors to this interaction effect were the lower odds of poor psychological wellbeing found for Pakistanis in the upper income tertile and the significantly higher odds of poor psychological wellbeing found for the White Irish in the lower income tertile. The findings for the Pakistani group demonstrated that odds of poor psychological wellbeing were 68 per cent lower for Pakistani participants compared to White English participants in the upper income tertile (OR 0.32), but 46 per cent higher for Pakistani participants compared to White English participants in the middle income tertile (OR 1.46). Whilst neither of these odds ratios reached statistical significance, the ratio between them just reached significance, but should be treated with caution due to the wide confidence interval ($1.46/0.32 = \text{OR } 4.56$, CI 1.02-20.33, $P<0.005$). As illustrated in Figure 5.25, odds of poor psychological wellbeing for Pakistanis in the upper income tertile were overestimated in the additive model.

The findings for the White Irish group replicated those shown above for poor general health, with the difference in odds of poor psychological wellbeing between White Irish and White English participants found to be twice as great within the lower income tertile compared to the higher income tertile ($1.77/0.89 = \text{OR } 1.99$). As shown in Figure 5.25, the key deviation from the additive model was the marked increase in odds of poor psychological wellbeing among White Irish participants in the lower income tertile.

Figure 5.25 Predicted odds of poor psychological wellbeing by ethnicity and income level (Models 11b & 16b)



(iii) Ethnicity × income level in HRQoL

The significant interaction effect for ethnicity and income level with problems in HRQoL ($\chi^2 = 29.544$, $P=0.009$) is described in Table 5.33 (model 16c) on page 175. The results indicate that the two main contributors to this interaction effect were the significantly lower odds of problems in HRQoL found for Indians in the middle income tertile (OR 0.59) and the significantly higher odds of problems in HRQoL found for Bangladeshis in the upper income tertile (OR 2.60), as compared to their White English counterparts. The findings for the Indian group demonstrate that ethnic inequalities in HRQoL between the Indian and White English groups were significantly stronger within the middle income tertile than within the upper income tertile ($0.59/1.12 = \text{OR } 0.52$), thus showing the reverse pattern to general health. Furthermore, Figure 5.26 highlights that the predicted odds of problems with HRQoL for Indians among the middle income tertile were substantially lower than predicted by the additive model.

The findings for the Bangladeshi group show that ethnic inequalities in HRQoL between the Bangladeshi and White English groups were notably stronger within the upper income tertile than both the middle income tertile ($0.71/2.60 = \text{OR } 0.27$) and the lower income tertile ($0.72/2.60 = \text{OR } 0.28$). Figure 5.26 below clearly demonstrates the magnitude of this difference and highlights how the additive model had instead predicted Bangladeshis in the upper income tertile to have the least risk of problems in HRQoL.

Figure 5.26 Predicted odds of problems with HRQoL by ethnicity and income level (Models 11c & 16c)

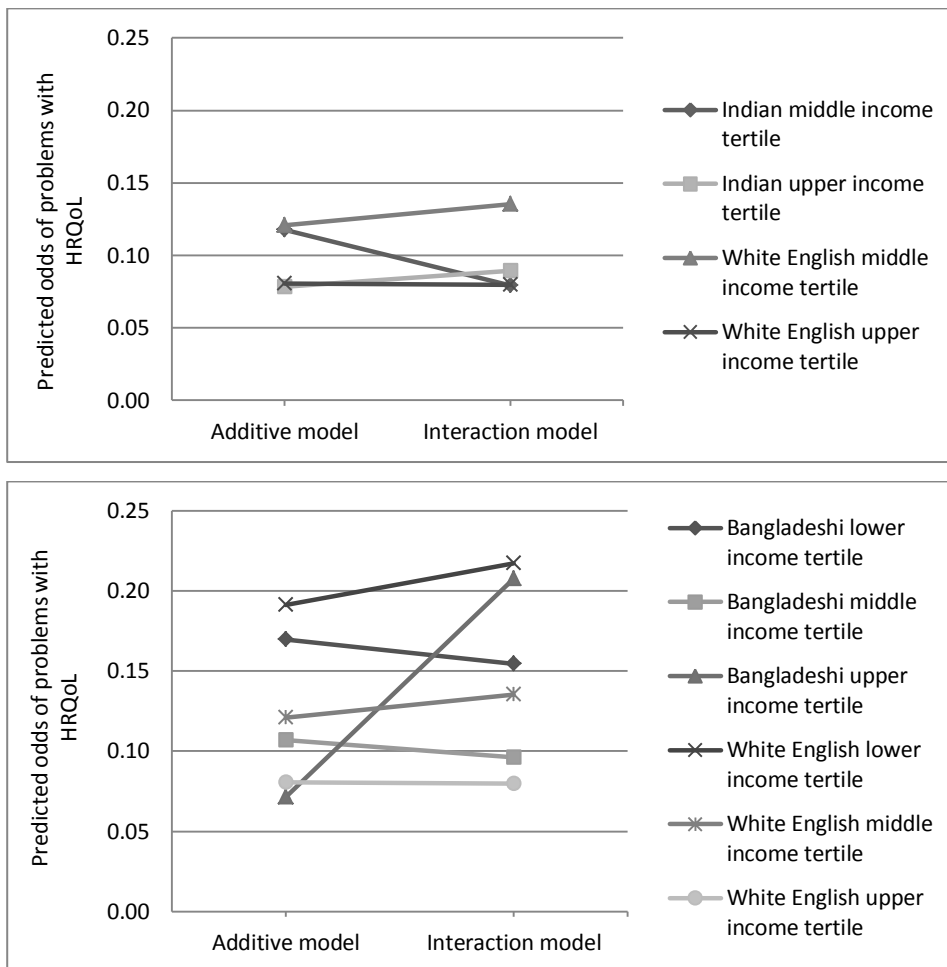


Table 5.31 Two-way interaction model for gender, ethnicity, and household income level with poor general health

Model 16a	Upper income tertile		Middle income tertile		Interaction (Middle/Upper)		Lower income tertile		Interaction (Lower/Upper)	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Two-way interactions										
Gender x Income level (no significant effect)	-	-	-	-	-	-	-	-	-	-
Ethnicity x Income level										
White English [R]	1.00		1.00		1.00		1.00		1.00	
Black Caribbean	1.52	0.97-2.39	1.32	0.90-1.94	0.87	0.53 - 1.43	1.22	0.84-1.77	0.80	0.50 - 1.29
Black African	0.66	0.34-1.30	* 0.60	0.37-0.96	0.90	0.44 - 1.87	0.83	0.54-1.26	1.24	0.63 - 2.46
Indian	*** 1.96	1.32-2.91	1.11	0.78-1.59	* 0.57	0.36 - 0.89	1.37	0.96-1.95	0.70	0.45 - 1.09
Pakistani	0.64	0.24-1.67	1.30	0.86-1.96	2.04	0.76 - 5.54	1.17	0.84-1.65	1.85	0.70 - 4.87
Bangladeshi	1.35	0.39-4.73	** 2.01	1.26-3.21	1.49	0.41 - 5.41	* 1.45	1.04-2.03	1.07	0.31 - 3.73
Chinese	0.75	0.40-1.40	1.45	0.88-2.37	1.93	0.96 - 3.85	0.95	0.57-1.57	1.26	0.64 - 2.50
White Irish	1.08	0.73-1.60	1.07	0.75-1.52	0.99	0.62 - 1.56	*** 2.16	1.51-3.10	** 2.00	1.27 - 3.14
Gender x ethnicity (results not shown)	-	-	-	-	-	-	-	-	-	-
Model statistics										
Overall model χ^2										1516.312, df=34, P<0.001
Gender x income level interaction effect χ^2										0.505, df=2, P=0.777
Ethnicity x income level interaction effect χ^2										35.371, df=14, P<0.001
Gender x ethnicity interaction effect χ^2										24.682, df=7, P<0.001
Cox & Snell R ²										0.149
-2LL										9514.201
N										9,367

Notes: [R]: reference category; OR: odds ratio; CI: 95% confidence interval for OR; Wald statistic α level ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

Table 5.32 Two-way interaction model for gender, ethnicity, and household income level with poor psychological wellbeing

Model 16b	Upper income tertile		Middle income tertile		Interaction (Middle/Upper)		Lower income tertile		Interaction (Lower/Upper)	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Two-way interactions										
Gender x Income level (no significant effect)	-	-	-	-	-	-	-	-	-	-
Ethnicity x Income level										
White English [R]	1.00		1.00		1.00		1.00		1.00	
Black Caribbean	1.29	0.73-2.29	1.12	0.66-1.92	0.87	0.46-1.64	1.04	0.63-1.71	0.80	0.44-1.47
Black African	1.35	0.72-2.52	0.77	0.43-1.40	0.57	0.27-1.20	1.37	0.83-2.29	1.01	0.53-1.95
Indian	1.01	0.59-1.73	0.71	0.42-1.19	0.70	0.37-1.34	1.51	0.96-2.36	1.49	0.84-2.66
Pakistani	0.32	0.08-1.37	1.46	0.84-2.54	* 4.56	1.02-20.33	1.18	0.75-1.85	3.68	0.86-15.84
Bangladeshi	1.56	0.44-5.54	* 2.23	1.15-4.32	1.42	0.37-5.50	1.28	0.79-2.09	0.81	0.23-2.91
Chinese	0.76	0.37-1.55	1.26	0.67-2.36	1.66	0.76-3.64	0.72	0.36-1.44	0.95	0.42-2.14
White Irish	0.89	0.55-1.43	1.11	0.70-1.75	1.25	0.72-2.15	** 1.77	1.16-2.71	** 1.99	1.19-3.34
Gender x ethnicity (results not shown)	-	-	-	-	-	-	-	-	-	-
Model statistics										
Overall model χ^2										176.685, df=24, P<0.001
Gender x income level interaction effect χ^2										2.942, df=2, P=0.230
Ethnicity x income level interaction effect χ^2										29.836, df=14, P=0.008
Gender x ethnicity interaction effect χ^2										2.954, df=7, P=0.889
Cox & Snell R ²										0.021
-2LL										6531.133
N										8,135

Notes: [R]: reference category; OR: odds ratio; CI: 95% confidence interval for OR; Wald statistic α level ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

Table 5.33 Two-way interaction model for gender, ethnicity, and household income level with problems with HRQoL

Model 16c	Upper income tertile		Middle income tertile		Interaction (Middle/Upper)		Lower income tertile		Interaction (Lower/Upper)	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Two-way interactions										
Gender x Income level (no significant effect)	-	-	-	-	-	-	-	-	-	-
Ethnicity x Income level										
White English [R]	1.00		1.00		1.00		1.00		1.00	
Black Caribbean	1.24	0.83-1.85	1.06	0.70-1.60	0.86	0.54 - 1.38	0.93	0.63-1.39	0.76	0.48 - 1.20
Black African	1.01	0.64-1.60	* 0.64	0.42-0.98	0.63	0.37 - 1.07	* 0.64	0.42-0.97	0.63	0.38 - 1.05
Indian	1.12	0.79-1.60	** 0.59	0.41-0.84	** 0.52	0.34 - 0.79	0.81	0.56-1.17	0.72	0.47 - 1.10
Pakistani	1.10	0.59-2.04	0.89	0.57-1.40	0.81	0.40 - 1.64	* 0.62	0.42-0.90	0.56	0.29 - 1.08
Bangladeshi	* 2.60	1.12-6.06	0.71	0.39-1.31	** 0.27	0.10 - 0.72	0.72	0.48-1.08	** 0.28	0.12 - 0.65
Chinese	** 0.50	0.31-0.82	0.69	0.43-1.12	1.38	0.78 - 2.46	** 0.44	0.26-0.75	0.89	0.50 - 1.58
White Irish	0.96	0.70-1.30	0.90	0.64-1.27	0.95	0.65 - 1.38	1.08	0.75-1.56	1.13	0.76 - 1.69
Gender x ethnicity (results not shown)	-	-	-	-	-	-	-	-	-	-
Model statistics										
Overall model χ^2										1072.103, df=34, P<0.001
Gender x income level interaction effect χ^2										0.186, df=2, P=0.911
Ethnicity x income level interaction effect χ^2										29.544, df=14, P=0.009
Gender x ethnicity interaction effect χ^2										13.788, df=7, P=0.055
Cox & Snell R ²										0.124
-2LL										9959.935
N										8,114

Notes: [R]: reference category; OR: odds ratio; CI: 95% confidence interval for OR; Wald statistic α level ***: P<0.001, **: P<0.01, *: P<0.05; df: degrees of freedom; -2LL: -2 log-likelihood; N: sample size.

5.4.4.6 Section summary

Significant intersections of gender, ethnicity, and indicators of SEP in health among participants in the HSE 2004 were identified from the interaction analyses reported above. Notably, each dimension of inequality (i.e., gender, ethnicity, and SEP) was found to significantly interact with at least one other on one or more of the health outcomes. Table 5.34 provides a summary of the 15 significant interaction effects (highlighted in the rows shaded grey) and corresponding subgroups found to have made a significant contribution to the interaction effect (listed beneath).

Table 5.34 Summary of significant interaction effects for general health, HRQoL, and psychological wellbeing

	Interaction	General health	Psychological wellbeing	HRQoL
1	Gender × ethnicity	***	-	*
	- Black Caribbean women	**	-	-
	- Black African women	**	-	-
	- Pakistani women	**	-	*
	- White Irish women	*	-	-
2	Gender × education	-	**	-
	- Women with no qualifications	-	**	-
	Ethnicity × education	-	**	-
	- Indians with GCE/A levels	-	*	-
	- Black Africans with no qualifications	-	**	-
	- Indians with no qualifications	-	*	-
	- Pakistani with no qualifications	-	*	-
3	Gender × economic status	***	***	***
	- Inactive women	***	***	***
	Ethnicity × economic status	***	***	*
	- Inactive Black Caribbeans	**	-	-
	- Inactive Black Africans	*	-	-
	- Inactive Bangladeshi	***	-	-
	- Inactive Chinese	*	-	-
	- Inactive White Irish	*	-	-
	- Retired Black Caribbeans	*	-	-
	- Retired Indians	**	***	-
	- Retired Pakistanis	***	***	**
	- Retired Bangladeshi	*	-	-
	- Retired White Irish	*	-	-
	Gender × ethnicity × economic status	*	-	-
	- Inactive Black Caribbean women	**	-	-
4	Gender × social class	-	**	-
	- Intermediate women	-	***	-
	- Routine/manual/never worked women	-	*	-
5	Ethnicity × income level	***	**	**
	- Middle tertile Indian	*	-	**
	- Middle tertile Pakistani	-	*	-
	- Middle tertile Bangladeshi	-	-	**
	- Lower tertile Bangladeshi	-	-	**
- Lower tertile White Irish	**	**	-	

Notes: ***: P<0.001; **:P<0.01; *:P<0.05; -: P>0.05.

A complex picture emerged from the findings, with interaction effects varying both by indicator of SEP and by health outcome, as illustrated in the Table 5.34. For instance, gender and ethnic variations in the association between economic status and health were found to be far stronger than reported for the associations between education, social class, or income with health. Notably, economic status was the only indicator of SEP found to produce a statistically significant three-way interaction with gender and ethnicity. Looking across the health outcomes, the findings also revealed that gender and ethnic variations in education and social class were only significant for psychological wellbeing, whereas the gender and ethnicity interactions with economic status and income level were significant across all three outcomes.

Table 5.34 also indicates which of the subgroups were found to make a significant contribution in explaining the variation in health associated with each of the interaction effects. For example, the significant interaction between gender and ethnicity in general health was explained by the excess in poor general health reported among Black Caribbean, Black African, and Pakistani women and White Irish men in comparison to their White English counterparts. Similarly, the significant interaction between gender and education in psychological wellbeing was explained by the excess in poor psychological wellbeing among women with a degree or above in comparison to men with a degree or above. Overall, the findings show that each of the ethnic minority groups in the HSE 2004 was found to make a significant contribution to explaining at least one of the significant interaction effects. The ethnic groups most frequently identified as making a significant contribution to the interaction effects were the Pakistani ethnic group, following by the Indian and White Irish ethnic groups.

5.5 Chapter Summary

This chapter has presented the findings from the first phase of the mixed methods study, which sought to identify whether intersections of gender, ethnicity and SEP in health were present among adults living in England. This objective was successfully achieved using secondary analysis of data from the HSE 2004. The analysis entailed a comprehensive examination of the independent and intersectional relationships between gender, ethnicity, and indicators of SEP with general health, psychological wellbeing, and HRQoL.

The additive regression models presented in Section 5.4.3 found gender, ethnicity, education level, economic status, social class, and income level to each be independently associated with significant differences in general health, psychological wellbeing, and HRQoL, after adjustment for the effects of age. The patterning of social inequalities revealed that women, Pakistanis,

Bangladeshis, Black Caribbeans, and people in the lowest socioeconomic positions were at a significantly greater risk of poorer health outcomes.

The interaction models presented in Section 5.4.4 successfully identified 15 significant interaction effects, showing each dimension of social inequality (i.e. gender, ethnicity, and SEP) to intersect with at least one other on one or more of the health outcomes. These findings demonstrate that important inequalities in health exist at the intersection gender, ethnicity, and SEP. By comparing the results for the additive and interaction models, the findings also highlight how the additive models alone fail to capture the complex associations between multiplicative social disadvantage and health.

The findings from the first, quantitative, phase of this mixed methods study were therefore successful in identifying ‘what’ intersections of gender, ethnicity and SEP in health exist among adults living in England, as represented by the HSE 2004 sample. In the following chapter, a subset set of these significant intersections is identified in preparation for the second, qualitative phase of the study, which seeks to address ‘how’ and ‘why’ these intersections might arise.

Chapter 6 Connecting the Quantitative and Qualitative Phases

6.1 Introduction

This chapter presents the intermediate stage of the sequential explanatory mixed methods design in which the quantitative and qualitative phases of the study were connected together. As described in Chapter 4, the purpose of the intermediate stage was to identify significant findings from the quantitative phase of the study to be further explored in the succeeding qualitative phase of the study. The following sections of this chapter set out the criteria on which these quantitative findings were selected, a detailed summary of each key finding, and a series of questions for further consideration in the qualitative phase of the study.

6.2 Identification of quantitative findings for further qualitative exploration

A subset of statistically significant quantitative findings was identified from the interaction analyses presented in Chapter 5. The findings were chosen by focusing on significant inequalities in health between one of the ethnic minority groups and the White English majority group. The ethnic minority group was selected on the basis of the following statistical and logistical criteria:

- Evidence of significantly poorer health outcomes relative to the White English reference group.
- Evidence of a statistically significant contribution in explaining the variation in health found by the interaction effects between gender and ethnicity and between ethnicity and SEP.
- Sufficient availability of representatives from the ethnic group in the South Yorkshire region for participation in qualitative interviews.

A review of the interaction analyses reported in Chapter 5 identified the Pakistani ethnic group to be the ethnic group that most frequently made a significant contribution to the interactions effects. Furthermore, the odds ratios between the Pakistani and White English groups associated with each of these interaction effects demonstrated significantly poorer outcomes for the Pakistani group relative to the White English reference group. The Pakistani ethnic group also

represents the largest ethnic minority population in the South Yorkshire area, the setting for the qualitative phase of the study. Accordingly, the findings pertaining to inequalities in health between the Pakistani and White English ethnic groups were selected as the focus for the qualitative phase of the study.

6.3 Inequalities in health between Pakistani and White English groups

The results for the interaction models presented in Chapter 5 found that inequalities in health between the Pakistani and White English groups made a significant contribution to seven of the statistically significant interaction effects. A detailed summary of these findings is provided below.

6.3.1 Intersection of gender and ethnicity

The findings for the interactions between gender and ethnicity found inequalities in general health and in HRQoL between the Pakistani and White English groups to significantly vary by gender (see Chapter 5, Model 12a and Model 12c).

6.3.1.1 Findings for general health

The findings for poor general health presented in Table 6.1 show that being a Pakistani man was associated with nearly twice the odds of poor general health relative to being a White English man (OR 1.96). Furthermore, being a Pakistani woman was associated with over three times the odds of poor general health relative to being a White English woman (OR 3.05). The ethnic difference in poor general health for women was therefore significantly greater than that reported for men (OR 1.56, $P < 0.01$).

Table 6.1 Predicted odds and odds ratios of poor general health by ethnic and gender group

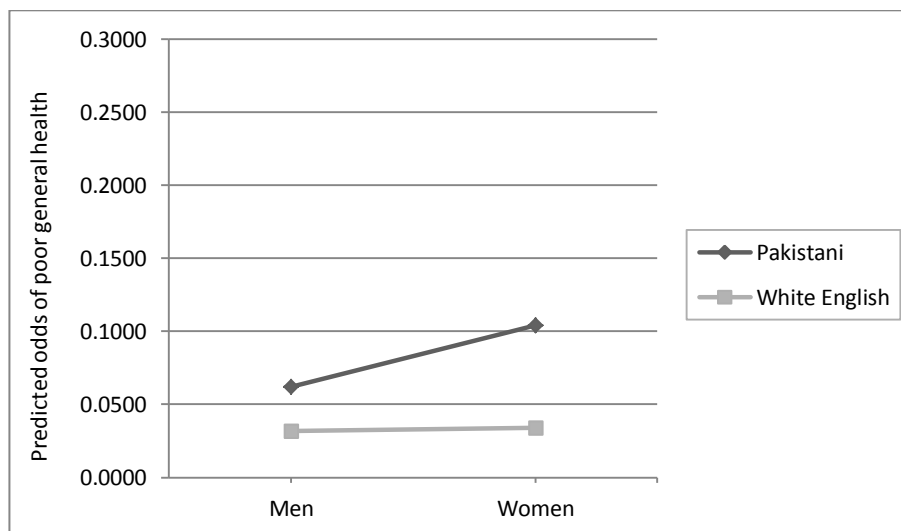
Gender group	Odds of poor general health	
	Women	Men
Ethnic group		
Pakistani	0.1040	0.0619
White English	0.0341	0.0317
Within gender group odds ratio	0.1040/0.0341 = 3.05***	
	0.0619/0.0317 = 1.96***	
Interaction odds ratio	3.05/1.96 = 1.56**	

Notes: Data were adjusted for age. Wald Statistic α level: ***: $P < 0.001$; **: $P < 0.01$; *: $P < 0.05$.

By plotting the predicted odds of poor general health for Pakistani and White English men and women, Figure 6.1 clearly illustrates the relatively disadvantaged position of Pakistani women.

In visual terms, the less parallel the Pakistani and White English lines, the more strongly the association between gender and health varies as a function of ethnicity.

Figure 6.1 Predicted odds of poor general health for Pakistani and White English men and women



6.3.1.2 Findings for HRQoL

The interaction analyses demonstrated that differences in HRQoL between the Pakistani and White English groups were also moderated by gender, as shown in Table 6.2. Whilst no significant difference in odds of problems with HRQoL was reported between Pakistani and White English men, Pakistani women were 82 per cent more likely to report having problems with HRQoL when compared to White English women (OR 1.82). The ethnic difference in HRQoL between the Pakistani and White English groups was therefore found to be significantly greater among women than men (OR 1.54, $P < 0.05$).

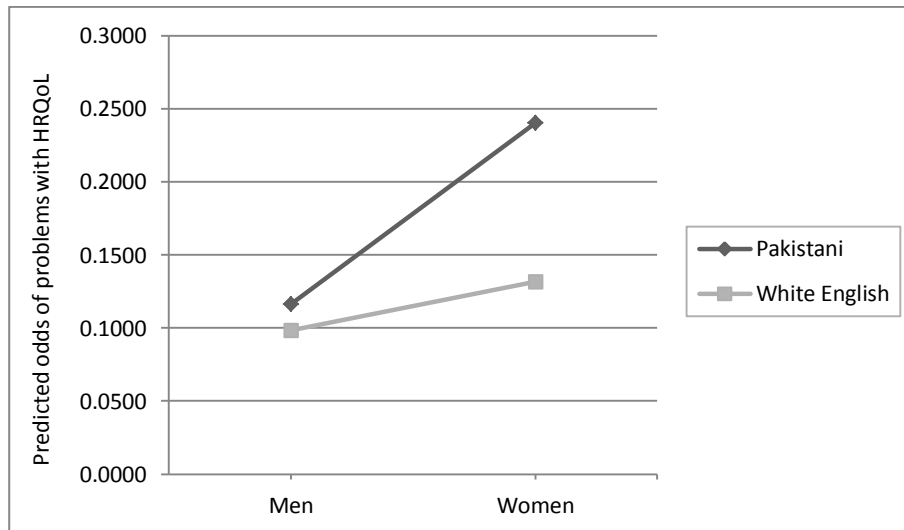
Table 6.2 Predicted odds and odds ratios of problems with HRQoL by ethnic and gender group

	Odds of problems with HRQoL	
	Women	Men
Ethnic group		
Pakistani	0.2405	0.1166
White English	0.1319	0.0983
Within gender group odds ratio	0.2405/0.1319 = 1.82***	0.1166/0.0983 = 1.19
Interaction odds ratio	1.82/1.19 = 1.54*	

Notes: Data were adjusted for age. Wald Statistic α level: ***: $P < 0.001$; **: $P < 0.01$; *: $P < 0.05$.

As illustrated in Figure 6.2, the patterning of HRQoL again highlights the disadvantaged position of Pakistani women in relation to Pakistani men, White English men and White English women.

Figure 6.2 Predicted odds of problems with HRQoL for Pakistani and White English men and women



6.3.2 Intersection of ethnicity and education level

The findings for the intersection of ethnicity and education level in health found ethnic inequalities in psychological wellbeing for the Pakistani and White English ethnic groups to significantly vary by education level (see Chapter 5, Model 13b). As shown in Table 6.3, Pakistani participants with no qualifications were more than twice as likely to be at risk of having poor psychological wellbeing compared to their White English counterparts (OR 2.14). By contrast, no significant difference in odds of poor psychological wellbeing was reported between Pakistani and White English participants with a degree or above (OR 1.10). The interaction ratio therefore shows the risk of poor psychological wellbeing among Pakistani participants compared to White English participants at the no qualification level was almost twice that reported for degree level and above (OR 1.95, $P < 0.05$).

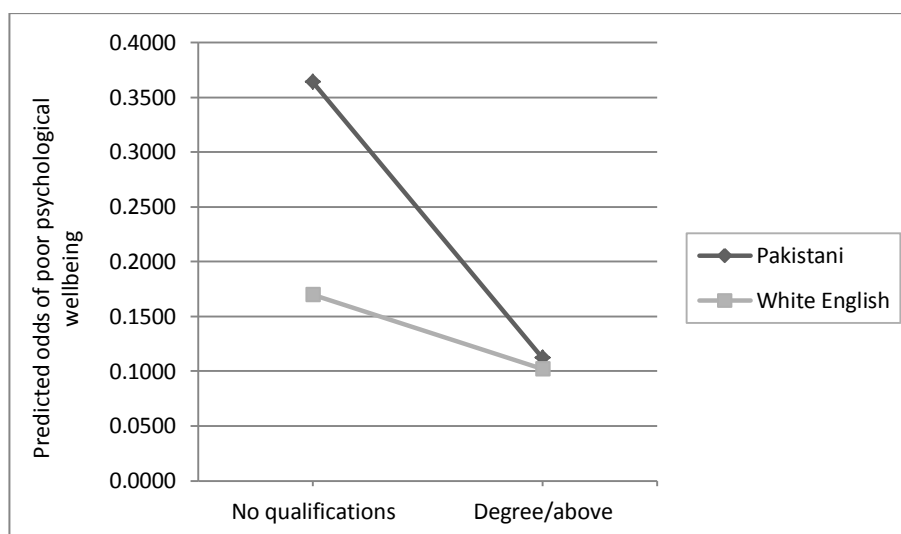
Table 6.3 Predicted odds and odds ratios of poor psychological wellbeing by education level and ethnic group

Education level	Odds of poor psychological wellbeing	
	No qualifications	Degree/above
Ethnic group		
Pakistani	0.3642	0.1118
White English	0.1700	0.1019
Within education level odds ratio	0.3642/0.1700 = 2.14***	
Interaction odds ratio	2.14/1.10 = 1.95*	

Notes: Data were adjusted for age. Wald Statistic α level: ***: $P < 0.001$; **: $P < 0.01$; *: $P < 0.05$.

As illustrated in Figure 6.3, the intersection of ethnicity and education level for the Pakistani and White English groups clearly demonstrates a marked excess in poor psychological wellbeing found for Pakistanis without educational qualifications.

Figure 6.3 Predicted odds of poor psychological wellbeing for Pakistani and White English groups by education level



6.3.3 Intersection of ethnicity and economic status

The findings for the intersection of ethnicity and economic status in health demonstrated that ethnic inequalities in general health, psychological wellbeing, and HRQoL between Pakistani and White English participants varied significantly by economic status (see Chapter 5, Models 14a, 14b, and 14c, respectively). As described in the sections below, the distinct inequalities between retired Pakistani and retired White English participants were the key findings featured across the three outcome measures.

6.3.3.1 Findings for general health

Table 6.4 shows that odds of poor general health among the retired group were substantially higher for Pakistani participants when compared with White English participants (OR 3.87). By contrast, for the economically active group, the difference in odds of poor general health between Pakistani and White English participants was far smaller and only just reached statistical significance (OR 1.43).

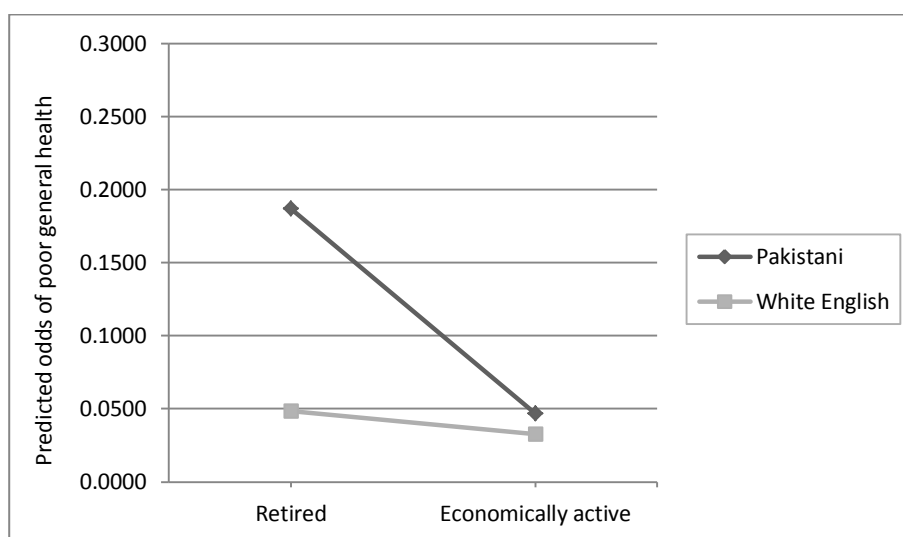
Table 6.4 Predicted odds and odds ratios of poor general health by economic status and ethnic group

Economic status	Odds of poor general health	
	Retired	Economically active
Ethnic group		
Pakistani	0.1871	0.0466
White English	0.0483	0.0326
Within economic status odds ratio	0.1871/0.0483 = 3.87***	
	0.0466/0.0326 = 1.43*	
Interaction odds ratio	3.87/1.43 = 2.71***	

Notes: Data were adjusted for age. Wald Statistic α level: ***: $P < 0.001$; **: $P < 0.01$; *: $P < 0.05$.

Figure 6.4 illustrates the magnitude of the difference between retired Pakistani and White English participants in contrast to similarity in general health between economically active Pakistani and White English participants.

Figure 6.4 Predicted odds of poor general health for Pakistani and White English groups by economic status



6.3.3.2 Findings for psychological wellbeing

Looking next at the findings for psychological wellbeing, Table 6.5 reveals that odds of poor psychological wellbeing were nearly six times greater for retired Pakistani participants compared to their White English counterparts (OR 5.94). Yet for economically active participants, odds of poor psychological wellbeing were found to be almost identical between the two ethnic groups (OR 0.99). As shown by the interaction ratio, ethnic inequalities in psychological wellbeing demonstrated a six-fold increase among the retired group relative to the economically active group (OR 6.00, $P < 0.001$).

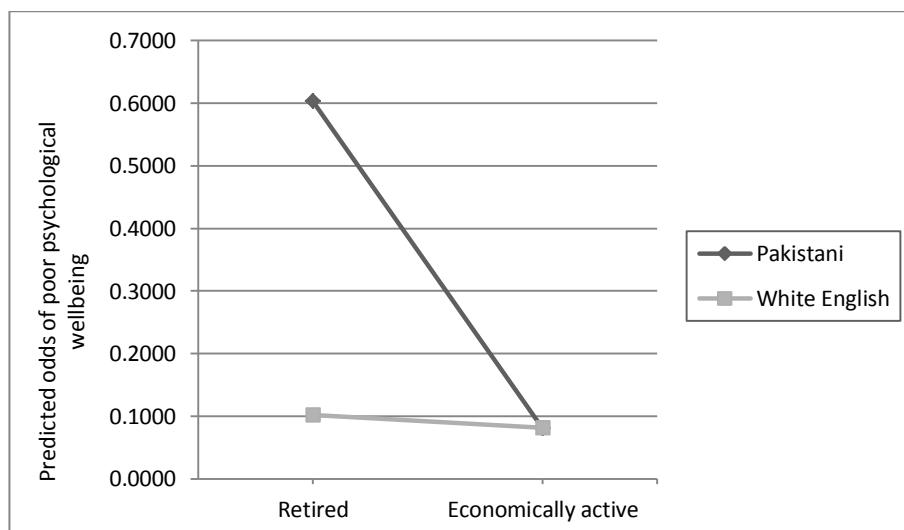
Table 6.5 Predicted odds and odds ratios of poor psychological wellbeing by economic status and ethnic group

Ethnic group	Odds of poor psychological wellbeing	
	Economic status	
	Retired	Economically active
Pakistani	0.6035	0.0805
White English	0.1016	0.0814
Within economic status odds ratio		
	$0.6035/0.1016 = 5.94^{***}$	$0.0805/0.0814 = 0.99$
Interaction odds ratio		$5.94/0.99 = 6.00^{***}$

Notes: Data were adjusted for age. Wald Statistic α level: ***: $P < 0.001$; **: $P < 0.01$; *: $P < 0.05$.

Figure 6.5 illustrates the differential association between economic status and poor psychological wellbeing between Pakistani and White English participants, again reflecting the disadvantaged position of retired Pakistanis.

Figure 6.5 Predicted odds of poor psychological wellbeing for Pakistani and White English groups by economic status



6.3.3.3 Findings for HRQoL

The inequalities in general health and psychological wellbeing described above for retired Pakistani participants were replicated in the findings for HRQoL. As shown in Table 6.6, odds of problems with HRQoL were over three times higher among retired participants in the Pakistani ethnic group compared to their White English counterparts (OR 3.49). By contrast, odds of problems with HRQoL did not significantly differ between economically active participants belonging to the two ethnic groups (OR 0.92). As such, ethnic inequalities in HRQoL were found to be significantly greater for those retired (OR 3.79, $P < 0.01$).

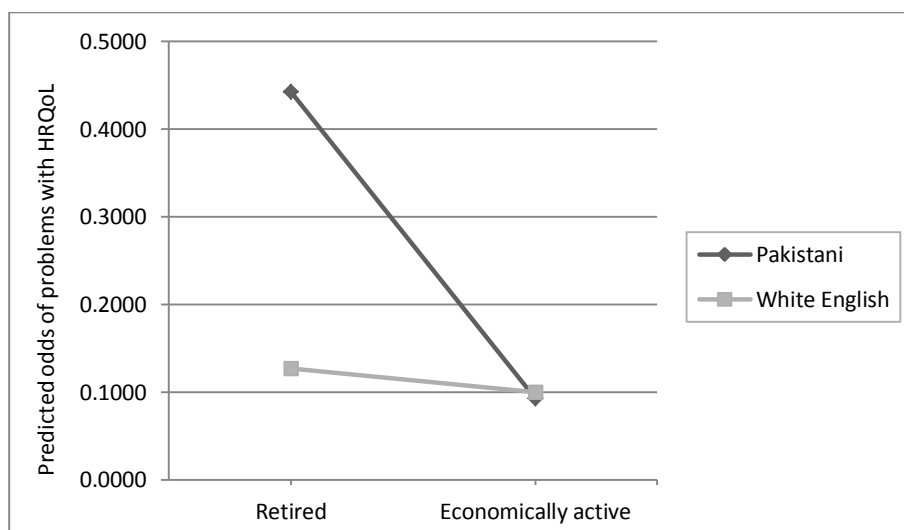
Table 6.6 Predicted odds and odds ratios of problems with HRQoL by economic status and ethnic group

	Odds of problems with HRQoL	
	Economic status	
Ethnic group		
Pakistani	Retired	0.4422
White English	Retired	0.1266
	Economically active	0.0921
	Economically active	0.0998
Within economic status odds ratio		$0.4422/0.1266 = 3.49^*$
		$0.0921/0.0998 = 0.92$
Interaction odds ratio		$3.49/0.92 = 3.79^{**}$

Notes: Data were adjusted for age. Wald Statistic α level: ***: $P < 0.001$; **: $P < 0.01$; *: $P < 0.05$.

Reflecting the pattern for general health and psychological wellbeing shown in the previous sections, Figure 6.6 illustrates the marked excess in problems with HRQoL for retired Pakistani participants when compared with retired White English participants and with economically active White English and Pakistani participants.

Figure 6.6 Predicted odds of problems with HRQoL for Pakistani and White English groups by economic status



6.3.4 Intersection of ethnicity and income level

The findings for the intersection of ethnicity and equivalised household income level found ethnic inequalities in psychological wellbeing between Pakistani and White English participants to vary by income level (see Chapter 5, Model 16b). As reported in Table 6.7, odds of poor psychological wellbeing for participants in the middle income tertile were found to be higher for the Pakistani group compared to the White English group. Conversely, for participants in the upper income tertile, odds of poor psychological wellbeing were lower for the Pakistani group relative to the White English group. Notably, neither of these differences reached statistical significance. The interaction ratio comparing the two differences did, however, just reach statistical significance, but due to the width of the confidence interval, this finding should be treated with caution (OR 4.56, CI 1.02 – 20.33, $P < 0.05$).

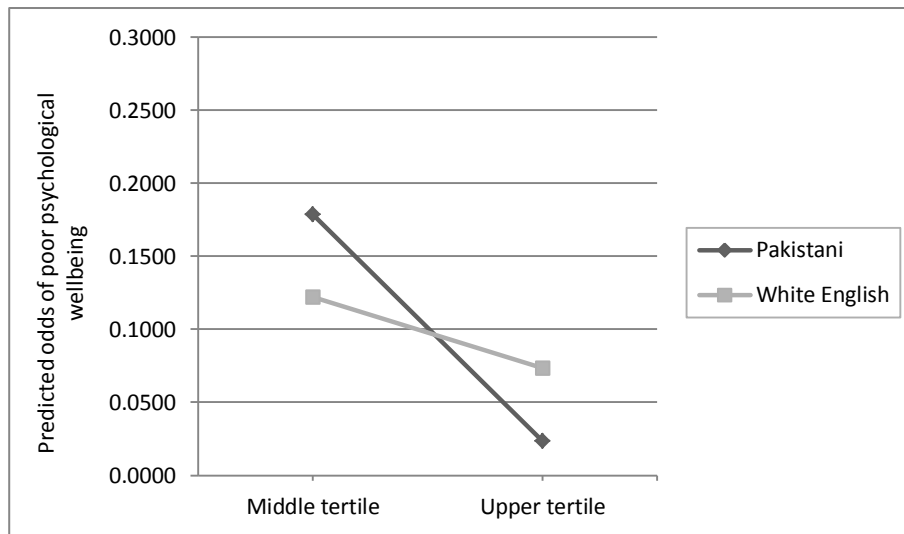
Table 6.7 Predicted odds and odds ratios of poor psychological wellbeing by income level and ethnic group

	Income level	Odds of poor psychological wellbeing	
		Middle tertile	Upper tertile
Ethnic group			
Pakistani		0.1789	0.0236
White English		0.1222	0.0735
Within economic status odds ratio		0.1789/0.1222 = 1.46	0.0236/0.0735 = 0.32
Interaction odds ratio		1.46/0.32 = 4.56*	

Notes: Data were adjusted for age. Wald Statistic α level: ***: $P < 0.001$; **: $P < 0.01$; *: $P < 0.05$.

Figure 6.7 illustrates how the ethnic inequalities in psychological wellbeing for the Pakistani and White English groups varied by income level and suggests the association between income inequalities and psychological wellbeing was far stronger for the Pakistani ethnic group than the White English ethnic group.

Figure 6.7 Predicted odds of poor psychological wellbeing for Pakistani and White English groups by income level



Due to lack of statistical strength associated with this finding and the tendency for questions on income to produce low response rates (Kelaher et al., 2009), the intersection of ethnicity and income was not selected for further exploration in the qualitative phase of the study.

6.4 Development of the qualitative phase protocol

To facilitate an in-depth exploration of intersections in the qualitative phase of the study, three of the intersections relating to the Pakistani and White English groups presented above were selected for further exploration. To gain an understanding as to how and why these specific intersections might arise, a series of questions outlined below were developed to inform the design of the qualitative phase protocol.

6.4.1 Exploring the intersection of gender and ethnicity in general health

To understand the patterning in poor general health between Pakistani and White English men and women, the following two questions were raised for further consideration:

- Why might the difference in general health between men and women be greater in the Pakistani group compared to the White English group?
- Why might the difference in general health between Pakistani and White English groups be greater among women than men?

Notably the two questions described above essentially represent different ways of exploring the same interaction (Jaccard, 2001). Specifically, the first question focuses on gender differences in health within ethnic groups, whilst the second question looks at ethnic differences in health within gender groups.

6.4.2 Exploring the intersection of ethnicity and education level in psychological wellbeing

To explore the intersection of ethnicity and education in psychological wellbeing, the following two questions were raised for further consideration:

- Why might the difference in psychological wellbeing between Pakistani and White English participants be greater at the no qualification level than at degree level?
- Why might the difference in psychological wellbeing between participants with no qualifications and those with degrees be greater among Pakistanis than among the White English?

6.4.3 Exploring the intersection of ethnicity and economic status in psychological wellbeing

Finally, the findings for the intersection of ethnicity and economic status in psychological wellbeing raised the following key question:

- Why might retired Pakistani participants be at a significantly greater risk of poor psychological wellbeing than retired White English participants?

6.5 Chapter summary

This chapter presents the intermediate stage of the mixed methods design, in which the quantitative and qualitative phases of the study were connected together through the identification of a subset of significant quantitative findings for further qualitative exploration. Following a review of the interaction analyses presented in Chapter 5, a series of statistically significant inequalities in health were identified between the Pakistani and White English ethnic groups, each of which were found to make a significant contribution to the interaction effects. Specifically, the findings for the Pakistani and White English groups demonstrated that ethnic inequalities in general health and HRQoL varied significantly by gender, with Pakistani women experiencing the greatest disadvantage in health. Ethnic inequalities in psychological wellbeing

were also found to vary significantly by education, with Pakistanis with no qualifications experiencing the greatest disadvantage. Similarly, ethnic inequalities in general health, psychological wellbeing, and HRQoL were also found to vary by economic status, with retired Pakistanis shown to be at a substantial disadvantage.

Three of the intersections were selected for further exploration in the qualitative phase of the study, namely: the intersection of gender and ethnicity in general health; the intersection of ethnicity and education in psychological wellbeing; and the intersection of ethnicity and economic status in psychological wellbeing. In order to explore the contextual and explanatory factors perceived to underlie these intersections, a series of questions were developed to inform the design of qualitative study phase.

Chapter 7 Phase II: Qualitative Analysis of Interview Data

7.1 Introduction

This chapter presents the methods and findings from the second phase of the mixed methods study, which set out to explore how and why intersections of gender, ethnicity, and SEP in health might exist among people of Pakistani and White English ethnicity. As outlined earlier in Chapter 4, the purpose of this qualitative component was to build upon the quantitative findings established in first phase of the study, focusing specifically on the intersections identified in Chapter 6. The main objective of the qualitative analysis was to explore the explanatory and contextual factors that might underlie the following findings in relation to the Pakistani and White English samples in the HSE 2004:

- The intersection of gender and ethnicity in general health;
- The intersection of ethnicity and education level in psychological wellbeing; and
- The intersection of ethnicity and economic status in psychological wellbeing.

A further objective of the analysis was to examine understandings of intersectionality *per se*, in terms of whether or not factors such as gender, ethnicity and SEP are perceived to have intersectional or independent effects on health.

The chapter begins with a description of the methods employed in the design, collection and analysis of the qualitative data in Section 7.2, followed by a description of the interview informants in Section 7.3. The findings from the thematic analysis are then presented Section 7.4, followed by a summary of the chapter in Section 7.5.

7.2 Methods

7.2.1 Setting

The qualitative phase of the study was set in South Yorkshire and focused on the Pakistani and White English populations living in the city of Sheffield and surrounding boroughs (see Figure 7.1). Sheffield is a large ethnically diverse city, with an estimated 16 per cent of its 530,300 population belonging to ethnic minority groups (Office for National Statistics, 2007). The long-standing Pakistani population of Sheffield became established in the 1950s and 60s when migrant workers from Pakistan arrived to fill the labour shortages in the steel industry that

dominated Sheffield at the time. In subsequent decades, migration to Sheffield from Pakistan has predominantly taken the form of family reunification, with Pakistani migrants joining spouses and relatives already settled in Sheffield (Robinson et al., 2007). Notably, at the time of the 2001 census, less than half of the Pakistani population of Sheffield were born in Pakistan, a further indication of the established settlement of the Pakistani community (Meridien Pure, 2006). Currently, the Pakistani population represents the largest ethnic minority group in Sheffield, with an estimated 17,400 people (Office for National Statistics, 2007).¹

Figure 7.1 Map of the county boroughs of South Yorkshire, England.

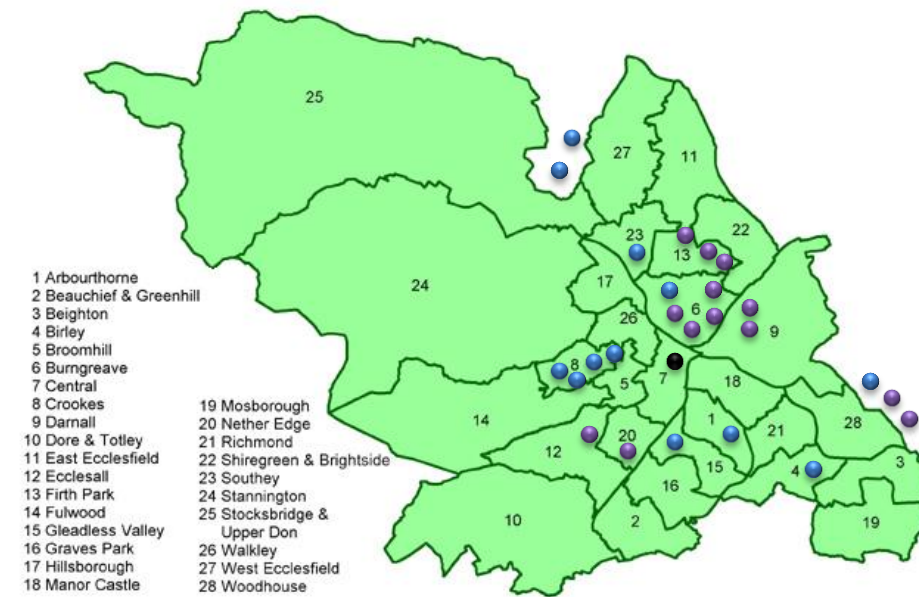


The ethnic minority population of Sheffield, including the Pakistani population, is concentrated in the central, northern and eastern wards of the city, namely, Burngreave, City, Darnall, and Firth Park (see Figure 7.2 for a map of the wards) . By contrast, the wards to the south and west of the city are generally the least ethnically diverse, with the White population making up 95 per cent or more of the population across most wards (Simpson, 2005). Notably, the most deprived wards in Sheffield include Burngreave, City, Darnall, and Firth Park, whereas the wards to the west and south-west of the city typically represent the least deprived areas in Sheffield (Sheffield City Council, 2011).

The qualitative data for this study were collected across a wide area of Sheffield, reaching into the neighbouring boroughs of Barnsley to the north and Rotherham to the east, as illustrated in Figure 7.2 below.

¹ Population figures based on latest available residential population estimates for mid-2007.

Figure 7.2 Ward map of Sheffield



Notes: ●: Sheffield city centre; ●: Pakistani sample; ●: White English sample.

7.2.2 Fieldwork preparation

In the 12 months leading up to the qualitative study phase, the researcher joined and attended a number of community events, projects and training programmes to build links with local community organisations and gain valuable training in cultural awareness and community development. These initiatives, summarised in Figure 7.3, included a 16-week Faith Community Development training course held at the Pakistani Muslim Centre in Sheffield (NIACE, 2008). The course was designed to provide participants with networking opportunities in addition to accredited training in a range of topics including faiths, diversity, and community development (see Appendix C.1). The opportunity to complete this course provided the researcher with invaluable insights into Pakistani and Muslim cultures in particular, and enabled the researcher to establish a network of contacts across the Pakistani and White English communities in and around Sheffield.

Figure 7.3 Summary of community projects and training courses attended

- Sheffield Conversation Club: a voluntary organisation offering refugees and asylum seekers English practice in a friendly and informal environment, and offering volunteers the opportunity to meet people from around the world and develop an understanding of refugee issues (Conversation Club, 2010).
- The Besom: a voluntary organisation offering support to vulnerable people in the community by carrying out home improvements such as redecorating, refurnishing, and gardening (The Besom, 2010).
- Madina Masjid Mosque – Interfaith Week open day (Madina Masjid, 2010).
- Faith community development training course: provided by NIACE and held at the Pakistani Muslim Centre (NIACE, 2008).

7.2.3 Sampling methods

The interview sample was drawn from the Pakistani and White English populations of South Yorkshire, using a community-based sample frame of contacts established in the preparatory work outlined above. A stratified purposive sampling strategy was employed to ensure the sample provided adequate coverage of the key intersecting social groups under study and to maximise the diversity of the sample (Patton, 2002). As reported in Chapter 6, the intersecting social groups identified for further exploration included: gender, ethnicity, education level, and economic status. The sample was also designed to recruit informants from a range of ages to capture any similarities or differences in perspective between age groups (18-29, 30-49, and 50+ years). Given the range of dimensions to be covered, the inclusion of adequately sized samples of both male and female informants was beyond the scope of the study. Consequently, the sample was restricted to female informants. This decision was founded on the greater morbidity reported by women in the quantitative findings and on the ability to gender-match the interviewer to the informants (Grewal & Ritchie, 2006).

A sampling matrix outlining the purposive selection criteria is presented in Table 7.1. The target sample size was set at a minimum of 20 women, including 10 women of Pakistani ethnicity and 10 women of White English ethnicity. Within both the Pakistani and White English sub-samples, a minimum of two informants were sought from each age group, education level category, and economic status category.

Table 7.1 Sampling matrix for interview sample

Selection criteria		Pakistani women	White English women
Age group	18-29 years	≥ 2	≥ 2
	30-49 years	≥ 2	≥ 2
	50+ years	≥ 2	≥ 2
Education level	Degree and above	≥ 2	≥ 2
	GCSEs and A levels	≥ 2	≥ 2
	No qualifications	≥ 2	≥ 2
Economic status	Active	≥ 2	≥ 2
	Inactive	≥ 2	≥ 2
	Retired	≥ 2	≥ 2
Total within ethnic group		≥ 10	≥ 10

Potential informants were identified from the researcher's network of contacts from local community organisations in the first instance. The researcher introduced the study to each of the contacts in person and gave a formal invitation letter and information sheet to those who expressed an interest in taking part (see Appendix C.2 to C.5 for copies of the invitation letter and information sheet). Contacts who had not responded to the invitation after four weeks were sent a reminder letter offering the opportunity to still take part. To maximise recruitment rates, informants were offered a choice of having their interviews during week days or weekends and during the daytime or evening. Informants were also offered a choice of interview locations including an interview room at the University of Sheffield, a public place such as a library or café, or the informant's workplace or own home.

To meet the target sample size, the community-based sample frame was supplemented with snowball sampling techniques (Bryman, 2008). Specifically, informants who had already taken part in the study were asked if they knew of any friends, family, or colleagues meeting the selection criteria who may be interested in taking part in the study. Copies of the invitation letter and information sheet were provided for the informants to pass on to their contacts.

7.2.4 Data collection

The qualitative data were collected using semi-structured interviews carried out by the researcher between August 2009 and June 2010. The interviews were conducted with the aid of an interview schedule which incorporated a combination of techniques to elicit informants' perceptions and insights into the intersections under study (see Appendix C.7). These techniques included visual aids, vignettes, open-ended questions, and probes, which were tested and developed in a series of pilot interviews prior to the main data collection phase. Further details of the interview process and techniques are described below and supplemented with examples provided in Appendix C.

7.2.4.1 Interview process

Prior to taking part in the interview, the informant was required to give their informed consent as described in Section 7.2.7. The interview began by introducing the research topic to the informant and providing an outline of the questions to be covered. The informant was then shown a selection of questions and findings from the HSE 2004 to comment on. The specific measures of health were presented first to explore the informant's perceptions of the measures and to illustrate the dimensions of health under study (see Appendix C.8). The informant was then shown a series of graphs illustrating the intersectional associations between gender, ethnicity, and SEP in health for the Pakistani and White English samples in the HSE 2004 (see Appendix C.9). Prior to being shown a graph, the informant was first asked what they expected the results might be and then, after seeing the graph, asked to comment on the results. The informant was then shown a series of three vignettes containing short descriptions of Pakistani and White English women with intersecting socioeconomic circumstances and health outcomes (see Appendix C.10). The vignettes were incorporated as an alternative method to stimulate discussion on potential intersections between Pakistani and White English women. After reading a vignette the informant was asked to comment on how the social circumstances of the woman might be associated with the reported health outcome.

In the next part of the interview the informant was asked to reflect on what factors they felt might explain these social inequalities in health. Here, questions focused on associations between sociocultural contexts and social inequalities in health for women in particular. The concept of intersectionality was also addressed more directly, by asking the informant whether they felt that gender, ethnicity, and SEP had separate or combined effects on people's health. The interview was then drawn to a close by taking a more general focus and asking the informant what they felt could be done to improve the health of women in general. Finally, the informant was given the opportunity to offer any further comments and ask any questions. The interviews lasted between 60 to 90 minutes and were digitally recorded with the consent of the informant.

Following the interview, the informant was asked to complete a background questionnaire which contained questions about their socio-demographic circumstances and general health status (see Appendix C.11-12). This information was used to inform the recruitment process by indicating which age groups and socioeconomic groups to recruit further informants from. The informant was then provided with a further information sheet which provided the following details: what will happen to the findings from the study; where to find out about the study

findings; who to contact for further questions; organisations to contact for support and advice; and who to contact to make a complaint about the study (see Appendix C.13-14). Each informant was paid £10 in cash to reimburse their time and any travel expenses incurred, and was offered the opportunity to enter into a prize draw with the chance of winning a cash prize. Informants wishing to enter the draw were asked to fill in an entry form providing their contact details (see Appendix C.15).

7.2.4.2 Operationalisation of ethnicity

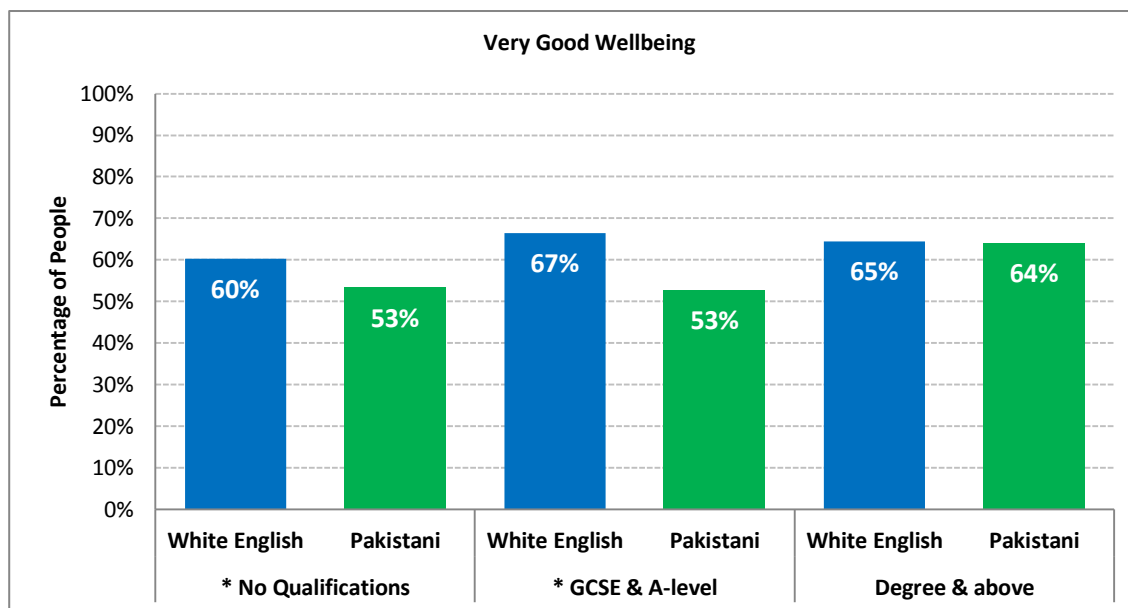
The same ethnic group categories, 'Pakistani' and 'White English', employed in the quantitative phase of the study were used in the recruitment of informants and in reference to findings from the HSE 2004 during the qualitative interviews. The interview invitation letters, for example, specified either 'women of White English ethnic origin' or 'women of Pakistani ethnic origin' (see Appendix C.2 and C.3). With respect to Pakistani informants, the sample included both women born in Pakistan and women of Pakistani descent born in Britain (see Appendix C4).

In addition, the informants' self-defined ethnicity was captured following the interview in the background questionnaire, which asked informants to describe their ethnic identity in their own words (see Appendix C.11-C.12). The inclusion of this questionnaire item thus provided the opportunity to explore variations in ethnic identity within the pre-specified categories of Pakistani and White English.

7.2.4.3 Presentation of intersections of gender, ethnicity, and SEP in health

To facilitate exploration into the complex phenomena of intersections, a series of simple bar charts were incorporated into the interviews to illustrate the intersectional associations between gender, ethnicity, and SEP in health. The colour coded graphs enabled informants to easily identify patterns in health for the different social groups under study, as illustrated in Figure 7.4.

Figure 7.4 Prevalence of very good psychological wellbeing by ethnic group and education level (Interview: Graph 2A)



Notes: Data were standardised for age; *: Statistically significant difference in prevalence rates within education level ($P < 0.05$).

It is important to note that the outcomes for general health and psychological wellbeing presented in the graphs were reported in terms of health rather than ill health. Specifically, prevalence of self-reported general referred to ratings of ‘very good’ and ‘good’ health rather than ratings of ‘fair, bad, and very bad’ health. Similarly, prevalence of psychological wellbeing referred to very good wellbeing (GHQ scores of 1), rather than poor psychological wellbeing (GHQ scores of 4 or above). The decision to present the findings in terms of health rather than ill-health was made to minimise the risk of distressing participants by focusing explicitly on negative health outcomes.

7.2.4.4 Language, cultural and religious considerations

The interviews were conducted in English by the researcher for both the White English and Pakistani samples. Informants in the Pakistani sample were all fluent in English with the exception of two participants. A shortened version of the interview was conducted in both these cases to allow for any extra time needed by the participants. The first participant chose to complete the interview in English. The second participant chose to complete the interview in a combination of Urdu and English, with the questions and answers translated by a female relative fluent in both languages.

With respect to cultural considerations, providing Pakistani women with the option of holding

their interview in their own home was positively supported by the Pakistani women who took part in the pilot interviews. Women from both the Pakistani and White English samples were therefore given a choice of interview locations including their own home.

With respect to religious considerations, the researcher ensured that the data collection phase did not coincide with major religious events such as Ramadan, Eid, Easter, and Christmas. The researcher was also careful not to contact or schedule interviews for Muslim informants during prayer time.

7.2.4.5 Pilot interviews

As indicated previously in Section 7.2.4 above, a series of pilot interviews were conducted prior to the main data collection phase in order to test and develop the interview schedule and visual aids. The pilots were conducted by the researcher between August and September 2009 with a sample of two White English women and three Pakistani women. Both White English women and one of the Pakistani women were known to the researcher, whilst the remaining two Pakistani women had not met the researcher prior to the interview. The pilots followed the format described in Section 7.2.4.1. In addition, the informants were asked whether they had any suggestions on how to improve the interview; whether they found any of the questions or graphs unclear; and whether they had any further comments. The researcher also took time to reflect on each interview, making field notes on any aspects of the interview process which appeared potentially problematic.

The feedback from the pilot interviews identified only a small number of minor changes to the schedule. Of key importance was the feedback from the informants confirming that the graphs were easy to understand and the vignettes were considered realistic and easy to engage with. Given the minimal changes to the interview schedule, data from four of the pilot interviews were incorporated into the main analysis. Unfortunately the digital recording from one of the pilot interviews was lost during download and therefore excluded from the analysis. To prevent this incident from recurring, the researcher ensured two voice recorders were employed for the remainder of the data collection phase.

7.2.5 Data analysis

The researcher transcribed the interview recordings verbatim and checked the transcripts against the original recording for accuracy. Each transcript was then anonymised to protect the identity of the informant. This was achieved by replacing the informant's name with a pseudonym and

by removing or changing any information that would readily identify the informant, such as people's names, places of work, and area of residence. Popular Pakistani and White English female names were used as pseudonyms in order to distinguish women from the Pakistani and White English samples. The anonymised transcripts were then imported into NVivo Version 8.0 (QSR International, 2009), a computer-assisted qualitative data analysis software package.

The interview data were analysed using the Framework approach (Ritchie & Spencer, 1994). Framework is commonly used in health-related research and is well-suited to research designs with *a priori* aims and objectives, as featured in the current study (Pope et al., 2006). A notable strength of Framework is in its systematic and transparent approach to organising and synthesising qualitative data (Ritchie et al., 2003). In practice, the Framework approach comprises five stages of analysis: (i) familiarisation, (ii) identifying a thematic framework, (iii) indexing, (iv) charting, and (v) mapping and interpretation. Details of how these stages were applied in the current study are outlined in the sections below.

7.2.5.1 Familiarisation

The aim of the familiarisation stage is to achieve 'immersion in the raw data' in order to draw out key ideas and recurrent themes (Pope et al., 2000, p.197). Familiarisation with the qualitative data was achieved initially through the processes of conducting the interviews, transcribing the digital recordings and checking the transcripts for accuracy. A specific familiarisation exercise was also conducted by the researcher at the midpoint in the data collection, where six transcripts were selected for review. The transcripts were chosen to represent the diversity of informants interviewed within the time period covered, as recommended by Ritchie and colleagues (1994; 2003). The selected transcripts were carefully re-read with key topics and recurring themes recorded and described where possible in the language used by the informants. A description of the general atmosphere of the interview and the relative ease or difficulty in exploring specific topics was also noted (Ritchie et al., 2003). The findings from the familiarisation exercise were then used to inform the second stage of the analysis.

7.2.5.2 Identifying a thematic framework

The aim of the second stage of the analysis is to identify and organise all the key issues, concepts and themes into a framework from which the data can then be indexed (Pope et al, 2000). In practice, the development of the thematic framework was a dynamic process which began with an initial framework that was refined over the course of the data collection, reflecting the iterative nature of qualitative research. The 'initial' thematic framework was

derived from a list of key topics and sub-topics generated from the *a priori* issues outlined in the research objectives and from the emergent issues identified in the familiarisation stage. The list was transformed into a framework by organising the material into a hierarchy of themes, topics, and sub-topics.

The initial framework was replaced with an 'interim' framework at the midpoint in the indexing process (detailed below) and later with a 'final' framework after all of the interviews had been indexed. The process of refining the framework ensured that new topics and sub-topics found to emerge in later interviews could be included in the analysis (Ritchie et al., 2003). Details of the final thematic framework are provided in Appendix C.16.

7.2.5.3 Indexing

The aim of the indexing stage is to systematically apply the thematic framework to all the data (Pope et al., 2000). The indexing process entailed each passage of a given transcript to be examined and subsequently indexed in correspondence with the relevant topic(s) or sub-topic(s) from the thematic framework. Where new topics or sub-topics emerged, new categories were created and added to the framework. The indexing process was conducted in NVivo by creating a system of 'nodes' to represent individual topics and sub-topics. Once indexed, the data indexed under any given node could then be retrieved at the click of a button, thus greatly facilitating the management of the data.

7.2.5.4 Charting

The aim of the charting stage is to extract, summarise and organise the data relating to a given theme and present it in the form of a chart or matrix, thus enabling the analyst to explore the detail, similarities, and differences expressed on a given theme or concept (Ritchie et al., 2003). Guided by the final thematic framework, a set of thematic charts were composed for the main themes found to emerge from the interview data. The charts were constructed by assigning a single column to a specific topic or sub-topic and a single row to an individual informant. The first column of each chart was used to identify the informant and their demographic profile, whilst the last column reserved for the researcher to note any observations to follow up in the synthesis. An extract of a thematic chart is provided in Appendix C.17 for illustration.

7.2.5.5 Mapping and interpretation

The aim of the mapping and interpretation stage is to provide descriptive and explanatory accounts of the data by using the thematic charts as a tool to map the range of themes and

identify patterns of association between the themes (Pope et al., 2000; Ritchie et al., 2003). In the current study, the thematic charts were transformed into visual models to help the researcher understand how the contextual and explanatory factors were perceived by the informants to relate to the intersections under study. The models were also included in the presentation of the findings to help illustrate the relationships between the themes and sub-themes for the three intersections under study. The interpretation of the themes was supported with detailed quotations selected to demonstrate rich descriptions of the explanatory and contextual factors identified and to highlight where interesting similarities and differences occur between the informants' accounts. To preserve the authenticity of the data, the quotations use the original wording of the informants, with additional words inserted in square brackets where clarification of the subject under discussion is needed. The allocated pseudonym, self-defined ethnicity and age of each informant were also included in the text, to enable comparisons within and between these social and demographic groups to be made by the reader.

7.2.6 Methodological quality

Measures to enhance the methodological quality of the qualitative phase of the study were taken by drawing on Guba and Lincoln's (1994) criteria for trustworthiness, namely, credibility, transferability, dependability, and confirmability. The credibility of qualitative findings refers to the correspondence between the informant's perception of a social construct and the researcher's portrayal of their viewpoint (Mertens, 2005). A selection of techniques to maximise credibility were included in the analysis. Firstly, constant comparison was employed, as described in Section 7.2.5.2 and Section 7.2.5.3 above, whereby the thematic framework was refined and developed to incorporate new topics and subtopics emerging from each additional transcript. Secondly, deviant case analysis, which entails the examination of contradictory data, was used to help refine the emergent explanatory and contextual factors (Mays & Pope, 2000). And thirdly, peer debriefing was employed, whereby discussions were held between the researcher and an experienced qualitative researcher external to the study (Maxine Johnson), to highlight potential biases and ambiguities in the researcher's interpretations of the data (Teddlie & Tashakkori, 2009).

The transferability of qualitative findings refers to the extent to which the findings can be generalised beyond the research setting in which they were generated, as determined by the reader (Lewis & Ritchie, 2009). To facilitate this assessment, detailed accounts (commonly referred to as 'thick description') of the research setting, sample, and methods, were provided. The dependability of qualitative findings can be defined as the level of agreement between researchers over the interpretation of the data (Lewis & Ritchie, 2009). To enhance the

dependability of the findings, a series of discussions were held between the researcher and members of the advisory panel (Professor Elizabeth Goyder, Dr. Aki Tsuchiya, and Maxine Johnson) to agree on the coding, thematic framework, and interpretation applied to the data.

Finally, the confirmability of qualitative findings relates to the extent to which the findings are grounded in the data and conversely, the extent to which the findings are influenced by researcher bias (Teddlie & Tashakkori, 2009). This last criterion was addressed by the researcher making reflexive notes throughout the qualitative phase of the study, reflecting in particular on ways in which the findings may be influenced by the researcher's identity, prior assumptions and experience (Mays & Pope, 2000).

7.2.7 Ethical considerations

The qualitative phase protocol received ethical approval from the University of Sheffield Ethics Committee (see Appendix C.18 for a copy of the ethics certificate). Several measures were incorporated into the qualitative phase to ensure the research was conducted to a high standard in line with guidelines for ethical conduct, as outlined below.

Firstly, informants were required to give informed consent prior to their interview. This was achieved by providing potential informants with a study information sheet describing: the purpose of the study; what the interview process entails; how the data will be used; and details of the research team and funding body (see Appendix C.4-C.5). On the day of the interview informants were first asked to read the study information sheet a second time and given the opportunity to ask any questions about the study. They were then required to complete a written consent form before starting the interview (see Appendix C.6). Participation in the interview study was entirely voluntary with informants being free to withdraw their consent before, during or after the interview.

Secondly, the confidentiality and anonymity of informants' personal details were protected through the careful removal of information known to identify the individual informants to those outside the research team. Informant names, contact details, and identifiable descriptions were therefore removed from interview transcripts to ensure data were sufficiently anonymised. Confidential data relating to informants' study identification number and personal information are securely stored in a locked filing cabinet at the University of Sheffield.

Thirdly, the interview was carefully designed to minimise the risk of causing harm or distress to informants. Questions of a sensitive nature on topics such as health and discrimination were

therefore not asked of informants directly. Rather, an indirect approach was adopted in which informants were asked to share their perceptions of health and discrimination experienced by people in general. At the end of the interview, informants were given a further information sheet which included a list of national advice lines and local support groups should they wish to seek professional support and advice (see Appendix C.13-C.14).

Finally, several precautions were taken to ensure the safety of the researcher whilst conducting interviews outside of office premises and office hours. These included attending a lone worker safety training course run by the Suzy Lamplugh Trust (2010), providing details of interview times and locations to the research team, making contact with colleagues at the start and finish of each interview, and carrying a mobile phone and personal alarm at all times.

7.3 Interview Informants

The interview informants included 25 women, 13 of whom formed the Pakistani sample and 12 of whom formed the White English sample. The majority of the informants were recruited from the community-based sample frame which yielded a high response rate, with 16 of the 18 women approached agreeing to take part. A further nine informants were then recruited using the snowball sample technique. Data on the number of women approached by informants were not however recorded. A summary of the interview recruitment by ethnic group is provided in Appendix C.19. With the exception of two women from the pilot phase, all of the informants were living in South Yorkshire at the time of the interview.

Table 7.2 describes the social groups to which the Pakistani and White English interview informants belonged and highlights the diversity of both the Pakistani and White English samples in terms of age, marital status, educational and economic background. The faith groups of the informants were less diverse, with all the Pakistani informants identifying as Muslim and all except one of the White English informants identifying as Christian. In terms of country of birth, four of the Pakistani informants were born in Pakistan, three of whom migrated to England in the 1960's, and another within the last six years. The remaining nine Pakistani informants and all the White English informants were born in England. Among the women who formed the Pakistani sample, four described their ethnic identity as Pakistani, two as British Pakistani, two as British Asian, and a further five left no response. Among the women who formed the White English sample, six described their ethnic identity as White British and two as British. A further informant described her ethnicity as White, another as White English, another as English, and the remaining informant left no response.

Table 7.2 Interview informant social groupings

Characteristic	Pakistani informants	White English informants	Total
Sample size	13	12	25
Age group			
18-29	6	2	8
30-49	5	4	9
50+	2	6	8
Marital status			
Single	3	2	5
Cohabiting	0	3	3
Married	8	7	15
Divorced	1	1	2
Widowed	1	0	1
Education level			
No qualifications	2	4	6
GCSE/A level	6	1	7
Degree or above	5	7	12
Economic status			
Inactive	5	3	8
Active	6	7	13
Retired	2	2	4
Faith			
None	0	1	1
Muslim	13	0	13
Christian	0	11	11
Country of birth			
England	9	12	21
Pakistan	4	-	4
Ethnicity			
Pakistani	4	0	4
British Pakistani	2	0	2
British Asian	2	0	2
White	0	1	1
White English	0	1	1
English	0	1	1
White British	0	6	6
British	0	2	2
Missing	5	1	6

7.4 Findings

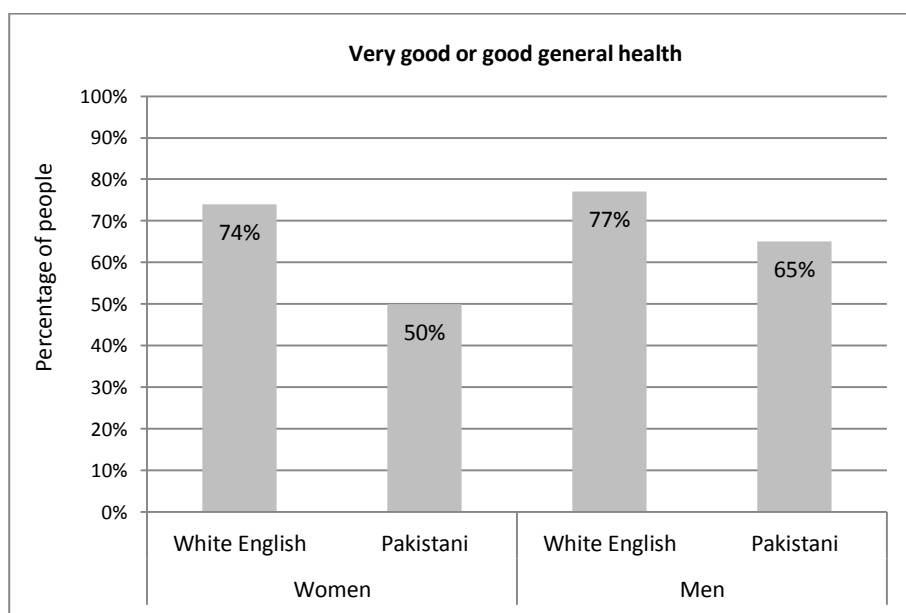
The findings from the qualitative analysis of the interview data are presented below as a series of themes organised under the following key topics:

- The intersection of gender and ethnicity in general health;
- The intersection of ethnicity and education in psychological wellbeing;
- The intersection of ethnicity and economic status in psychological wellbeing;
- Locating intersections within changing sociocultural contexts; and
- Understandings and experiences of intersectionality.

7.4.1 The intersection of gender and ethnicity in general health

The first of the quantitative findings to be explored in the interviews was the intersection of gender and ethnicity in general health found for Pakistani and White English participants in the HSE 2004. As illustrated in Figure 7.5 (derived from Graph 1D, Appendix C.9), the difference in general health between men and women was greater within the Pakistani group compared to the White English group. Similarly, the difference in general health between the Pakistani and White English group was greater among women compared to men.

Figure 7.5 Prevalence of very good/good general health by gender and ethnic group (HSE 2004)



Notes: Data age standardised.

The informants' explanations as to how and why this patterning in general health might arise drew on the following key themes: living in a man's world, looking after the home and family, staying at home, access to leisure facilities, and access to health care.

7.4.1.1 Living in a man's world

Many of the informants pointed to the dominant position of men in Pakistani culture when explaining why differences in general health might be greater between Pakistani men and women compared to White English men and women. Accounts of this power imbalance were typically situated in the context of family and marital relations. Fatima, for example, suggested that the inequality in roles and responsibilities between Pakistani men and women might explain why the gender difference in general health was greater among Pakistanis compared to the

White English.

I think within cultural... there's not equality there with the man and woman. The woman is the sole – probably running around, taking the kids to school, no time, cooking and that. And the man is the sole provider, you know. But I think it's equal within the English – there's equal roles, you know. There's a lot of probably work load sharing with the responsibility of the children as well.

[Fatima: British Asian, aged 30-49]

Similarly, when asked 'what would you change to improve women's health and wellbeing?', Asma, a Pakistani woman (born in Pakistan) aged 50+, proposed that Pakistani women would benefit from having 'more rights like equal with your husband' and more sharing of responsibilities in the home.

Notably, reflections on living in a man's world were not exclusive to Pakistani culture *per se*. For many White English informants, the perception of patriarchal family life within Pakistani culture today was reflective of the same power imbalance characteristic of English family life in previous generations. Linda, a White British woman aged 50+, described how 'women have always been like what I call the underdog, you're at home, you look after your kids, you cook for your husband, you care for your husband, and that's it'. Set in a historical context, living in a man's world was seen to relate to the lives of Pakistani and White English people alike, the key difference being the greater presence associated with Pakistani family life today.

I would think it's some of the same as you would have with men and women generally, which is, you know, marriage is... is shifted towards the man, but it's more so in probably a Pakistani society, because it's still a more traditional society. Whereas the English society has less so, we still have traditional roles, but less so. So the Pakistani society, still the man is more important and therefore he will get more of the health, he will get more of the care. Erm... and so therefore he will get most help out of any situation.

[Lucy, White British, aged 18-29]

I think also again whilst I'm quite certain there are lots of extremely admirable Pakistani men, there are also elements in the Pakistani culture that want to keep their women exactly where they want them to be, because it suits them to do so, just as there are in, in you know... I mean throughout history it's been a man's world and, you know, the likes of you and me are exceptions to the rule, and we're extremely fortunate and it's easy to think that's the norm.

[Elizabeth, White, aged 50+]

Many of the White English informants' accounts identified constraints on independence and choice as key factors underlying Pakistani women's poorer general health. Pakistani men were commonly perceived to be 'in authority' and 'in control of the women'. For instance, Judy, an English woman aged 50+, perceived Pakistani women to be 'more down than us' and 'not on a level with men'. She felt that they were 'not allowed to do what they want or say what they think' which in turn 'would affect their health'. Similarly, Jenny described how Pakistani women were often in 'quite controlling relationships' in which men would take the lead in decision making and financial matters, and impose restrictions on women's social life:

Erm, so it's really just how [Pakistani women] are viewed within the family I think. Erm, I just think they aren't allowed to make decisions as much as men. Again, these, I'm going on a stereotype here, I know that there are exceptions to the rule, but they're not able to make decisions. The husband would make decisions. Erm, there's quite a lot of abuse which is going to have a massive effect on their, on them feeling worthwhile and them feeling like they're able to make decisions. And there's a lot of control, like money control. And they're not allowed to have any friends. And not allowed to speak to family in the country or in Pakistan... I think it's mostly how they're viewed in terms of how they're treated and their opportunities.

[Jenny, White British, aged 18-29]

Pakistani women were also perceived by some White English informants to have poorer access to health and resources due to their disadvantaged position within the household. As illustrated in Clare's account below, women were considered to be particularly at risk when living in low income households where limited resources would be prioritised for men and children:

I think [Pakistani women] don't have as good a quality of life as the men... very often their duty is to their husband and their children before themselves. I think where there's a limited income I think that a lot of Pakistani women are basically bottom of the heap when it comes to whatever is left. And I think their life, I feel, is a lot harder within the religion and within the home. Not in all cases I would hasten to add.

[Clare, White British, aged 30-49]

Among the Pakistani informants, perceptions of the dominance of men in Pakistani culture were varied and interpreted as expressions of cultural norms as well as forms of gender discrimination. Husna, a British Pakistani woman aged 18-29, felt that women were discriminated against within the Pakistani community, but maintained that she didn't think Pakistanis would generally see it as discrimination, 'they probably just see it as a cultural thing and probably accept it'. This insight was supported by Asma's view of gender inequality in marriage: 'Being married, you respect your husband but he's a bit above you, so it's about following the different levels – it's not exactly discrimination but it's just men are a bit higher than women.' For Zaina, a Pakistani woman (born in Pakistan) aged 30-49, the treatment of Pakistani women was seen to be discriminatory when in the context of British Pakistanis. In comparison to people of 'today's Pakistan', she described how British Pakistanis are 'very traditional' and 'still hold the values which were there in Pakistan 30 years ago'. Speaking of the 'social structure of the relationship' between Pakistani men and women, she suggested that the lack of independence can result in women feeling unhappy, 'jealous' and 'discriminated':

[British Pakistani women] would have to deal with a sort of discrimination which is there in the community itself. And again it may happen behind closed doors. I mean the way their husbands treat them, the way their brothers, for example, treat them... on independence, how independent you are to go somewhere, to do something, and that sort of stuff... maybe the division of housework responsibilities, and generally how women are treated.

[Zaina, Pakistani, born in Pakistan, aged 30-49]

7.4.1.2 Looking after the home and family

Set within the context of living in a man's world, many of the informants described the responsibility of looking after the home and family to be a key factor in explaining why Pakistani women were less likely to report having very good or good general health compared

to both Pakistani men and White English women. When drawing comparisons between Pakistani men and women, the greater responsibilities placed on Pakistani women were commonly seen to explain why ‘their health suffers more’ than men. In particular, Pakistani women were perceived as having ‘more household responsibilities as compared to men’ and as having to take on the role of primary carers for ‘not just the children but the in-laws and the extended family as well’. As described by Fatima, these roles and responsibilities were seen to have a detrimental effect on the physical and psychological health of Pakistani women:

[Pakistani women] are taking kids to school, fetching them back, staying at home, cleaning, you know... that’s their role. It’s going to make them depressed, you know, low self-esteem, you know, it’s like a vicious circle then. It will affect their health mentally, physically, you know. Sooner or later they’ll be like pfff, you know.

[Fatima: British Asian, aged 30-49]

The pressures on Pakistani women in looking after the home and family were closely associated with a perceived lack of support from Pakistani men. Zaina, for example, described how women feel ‘angry or annoyed’ from ‘doing everything at home, fulfilling their responsibilities’ if their ‘husband is not helping enough’, which in turn can lead to feeling ‘that you are not in good health’. Similarly, Doris described how the lack of support from Pakistani men could lead to women feeling drained:

I think [Pakistani women] are worn down. They have to do everything, don’t they? All you see is a man sat there and women are carrying them, and carrying them, and whatever. I think they’re draining them. ...They’ve got children to see to, a house to see to. The men can just pack their bag and go to work and that’s it till they come home. The wife’s left with it all the time.

[Doris: British, aged 50+]

The greater pressure on Pakistani women to look after the home and family was also seen by the Pakistani informants to explain the difference in general health between Pakistani and White English women. Amina, for example, described how ‘Pakistani women may be more stressed than White women’ and ‘worry quite a lot’ because of ‘the responsibility that’s put on a woman in the Asian culture’, in having to take on ‘all the household roles and responsibilities and then the family as well’. Similarly, Asma accounted for the difference between White and Pakistani women’s health by stating that ‘Pakistani women do most of the things’ whereas ‘White people, they tend to share stuff, doing everything together’.

Further explanations for the difference in general health between Pakistani and White English women, referred to the ‘additional’ responsibilities placed on Pakistani women in looking after the extended family. As illustrated in the accounts of Lucy and Maysoon, caring for elderly or ill relatives was now considered to be optional for White English women but remained obligatory for Pakistani women. Consequently, the added pressure and stress in fulfilling these caring roles were seen to contribute to the poorer health reported among Pakistani women.

It’s not surprising that women don’t have decent health and it goes downhill when you get married, because suddenly you’re this wife and you’re expected to be a mother. And it’s also not surprising in a culture like the Pakistani one, where you’re not just a wife and mother, but you’re suddenly a daughter-in-law and a niece-in-law, which we now don’t have. We don’t have to care for them if they retire or are ill. We don’t have that financial burden, we don’t have that physical caring burden which that community still does because they have those traditional values.

[Lucy, White British, aged 18-29]

You get a lot of younger people in the Asian community that aren’t working because they look after their parents and stuff. Whereas in the White English community if your parents are quite old you send them off to an old people’s home and stuff, whereas you wouldn’t do that if you’re a Pakistani, do you get what I mean. It’s like, it’s not just a responsibility but it’s a duty to look after your parents. So... so you’re more sort of bound to responsibilities and duties so... and it is more stressful as well.

[Maysoon, Pakistani, aged 18-29]

In Ameera’s account, presented below, the themes of living in a man’s world and looking after the home and family were intertwined with further distinctions drawn between Pakistani and White English women, relating to their SEP.

I think [English women] they put their health first... you know, Pakistani women can be a bit sacrificial, you know, "oh well put others before me", and be a victim rather than – I think English women are a bit more independent... they look after themselves a bit more. And I think also erm... socioeconomic reasons as well, they have more money, they have the luxury of looking after themselves. They might not have as much housework to do, they might have help with regards to bringing up the children, they might have good jobs, they might have the money to go on holidays and go to the gym and do these extra things. Whereas I think Pakistani women, they might, in general, not have the money or the kind of – I don't know – not inclination, they might want to do it, but it might not occur to them "oh I need a holiday" you know, "I'm going to put myself first" or "oh I'm going to do this for myself" because they're just, I think, in general, they're so kind of into their routine of looking after everybody else that they forget to do anything for themselves.

[Ameera: Pakistani, aged 30-49]

For Ameera, the higher prevalence of good and very good health among White English women was explained initially in terms of differences in how Pakistani and White English women prioritise their health. Essentially, Pakistani women were perceived as putting the needs of their family first, whereas White English women were perceived to put their own health first. In addition, the differences in the socioeconomic positioning of Pakistani and White English women were seen to play a role in this health differential. In particular, White English women were perceived to be advantaged in having the money and time to spend on participating in leisure activities, a 'luxury' not shared by Pakistani women.

7.4.1.3 Staying at home

Explanations for the intersection of gender and ethnicity in general health also highlighted the tendency for Pakistani women to spend more of their time in the family home, relative to Pakistani men and White English men and women. Staying at home was perceived to have a detrimental effect on health and wellbeing by constraining levels of activity and social interaction. Husna, a British Pakistani aged 18-25, for example, described how Pakistani women's health was poorer than men's, 'because they're not really out there in the world working, most of them are just at home and generally feeling low.' Similarly, Habiba, a British Asian woman (born in Pakistan) aged 30 to 49, explained the gender difference in general health for Pakistanis to be 'because a man is always going out to work and so he's getting on with things, whereas a woman's at home, so she probably suffers from depression'. This perception was shared by the White English informants who also identified Pakistani women as having less of a 'social life' than the men, 'feeling very isolated' and having 'low mood' from 'being stuck

in the house'. Conversely, informants described how the health of Pakistani men benefitted from their 'more active' lifestyle, going out to work and 'always out socialising'.

Staying at home was also a common thread among Pakistani informants' accounts of the difference in general health between Pakistani and White English women. Typically, White English women's health was seen to benefit from them being 'more active' and 'getting out of the house' more than Pakistani women. Habiba, for example, described how White English women 'tend to be active all the time, going out, socialising'. By contrast she commented: 'just going out – I mean that's not done in Asian communities, particularly Pakistani communities. It's happening now, but it wasn't done and I think that makes a big difference'.

Staying at home was closely related to the themes of looking after the home and family and living in a man's world. As illustrated in the examples below, Pakistani women were commonly depicted as being in the home, looking after their children and husband, whereas White English women were portrayed as going out to work and feeling more empowered:

Pakistani women do not go out to work like our women do. They do stay at home and look after the children and the husband and that's got to put pressure on them.

[Doris: British, aged 50+]

I think it comes down to being empowered. I think [White English women] probably feel more empowered. It's like on the same playing field as the men, similar jobs... The White English women just are more active, they're more out there doing things, while the Pakistani women are just sort of kids, home, like that...

[Husna: British Pakistani, aged 18-29]

It's difficult [for Pakistani women] to get out of the house, pressures of children, so having your children, you husband's working long hours, you kind of have to take all that responsibility on board, and not being able to find enough time for yourself.

[Nadira: British Pakistani, aged 18-29]

The Pakistani informants' understandings of the tendency for Pakistani women to stay at home were often set in the context of gender roles and cultural norms. Safia, a British Pakistani woman aged 30-49, indicated that Pakistan-born women in particular may be expected by their husband to stay at home rather than go out to work. She stated that 'for Pakistani-born women

there's a lot of pressures at home I think mainly that may bring them down... they've got husbands that maybe don't want them to go out to work, want them to be at home, safe and secure place'. She asserted that 'it's different from White English and British Pakistani women', and based on her own experience explained: 'I don't have that pressure. I can go out, I can work full-time or part-time, I can manage my home, I can manage my family.' Contrasting Safia's comments here with Zaina's account in Section 7.4.1.1 (page 209), an interesting contradiction can be seen in the way both British Pakistani women and Pakistan-born women living in England perceive each other's lives to be more influenced by the constraints of culture and tradition.

Habiba highlighted how gender roles were so ingrained that many Pakistani women were unaware of the benefits that 'getting out of the house' might bring to their health and wellbeing:

Many [Asian women] believe... "we don't need to work, it's our husband's job, why should we work?" And they've never had that opportunity to see what life is like, so they don't know what they're missing. You have to entice them out of their homes first to engage with them, in order to show them, you know, it improves your health, it improves your wellbeing, it improves your quality of life, by getting out of the house, meeting other people, socialising and learning new skills.

[Habiba: British Asian, born in Pakistan, aged 30-49]

Many of the Pakistani informants perceived the pressure on women to stay at home to be 'cultural' in context. Jameela, a Pakistani woman aged 18 to 29, for example, described how Pakistani women were 'encouraged to stay at home because of the tradition and culture, they still fall into that trap a lot'. Likewise, Husna, described how staying at home was part of Pakistani culture but highlighted the negative psychological impact it had on women's health:

I don't think [Pakistani women] can imagine themselves going out, doing training courses, getting a job. They've just got used to how like, what culture's taught them, "Oh I'm supposed to be at home, and that's it". But it's not having a good psychological effect on them.

[Husna: British Pakistani, aged 18-29]

Husna also described how Pakistani women probably perceived the expectation for them to stay at home and not work in paid employment as 'normal', whereas 'English people see it as not having enough freedom'. This observation was found to be true among some of the White

English informants. Elizabeth, a White woman aged 50+, for example, described how Pakistani women are ‘not as integrated into society’ and ‘don’t seem to have the same freedoms’ as White women, which she felt would lead to lower psychological wellbeing. Likewise, in Linda, a White British woman aged 50+, connected the poorer health reported by Pakistani women to ‘being stuck in the house’ and to a lack of ‘freedom’ in Pakistani culture relative to White English culture.

7.4.1.4 Access to leisure facilities

Access to leisure facilities was a key issue raised by many of the Pakistani informants in explaining why Pakistani women reported poorer general health than both Pakistani men and White English women. As illustrated by Fatima and Nadira, the mixed-sex settings of many gyms and swimming pools act as a cultural barrier preventing many Pakistani women from using these facilities:

Women can’t access the gym as freely as a man because they’ve got to consider all issues like is there a mixed setting. If services haven’t got separate facilities for men and women, then [South] Asian women are not gonna access it. The services are not accessible, not culturally appropriate. It’s gonna have a big impact on women’s health. The men will still use it but the women won’t.

[Fatima: British Asian, aged 30-49]

As a White English woman you *may*, for instance, have access – better access to health care, in the sense that, you know, being able to look after your own health, so gyms and exercise classes, and all that kind of stuff. And the Pakistani women, the options might not be there, you can’t go to a gym because it’s a mixed environment.

[Nadira: British Pakistani, aged 18-29]

Similarly, in her explanation as to why there might be a greater gender difference in general health among Pakistani people compared to White English people, Jameela described her own difficulties in accessing leisure facilities:

I’d love to go and swim but it’s so hard to find like women-only lessons and classes and things like that. I’d like to use the gym at Uni but I can’t cos it’s not just for women. It’s like the facilities are there but obviously I choose not to use them because it conflicts with my religion.

[Jameela: Pakistani, aged 18-29]

A greater acceptance within the Pakistani community towards women participating in leisure activities was also expressed by some Pakistani informants, perhaps indicative of a more subtle cultural barrier previously at work. Husna, for example, described how ‘middle-aged Pakistani women’ were starting to go to women-only swimming sessions available in her local leisure centre. Yet ‘back 10, 15 years ago they probably would never have thought of doing that’. Similarly, Habiba described how past expectations for Pakistani women to ‘stay at home’ acted as barrier to their access to leisure facilities:

Pakistani women now are starting to exercise which they never used to do a few years ago. Now there’s gyms open specifically for Pakistani women and so they’re getting out and exercising, whereas before it was unheard of. They weren’t allowed to do that, they were supposed to stay at home, and whatever little exercise they did – it would be like taking the child to school, bringing them back, and that kind of thing.

[Habiba: British Asian, born in Pakistan, aged 30-49]

A further barrier to Pakistani women accessing leisure facilities raised was the time constraints associated with looking after the home and family, as illustrated earlier in Ameera’s account on page 212. Similarly, in comparison to White English women, Nadira commented on how ‘not being able to find enough time for yourself’ was a key issue preventing Pakistani women from exercising.

Despite the increased demand for accessible facilities, many of the Pakistani informants described how the communities they lived in were lacking in facilities open to Pakistani women and how ‘a lot more needs to be done’. Notably, the issue of access to leisure facilities for Pakistani women was only raised by one of the White English informants based on her involvement in organising events for women in the local Pakistani community.

7.4.1.5 Access to health care

Language barriers were raised by both Pakistani and White English informants as a key issue affecting access to health care particularly for Pakistani women with limited English language and literacy skills. Shirin, a Pakistani woman (born in Pakistan) aged 50+, for example, described how language barriers were likely to prevent Pakistani women from going to the doctors and the opticians more so than men due to Pakistani women having less education and

less English language skills. This issue was also reflected in Safia's description of the language barriers facing Pakistani women in her own community:

We're not getting that right help. We're still stuck in our homes, we're still ill, we'll go to the doctor but we need an interpreter. [There's] wads of information available at our local surgeries but no-one's able to pick it up and read it because we're not as educated, we don't know the language, we need someone by us. Even trying to explain what's wrong with us – we might have a simple thing like blood pressure or angina. We need someone to explain what's happening to us and how we're going to deal with it. We still have to go out into the community for help.

[Safia: British Pakistani, aged 30-49]

Understanding what health care is available was also raised as a key issue impacting on Pakistani women new to this country or from countries 'where health care isn't as developed'. Louise, a White British woman aged 30 to 49, for example described how 'there's the language and cultural barriers where people don't know what to access and where' because 'that's not explained to anyone'. Subsequently, some Pakistani women may not be registered with the doctors at all.

Cultural barriers in the form of mixed-sex settings in doctors' surgeries and were also raised as an important issue affecting Pakistani women's access to health care. For example, Louise explained how Pakistani women may report poorer general health due to the 'difficulty in accessing services as well as maybe White women do.' She described how 'a lot of [Pakistani] women don't know that they can ask for a woman to examine them if they want' and highlighted the need for 'women-only surgeries' to overcome these 'cultural barriers'. Safia also raised the issue of male doctors and identified this as a cultural barrier affecting Pakistan-born women in particular, as illustrated below:

For someone who's come from abroad here, she will have a lot of barriers to face... she might want to be seen by someone Asian or a female or someone who understands where they're coming from. So I think we have to face all those kind of problems, even before we get to the actual problem. As a British-born Muslim I don't have an issue going to the doctors or going to the hospital or wherever I have to go with my child or myself. I don't think there is a barrier because this is our society.

[Safia: British Pakistani, aged 30-49]

The stigma attached to mental health problems was also raised as a barrier to accessing health care for Pakistani women. Louise, for example, described how accessing ‘support outside’ for psychological health problems was seen by ‘women in the Pakistani community’ as bringing ‘a stigma on the family’. Similarly, Habiba described reluctance among Asian people to acknowledge the presence of mental illness in the family due to the consequences it may have for future marriage prospects:

I think there’s probably more mental health issues in Asian people than what’s apparent at the moment because they tend to hide it, they don’t disclose it. They will only acknowledge and accept physical disabilities and health problems where they have to get support. But if it’s a mental they tend to hide it. They don’t want to be seen as any member of our family’s got a mental illness because of the impact it will have on the whole family in limiting prospects for arranged marriages.

[Habiba: British Asian, born in Pakistan, aged 30-49]

Time constraints resulting from looking after the home and family were also perceived as a barrier to accessing health care, particularly for Pakistani women with large young families, as illustrated by Louise:

Erm... there’s time and having the ability to access services. If you’ve got children, it’s not always a priority to look after your own health. Or it’s too difficult if you’ve got three children or four children, you can’t get to the surgery, you know, the other end of the road, it’s too difficult, so you’ll put it off. Erm... .. Mmm... .. I don’t think women prioritise their health, I think they prioritise their children and their husbands and then theirs.

[Louise: White British, aged 30-49]

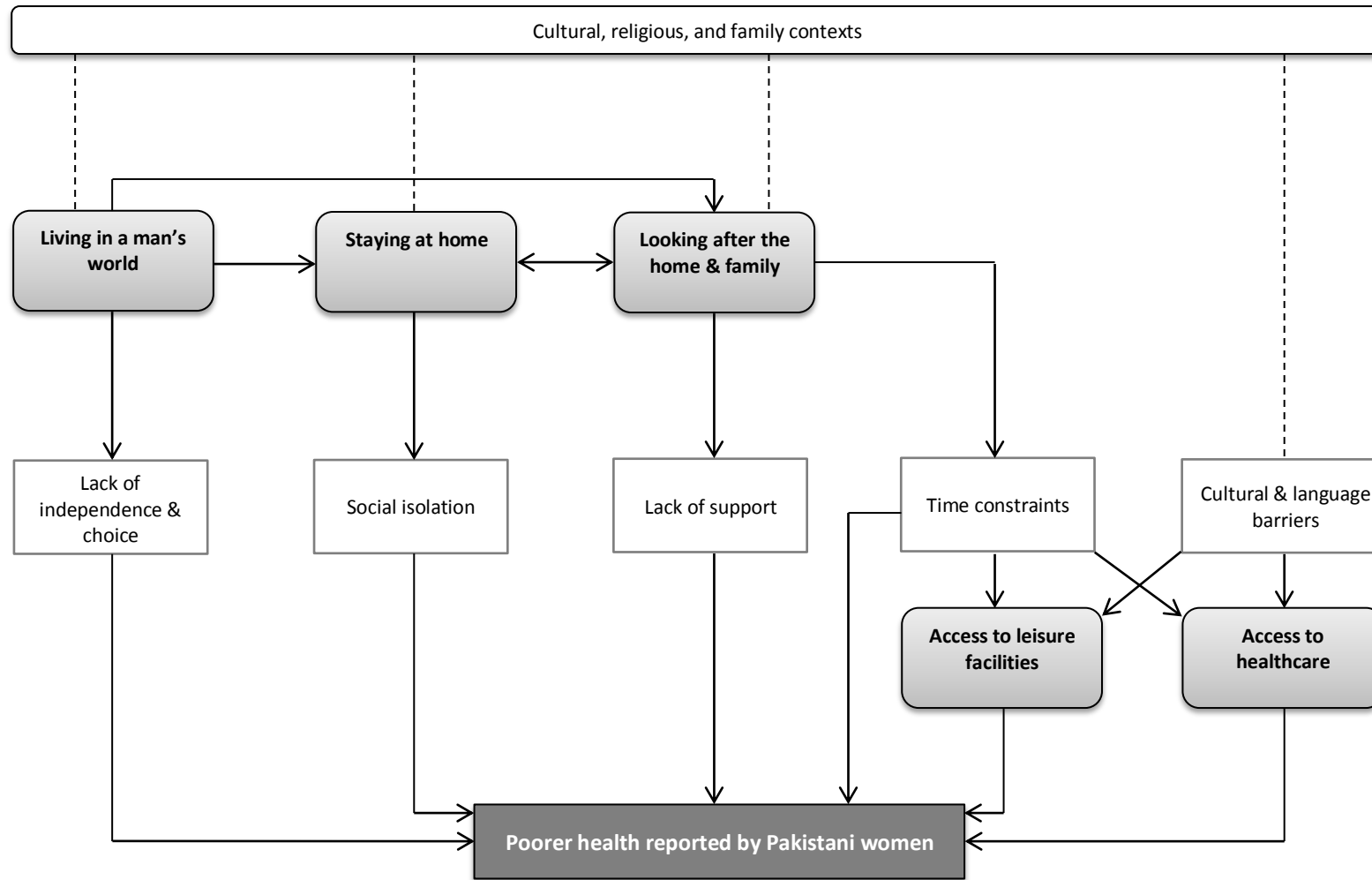
This view was further supported by the notion held among some White English informants that Pakistani women ‘have a lot more [children] than what we do’, therefore acknowledging an increase in the time and energy required by Pakistani women in looking after larger families.

7.4.1.6 Section summary

The key themes to emerge from the informants’ accounts of the intersection of gender and ethnicity in general health in relation to Pakistani and White English men and women are summarised in the visual model in Figure 7.6. In particular, the model helps illustrate how the themes (indicated by the light shaded boxes) and their associated factors (indicated by the white

boxes) were found to interconnect (indicated by the arrows). For example, the perceived tendency for Pakistani women to stay at home and look after the home and family was understood within the context of living in a man's world. Descriptions of these factors were in turn often rooted in cultural, religious, and family contexts (indicated by the dashed lines). The model also highlights some of the key mechanisms through which these factors were perceived to lead to poorer general health among Pakistani women. The theme living in a man's world, for example, was characterised by perceptions of Pakistani women having less independence and choice than Pakistani men and White English men and women, which in turn was seen to have a detrimental impact on their general health. Furthermore, the right-hand side of the model illustrates how poorer health among Pakistani women was perceived to result from the barriers they face in accessing leisure facilities and health care.

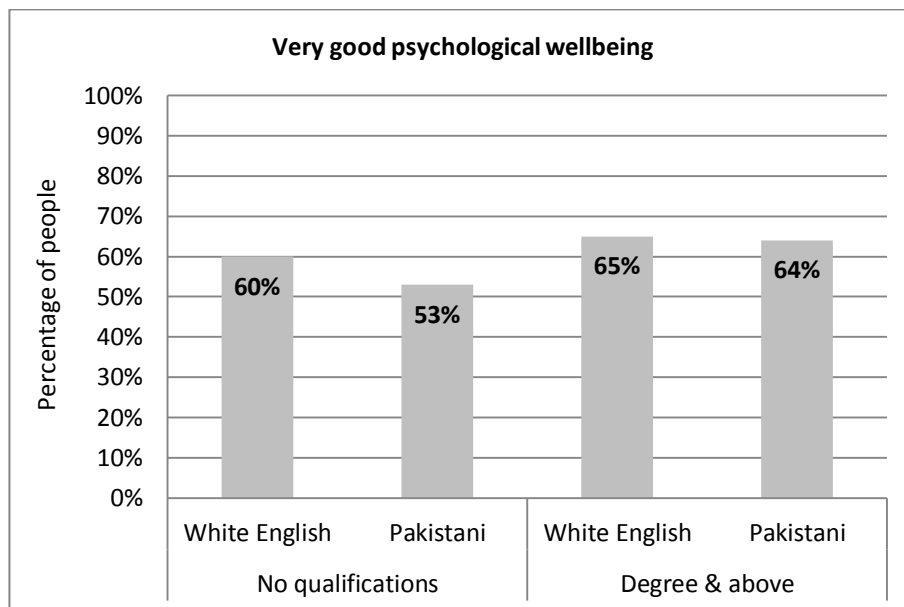
Figure 7.6 Visual model of themes underlying the intersection of gender and ethnicity in poor general health



7.4.2 The intersection of ethnicity and education in psychological wellbeing

The second quantitative finding to be explored in the interviews was the intersection of ethnicity and education level in psychological wellbeing reported for Pakistani and White English participants in the HSE 2004, illustrated in Figure 7.7 (derived from Graph 2B, Appendix C.9). The patterns of interest were firstly, the greater difference in psychological wellbeing between Pakistani and White English participants within the no qualification group compared to the degree or above group, and secondly, the greater difference in psychological wellbeing between participants with no qualifications and those with a degree or above within the Pakistani group compared to the White English group.

Figure 7.7 Prevalence of very good psychological wellbeing by education level and ethnic group (HSE 2004)



Notes: Data age standardised and combined for men and women.

The key themes to emerge from the informants' explanations for this patterning of psychological wellbeing included: racial discrimination in employment, the value and status of education, pursuing professional careers, joining the family business, and breaking free from the family.

7.4.2.1 Racial discrimination in employment

In explaining why differences in psychological wellbeing between Pakistani and White English people might be greater among those with no qualifications compared to those with a degree or above, both Pakistani and White English informants pointed to the racial discrimination

experienced by Pakistanis in employment. Institutional racism was most commonly cited, with examples of Pakistanis with no qualifications being less likely to enter employment than their White English counterparts.

I think it's probably racial discrimination again because I think most of the Pakistanis with no qualifications are probably on benefits, rather than the White English they might have still got some kind of jobs.

[Husna: British Pakistani, aged 18-29]

Julia, a White English woman aged 30 to 49, revealed how racial discrimination operated through employers rejecting job applications from people living in areas of Sheffield associated with ethnic minority populations and with high levels of deprivation. She described the difficulties faced by people trying to find employment and how they were left feeling 'nobody wants us from this area, you don't get through if you have got a postcode from here'. When asked what prejudice employers held against these areas, she commented: 'I think it's diversity, people are still colour prejudice, racial prejudice, and prejudice about the area.'

In addition to overcoming barriers in gaining access to employment, the types of work and working conditions open to Pakistani and White English people with no qualifications were perceived to differ. In Maysoon's explanation of the difference in psychological wellbeing between Pakistani and White English people with no qualifications, she described how 'it's a lot easier for a White English person to get a job literally anywhere, whereas like Pakistani ones are sort of limited'. Using work in a take-away restaurant as an example, she highlighted how Pakistanis were more likely to face poorer pay and working conditions than White English, thus leading to greater stress:

Therefore the jobs that [Pakistanis] would be getting would be a takeaway job which would probably be a certain fixed amount, you could do ten hours and just get £20. It'd be more stressful if you get what I mean. Whereas [White English] you'd get a standard wage say like £7 an hour for however many hours you do and if you was off sick you'd still get paid, whereas in the Pakistani sort of thing you probably wouldn't get that.

[Maysoon: Pakistani, aged 18-29]

Accounts of 'discrimination against ethnic minorities' in the work place were also seen to impact on psychological wellbeing for Pakistanis with GCSEs and A levels. Leena, a Pakistani woman aged 18 to 29, for example, described how 'ethnicity is a barrier in progression' for

Pakistanis with the same qualifications as White English. Speaking of promotion and access to better paid jobs, she commented: 'They're finding that while they've got the same qualifications as their White English partners, they've not got the same opportunities' which in turn 'impacts on their psychological wellbeing'. Unemployment and underemployment were also associated with poorer psychological wellbeing for people educated in Pakistan due to employers failing to recognise foreign qualifications.

The presence of direct racism in employment was less prominent in the informants' accounts of the differences in psychological wellbeing between Pakistanis and White English with no qualifications. Among the White English informants, however, the expression of 'stereotypical views' and lack of 'camaraderie' towards Pakistanis in the work place, despite being 'illegal', was acknowledged. In particular, it was suggested that Pakistani people with lower levels of education may be more exposed to racism due to the greater likelihood of working alongside 'less educated [White English] people who may behave in less thoughtful ways' than if working 'in a more professional environment'. Furthermore, the process of deciding whether to 'challenge illegal and inappropriate behaviour' was seen to impact on psychological wellbeing as 'a tension [Pakistanis] have to manage'.

The impact of racial discrimination in employment on psychological wellbeing for Pakistanis with no qualifications was perceived to manifest as a lowering of self-confidence. Julia described how the constant knock-backs in applying for jobs left Pakistanis living in deprived areas feeling 'well we're at the bottom of the table, going nowhere', which subsequently damaged their aspirations. For Nadira, differences in confidence between Pakistani and White English people emerged at a young age and were representations of belonging to an ethnic minority group compared to an ethnic majority group. She described how White English people with no qualifications had greater confidence because they were 'still able to do things with [their] life' and did not have to 'face racism' or 'face any cultural issues', unlike their Pakistani counterparts.

As a Pakistani woman, you know, talking about myself, I would say that if I didn't have any qualifications, I would feel like well... I'm quite... not that I feel inferior, but inferiority is, you know, subconsciously there anyway. So if you have no qualifications you're going to feel like, well you know, "I'm not really going to go anywhere or do anything, this is it for me". Whereas being White English, being in a, you know, "this is England, this is sort of my place of birth, my nationality, my country", erm, the levels of confidence, there is no inferiority there. So the level of confidence in a child is quite high anyway, compared to its Pakistani counterparts. And that's what I feel from, you know, sort of being in school and everything, or having to work *twice* as hard as somebody else.

[Nadira: British Pakistani, aged 18-29]

Nadira's account focuses in particular on Pakistani women's experiences of ethnic discrimination in the education system, which may be indicative of an intersection between gender, ethnicity, and education in psychological wellbeing. Further examples of the potential for systems of gender and ethnic discrimination to overlap are discussed in Section 7.4.5.3 on page 253.

7.4.2.2 The value and status of education

The second theme to emerge from the informants' perceptions of the intersection of ethnicity and education with psychological wellbeing concerned differences in how Pakistani and White English people value education and in the status they give to people who attain a degree. A perception held by some of the Pakistani informants was of education being more highly valued among Pakistanis than among the White English. The greater importance of education to Pakistanis was therefore seen to explain why having no qualifications might have a greater impact on their psychological wellbeing in relation to the White English.

Explanations as to why education may be valued more highly among Pakistanis included the cost of education in Pakistan compared to England. As illustrated in Amina's account below, people born in Pakistan may be less likely to take the opportunity of a free State education for granted than people born in England:

The only reason I'm saying Pakistani is it might be a little bit different because of the fact that sometimes when you have something you take it for granted don't you. And it's always, you know, in England for as long as I've known, education's been free. In Pakistan people are still paying for it and if you can't afford to go you can't afford to go, that's it, there's nothing. So I think yeh maybe they do value it a bit more than what White English would.

[Amina: Pakistani, aged 18-29]

Pakistanis were also perceived to 'worry about education' and 'value education more' due to their tendency to have 'high ambitions' and aspire to 'high profile' professions more so than the White English. Zaina, for example, described how a Pakistani child would typically want to be 'a doctor or engineer' when they grow up, whereas White English children might say 'I would like to clean windows' due to there being 'not much emphasis' put on professional careers. Based on this difference, Zaina explained how the unmet ambitions of Pakistanis with no qualifications might lead to poorer psychological wellbeing compared to their White English counterparts:

It's not necessarily that [Pakistani children] will end up being in that profession when they are old, but they would have those sorts of high ambitions. So if you're not able to achieve that ambition, that does have an effect on your, on the way you feel. If you're not able to achieve that ambition, that affects your health negatively and the way you see yourself, so that has a negative effect on you. And, so how you feel about it, I think that may be a difference.

[Zaina: Pakistani, born in Pakistan, aged 30-49]

The importance of education in the Pakistani community was also demonstrated in relation to the 'higher status' given to Pakistanis who attain a degree. Several of the Pakistani informants described how getting a degree was seen as 'a big achievement' in the Pakistani community, which in turn can increase that person's self-confidence. In explaining the greater difference in psychological wellbeing among Pakistanis with no qualifications and those with a degree, Habiba described how Asian degree-holders received greater respect in the community than their White English counterparts:

But [Pakistanis] do tend to be very proud that their children are educated now, so I can assume that obviously it rubs off on the individual, you know, 'I've got a degree, my prospects are better'. That boosts their confidence. And you see the difference between English and Asian people is that Asians get a lot of respect in the community. Our community tends to... they really say "Wow, go to her". You're seen as role models and you're really sort of... you know. Like they'll come to me any day or night, ask me to solve their problems or something, no matter what it is, because they've seen you're educated, so you can help them out. It's a big thing that attached to [education] with Asian communities.

[Habiba: British Asian, born in Pakistan, aged 30-49]

Habiba suggested that the importance of higher education to Pakistanis was a recent trend 'whereas before they were holding people back, now they're actually pushing them forward to get an education.' This change she explained was associated with improving marriage prospects: 'your chances of a good marriage if you've got a degree, you know, is a lot better than having no qualifications'.

The importance of higher education for Pakistanis was also recognised among the White English participants. Lucy, a White British woman aged 18 to 29, for example, suggested 'maybe it's a culture where everything is about those people who get a degree'. Similarly, Hannah, a White British woman aged 30 to 39, proposed that 'there may be some kind of meaning attributed to [having a degree] which means you're able to take up different positions in society, as perceived by the community.' By contrast, the benefits of having a degree for White English people were more contested. Several accounts described how graduates now face the pressures of student debt and the disappointment of leaving university with 'no guarantee of work', perhaps having to take 'under-graded jobs', or end up unemployed due to being 'too qualified'.

When you do a degree or above you have masses of debt, and degrees don't mean what they used to. So you come out with having a degree and you don't have an automatic job anymore. So I think actually people coming out with A levels probably have more realistic expectations and those are met, whereas people coming out with a degree are not.

[Lucy: White British, aged 18-29]

7.4.2.3 Pursuing professional careers

As mentioned in the previous theme, aspiring to high profile professional careers was perceived to be more common amongst Pakistanis than amongst the White English. When comparing the careers held by Pakistani and White English graduates, many of the informants also indicated that Pakistanis were more likely to have entered professional careers. Nadira, for instance, explained how in ‘the South Asian or Pakistani community, when you’re going into degree level and above, it’s very specific degrees to lead into specific careers’, for example, barristers, solicitors, accountants, and doctors. Similarly, some of the White English informants commented on the greater popularity amongst Pakistanis of careers in medicine and dentistry, reflecting differences in ‘family expectations and aspirations’ and a tendency to aim for ‘higher class and higher paid opportunities’. The perceived association between the pursuit of professional careers and high levels of psychological wellbeing was explained in terms of the sense of pride in having achieved a ‘highly respectable and highly reputable’ career and the ‘better income, housing, and health care’ such a career would provide.

By contrast, the pressure to pursue a professional career was considered to be less prominent within White English families. A wider range of degree courses were seen to be open to and taken up by the White English. However, the pursuit of degrees resulting in no vocational benefit was seen to impact negatively on psychological wellbeing as illustrated by Nadira:

Whereas White English, you have more choice available to you, you don’t have the parental pressures of you know, you have to be a doctor or you have to be a lawyer. So you get individuals doing degrees in media and art and creative subjects which don’t necessarily lead into, you know, the great high flying careers. So it might just be that the level of psychological wellbeing does take a dip because, you know, you’ve done all that work and you’ve been through all that hard work in university and debts and all the rest of it, and by the end of it you’re still no further forward than you were when you first started, so yeh.

[Nadira: British Pakistani, aged 18-29]

Similarly, Lucy commented on how degrees which are not vocational ‘can do nothing for you and almost be a waste of three years’ whereas the types of degrees chosen by Pakistanis would impact more positively on psychological wellbeing. In sum, the greater difference in psychological wellbeing between people with no qualifications and people with a degree among Pakistanis was considered to be reflective of the greater tendency for Pakistani graduates to pursue professional careers.

7.4.2.4 Joining the family business

Many of the informants raised the issue of joining the family business when explaining why Pakistanis with no qualifications or GCSEs and A levels might report poorer psychological wellbeing than those with degrees. Jameela described how in Pakistani culture ‘the tradition has always been to set up a business and then the family would carry on running that business because it’s a safe thing to do’. However, she went on to describe how ‘a lot of people feel sort of suffocated under this tradition because you’re not – it’s almost like we’re not allowed to break free and do what we want to do’. Similarly, Lucy described how the expectation to join the family business might leave Pakistanis feeling that they have no control over their future regardless of whether or not they have taken GCSEs or A levels:

Maybe if, even if you’ve got no qualifications, if your family own a business then you go into that business, even if you’ve got A levels, then maybe that makes no difference. Maybe it is a culture where you follow your family’s footsteps, whereas we don’t have that anymore and therefore [for Pakistani people] your psychological wellbeing in a sense would be less favoured by you having A levels because you don’t have choice over what you do with your future, because the A levels wouldn’t provide that choice.

[Lucy: White English, aged 18-29]

Within White English culture, expectations to join the family business were also described in the context of past generations. Julia, a White English woman aged 30 to 49, described how her father had his own business and it was expected that she would ‘follow suit and go into the family business or stay at home’.

In contrast to the accounts above, involvement in family businesses and self-employment were also seen to be beneficial to psychological wellbeing for Pakistanis with no qualifications. For instance, Ameera, a Pakistani woman aged 30 to 49, contended that ‘you don’t necessarily need qualifications to run a successful takeaway or to have your own business’. The prevalence of self-employment among Pakistanis was perceived by both White English and Pakistani informants to reflect the greater ‘sharing of finances and wealth within the Pakistani community’. Habiba, for instance, described how Pakistani families would enable their sons and grandsons without qualifications to open their own businesses by offering financial support:

I think there's a lot of support, family support in Asian communities. Whereas I think with White people they don't tend to do that, do they? You go and make it and do it out alone, individual, independent. Whereas here they'll say "No, come on, we'll support you. Get your Uncle to support you, get your Aunt to support you, your grandparents. Let's find the money from somewhere and we'll set you up, and then it's up to you, you're on your own". Even when they get married they say "Right we'll buy you the first home, set you up". So you've got the support mechanisms around you.

[Habiba: British Asian, born in Pakistan, aged 30-49]

7.4.2.5 Breaking free from the culture

Breaking free from the culture was the final theme to emerge from informants' explanations as to the greater difference in psychological wellbeing between Pakistanis with no qualifications and those with a degree or above. Specifically, higher education was described as 'a way out of the family environment' for Pakistanis. Louise, a White British woman aged 30 to 49, explained how Pakistanis with degrees would have better psychological wellbeing because 'their education gives them independence from the family that they might not be able to afford otherwise'. Speaking of Pakistani women in particular, Habiba described how going into higher education can benefit women psychologically in opening up new opportunities:

Like if you go into higher education, [Pakistani women] can be more Westernised. And I think if they do get an education, they do quite well. It does have a difference on their outlook and on their whole family life, because they'll want to go out and achieve, they'll want to go out and have a job, so the employment is a lot better. If they've got a job, they can break away from the culture.

[Habiba: British Asian, aged 30-49]

Similarly, Jameela, a Pakistani woman aged 18 to 29, remarked how most members of her own family had not been to University but were 'part of the family business and trapped under the culture'. She described how it was only now that 'the girls that have actually said no actually we want to go to University and do something different, because if we don't we're not part of the family business, we'll just sit at home.' She explained how getting a degree was perceived in terms of 'breaking free [to] do what we what to do'.

Notably, the insights presented above in relation to breaking free from the culture and in the previous theme of joining the family business, point to a potential a three-way interaction

between gender, ethnicity, and education. Specifically, the association between psychological wellbeing and joining the family business for Pakistanis with no qualifications was perceived to vary by gender. In particular, Pakistani men with no qualifications were seen to benefit psychologically from the opportunity to go into the family business or receive financial support from the family to set up their own business. By contrast, the expectation to join the family business was perceived to be detrimental to the psychological wellbeing of Pakistani women with no qualifications, due to the likelihood of having to stay at home rather than having an active role in the business. For Pakistani women, the opportunity to continue in education was therefore seen to offer greater choice and opportunity in gaining employment outside of the family business.

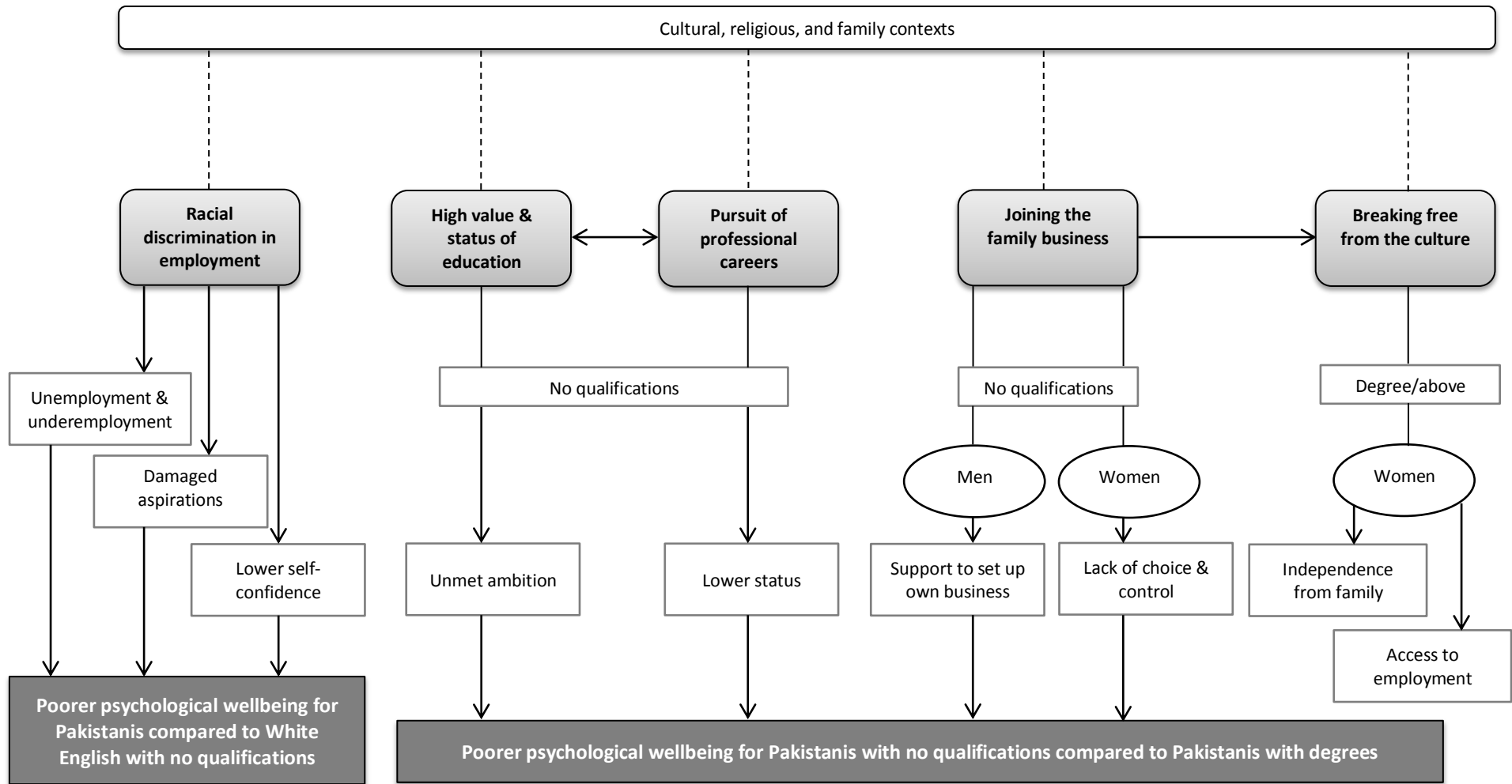
7.4.2.6 Section summary

A summary of the themes described above is presented in the visual model in Figure 7.8. As shown on the left side of the model, racial discrimination was the key explanation given for the poorer psychological wellbeing reported by Pakistanis with no qualifications relative to their White English counterparts. Specifically, the consequences of racial discrimination against Pakistanis with no qualifications included unemployment, underemployment, damaged aspirations and lower levels of self-confidence, which in turn were seen to lead to poorer psychological wellbeing.

The model also illustrates the relationships found between psychological wellbeing and the high value and status attached to education and professional careers in Pakistani culture. Whilst these values were seen to be highly beneficial to the psychological wellbeing of those who succeeded, they were also seen to impact negatively on the status and psychological wellbeing of those unable to meet such aspirations. Interestingly, having less pressure to pursue degrees leading specifically into professional careers was associated with a greater risk of poor psychological wellbeing among White English people.

The right-hand side of the model then depicts a possible three-way interaction between gender, ethnicity and education, whereby the psychological wellbeing of Pakistanis with no qualifications in joining a family business was perceived vary by gender (as illustrated by the ovals for men and women). Whilst Pakistani men were considered to benefit from this opportunity, Pakistani women were seen to be less likely to receive the same opportunities and therefore find greater rewards in pursuing further education.

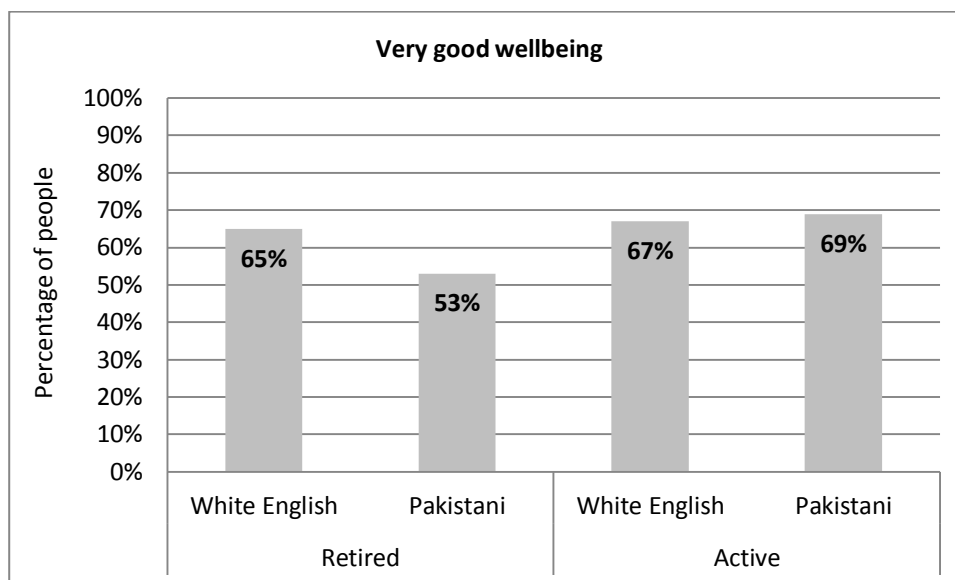
Figure 7.8 Visual model of themes underlying the intersection of ethnicity and education in psychological wellbeing



7.4.3 The intersection of ethnicity and economic status in psychological wellbeing

The last quantitative finding to be explored in the interviews was the intersection of ethnicity and economic status in psychological wellbeing for Pakistani and White English participants in the HSE 2004. Focusing on the findings for the retired and active groups, Figure 7.9 (derived from Graph 3B, Appendix C.9) shows that the difference in psychological wellbeing for Pakistani and White English participants was greater within the retired group than within the active group. In addition, the difference in psychological wellbeing between retired and active people was greater within the Pakistani group than within the White English group.

Figure 7.9 Prevalence of very good psychological wellbeing by economic status and ethnic group (HSE 2004)



Notes: Data age standardised and combined for men and women.

Explanations for this patterning in psychological wellbeing revealed the following key themes: retirement from a Pakistani perspective, retirement from a Western perspective, availability of pension funds, family responsibilities, and community engagement.

7.4.3.1 Retirement from a Pakistani perspective

The difference in psychological wellbeing between retired Pakistani and White English people was explained by many of the informants to reflect a difference in the 'ethos' and 'concept' of retirement as perceived by Pakistani and White English people. Retirement from a Pakistani perspective was associated with a loss of identity and purpose for some informants. Amina, a

Pakistani woman aged 18 to 29, for example, described how Pakistani people sometimes ‘feel depressed and down’ when they retire ‘because they think they haven’t got a role in society anymore, so they don’t really know what their role is’. For Leena, this sense of loss was felt more acutely among retired Pakistani men:

In the Pakistani community, it’s like you work until the day you die if you can, because it’s a symbol of, I think especially for men, it’s a symbol of your masculinity, that ability to provide and that ability to be the bread winner. I think once that’s taken away it’s kind of like a part of their identity is lost.

[Leena: British Pakistani, aged 18-29]

Maysoon, a Pakistani woman aged 18 to 29, also highlighted the importance of working life for Pakistani people. She described how ‘their sort of peak is when they’re actively working as Asians because you cram everything in’. By contrast, she remarked that ‘when Asians retire they literally do nothing. They don’t go out on holidays or stuff. It’s all about sleeping and eating and that’s it’.

The younger Pakistani informants frequently depicted retired Pakistanis to be ‘sitting at home’ and ‘wanting company’. Amina described how retired Pakistanis ‘don’t really take part in any hobbies’ which she believed would help them ‘to relax and not be stressed’. Similarly, Ameera, a Pakistani woman aged 30 to 49, suggested that a retired Pakistani couple would be ‘getting on each other’s nerves and staying in a lot of the time’, rather than ‘going out walking in the Dales’. These sentiments were echoed by Asma, a retired Pakistani woman (born in Pakistan), who described how ‘Pakistani people tend not to be bothered when they retire, whereas White English people do like to do other things in their own time’. Shirin, also of retirement age, explained how working and having a busy life helped her to stay well, whereas sitting at home made her feel poorly:

I like work. I don’t like to sit all the time, make dizzy, make poorly. When you working, you know, health good, everything good. And I don’t stop in home just cleaning, cooking a little bit. I make busy in life. Better this time. When you no make busy life, you thinking too much, understand.

[Shirin: born in Pakistan, aged 50+]

7.4.3.2 Retirement from a Western perspective

Many of the Pakistani informants contrasted ‘Pakistani’ perceptions of retirement against a ‘Western perspective’ of retirement. Typically, retired White English people were depicted as enjoying a life of independence and leisure. As illustrated by Leena, retirement was seen to be a time in life that White English people work towards and look forward to:

I think retirement and giving up work in the West is seen in a totally different light as it’s seen in sort of South Asian communities. I think from a Western perspective it’s something you look forward to. You know, “I’ve done my bit, I’m going to chill out now, I’m going to look after the grandchildren, maybe do a spot of gardening, buy a holiday home”. But it’s like your time to take it easy because you’ve earned it.

[Leena: British Pakistani, aged 18-29]

Similarly, Zaina perceived White English people to be feeling ‘happy because they’re independent, they’re retired, they can go wherever’. She also highlighted how it was acceptable in White English culture for a widow to ‘still have a life of their own’ or meet a new partner. By contrast, she described how the ‘stigma’ in Pakistani culture associated with ‘getting involved with someone else’ after a spouse passes away, could lead to that person having ‘a lack of friends, lack of any meaningful activity in [their] life’.

The perception of independence in retirement was also conveyed in the accounts of the White English informants. Cathy, a British woman aged 50+, for instance, observed how ‘White retired people are autonomous really, they’re on their own and they actually quite enjoy being on their own’. Similarly, Doris, a White English woman of retirement age, asserted ‘we can do what we want when we’re retired, we can go out when we want, stop in when we want, look after ourselves nicely’.

The Western perspective of retirement was in general expressed as ‘the luxury part of your life that you look forward to’ and associated with positive psychological wellbeing. However, the risk of ‘feeling lost’ after a life of work was perceived to affect retired White English and Pakistanis alike. Julia described how retirement could bring ‘quite a lot of fear’ among people used to having ‘a direction and something to do’ in their life. For Fatima the transition into retirement was very much dependent on the individual as illustrated below:

Some people might want to be retired and might want to stop working and travel around the world, whereas other people feel a bit lost don't they when they retire. They feel a bit like something's missing, they've got to get up in the morning and they can't get used to staying at home because they've had that routine practically all their life. So it just depends on each person I think.

[Fatima: British Asian, aged 30-49]

7.4.3.3 Availability of pension funds

Availability of pension funds was a recurring theme identified in the informants' accounts as to why psychological wellbeing might be lower among retired Pakistanis compared with their White English counterparts. Income levels in retirement were considered to be far lower among Pakistani people than White English people due to their disadvantaged position in the labour market and their shorter period of residence in England. As such, retired Pakistanis were commonly perceived to have held 'lower ranked' and lower paid jobs such as 'factory workers', 'steel-workers' or 'taxi drivers' and to most likely be living off a state pension alone.

I'm thinking maybe because the White English retired people, they had better jobs and they've got a better pension. Whereas the retired Pakistanis in this country are probably all, most of them, ex-steel workers and, you know, a very low pension and not much money coming in.

[Ameera: British Pakistani, aged 30-49]

Our retired people in this country would be on state pension rather than the private pension, because I don't think there's been that many been here that long to have got a private pension. So that does affect the kind of lifestyle you lead.

[Habiba: British Asian, aged 30-49]

Relative to receiving a state and private pension, surviving on a state pension alone was perceived to considerably restrict 'the ability to do anything once retired'. Explaining the lower psychological wellbeing reported among retired Pakistanis, Nadira highlighted how this 'economic difference' lead to 'a difference in what you can afford and how you can afford to live'. To illustrate, she described how a 'Pakistani factory worker' may find themselves living in a 'small terraced home within a congested community', whereas a 'White English bank manager' would 'sell everything off and move into the countryside or jet off to Spain or France'. The 'greater retirement funds' available to the White English retired were therefore

seen to provide a better standard of living which in turn increased their psychological wellbeing:

White English people, when you've retired, generally speaking you would have a good pension pot behind you. Erm, you know, you would be in a good economic situation to be able to retire and do all the things you want to do, which is sort of holidays or voluntary work or pottering around the garden. So that will kind of help with your wellbeing as well because you're taking time off for yourself after having worked for all those years.

[Nadira: British Pakistani, aged 18-29]

Among the White English informants, perceptions of relative affluence for the retired White population were also expressed. However, the economic position of the White English retired varied between the White English informants. Doris, for example, asserted that 'we are better off than pensioners have ever been' but added 'we could do with a bit more money'. For Hannah, the association between income and psychological wellbeing in retirement was more a reflection of security than income *per se*.

I think the retired people I know, whilst they may be economically inactive, they've reached a position of some sense of financial security. So even if they don't have a huge amount to live off, they know that they have it. So perhaps there's more a sense of control over their fate, economically.

[Hannah: White English, aged 30-49]

7.4.3.4 Family responsibilities

The difference in psychological wellbeing reported between retired Pakistani and White English people was also connected to family responsibilities. In particular, the responsibilities of providing financial support and of caring for grandchildren were two key issues perceived to explain the poorer psychological wellbeing reported by retired Pakistanis. With respect to the former, the expectation to provide substantial financial support to sons and daughters was perceived to be considerably greater within Pakistani families than within White English families, as discussed in Section 7.4.2.4. The continuity of this provision into retirement, however, was described as a 'huge burden' for Pakistani men in particular, as illustrated in Jameela's account below:

There's a lot of money issues that are always there with Pakistani men especially. It's a cultural thing to take care of all the family. So it would be the daughters and sons, you have to help them buy a house and help them move out. That's a huge burden. And then especially when you've retired, if you've still got like a daughter or a son left to marry off, those responsibilities.

[Jameela: British Pakistani, aged 18-29]

Caring for grandchildren was another 'stressful' family responsibility linked to lower levels of psychological wellbeing among retired Pakistani women in particular. Fatima, a British Asian woman aged 30 to 49, for example, suggested that the retired 'haven't got very good wellbeing' because their time is taken up with 'looking after their grandchildren while their son, daughter's working'. White English women, by comparison, were not perceived as having the same role and therefore better able to 'maintain their fitness' in retirement. Similarly, Cathy, a British woman aged 50+, described how 'retired Pakistani people are sometimes living with the family' and indicated how 'having all your grandchildren round' could lead to poorer psychological wellbeing, whereas 'White retired people are autonomous' and 'actually quite enjoy being on their own'. However, as revealed in Linda's experiences as a grandparent this pattern was not true of all retired White English women:

I've got two grandchildren to look after, so I've started again as a grandparent. Yeh it does annoy me, it gets me down because I've got kids to look after and I think, I'm retirement age for goodness sake, I should be thinking about having a little part-time job and getting meself out and me and me husband going different places.

[Linda: White English, aged 50+]

7.4.3.5 Community engagement

The final theme to emerge from the informants' explanations of the poorer psychological wellbeing reported by retired Pakistanis compared to their White English counterparts concerned differences in community engagement. As highlighted in the theme, retirement from a Pakistani perspective, Pakistani people were perceived to spend more of their time 'sitting at home' than White English people, in retirement. The current theme explored whether this pattern was associated with fewer opportunities for retired Pakistanis to engage in community activities compared to their White English counterparts.

Several of the Pakistani informants suggested that the poorer psychological wellbeing reported

among retired Pakistanis might stem from a lack social activities available within their local community. Safia, a British Pakistani woman aged 30 to 49, for example, commented that ‘I don’t think we as a Muslim community here are socially [active] – there’s nothing for us to go out and socialise in, there’s no organisations’. Likewise, Habiba, a British Asian woman (born in Pakistan) aged 30 to 49, noted that compared to the ‘White community’ very few activities were available to the ‘BME community’². She explained that whilst a few activities had started up in the local Pakistani community centre, these were ‘for the men, there isn’t anything for the women as such at the moment’. Furthermore, she stressed that whilst retired White English women actively participate in luncheon clubs, knitting classes and so on, ‘language and other barriers’ prevent retired Pakistani women from taking part.

Opportunities for Pakistanis to engage in community activities were also perceived to vary between residential areas. As revealed in Safia’s account, communities located in more deprived areas of Sheffield were likely to have fewer amenities and activities available:

I mean this is like... the poorer area, more where, you know, things get left behind. [Resources] are lacking here. There’s nothing here, there’s just a main road and we’re stuck in it. There’s nothing much happening. But if you go down into another area, another postcode, there’s a lot of amenities and people do get out and about. There might be activities going on there, you might see women going. So it’s all to do with being socially active as well isn’t it and economically as well. The money gets spent where it’s already been spent and not where it should be spent.

[Safia: British Pakistani, aged 30-49]

This lack of opportunity to engage in social activities was perceived by the informants to lead to retired Pakistani people ‘feeling isolated’ and ‘depressed’. Habiba, for example, highlighted the need for more social interaction in order to improve health and wellbeing among retired Pakistanis.

You need more social interaction, you need more things like [basket weaving classes] that to get them working together, improving their health, because it’s deteriorating. There’s more and more people with mental health issues now than ever before, getting depressed because they’re stuck at home, stuck in a rut, not meeting people, thinking their life’s sort of completed, finished.

[Habiba: British Asian, aged 30-49]

² BME: Black and minority ethnic.

Similarly, Nadira emphasised how ‘more access to women’s activities in communities’ was needed to improve women’s health and wellbeing:

I think it’s really important to get [Pakistani] women out of the house and to interact and not always Pakistani to Pakistani, but interact within different communities and have the interaction. Because I strongly believe that if you step out of the house and step out of your situation it does take your mind of a lot of your problems.

[Nadira: British Pakistani, aged 18-29]

Community life was perceived to be particularly difficult for people born in Pakistan who may have wanted to spend their retirement living in Pakistan rather than England. Hannah, a White British woman aged 30 to 49, for example, described the situation of an elderly Pakistani couple who were brought over to England to live with their children. She described how they spent most of their days at home alone whilst their children were out at work. She explained how, relative to a White English couple, they may experience more isolation living in a country where they cannot speak the language and being cut-off from previous social connections in Pakistan. Poor psychological wellbeing was also explained in terms of first generation migrants wanting to return home to Pakistan to retire. Jameela spoke of her grandfather’s desire to return home to Pakistan and indicated how financial constraints may prevent many Pakistanis from being able to return:

I know my granddad, he’s still here and one of his foot’s still in Pakistan and the other one of them’s here – they can’t completely let go. So I think a lot of people that have come from Pakistan, I think they probably would like to move back, most of them, if they could afford it.

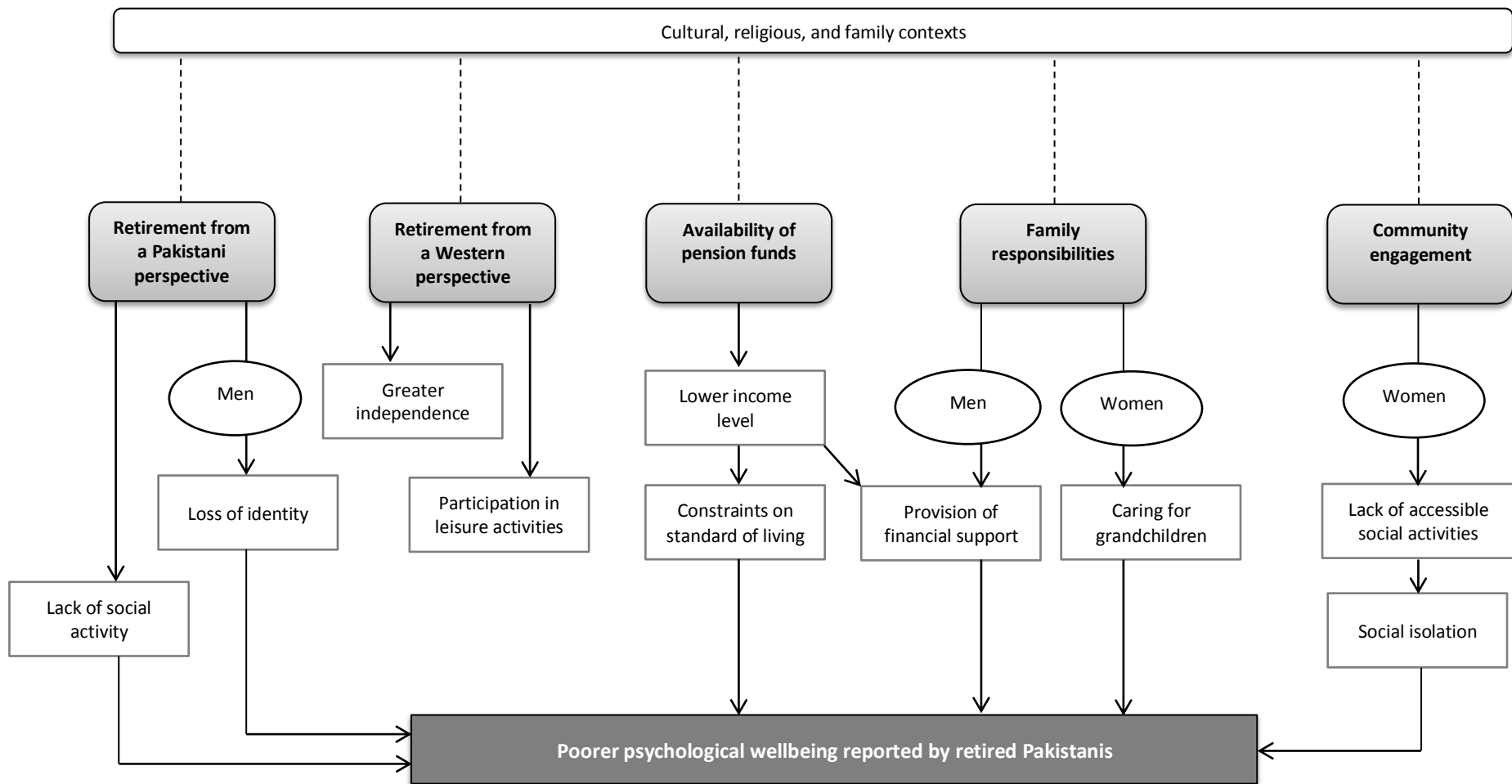
[Jameela: British Pakistani, aged 18-29]

Differences in community engagement were also highlighted in the context of retired life in England compared to retired life in Pakistan. Zaina described how in Pakistan ‘a retired person is like a granddad of everybody in the street’. They spend their day sat outside their house looking after children and running small errands for family and neighbours. These responsibilities enable them to feel important and valued. By contrast, she explained how in England ‘because of the weather you just can’t sit outside’, therefore ‘that sort of activity is missing here.’ She concluded: ‘I don’t think there’s no life [for] old people here, you’re just bound in your own home.’

7.4.3.6 Section summary

Figure 7.10 provides a summary of the key themes identified from the explanations for poorer psychological wellbeing among retired Pakistani people relative to their White English counterparts. The model highlights how gender emerged as a relevant factor in several of the themes. For instance, Pakistani men, who throughout their working life fulfilled the role of the family bread winner, were seen to be more at risk of feeling a loss of identity in retirement than Pakistani women. Similarly, the provision of financial support for the family was also seen to place a greater burden on retired Pakistani men than women. Conversely, the responsibility of caring for grandchildren was an issue more commonly associated with retired Pakistani women than men. Furthermore, access to community-based social activities was seen to be more restricted for retired Pakistani women than men. The intersection of gender, ethnicity and economic status was therefore a prominent recurring feature in the informants' accounts of inequalities in psychological wellbeing between retired Pakistani men and women and their White English counterparts.

Figure 7.10 Visual model of themes underlying the intersection of ethnicity and economic status in psychological wellbeing



7.4.4 Locating intersections within changing sociocultural contexts

The next stage of the qualitative analysis was to explore the sociocultural contexts within which informants framed their understandings of intersections of gender, ethnicity, and SEP in health. As illustrated in the sections above, explanations as to how and why these intersections might exist frequently made reference to the roles, responsibilities, expectations and norms associated with Pakistani and White English society, culture, community, and family life. An important and interesting feature to emerge from the analysis was the changing nature of these sociocultural contexts. In particular, comparisons were often made between the gendered roles and responsibilities of past and present generations. Contrasts were also drawn between the norms and expectations associated with traditional and current representations of Pakistani and English life.

The findings presented in the following sections aim to reveal the underlying tensions of lived experiences within a changing social environment. Focusing on the intersections of gender and ethnicity in health, the analysis explores how tensions within and between gender roles and tensions experienced at the intersection of different cultures were perceived to influence Pakistani and White English women's health.

7.4.4.1 Tensions between and within gender roles and responsibilities

A common perception held both by Pakistani and White English informants was of a deterioration in women's health over the last 60 years due the greater pressures placed on women today to fulfil multiple roles and responsibilities at home and at work. Ameera, a Pakistani woman aged 30 to 49, for example, described how for previous generations of women it was acceptable to 'have children and stay at home, look after the children and have their husbands go out to work'. By contrast, she highlighted how in today's society, the role of housewife is looked upon 'with a bit of scorn'. Instead, women are expected to 'have children and go back to work and be torn between the children and having a career'. Similarly, Leena emphasised the impact on women's physical and mental health resulting from society's expectation of women today 'to have the full package' whereas 50 years ago expectations stopped at being 'a good mum and a good wife':

I think there is that added pressure and I don't think it was present in previous generations where maybe in like the 40s, 50s and 60s where women's role was around the house and if you were a good mum and you were a good wife that was it. But now I think it's gone beyond that. There's that expectation there to sort of be a career woman as well as that and then juggle roles. And I think that eventually does impact your health, because you're maybe spreading yourself too thinly. If you're going to have a good job it can be quite stressful, and balancing that with being a full-time mum maybe, and keeping a household running. Physically and mentally it impacts you.

[Leena: British Pakistani, aged 18-29]

Clare, a White British woman aged 30 to 49, related the change in attitude towards women's roles and responsibilities to the second-wave feminist movement: 'I don't think the set in the 1970s – the burn your bra movement – did us any good really, because now we're expected to do everything'. She remarked on how the role of the stay-at-home mum was now seen as 'such a secondary drudgery job' and 'just something to be done while you're trying to keep the other three balls in the air'. She added that women today feel pressured to 'go out and have a job and prove that they're doing everything'.

Habiba described how attitudes towards Pakistani women entering the work force had changed dramatically across generations of Pakistanis living in England:

It sounds awful, but the older generation, I don't think they even knew what fun was. They were not allowed to have fun and go out. I think their sense of relaxation or socialising was going shopping and that was about the highlight of their life really. But that was the first generation. The second generation's slightly improved in a sense. We broke all the rules to go and work. If we were from a modern sort of family, they allowed us to do that and allowed us to get an education. But we were frowned upon by the local community, "oh look at her going out to work, she's not supposed to". I think it's those kind of things that hold people back. It gets you depressed. But now the third generation, their parents are actually encouraging them to go out and get a job, do what you want, within limits and things. So it has changed a lot.

[Habiba, British Asian, born in Pakistan, aged 30-49]

Despite this transition in Pakistani culture, Ameera highlighted how perceptions of Pakistani women from past generations were used to stereotype Pakistani women of today:

I think Pakistani women are still thought of as ignorant and down-trodden and powerless because our mothers and their generation, they were the housewives, they did stay at home, they did let the husbands make the decisions because that's what everybody did at that time. Because that's gone on for so long I think people expect young Pakistani women to have that burden on them as well.

[Ameera: Pakistani, aged 30-49]

For Pakistani and White English informants alike, the extension of women's roles from the domain of the family home into the work place was accompanied by increasing tensions around the responsibilities of work and childcare. Doris, a British woman aged 50+, for example, described how women face discrimination in both domains: 'If you're in a high-powered job you get played hell with and if you're at home looking after the husband and children you can get played hell with. There doesn't seem to be a happy medium.' Similarly, Jameela, a Pakistani woman aged 18 to 29, described the contradictory positions of working life and motherhood for Pakistani women: 'It's almost like we are encouraged to be independent and do something, but as soon as we have children, really you won't expect the man to stay at home.' Further examples from both Pakistani and White English informants highlighted the tension in attitudes towards working mums and stay-at-home mums and the ensuing psychological pressures of being in a 'no-win situation':

There's a lot of tension in the female role because if women choose not to have children, there's a lot of queries about that. If women choose to have children and work, there's queries about that. If women choose to have children and not work, there's queries about that. So it's almost as if well whatever you do you can't win. So that's a psychological pressure coupled with the sort of financial pressure.

[Hannah: White British, aged 30-49]

Well I think it's a no-win situation. It's like the mums that do have kids and they just put them into like nursery and go to work, people would see that as a bad thing. She's working long hours and the kids need her and she's not with them. Yet if there's a mum staying at home, they'd be like, "she's supposed to be out there working". So really it's like what do you want us to do?

[Husna: British Pakistani, aged 18-29]

In contrast to the significant expansion in women's roles beyond the sphere of the home, changes in the male role were seen to be minimal and unlikely to impact negatively on the health of men. Many of the informants described how men continue to 'be seen as the providers', going out to work and being 'the breadwinner' for the family. Housework and childcare, by comparison, were perceived to remain as primary responsibilities of women within both Pakistani and White English cultures, as illustrated by Habiba:

I know we're tending to move toward men are doing a lot more around the house, whether that's Asian men or English men, they're doing a lot more than they ever did in the past. But I think culturally, in both societies, it's still seen as, it's still the women's role – shopping or anything like that I mean "she's more organised, you're more organised, you do this" and it still takes time, thinking, doing things, preparing things, whether it's meals or whatever, and it's a whole... And you do have house husbands but, you know, where wives go out to the work, I still think that's in the minority.

[Habiba: British Asian, aged 30-49]

Similarly, Linda, a White British woman aged 50+, stressed that 'there's very minor few [men] that will do that and muck in with the household chores and everything. But the majority of men will always be "you're the female, you look after it".' Comparing past and present generations of men and women, Linda also described how today women are 'more on the go' and 'men are getting more idle, sitting back' whereas 'one time it was opposite way round completely, it was more women was at home, more men was out grafting'. Thus overall, the recent changes in gender roles were perceived by the informants as having a harmful effect on the health of women, but a potentially beneficial effect on the health of men.

7.4.4.2 Being caught between cultures

The experience of living as a British-born Pakistani in England was for some informants likened to living amidst a clash of cultures, which in turn created a complex and transformative sense of ethnic identity. Speaking of her own experience, Maysoon, aged 18 to 29, explained how 'You don't know where you're from to be honest with you. Like myself, you've got values and traditions of somewhere you've not really been or experienced and the world that you live in is totally different to the one your parents or grandparents were born. You've got that culture sort of clash'. Jameela also spoke of the tensions of living between cultures and emphasised how this could impact negatively on psychological wellbeing:

I think [discrimination] comes from the family and from the community, like the actual Pakistani community. ...It's really hard living in two cultures. It's almost like you feel torn apart and it's like you don't know what you're doing anymore, you don't know who you are, it's really hard. ...If you have very strong views ...it almost feels like people, the family, or society are trying to sort of keep me quiet and push me down and it's really hard to be yourself. ...It feels like it's the culture that pulls you down. So it's like the Western culture with the Pakistani culture that's clashing. And the religion and the actual Pakistani culture itself clashes. So it's like a huge clash.

[Jameela: Pakistani, aged 18-29]

This view was not, however, shared by all British-born Pakistani informants. Safia, for instance, expressed a strong sense of identity as a 'British-born Muslim'. Being born in Britain she emphasised how 'this is our society, this is the way we're brought up, whether I'm talking to a British White person or a British Muslim, we don't see that, this is our culture'. By contrast, she described how a sense of difference may be more apparent for a Pakistani Muslim coming to England, who 'will come in and first of all put that barrier up'. Similarly, Husna, a British Pakistani woman aged 18 to 29, commented that Pakistan-born women may 'find it really hard' adjusting to life in England and explained how some of the 'middle-aged Pakistani women have just not got used to it'. By comparison she described how 'someone like myself who's born here, I just know what it's like, I'm sort of in the middle, I know what I need to do.'

The experience of being caught between cultures was also identified in connection with the increasing incidence of discrimination towards Muslim women living in England. Several of the Pakistani informants spoke of the religious intolerance directed at women wearing Muslim dress in the work place. Habiba, described how the current focus of attention was on women wearing the niqab (a veil which covers the face). She explained how this form of prejudice was inhibiting Muslim women from going out to work and having a detrimental impact on their confidence and right to express their religious beliefs:

It was Pakistani women at one time, but now Muslim women in general, they've got all sorts of discrimination going on, I mean with the latest niqabs and things at the moment. More women are going backwards into 'we might as well stay at home then because of the working environment'. It's only the ones that are not wearing the niqab, they do go out and they're having to work longer and they're having to give up their beliefs. There's a lot of them, they want to belong – they're caught in the culture, the cross-culture. Whereas before they'd stand up "this is what I am, this is my identity". But now they're frightened, "What's going to happen? What is the use going through all that?" How tough can you be to continue with that.

[Habiba: British Asian, aged 30-49]

Many of the younger Pakistani informants also expressed the view that women who wear the hijab (headscarf) or niqab would be more likely to face discrimination when entering employment. Nadira, a British Pakistani aged 18 to 29, suggested that if she was 'someone who wore a headscarf and covered from head-to-toe' she probably wouldn't be doing the job she does today. Similarly, both Husna and Maysoon felt that Muslim women who wear the headscarf would be less likely to succeed in a job interview compared to women who chose not to wear Muslim dress, or women of other religious backgrounds:

If like I went for a job and another Muslim lady went for the job and she had a scarf on, the chances are I'd probably get the job, cost I haven't got one on. So it's not alienating me from the rest of the population. So I think yeh, I think people do discriminate quite a bit.

[Maysoon: Pakistani, aged 18-29]

So if you're sort of Muslim and you go for a job with a headscarf, you're less likely to get it than if you are say Hindu or something. It's just a personal thing.

[Husna: British Pakistani, aged 18-29]

Discrimination towards women wearing Muslim forms of dress was closely associated with a sense of pressure to dress in a more 'Westernised' style. Nadira, for example, commented: 'I think sometimes you're forced to assimilate and become one of them'. She explained how Pakistani women who do 'assimilate into the society' and wear more Western business attire are less likely to experience discrimination than 'women who are closely guarding their culture and their religion'. This view was reflected in Habiba's observation that more Pakistani women

would now ‘go to work in their Asian clothes, they’ll take some jeans or something in the boot of the car and they’ll get changed in the toilets’.

In contrast to the prejudice towards women wearing Muslim dress, further tensions were revealed around Muslim women wearing more Westernised dress. Fatima, for example, spoke of discrimination towards women within the Pakistani community itself. She suggested that if you’re a Pakistani woman and ‘you wear English’ and ‘if you haven’t got your headscarf on’ then people will say “oh she’s a bad Muslim” and “she wants to be English”, whereas those that wear the headscarf are ‘seen as goddesses’ and considered to be ‘better Muslim women’ because they are adhering to Islam.

The tensions present between White English culture and Muslim culture were perceived by some of the informants to stem from the wave of ‘anti-Muslim, anti-Pakistani people stereotypes’ that emerged after the al-Qaeda terrorist attacks on the United States in September 2001 and on the United Kingdom in July 2005. The power of the media was recognised as the driving force behind these stereotypes, as illustrated by Maysoon:

Because obviously with like how the media sort of hypes up fundamentalists, it’s a minority not the majority that are giving people a bad name. For example, the first words a Muslim says when they see a Muslim or a non-Muslim is “as-salamu ‘alaykum” which means peace and blessing be upon you. In like the Qur’an and stuff it states that if you kill one human being is like killing the whole of humanity. But there are people who are twisting certain verses and stuff trying to favour it into their own ways. But it’s like giving the rest of the Muslims a bad name.

[Maysoon: Pakistani, aged 18-29]

Similarly, Hannah described how ‘there are ridiculous and damaging stereotypes being perpetuated all the time’ in the British media against Muslims, Pakistani women and women in general. She referred to a programme series aired on BBC Radio 4 which portrayed ‘the Muslim community’ as a homogenous social group rather than recognising ‘there’s lots of different people, who have lots of different views and positions and beliefs within that sort of grouping’. Furthermore, she described how ‘the media sort of wheels out these things about Pakistani women are repressed and they have to wear these clothes, have to do this and that’.

7.4.4.3 Section summary

Two key themes were found to emerge from the analysis of contextual factors used by informants in framing their understandings of intersections of gender and ethnicity in health. The first theme conveyed the tensions experienced by Pakistani and White English women alike, in their adaption to changing gender roles and responsibilities. The second theme captured the pressures placed on Pakistani women living in England in navigating between different cultures, religions, and identities, often in the face of varying forms and sources of discrimination.

7.4.5 Understandings and experiences of intersectionality

A further objective of the qualitative analysis was to examine the informants' understandings and experiences of intersectionality. To meet this objective, the analysis sought to identify firstly, whether categories of social identity such as gender, ethnicity and SEP were perceived to be interdependent or independent; secondly, whether examples of intersecting social identities featured in the informants' own accounts; and thirdly, whether wider social structures and systems of discrimination were seen to create and shape intersecting social identities.

The informants' understandings of intersectionality were captured predominantly through the presentation and exploration of the three intersections identified in the quantitative analysis, and more explicitly using a direct question towards the end of the interview. This question, as illustrated below, endeavoured to identify whether informants perceived social identities to have independent or interdependent effects on health and wellbeing:

We've looked at how there might be different patterns in health and wellbeing depending on if you're a women or a man, or if you belong to different ethnic groups, or if you belong to different socioeconomic positions. Do you think those factors, gender, and ethnicity, and socioeconomic position, do you think they have separate effects on people's health and wellbeing or do you think those factors all combine together to affect people's health and wellbeing?

7.4.5.1 Independence or interdependence

In response to the question outlined above, all but two of the informants asserted that social factors have combined rather than separate effects on health and wellbeing. Cogent understandings of the intersectional nature of social inequalities in health and wellbeing were revealed in the language and imagery of the responses given. Many of the informants described

how gender, ethnicity, and SEP ‘interlink’, ‘interact’, and ‘intertwine’ to influence health and wellbeing. Zaina, for example, highlighted the interdependent nature of social factors, describing how they ‘interrelate’ and cannot be treated as having separate effects:

If I talk about myself I think that everything together would have an effect. Because you can't really separate things, you can't really have, ok fine this is education, so this is happening because of education, this is happening because of family circumstances. So everything together... has an effect on you. So, yeh, I would say so. And then everything interrelates with the other thing. You can't really separate things out.

[Zaina: Pakistan-born, aged 30-49]

Drawing on more visual imagery, Betty, a White English woman aged 50+, described how, ‘It all combines together. It's like one big ball kind of thing, altogether, that affects you’. Similarly, Elizabeth, a White English woman aged 50+, described the relationship between social factors with health and wellbeing as ‘a cumulative thing’. She explained how ‘they all subtly interlink and strengthen the mesh that keeps you really stuck’. She added that ‘if they were separate you could find your way through a gap, but what happens is it closes in, and if one thing doesn't get you the other does.’

Understandings of the relationship between social identities with health and wellbeing were also conveyed as an accumulation of experiences. Referring to postmodern theory, Leena, a British-born Pakistani woman aged 18-29, explained how ‘we're sort of a combination and accumulation of all our experiences and everything we know and everything we've had in the past’. To illustrate, she described how ‘you don't really know where your role as a wife starts and your role as a friend – it's kind of all interlinked’ and added ‘if someone is feeling down, you can't always attribute that to one thing in your life can you?’ Ameera also described how social identities can combine as a process of accumulative disadvantage:

I think it's things combined. It can't just be because you're a woman because plenty of women have got brilliant wellbeing. So the reason must be because you're a woman and this has happened to you and then this happened and then that's why you're feeling depressed. I think if you're a woman you're more likely to have lower wellbeing than a man. But then if you're a woman from a lower socioeconomic class and then from an ethnic minority and then someone who can't find a job because of those reasons. These things kind of add up and add up, the more factors you've got in your life.

[Ameera: British Pakistani, aged 30-49]

In contrast to Leena's explanation above, it is less clear from Ameera's account as to whether social identities were perceived to be interdependent or independent of one another.

Notably, only two of the informants conceived of social inequalities in health and wellbeing as having separate effects. In response to the question on intersectionality, Doris, a White English woman aged 50+, suggested that factors 'could channel off [into] different channels' but then added 'on the other hand, it could be the overall package as well'. Jenny, a White English woman aged 18-29, maintained that whilst health and wellbeing are likely to be influenced by 'a mixture of everything', certain factors may 'shine out' at particular times in a person's life. To illustrate, she suggested that for Pakistani women, the influence of culture may dominate when preparing for marriage, whereas gender may have a greater influence throughout married life. She also highlighted how gender could have an independent effect on health if a woman-specific health problem was present.

7.4.5.2 Intersecting social identities

Insights into understandings of intersectionality were also informed by the informants' descriptions of their own social identity. Notably, many of the Pakistani informants used combinations of intersecting social categories when describing their own identity as opposed to a sequence of separate identities. Nadira, for example, referred to herself 'as a Pakistani woman' rather than 'as a Pakistani' and 'as a woman'. Safia identified herself as 'a British-born Muslim' and drew clear distinctions between 'British Muslims', 'Pakistani Muslims' and 'White British' people. Furthermore, when speaking about the pressures which impact on women's health and wellbeing, Safia emphasised how these would differ between Pakistani women (born in Pakistan), British Pakistani women and White English women:

For a Pakistani woman [born in Pakistan], I think she has to face a lot of things. I mean there's the home, there's pressures at home. She might be a young mum. Her husband might not expect her to go out to work, so she can only be allowed to work for a certain number of hours. So I think it's different for Pakistani women [born in Pakistan] and it's different from White English and British Pakistani women.

[Safia: British Pakistani, aged 30-49]

Zaina, a Pakistani woman (born in Pakistan), also drew clear distinctions between Pakistanis born in Pakistan and Pakistanis born in Britain, in terms of their perception of 'Pakistani

culture' and the way in which this could then have a differential influence on health and wellbeing:

I don't believe British Pakistani people, the culture which they have is a Pakistani culture, it's a totally different culture. It's not the same as someone from Pakistan. I think it does have an impact, the way in terms of expectations, again in terms of responsibility, in terms of involvement with the family. I think there is some room for it to have an effect on someone's health. ...People who have been born here are very traditional, they still hold the values which were there in Pakistan 30 years ago.

[Zaina: Pakistan-born, aged 30-49]

Examples of intersecting social identities were also apparent in the White English informants' accounts, particularly in relation to gender and SEP. Speaking from a socioeconomically advantaged position, Elizabeth described her experiences of working with women living in socially deprived areas. She highlighted how these women 'very much felt [they were] bottom of the pile, very much felt as though their choices were limited' in comparison to women in more advantaged positions, which in turn had 'an enormous negative impact' on their health both physically and mentally. She described how the women perceived barriers between themselves and women in higher socioeconomic positions, seeing them to be 'a different breed' and 'a different species'. In addition, she explained how social deprivation can vary by gender, particularly in the case of women with children to care for:

So in my experience... in deprived areas, the women get literally left holding the baby. So quite often men will just... they have the freedom to come and go more, the freedom to move on and leave things behind, and very few of the women had that, and very few of the women were childless.

[Elizabeth: White, aged 50+]

7.4.5.3 Influence of social structures and systems of discrimination

Further evidence showing understandings and experiences of intersectionality emerged from the informants' accounts of the struggles facing Pakistani women in their pursuit of higher education and professional careers. In Julia's example below, she described how the attainment of a university degree by a Pakistani woman was seen within the local Muslim community as something to hide, whereas for a Pakistani man it would have been seen as something to celebrate:

I know a Pakistani woman [from here] who went to university but none of her Muslim family celebrated that because she was the first girl in the family and that's not done. If it had been a male, that would be fine. They could celebrate it. But the community and the family didn't and don't and the photo's not on display.

[Julia: White English, aged 30-49]

Ameera tells of a similar situation experienced by a Pakistani woman wanting to pursue a career in medicine. She describes how being 'a woman' and being 'from a poor family' were perceived by this particular Pakistani family as reasons not to go to university to become a doctor:

I know a Pakistani woman [from here] who is a doctor but she's the only person in her family who even went to university and it was such a fight for her to go onto university and then spend another 7 years becoming... because it just wasn't the norm and they thought she was a bit weird. And she had to keep telling herself that this is what I want to do. Because everything else told her that this is not what you want to do. "You're a woman, you're from a poor family, nobody else went to college, why do you want to go?" It was almost a bit of a joke that she wanted to be a doctor. It was a career that was just so, they thought it was too far-fetched for it to be a reality.

[Ameera: Pakistani, aged 30-49]

An interesting contrast can be drawn here between Julia's and Ameera's accounts of the lack of family support and recognition afforded to Pakistani women pursuing a higher education and Habiba's account of the respect received by well-educated women from the Asian community (see Section 7.4.2.2, page 226). Notably, Habiba described this as a recent trend reflecting a change in attitude towards education, with families now viewing higher qualifications as an asset for their children's future marriage prospects.

Another example of how systems of discrimination overlap was highlighted in Nadira's account as to whether Pakistani women are at greater risk of racism than Pakistani men. She explained how Pakistani men 'have an upper hand' over Pakistani women in that 'it's easier for them to assimilate into [White British] society because there aren't as many expectations placed on them' which enables them to 'mix with their White counterparts quite easily'. By contrast, she described how the 'limitations' placed on Pakistani women 'inwardly or outwardly make them more of a target to racism':

As a [Pakistani] woman, if you're walking down the street with your headscarf on or, you know, with your Asian attire, then maybe you're more likely to be targeted and more likely for someone to realise that you are of a certain nationality. And maybe it's the physical aspect of it as well, maybe it's that, you know, as a man you can fight back, and as a woman you can't necessarily do always do that. And it may be the language barriers as well. [Pakistani] men tend to have had more education so, you know, they can communicate their thoughts possibly more effectively than a woman who's not necessarily had all that education and she's more frightened to say anything back.

[Nadira: British Pakistani, aged 18-29]

Nadira's account therefore illustrates how racial and gender discrimination might intersect to position Pakistani women at a greater disadvantage to Pakistani men as well as to White English men and women.

7.4.5.4 Section summary

Many of the informants conveyed a clear understanding of the intersectional nature of social identities in their narratives, commonly describing how gender, ethnicity, and SEP 'interact', 'interlink' and 'intertwine' with one another. Expressions of intersecting social categories were also employed by informants in describing their own identities and those of others. Distinctions were drawn, for example, between Pakistani women, British Pakistani women, and White English women, and between White English women positioned in lower and higher socioeconomic positions. Insights into intersectionality were also revealed through the lived experiences of women caught between systems of discrimination, as illustrated through the example of Pakistani women pursuing higher education and professional careers.

7.5 Chapter Summary

This chapter has presented the findings from the second phase of this mixed study, which sought to explore how and why intersections of gender, ethnicity, and SEP in health might exist among people of Pakistani and White English ethnicity. This objective was achieved through the collection and analysis of qualitative data from semi-structured interviews held with a socioeconomically diverse sample of Pakistani and White English women living in South Yorkshire. The findings from the qualitative analysis identified a number of explanatory factors perceived by the informants to underlie the intersections of gender, ethnicity, and SEP in health, as summarised in Figures 7.6, 7.8, and 7.10. Rich descriptions of the sociocultural contexts within which these explanations were framed were also drawn from the data. In addition,

several examples demonstrating understandings and experiences of intersections and intersectionality were illustrated in the narratives of the informants.

In the concluding chapter of this thesis, the key findings from the quantitative and qualitative phases of the study are drawn together and discussed in light of their quality and contribution to the wider literature.

Chapter 8 Discussion

8.1 Introduction

Investigations into social inequalities in health have traditionally treated axes of inequality as independent and additive processes. Consequently, inequalities in health which exist at the intersection of social groups can remain hidden and unaccounted for, leaving important gaps in our understanding of social inequalities in health and raising serious implications for policies seeking to reduce inequalities in health between social groups. In an attempt to address these issues, this thesis set out to explore social inequalities in health through the application of intersectionality theory, which advocates the need to understand social inequalities as mutually constitutive and formed within socio-historical contexts. Empirical studies employing an intersectionality framework to the study of social inequalities in health are beginning to emerge in the international literature. However, the findings from the systematic review presented in Chapter 3 indicate a considerable shortage of such studies in the UK literature.

The preceding chapters of this thesis present the findings from a mixed methods study investigating the role of intersections of gender, ethnicity, and socioeconomic position (SEP) in explaining health inequalities in England. The two main objectives of the study were firstly to identify intersections of gender, ethnicity, and SEP in health among adults living in England, and secondly, to explore the contextual and explanatory factors perceived to underlie these intersections. To address these objectives, the study employed a sequential explanatory mixed methods design, which incorporated two phases of data analysis conducted in a quantitative then qualitative sequence. In the first phase of the study, secondary analysis of data from the Health Survey for England 2004 (HSE 2004) was performed to test for interaction effects between gender, ethnicity, and indicators of SEP with three measures of subjective health (Chapter 5). A subset of statistically significant findings from the interaction analysis was then identified for further exploration using qualitative methods (Chapter 6). These findings related specifically to inequalities in health between Pakistani and White English participants in the HSE 2004. The purpose of the second phase of the study was to expand upon these findings by exploring how and why intersections of gender, ethnicity, and SEP were perceived influence the health of Pakistani and White English people. To meet this objective, qualitative data were gathered and analysed from interviews held with a socioeconomically diverse sample of Pakistani and White English women living in South Yorkshire (Chapter 7).

This final chapter begins by outlining the principal findings from the mixed methods study and their contribution to the existing literature, followed by a discussion focusing on the methodological contributions of the study to the literature. The strengths and limitations to the study are then considered from a quantitative, qualitative, and mixed methods perspective. The chapter concludes by putting forward recommendations relevant to future research, policy and practice, followed by the main conclusions of the study.

8.2 Principal findings

The findings from this mixed methods study provide new evidence for significant intersections of gender, ethnicity, and SEP in health among adults living in England, and valuable insights into the explanatory and contextual factors perceived to underlie intersections specific to Pakistani and White English people. A summary of the principal findings from the quantitative and qualitative phases of the study and how they contribute to the existing literature is provided in the sections below. Section 8.2.1 begins by outlining the key findings from the preliminary stages of the quantitative analysis, demonstrating evidence for social inequalities in health based on the bivariate and multivariate additive regression models. Section 8.2.2 then expands upon these findings by highlighting the evidence for significant intersections of social inequalities in health, as demonstrated through the multiplicative regression models used in the interaction analyses. Building on this evidence, Section 8.2.3 then integrates the key findings from the quantitative and qualitative data to demonstrate how and why intersections in social inequalities in health were perceived to impact on the lives of Pakistani and White English people living in England.

8.2.1 Social inequalities in health: bivariate and multivariate additive models

The findings from the preliminary stages of the quantitative analysis of the HSE 2004 identified significant gender, ethnic and socioeconomic inequalities in health for the three outcomes, general health, psychological wellbeing, and HRQoL.

8.2.1.1 Gender inequalities in health

As illustrated in the findings from the systematic review in Chapter 3, previous studies have demonstrated significant gender inequalities in health, with poorer outcomes for general health and psychological wellbeing reported among women compared to men (Cochrane & Stopes-Roe, 1981; Mavreas & Bebbington, 1987; Jenkins et al., 1997; Chandola, 2001; Cooper, 2002). In keeping with these findings, the results from the current analysis of the HSE 2004 found

women were significantly more likely to report having poor health, poor psychological wellbeing, and problems with HRQoL than men, after having adjusted for age. Furthermore, these gender differences in health remained statistically significant after further adjustment for: ethnicity; education level; social class; and income level. Notably, adjustment for economic status produced the reverse gender pattern in general health, with odds of poor general health estimated to be significantly lower for women compared to men. For psychological wellbeing, adjustment for economic status reduced the gender difference poor psychological wellbeing to non-significance, whilst for problems in HRQoL the greater risk among women was reduced but remained significant.

8.2.1.2 Ethnic inequalities in health

Ethnic inequalities in health show substantial variation across ethnic minority groups and further variation according to the outcome employed. As illustrated in the systematic review, the findings for general health indicated that the Pakistani, Bangladeshi and Indian ethnic groups were significantly more at risk of poor health than the White majority group, yet similar rates of poor health were reported among Chinese and Irish ethnic groups compared to Whites, whilst no clear pattern was found between Black Caribbeans and Whites (Nazroo, 1997a; Chandola, 2001; Erens et al., 2001; Cooper, 2002; Kelaher et al., 2008; Smith et al., 2009). Furthermore, when comparing patterns across outcomes, ethnic minority groups were found to be more likely to report similar or significantly poorer outcomes on measures of general health than the White ethnic majority, whereas on measures of psychological wellbeing, outcomes were more likely to be significantly better or similar to Whites.

The results for ethnic inequalities in health from the current analysis of the HSE 2004 demonstrated a similar picture, with stronger associations reported between ethnicity and general health than between ethnicity and psychological wellbeing or HRQoL. For example, odds of poor general health were found to be significantly higher for the Black Caribbean, Black African, Indian, Pakistani, Bangladeshi, and White Irish ethnic minority groups compared to the White English reference group, after adjustment for age. Only the Chinese ethnic minority group was found to have similar odds of poor general health compared with the White English group. By comparison, odds of poor psychological wellbeing were found to be significantly higher for the Black Caribbean, Black African, Pakistani, and Bangladeshi ethnic minority groups compared to the White English ethnic group, after adjustment for age, whereas the Indian, Chinese, and White Irish groups were found to have similar odds to the White English group. Similarly, the results for HRQoL found only the Black Caribbean, Pakistani, and Bangladeshi ethnic minority groups to have significantly higher odds of problems with HRQoL

compared to the White English ethnic group, with similar outcomes reported for the Black African, Indian and White Irish ethnic groups relative to the White English, and significantly lower odds reported for the Chinese ethnic group.

The findings from the additive models demonstrated that significant ethnic inequalities in all three outcomes remained the same after adjustment for both age and gender. Further adjustment for: education; economic status; and social class; made little difference to ethnic inequalities in health. By comparison, adjustment for income level reduced ethnic inequalities for general health, completely removed ethnic inequalities in psychological wellbeing and also HRQoL, with the exception of the Black Caribbean group for whom odds of problems with HRQoL remained significantly greater than the White English.

8.2.1.3 Socioeconomic inequalities in health

Previous studies have repeatedly documented a socioeconomic gradient in health in the UK, with people located in the middle of the socioeconomic hierarchy enjoying better health than those positioned at the bottom, but worse health than those positioned at the top (Marmot et al., 1984; Davey Smith et al., 1990; Davey Smith & Egger, 1992; Adler, 1994; Adler & Ostrove, 1999; Graham, 2009). As illustrated in the systematic review, a clear socioeconomic gradient in health was evident within both ethnic minority and majority groups, with rates of poor health increasing between high to low socioeconomic positions (Nazroo, 1997a; Karlsen & Nazroo, 2002; Nazroo, 2003). Findings for a socioeconomic gradient in psychological wellbeing within ethnic groups were less consistent, with evidence of the reverse pattern observed among Indian and Bangladeshi females (Cochrane & Stopes-Roe, 1981; Erens et al., 2001).

Reflecting the findings from the existing literature, the results from the current analysis of the HSE 2004 found education level, social class, and income level to demonstrate the expected socioeconomic gradient, with odds of poor general health and problems with HRQoL increasing across the lower socioeconomic positions, after adjustment for age. Similarly, the measure for economic status also revealed poorer outcomes for the inactive and retired groups when compared with the active group. The findings for psychological wellbeing also showed the expected patterning for economic status and income level, after adjustment for age. However, for education level and social class, the socioeconomic gradient was found to be weaker, with significant differences in psychological wellbeing only reported between the lowest and highest socioeconomic groups on these two measures, after adjustment for age. This patterning of socioeconomic inequalities in health remained after further adjustment for gender and ethnicity.

The key findings from the preliminary stages of the quantitative analysis described above clearly demonstrate the robustness of social inequalities in health among adults in England. The overall findings from the additive regression models revealed significantly poorer outcomes for women compared to men, for Pakistanis, Bangladeshis, Black Caribbeans, compared to White English, and for people in the lowest socioeconomic positions compared to those in the highest positions.

8.2.2 Social inequalities in health: interaction models

In contrast to the wealth of studies examining social inequalities in health from an additive approach, studies investigating intersections of social inequalities in health are only recently beginning to emerge in the international literature, as described earlier in Chapter 2, Section 2.4.3.1. Adding to this literature, a recently published study by Veenstra (2011) tested for two-way and three-way interactions between ‘race’, gender, SEP (income and education), and sexual orientation with self-rated health using nationally representative data from the Canadian Community Health Survey (N=90,310). The results from the analyses found significant two-way interactions between gender and income, sexual orientation and income, ‘race’ and income, and ‘race’ and gender, in fair/poor self-rated health. The findings revealed income inequalities in health were greater among men compared to women; homosexuals compared to heterosexuals; and Whites compared to Asians (defined as Chinese, Korean, and Japanese). In addition, gender inequalities in health were found to be greater among South Asians (defined as East Indian, Pakistani, and Sri Lankan) than Whites, with South Asian women fairsing the worst.

In comparison to the emerging international literature, the study of intersections in social inequalities in health in the UK remains an under-investigated area of research. As illustrated in the systematic review, only one quantitative study was identified as having investigated the intersection of gender, ethnicity, and SEP in health in the UK. In this study, Cochrane and Stopes-Roe (1981) found a significant interaction between gender, ethnicity and SEP. The results demonstrated that higher levels of psychological distress were reported among Indian women in higher social class positions in contrast to the reverse pattern among English women, whilst no significant class differences were reported among Indian and English men. Furthermore, none of the qualitative studies in the review explicitly identified intersections of gender, ethnicity and SEP in health, despite the several examples of potential intersections embedded within the narratives of the study participants (Sproston & Nazroo, 2002; Wray, 2003; Barn & Sidhu, 2004; Huang & Spurgeon, 2006).

Using an integrative synthesis of the limited evidence for intersections in the review a series of models were developed to illustrate where potential intersections might exist and what explanatory factors might underlie them (see Section 3.4.3.2). In the study by Cochrane and Stopes-Roe (1981), for example, explanatory factors put forward by the authors for the poorer psychological wellbeing among higher class Indian women included older age, single marital status, and lack of family contact. In addition, qualitative data from a study by Sproston and Nazroo (2002) described how South Asian women felt frustrated and isolated in not being allowed to work, meet up with friends, or be involved in making key decisions. Generalising from this finding, it is plausible therefore that gender discrimination might also have been a factor underlying the poorer psychological wellbeing experienced by Indian women and possibly high SEP Indian women specifically (see model on p.88).

Further potential intersections were also proposed to explain the poorer health associated with Bangladeshi women in comparison to Bangladeshi men and White English men and women. Here, gender roles, language barriers and racial discrimination were identified as potential key explanatory factors underpinning the poorer health of this specific social group. Despite the tentative and rudimentary nature of the synthesis, several of the explanatory factors presented in the models were also found to emerge as key themes in the qualitative analysis of the intersections between the Pakistani and White English groups, as illustrated in Section 8.2.3.

To address the gap in the UK evidence base, interaction analyses were performed on the HSE 2004 data to test for two-way and three-way interaction effects between gender, ethnicity, and indicators of SEP with three outcomes of subjective health. In total, fifteen significant interaction effects were identified. The results found that the following social inequalities in health varied significantly *by gender*:

- ethnic inequalities in general health;
- ethnic inequalities in psychological wellbeing;
- educational inequalities in psychological wellbeing;
- economic status inequalities in general health;
- economic status inequalities in psychological wellbeing;
- economic status inequalities in HRQoL; and
- social class inequalities in psychological wellbeing.

In addition, the following social inequalities in health were found to vary significantly *by ethnic group*:

- educational inequalities in psychological wellbeing;
- economic status inequalities in general health;
- economic status inequalities in psychological wellbeing;
- economic status inequalities in HRQoL;
- income inequalities in general health;
- income inequalities in psychological wellbeing; and
- income inequalities in HRQoL.

The analyses also found one statistically significant three-way interaction effect, in which economic status inequalities in general health were found to vary by both ethnicity and gender.

The findings from the interaction analyses presented in this thesis provide strong evidence for the intersectional nature of social inequalities in health among adults in England. In particular, they highlight the partiality of information gained from studies which rely on additive models alone in seeking to identify patterns of social inequalities in health. Furthermore, the findings from this study give support to the growing evidence for intersections in social inequalities in health reported in the international literature.

8.2.3 Exploring health inequalities between Pakistani and White English people

To gain a more comprehensive understanding as to how and why intersections of gender, ethnicity, and SEP in health might arise, a selection of significant results from the interaction analyses was identified for further exploration using qualitative methods. The selected results focused on the findings for Pakistani and White English groups in relation to the intersections of ethnicity and gender in general health; ethnicity and education in psychological wellbeing; and ethnicity and economic status in psychological wellbeing. Qualitative data were then generated through interviews with a socioeconomically diverse sample of Pakistani and White English women living in South Yorkshire. The focus of the qualitative analysis was to explore the women's perceptions of the explanatory and contextual factors underlying these intersections.

8.2.3.1 The intersection of ethnicity and gender in general health

The quantitative results for the intersection of ethnicity and gender in general health, found gender differences in poor health to be significantly greater among the Pakistani group compared to the White English group, with the poorest outcomes reported for Pakistani women.

Explanations from the qualitative analysis as to why Pakistani women might report poorer health than Pakistani men, in addition to White English men and women, centred on the themes of: living in a man's world; looking after the home and family; staying at home; access to leisure facilities; and access to health care. For example, the theme living in a man's world encompassed accounts of a power imbalance between Pakistani men and women, particularly in the context of marital relations and home life. For some Pakistani interview informants this imbalance was interpreted as a cultural norm, whilst for others it was conveyed as a form of gender discrimination. For many of the White English informants, the perception of patriarchal family life within Pakistani culture today was reflective of the same power imbalance characteristic of English family life in previous generations. Specifically, the dominance of men in Pakistani culture was seen to result in a lack of independence and choice and consequently poorer health for Pakistani women.

Notably, the themes 'access to leisure facilities' and 'access to health care' raise important issues for public health policy. Several of the interview accounts described how cultural and language barriers prevent many Pakistani women from gaining equal access to health promoting and health protective resources. Specifically, a distinct need for better access to women-only gyms, swimming pools and exercise classes was stressed by the Pakistani interview informants. The mixed setting of GP clinics was also raised important issue impacting on some Pakistani women's access to health care, as was the lack of provision for non-English speaking and reading women in GP surgeries. These language barriers are likely to apply equally to men with poor English language skills.

The quantitative results for the intersection of gender and ethnicity in health in relation to the Pakistani and White English ethnic groups are consistent with the findings from the recent Canadian study by Veenstra (2011), referred to earlier in Section 8.2.2. Specifically, the study found that South Asian women (including Pakistani women) were more likely than White women to report fair/poor self-rated health, whilst South Asian men were no more likely than White men to do so. In explaining this interaction, the author pointed to patriarchal family life within Pakistani culture as a potential underlying factor, thus echoing the theme of 'living in a man's world' identified from the qualitative analysis in this thesis:

...the interaction between gender and race reported here suggests that certain characteristics of South Asian communities are detrimental for the health of women and beneficial for the health of men. If patriarchal gender relations within South Asian families are culpable then inequality by gender is clearly a factor here but race relations perhaps are not.

(Veenstra, 2011, p.21)

Several of the themes to emerge from the current qualitative analysis of the intersection of gender and ethnicity in health corroborate earlier qualitative findings from a report commissioned by Sheffield City Council to profile the Pakistani community of Sheffield (Meridien Pure 2006). This report presented the findings from an analysis of data from focus groups and interviews with Pakistani men and women (N=131) living in Sheffield. Reflecting the themes identified in the current study, the report highlighted ‘the pressures of home life and... commitments’ on Pakistani women which result in ‘increasingly less time to integrate with people and activities outside their own familiar setting, including being able to go out to work’ (Meridien Pure, 2006, p.25). The presence of cultural barriers in accessing leisure facilities was also a key theme to emerge from the interviews with Pakistani women. In particular, the lack of provision for women-only gyms, swimming pools, and exercise classes was raised as a key issue preventing Pakistani women from engaging in a healthy lifestyle (Meridien Pure, 2006, p.16-17). In addition, language barriers were identified by Pakistani women in particular as a key issue in restricting access to health care for people unable to communicate in English. To overcome this problem, requests for more accessible health information and health workers to reach out into local communities were put forward by the interviewees (Meridien Pure, 2006, p.18).

These important issues identified in both the current study and the existing literature are returned to in the recommendations in Section 8.5.

8.2.3.2 The intersection of ethnicity and education in psychological wellbeing

The quantitative results for the intersection of ethnicity and education in psychological wellbeing identified differences in psychological wellbeing between people with no qualifications and those with a degree or above to be significantly greater among the Pakistani ethnic group compared to the White English ethnic group. Specifically, Pakistanis with no qualifications were found to have the poorest outcomes. The qualitative explanations for this intersection in psychological wellbeing included: racial discrimination in employment; the value and status of education; pursuing professional careers; joining the family business; and breaking free from the family. Racial discrimination in employment, for example, was described by both Pakistani and White English interview informants to be the key explanation as to why Pakistani people with no qualifications reported significantly poorer psychological wellbeing than White English people with no qualifications. Specifically, institutional racism was seen to lead to unemployment, underemployment, damaged aspirations, and lower self-confidence, thus impacting negatively of psychological wellbeing.

In explaining the greater difference in psychological wellbeing between having no qualifications and a degree or above among Pakistani people compared to White English people, a potential three-way interaction between gender, ethnicity, and education level was revealed. Specifically, joining the family business was indicated as having greater psychological benefits for men than women among Pakistanis with no qualifications. By contrast, Pakistani women were seen to gain greater rewards in pursuing a degree, thus enabling them to 'break free from the culture'. Further examples of ways in which gender, ethnicity, and education might intersect were also described in relation to the struggles facing Pakistani women in their pursuit of higher education and professional careers. Some informants described how Pakistani women were likely to receive far less family support and recognition than Pakistani men when pursuing a degree. Another account did, however, suggest that more and more Pakistani families were now encouraging their daughters as well as sons to go into higher education.

In line with the findings described above for Pakistani women seeking higher education, a qualitative study of Pakistani and Bangladeshi women living in Oldham¹ found that younger Pakistani women who had been educated in the UK saw higher education as a gateway to paid employment (Dale, 2002). This, in turn, was described by the women as providing greater 'independence and self-esteem' in 'giving freedom and the ability to get out of the house' (Dale, 2002). As such the author highlighted how the 'role of qualifications may have a greater impact for Asian women than for White women'. The issue of resistance within Pakistani families and communities towards women pursuing higher education was also raised. For example, the '*traditional* view amongst the Asian community in Oldham' was seen to uphold that 'women should not work outside the home'. In confronting these traditional views held by members of the Pakistani community, Pakistani women were described as having had to 'show considerable resolution and determination in order to have achieved their qualifications'.

Evidence for racial discrimination in employment was also cited in this study, with 'the widely held view that an Asian applicant has to be much better qualified than a White applicant to stand a similar chance of success' (Dale, 2002). Similarly, findings from the Pakistani community profile report for Sheffield highlighted the struggles of Pakistanis: in gaining a fair deal from the employment market; facing 'implicit racism within the workplace and a lack of consideration for their cultural and religious practices'; and 'being pushed into low skill work streams where their abilities are not recognised' (Meridien Pure, 2006, p.9). In relation to Pakistanis with no qualifications, the report described how young Pakistanis experienced 'feeling unable, or being

¹ An industrial town in Manchester, UK.

too disheartened, to compete for jobs in the mainstream economy' (Meridien Pure, 2006, p.11). Whilst in the current study racial discrimination in employment was associated with the poorer psychological wellbeing of Pakistanis with no qualifications, the community profile report also described how Pakistani graduates 'struggle to find work commensurate with their qualifications', with accounts of Pakistani men with degrees having to resort to 'driving taxis as an occupation' (Meridien Pure, 2006, p.9-14). Similarly, in the study of Pakistani and Bangladeshi women in Oldham, Dale (2002) concluded that 'there is a pressing need to ensure that potential employers do not hold negative and out-dated stereotypes of traditional Muslim women' and prevent well-qualified Muslim women from advancing in their careers.

8.2.3.3 The intersection of ethnicity and economic status in psychological wellbeing

For the intersection of ethnicity and economic status in psychological wellbeing the quantitative results found the difference in psychological wellbeing between retired and active people to be greater within the Pakistani group compared to the White English group, with retired Pakistanis having the poorest outcomes. Explanations from the qualitative analysis as to why the burden of poor psychological wellbeing might be greater among retired Pakistani men and women compared to retired White English men and women focused on the themes of: Pakistani and Western perspectives of retirement; availability of pension funds; family responsibilities; and community engagement. With respect to the availability of pension funds, income levels in retirement were perceived to be far lower for Pakistani people than White English people due to their disadvantaged position in the labour market and their shorter period of residence in England. The lower incomes received by retired Pakistanis were associated with constraints on living standards which, in turn, were perceived to impact negatively on psychological wellbeing. An important aspect to this finding is that it highlights the way in which socioeconomic inequalities can persist across the life course, illustrated here through inequalities faced by Pakistanis in their working life continuing and potentially increasing into retirement.

In the theme of community engagement, language and cultural barriers again featured as important issues impacting on access to social activities for retired Pakistani people compared to White English people. This was again seen by the Pakistani interview informants to impact on Pakistani women more so than Pakistani men. The importance of place was also associated with this theme, with 'poorer areas' of Sheffield seen to have fewer amenities and activities available for retired Pakistanis to engage in. As a consequence, retired Pakistani women were described to be at a greater risk of 'feeling isolated' and 'depressed'.

Whilst the literature review did not identify any studies examining the intersection of ethnicity and economic status in psychological wellbeing, the finding for differential access to pension funds between the Pakistani and White English groups is consistent with an earlier study examining ethnic disadvantage in private pension scheme arrangements (Ginn & Arber, 2001). Based on data from the British Family Resources Survey (including samples of Black, Indian, Pakistani, Bangladeshi, Chinese, and White men and women), both men and women from ethnic minority groups were found to be less likely to have private pension coverage than their White counterparts. The extent of this difference was found to be greatest for the Pakistani and Bangladeshi groups. Of particular significance was the further variation observed within these groups, with Pakistani and Bangladeshi women being less likely than men to have private pension coverage. In explaining this pattern, the authors point to the low employment levels among Pakistani and Bangladeshi women, resulting from 'cultural norms as to the proper behaviour of married women, adding to difficulties arising from lack of education and fluency in English' (Ginn & Arber, 2001, p.537).

8.2.3.4 Contextualising intersections between Pakistani and White English people

A further important finding to emerge from the qualitative analysis was the changing nature of the socio-cultural contexts within which the informants framed their understandings of intersections of gender and ethnicity in health. Firstly, the changes to gendered roles and responsibilities between past and present generations were perceived by many of the informants to have a detrimental impact on the health of women. Specifically, the extension of women's roles from the family home to the work place over the last 60 years was seen to have created greater tensions around the responsibilities of work and childcare. Both Pakistani and White English informants alike described the experience of living in a 'no-win situation' resulting from the criticism targeted at women classed as housewives, stay-at-home mums, working mums and career women without children. Secondly, focusing on the narratives of the Pakistani informants, the experience of living as a Pakistani woman born in England was for some informants likened to living amidst a clash of cultures. In particular, some of the British-born Pakistani women described how the experience of living between Pakistani, Western, and religious cultures, created a sense of not knowing who you are or where you are from. For other Pakistani women the combination of cultures were internalised to form a strong sense of identity, as in the case of one informant's account of being a 'British Muslim'.

A further important issue to emerge from the Pakistani informants' accounts of living between cultures was the impact of overlapping systems of discrimination on the lives of Muslim women. For instance, many of the Pakistani informants described experiences of religious

intolerance directed towards women wearing Muslim dress in the work place and particularly when applying for jobs. Consequently, some of the Pakistani women described a sense of pressure to assimilate into White British society by wearing more western-style clothes, whilst at the same time feeling pressure from members of the Pakistani community to wear the hijab or niqab.

These accounts of discrimination were consistent with findings from the Pakistani community profile report for Sheffield, in which participants described the persistence of discrimination from employers towards Pakistani women seeking work (Meridien Pure, 2006). Given the established association between racial and gender discrimination with poor psychological wellbeing (Paradies, 2006; Kelaher et al., 2008; Borrell et al., 2010), these findings highlight an urgent need to expose and eliminate the discriminatory practices inherent in broader institutional and social systems of stratification.

8.3 Methodological contribution to the literature

The findings from this mixed methods study on the intersections of gender, ethnicity, and SEP in health present an important contribution to the literature in being one of the first studies of its kind to be conducted in England. From a methodological perspective, the three aspects of this thesis which add significant value to our existing understanding of social inequalities in health in England are: firstly, in the application of intersectionality theory; secondly, in the employment of a mixed methods approach; and thirdly, in the demonstration of the need for more transparent ethnic group classification systems in health survey research. A description of the contribution made from each of these areas is presented in the sections below.

8.3.1 Applying intersectionality theory to social inequalities in health

As set out in Chapter 1, the rationale for this research study was based on the premise that evidence built on an understanding of social inequalities in health as independent and additive processes fails to address important inequalities in health which exist at the intersection of social groups. The partiality of knowledge from such a perspective therefore raises important concerns as to how effective subsequent policies are in targeting those most at risk of poor health. As an initial step to address these issues, the current study adopted an intersectionality framework to investigate social inequalities in health. Specifically, the central premise of intersectionality theory asserts that dimensions of social identity interact with one another to create specific meanings and experiences that cannot be explained by individual identities alone (Warner, 2008). To apply this theory, data from the Health Survey for England 2004 were modelled using

additive and interaction regression models to test for independent and intersectional associations between gender, ethnicity, and SEP with three measures of subjective health. By running both additive and interaction models, it was possible to demonstrate the extent of additional information gained by testing for inequalities within social groups over and above inequalities existing between social groups. In sum, the results from the interaction models demonstrated a total of 15 significant interaction effects, with each dimension of social inequality intersecting with at least one other on one or more of the health outcomes.

Intersectionality theory also advocates an understanding of social inequalities as rooted in socio-historical contexts. To incorporate this dimension of intersectionality into the study, qualitative data were gathered to contextualise a subset of significant interaction effects relating to the Pakistani and White English samples from the HSE 2004. Drawing on rich detailed narratives from 25 Pakistani and White English women of diverse socioeconomic backgrounds, the qualitative analysis revealed valuable insights into the contextual and explanatory factors perceived to underlie intersections of social inequalities in health among the Pakistani and White English population. These findings enabled a more comprehensive understanding of how and why intersections of social inequalities in health are perceived manifest in the lives of Pakistani and White English people living in England.

Together, the quantitative and qualitative findings from this study present strong evidence for intersectionality in social inequalities in health in England. This study therefore provides an important contribution to the UK literature in demonstrating the greater understanding that can be achieved from adopting an intersectionality approach to the study of social inequalities in health. In addition, the findings from this study give support to the emerging international literature on intersectional approaches in health inequalities research (e.g. Schulz & Mullings, 2006; Hankivsky et al., 2010; Cummings & Jackson, 2008; Wamala et al., 2009; Veenstra, 2011). From a public health policy perspective, the findings from the qualitative analysis reveal a number of barriers currently preventing the effective distribution of health promoting and health protective resources to those most in need within the region of South Yorkshire. The narratives also indicate a number of practical ways in which the poor health experienced among Pakistani women might be ameliorated. Further details and examples are provided in the recommendations for policy and practice in Section 8.5.2.

8.3.2 Adopting a mixed methods approach to the study of intersections in health

Recent calls for the use of mixed methods research in studies of social inequalities in health have been made by the intersectionality research community (Weber, 2006; Hankivsky, 2010).

In discussing the application of quantitative and qualitative methods in intersectionality research, Iyer and colleagues (2010, p.77) have highlighted how, on the one hand, qualitative studies can ‘reveal the intricate web of relationships’ that structure the vulnerability and exposure of social groups. On the other hand, they describe how quantitative studies, whilst unable to ‘match the richness of qualitative studies’, can ‘usefully provide precision and clarity about the significance or otherwise of hypothesised relationships’ (Iyer et al., 2010, p.78). In adopting a mixed methods approach, this study was therefore able to exploit the strengths of both quantitative and qualitative methods to enable a more comprehensive understanding of the intersectional nature of social inequalities in health in England.

Since the formation of mixed method research in the 1950s, however, the notion that quantitative and qualitative methods can be effectively integrated has sparked considerable debate between proponents of quantitative, qualitative, and mixed methods research (Creswell & Plano Clark, 2007). One of the key arguments fuelling this debate stems from the view that quantitative and qualitative paradigms are essentially incommensurable (Kuhn, 1970). The basis of this argument rests on the belief that quantitative and qualitative methodologies are inextricably rooted in opposing epistemologies, originating from ‘the positivism-idealism debate of the late 19th century’ (Smith, 1983, p.8). Typically, quantitative research is associated with positivist, postpositivist, and realist paradigms which support the idea that knowledge and reality exist independently of the researcher and require objective empirical observation and measurement (Creswell & Plano Clark, 2007). By contrast, qualitative research is more commonly associated with idealist, interpretivist and constructionist paradigms which view knowledge and realities as dependent on ‘socially and historically bounded contexts’, requiring an understanding that ‘what is investigated is not independent of the process of investigation’ (Smith, 1983, p.8).

Bryman (1988; 2008) has challenged the dichotomy of quantitative and qualitative research in questioning whether the two are in fact paradigms at all, and in demonstrating that the two traditions are connected by areas of commonality and overlap. Notably, whilst many mixed methods researchers recognise that ‘quantitative and qualitative research are each linked to distinctive epistemological and ontological assumptions’ they do not view these to be ‘fixed and ineluctable’ (Bryman, 2008, p.606). In particular, mixed methods research often advocates a pragmatic approach to methodology, which values both subjective and objective knowledge and supports the use of diverse approaches to research on the basis of ‘what works’ (Creswell & Plano Clark, 2007, p.26). The pragmatic approach therefore places greater emphasis on the research question itself, which then guides the choice of quantitative and qualitative data collection and analysis techniques in light of their ability to best address the research problem.

The affiliation between pragmatism and mixed methods research is clearly illustrated by Teddlie & Tashakkori (2009, p.73):

A major reason that pragmatism is the philosophical partner for [mixed methods] is that it rejects the either-or choices from the constructivism-positivism debate. Pragmatism offers a third choice that embraces superordinate ideas gleaned through consideration of perspectives from both sides of the paradigms debate in interaction with the research question and real-world circumstances.

In support of the pragmatic approach, the decision to adopt a mixed methods approach in the current study was driven by the need to employ both quantitative and qualitative methods to fully explore the role of intersections of gender, ethnicity, and SEP in explaining health inequalities. Thus, in the first phase of the study, the statistical analysis of a large national dataset enabled the researcher to meet the first research objective in identifying ‘what’ intersections of gender, ethnicity, and SEP were present among adults living in England. Subsequently, in the second phase of the study, the generation and analysis of qualitative interview data enabled the researcher to meet the second research objective in exploring the contextual and explanatory factors perceived to underlie the intersections. The qualitative data therefore enabled the researcher to make more meaningful interpretations informed by the specific social and cultural contexts of people’s lived experiences. Consequently, a more comprehensive understanding of the nature of intersections in social inequalities in health was captured through the mixing of quantitative and qualitative methods, than if either a quantitative or qualitative paradigm alone had been employed.

8.3.3 Reconsidering ethnic group classification in the HSE 2004

As highlighted earlier in Chapter 5, the way in which the HSE 2004 classified participants into ethnic groups raises a number of important challenges for researchers seeking to accurately represent participant-selected ethnicity. Specifically, the ethnic group categories employed in the HSE 2004 dataset were found to aggregate participants from multiple ethnicities as well as misclassify a number of participants (see Section 8.4.1 for a further discussion of the limitations). Given the growing diversity of ethnic groups and in particular mixed ethnicity groups in the UK today, one of the key challenges for health survey research concerns the necessary trade-off between validity and utility in ethnic group classification. In this context, validity refers to the need to accurately represent participant-selected ethnicity and use more homogenous ethnic group categories, whilst utility refers to the need for adequate sample subgroup sample sizes to achieve statistical power in analyses.

The expanded classification system developed and employed in the current study offers an additional ethnicity variable for the HSE 2004 which captures the full range of ethnic group categories originally selected by the survey participants. The system also enables the identification of misclassified cases and imputations where ethnic group data are missing. Given the utility of this tool to other analysts of the HSE 2004, details of this work have since been disseminated to the academic community (see Appendix B.22 for further details). In terms of the trade-off between validity and utility, the nine original ethnic group categories achieve greater validity in terms of accuracy and homogeneity when derived using the expanded classification system. In promoting validity over utility, however, several of the ethnic group categories identified in the expanded classification system have sample sizes too small for statistical analysis.

These issues are returned to in the recommendations for further research.

8.4 Strengths and limitations to the mixed methods study

Having discussed the principal findings of this mixed methods study and their contribution to the existing literature, the following section provides a discussion of the strengths and limitations to the quantitative and qualitative phases of the study, and to the mixed methods study design.

8.4.1 Quantitative phase

A key strength of the quantitative phase of the mixed methods study was in its analysis of data from a high quality dataset comprising large samples of men and women from seven ethnic minority groups in addition to a nationally representative sample of the general population. This dataset, the Health Survey for England 2004 (HSE 2004), enabled the analysis of interaction effects between of gender, ethnic and socioeconomic groups across three measures of subjective health. As identified in the systematic review in Chapter 3, the scope for previous studies to explore interactions is likely to have been limited due to a lack of available datasets incorporating large samples of ethnic minority groups.

An important issue concerning the analytical strategy employed in the quantitative phase was the need for multiple testing to identify potentially significant interaction effects in the data. In total, 39 different interactions effects were tested at the $P < 0.05$ level of significance. Given the Type I error rate for this number of tests at this level of significance, it was predicted that the

results may yield approximately two statistically significant results by chance, even if no “real” interactions were present in the data (Field, 2009). The analysis did in fact find 15 statistically significant interaction effects, the majority of which were significant at the $P < 0.001$ or $P < 0.01$ level, thus providing strong support for the real existence of intersectionality. Whilst the nature of the analysis in this study was exploratory, a more definitive analytical strategy could incorporate a statistical technique such as the Bonferroni correction to adjust for the inflated Type I error rate (Pallant, 2007).

Limitations to employing secondary analysis of existing datasets, such as the lack of control over data quality and the potential for key variables of interest to be missing, often reflect differing research priorities between the primary and secondary analyst (Bryman, 2008). In the current study, the classification of ethnic groups in the HSE 2004 was a case in point. As described earlier in Chapter 5, Section 5.2.3, the HSE 2004 sought to classify participants into one of nine ethnic group categories (Black Caribbean, Black African, Indian, Pakistani, Bangladeshi, Chinese, Irish, White, and other), which was achieved using a computer aided personal interviewing (CAPI) programme. An assessment of the validity of the CAPI system against the participants’ original responses to questions on ethnicity revealed 373 incidences of discordance, resulting from misclassification, imputed classification and the aggregation of multiple ethnic groups. To overcome these issues, a revised classification system was devised to create a transparent method of classifying participants into more valid and homogeneous ethnic group categories.

Whilst the level of detail in the HSE 2004 dataset on the seven target ethnic minority groups² was sufficient to create an improved system with which to classify such participants, the same could not be said for the White majority group and White minority groups, other than the White Irish group. Due to the lack of questions on White ethnic origins, the classification of the White English reference group employed in the current analysis was based on participants having identified as being White and having been born in England. An obvious limitation to this classification is the potential inclusion of second and third generation migrants from other countries who would otherwise be classified as belonging to a specific White minority group. This issue is returned to in the recommendations set out in Section 8.5.

The measures of SEP employed in the current study included: education level, economic status, social class, and income level. The indicator for education level was limited in that participants with foreign qualifications ($n=147$) were excluded from the analysis. This was essentially due to

² Namely, Black Caribbean, Black African, Indian, Pakistani, Bangladeshi, Chinese, and White Irish.

the lack of information in the HSE 2004 dataset on the equivalence between ‘foreign qualifications’ and the extensive list of qualifications common within the UK (see Appendix B.8 for details). Participants in full-time education (n=1,350) and those with qualifications below GCSEs (n=484) were also excluded from the analyses. Consequently, a trade-off between subgroup sample size and homogeneity of categories was made in deriving the education level variable.

A trade-off was also made in the construction of the indicator for economic status. Specifically, participants who were ‘looking after the home or family’ (n=1,645), ‘permanently unable to work because of long-term sickness’ (n=526), ‘intending to work but prevented by temporary sickness or injury’ (n=57), ‘looking for paid work’ (n=322), and ‘waiting to take up paid work’ (n=25) were collapsed into the category ‘economically inactive’ due to their small subgroup sample sizes. Notably, the category ‘looking after the home or family’ was predominantly comprised of women (n=1564; 95%), thus meaning further stratification by gender and ethnic group for this category would have resulted in subgroup sample sizes for men that were too small for analysis.

The issues outlined above highlight some of the compromises commonly required in using existing datasets. The HSE 2004 also provided a number of advantages over previous data sets, such as its inclusion of the new and improved measure of social class, the National Statistics Socio-economic Classification system (NS-SEC), and a selection of standardised measures of subjective health. With respect to the availability of different health outcomes, the current study was able to demonstrate intersections of social inequalities across three dimensions of health, namely, general health, psychological wellbeing, and health-related quality of life. As such, variations between the outcomes were captured in the analysis, thus highlighting the complex and multidimensional nature of health and its associations with gender, ethnicity and indicators of SEP.

With respect to the use of subjective measures of health, a number of authors have highlighted the need to exercise caution when measuring health status across different social groups (Angel & Gronfein, 1988; Ren & Amick, 1996; Sproston & Mindell, 2006a). For example, the authors of the HSE 2004 suggested that ‘issues of culture and interpretation may influence the survey results’, further adding that the ‘meanings and values that each minority ethnic group and the general population give to the question terms are not necessarily identical’ (Sproston & Mindell, 2006a, p. 26). Whilst unobserved heterogeneity in self-reported measures of health is worthy of careful consideration, little evidence to date has been demonstrated to reinforce this concern.

As mentioned earlier in Chapter 2, Chandola and Jenkinson (2000) set out to address this issue in the context of ethnicity by testing the validity of using self-rated health to measure health status in different ethnic groups. This was achieved by measuring the association of self-rated health (a single item measure with a 5-point rating scale from excellent to poor) with more objective measures of morbidity (i.e. hypertension, cardiovascular disease, diabetes, limiting health, and number of visits to a doctor) in four ethnic group categories (i.e. White, Caribbean, Indian, Pakistani/Bangladeshi). Using national survey data from the Fourth National Survey of Ethnic Minorities and six waves of the Health Survey for England, their findings revealed the association between self-rated health and the measures of morbidity did not significantly differ between ethnic groups. Furthermore, their findings add support to two earlier studies which failed to find differences between ethnic groups in the association of self-rated health with mortality (Jylha et al., 1998; Strawbridge & Wallhagen, 1999). The authors conclude by suggesting that ‘the use of a single item measure of self-rated health to measure health status in different ethnic groups is valid’ (Chandola & Jenkinson, 2000, p.158).

A further limitation concerns the cross-sectional nature of the data collected in the HSE 2004, which meant the current analyses were largely restricted to the examination of associations between variables as opposed to an examination of causality which may have been achieved with longitudinal data (Mann, 2003). This argument is particularly true in the case of variables which may change over time. In the current study, the variables of economic status and income level represent two such examples. Without temporal data it is unclear whether unemployment and low income levels are the causes of poor health, or whether poor health leads to unemployment and a lower income. Similarly, temporal data are necessary for the assessment of cumulative effects of social disadvantage on health over the life course. However, for variables which are unlikely to change over time, such as gender, ethnicity, and educational level, a temporal sequence can more easily be inferred (Bailey et al., 2007). Ultimately, the findings from the quantitative analysis represent a snapshot of the patterning of social inequalities in health in England in 2004.

8.4.2 Qualitative phase

A notable strength of the qualitative phase of the mixed methods study was in the success of the recruitment strategy. Specifically, the community based sample frame yielded a high response rate, with 16 of the 18 women approached agreeing to participate in the interviews. A further nine women were then successfully recruited through existing interview informants using snowball sampling techniques. This success most likely reflects the invaluable use of informal networking via community-based programmes in the 12 months leading up to the interviews,

which subsequently provided the opportunity to advertise the study and build a rapport with potential interviewees. The positive response to the recruitment strategy in turn enabled the purposive sampling criteria to be met, thus ensuring that interview data were collected from a diverse sample of women.

Whilst the sampling strategy was highly successful both in terms of finding volunteers and meeting the selection criteria, the recruitment of informants via community-based programmes may have introduced a sampling bias. For instance, fifteen of the twenty-five informants were recruited either directly or indirectly (via snowballing) from a community development course held at the Pakistani Muslim centre in Sheffield. It is possible therefore that the people attending this course and the people they later recommended to take part in the study were more likely to be attuned to the experiences of Pakistani and White English people than the general population at large.

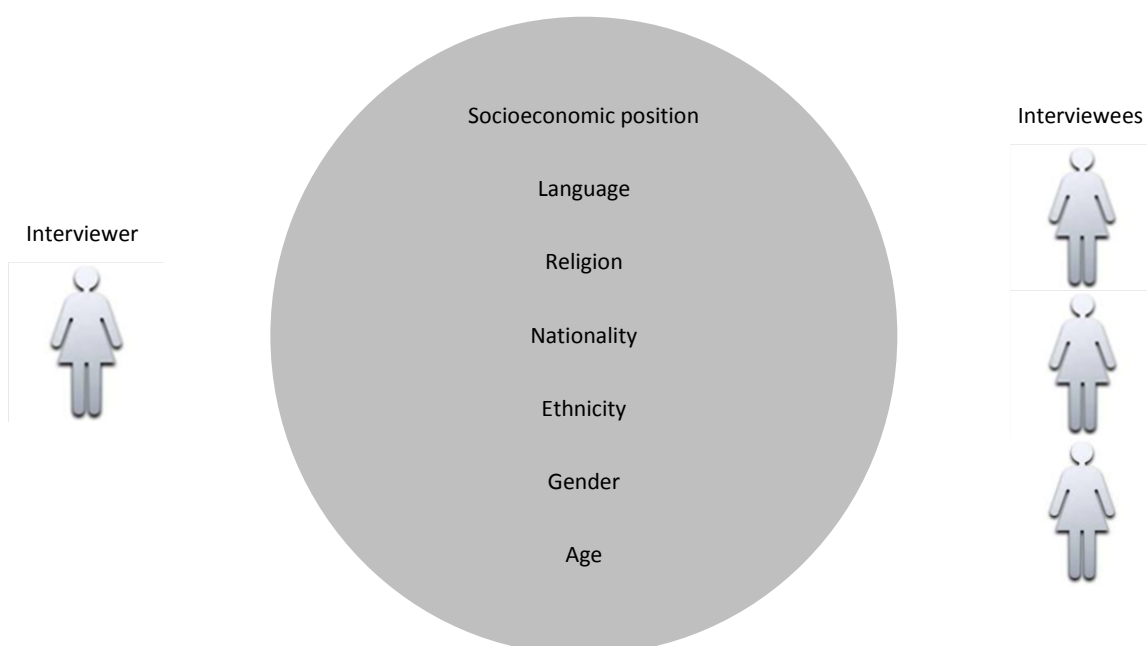
The effect of this sampling approach on the data may in turn help explain why the views expressed by informants during the interviews were strikingly liberal, demonstrating a higher degree of cultural awareness than perhaps might be expected from the general public. For instance, whilst the data revealed many stereotypes of both Pakistani and White English men and women, only one of the White English informants explicitly expressed views towards Pakistanis which were arguably xenophobic in nature. Whilst the effect of sampling bias cannot be ruled out, two further explanations for the lack of prejudice expressed by the informants can also be put forward. Firstly, given the multicultural makeup of Sheffield and the surrounding towns, the lack of prejudice expressed by the sample may simply be a reflection of the heightened cultural awareness that comes from living in such an ethnically diverse city. Secondly, the informants may have felt reluctant to disclose any racist, sexist, or classist views during the interview on the basis that most people deem these to be socially unacceptable or politically incorrect. A conscious effort was made by the researcher to ensure that the informants were free to express their views whether or not they could be interpreted as stereotypes or other forms of prejudice. Examples of such views were also included, where relevant, in the findings to ensure an accurate representation of the informants' perceptions and understandings was upheld.

A point for discussion concerning the recruitment of interviewees and the collection of interview data relates to the intersection of the social identities between the interviewer and interviewees. As highlighted by Hankivsky and colleagues (2010), 'Too often, research teams consider the application of intersectionality towards the subject of their research but fail to begin with themselves as researchers.' Following the understanding that dimensions of our social

identity afford us dominant, equal, and subordinate positions of power relative to others, the question raised is whether or not these dynamics bear an influence on the outcome of the interview? In other words, does being in a position of power or a position of equal power enable an interviewee to feel more at ease and therefore more forthcoming in sharing their thoughts and experiences? To take ethnicity as an example, some authors have suggested that a shared ethnicity affords the interviewer an 'insider' status, thus facilitating the rapport between interviewer and interviewee, subsequently yielding rich data (Zinn, 1979; May, 1993). Conversely, others contend that a shared ethnicity can risk assumptions being made and topics left underexplored by the 'insider' interviewer, in addition to interviewees feeling reluctant to share certain views through fear of being judged (Grewal & Ritchie, 2006).

Recommendations for the ethnic and/or gender-matching of interviewers with interviewees have also been criticised for being overly simplistic in failing to recognise the potential interplay of multiple social statuses. As described by Merton (1972, p.22), 'This neglects the crucial fact of social structure that individuals have not a single status but a status set: a complement of variously interrelated statuses which interact to affect both their behaviour and perspectives.' To illustrate this point, Figure 8.1 depicts the wide range of dimensions (in no particular order) identified as forming the social identities of the interviewer and interviewees in the current study.

Figure 8.1 Intersecting social identities of the interviewer and interviewees



In light of the complexity of social identities and the multiple dynamics potentially at work at any one time, it is difficult to judge the extent to which a shared ethnicity or a shared gender might have an influence on the interviewee and quality of data retrieved, as indicated by Phoenix (1994, p.56):

The simultaneity of 'race', social class, gender, (assumed) sexuality and age make it extremely difficult to tease apart the aspects of the interviewer which are having an impact on the interviewee or on the power dynamics between the interviewer and interviewee.

Furthermore, the findings from a recent review of the public health survey literature concluded that there is little evidence to suggest the matching of interviewers and interviewees on 'sociodemographic characteristics' improves response rates or data validity (Davis et al., 2010).

Reflecting on the current study, the lack of ethnic-matching between the interviewer and the sample of Pakistani women did not appear to have a detrimental effect on either the quantity or quality of data, given how forthcoming the women were in sharing rich insights into the topics discussed. Interestingly, the only interviewee to show signs of reticence in expressing her opinions on the topics of discrimination and racism towards Pakistani men and women was of White English ethnicity. A definite strength of the qualitative phase was the ease with which the interviewer established a positive rapport with each of the interviewees, whether meeting in person for the first time or having met prior to the interview.

One important limitation to the recruitment and collection of data in the qualitative phase was the lack of provision for non-English speaking Pakistani women to participate in interviews. This was due to the interviewer being unable to speak Punjabi, Pashto, Sindi or Urdu, and due to a lack of funds to cover translation and interpreter costs. The importance of language matching in qualitative research stems from the need for informants to discuss their feelings, thoughts and experiences in considerable depth, which in so doing requires a shared vocabulary (Grewal & Ritchie, 2006). As described in Chapter 7, Section 7.2.4.4, the two Pakistani interview informants who were not fluent in English were given a shortened version of the interview to allow for any extra time needed. The first participant chose to complete the interview in English and demonstrated a good understanding of the questions asked. The second participant chose to complete the interview in a combination of Urdu and English, with the questions and answers translated by a female relative fluent in both languages. Whilst this process appeared to work well, there were two occasions where the relative appeared to offer her own response to the question rather than translating that of the informant. These instances,

coupled with the shortened version of the interview meant the data collected from these informants were considerably limited. Whilst the remaining Pakistani interview informants were all fluent in English, the findings from the study cannot be said to be inclusive of the perspectives of non-English speaking Pakistani women in South Yorkshire. Future studies wishing to capture the perspectives of both English and non-English speaking Pakistani women would therefore benefit from a research team comprising members fluent in the languages of potential interviewees.

With respect to exploration of intersections in gender, ethnicity, and SEP with health, a key strength of the qualitative phase of the study was in the use of simple bar charts to illustrate the intersecting associations. The visual means of displaying the quantitative findings greatly facilitated the presentation of a complex set of relationships between variables and outcomes and was well received by the interview informants. A less successful component of the interview process was the direct question at the end of the interview designed to capture informants' understandings of intersectionality (see Chapter 7, Section 7.4.5). Specifically, the phrasing of the question referring to whether 'factors all combine together' could be construed from both an additive or intersectional perspective:

Do you think those factors, gender, and ethnicity, and socioeconomic position, do you think they have separate effects on people's health and wellbeing or do you think those factors all combine together to affect people's health and wellbeing?

As explained by Bowleg (2008, p.314), 'the additive approach posits that social inequality increases with each additional stigmatised identity' which essentially conceives such inequalities to be 'separate, independent, and summative'. The term 'combine' could easily be interpreted in this context, and indeed was the case for a few informants who described social inequalities to function as a process of accumulative disadvantage. For the majority of informants, however, the term 'combine' did elicit understandings of social identities as mutually constitutive. The responses to the above question are valuable in their own right in revealing the range of understandings as to how social inequalities are perceived to relate to one another. However, in seeking to ascertain whether independence or interdependence is the overriding process, a less ambiguous question is recommended.

With respect to the findings from the qualitative analysis, a selection of techniques, including constant comparison, deviant case analysis, and peer debriefing were employed to maximise the credibility of the findings, as described in Chapter 7, Section 7.2.6. Whilst each are well-

established measures, the addition of respondent validation would have added to the credibility of the findings in providing confirmation from the interview informants themselves as to the interpretation of their narratives (Lewis & Ritchie, 2009).

8.4.3 Mixed methods design

A major strength of the current study was in using a mixed methods research design to examine intersections of social inequalities in health. To reiterate the rationale made in Section 8.3.2, the integration of quantitative and qualitative methods effectively enabled a more comprehensive understanding of intersections of gender, ethnicity and SEP in health to be gleaned than if quantitative or qualitative methods alone had been employed. As illustrated in Section 8.2 above, the sequential explanatory design was effective in meeting the two research objectives of the study. Specifically, the first, quantitative, phase of the study successfully provided strong evidence for the presence of significant intersections in gender, ethnicity, and SEP in health among adults in England. After selecting a subset of significant results from these findings, the second, qualitative, phase of the study was then able to capture rich insights into the explanatory and contextual factors underlying these intersections, as perceived by White English and Pakistani women from corresponding socioeconomic backgrounds. The benefits of using the large scale representative sample of the HSE 2004 dataset to increase the generalisability of the quantitative findings were therefore complemented by the in-depth understandings and lived experiences revealed in the qualitative interviews, thus providing a contextualised and comprehensive assessment of intersections of social inequalities in health in England.

With respect to the limitations of the mixed methods design employed in this study, some important issues need to be raised. Firstly, the quantitative and qualitative phases of the study employed separate samples of adults due to the necessary restrictions on accessing participants from existing surveys, in this case the HSE 2004 sample. According to Creswell and Plano-Clark (2007), the use of different samples in a sequential explanatory design can act as a potential threat to the validity of the study if the participants recruited in the qualitative phase of the study are unlikely to be able to explain the significant results identified in the quantitative phase. In the current study, the quantitative results identified for further explanation related to Pakistani and White English adults of low to high socioeconomic positions, living in England. Given the generic nature of the social groups represented in these findings, it was possible to select a separate but corresponding sample of informants for the qualitative phase of the study, based on the purposive selection criteria set out in Chapter 7, Table 7.1. Whilst the samples were comprised of different individuals, they were essentially drawn from the same broad population, namely the White English and Pakistani adult population of England.

Secondly, an issue related to the use of different samples was the difference in time periods covered by the quantitative and qualitative data collection phases. The informants in the qualitative phase of the study were therefore presented with findings from a survey conducted five years earlier. A potential implication of this time difference is that contextual and explanatory factors specific to the year in which the survey data were collected may have been captured more effectively in the informants' accounts if the interviews had been held during the same time period.

Thirdly, an important difference between the two samples was the exclusion of men from the qualitative phase. As described in Chapter 7, Section 7.2.3, the time and resource constraints of the study meant the inclusion of adequately sized samples of male and female informants of Pakistani and White English ethnicity and of a diverse range of socioeconomic backgrounds was not feasible. The qualitative interviews were therefore restricted to exploring the perceptions of Pakistani and White English women alone. Notwithstanding the value of the findings from the perspectives of women, the absence of a male perspective represents an important limitation to the study in terms of gaining insights into why and how 'gender' intersects with ethnicity and SEP in health. Since research concerning gender and health has historically shown a tendency to equate 'gender' solely with women's health (Hunt & Annandale, 1999), it is important to clarify the pragmatic basis of this exclusion. A similar criticism of the current study relates to the selection of significant quantitative results for further exploration being restricted to just two ethnic groups. This decision was again made for pragmatic reasons given the wide range of ethnic groups found to have significant interaction effects with health. As such, these limitations are addressed in the recommendations for further research in the following section.

A further potential criticism of the study relates to the choice of mixed methods design employed. As outlined in Section 4.4 of Chapter 4, a sequential explanatory mixed methods design was chosen to best meet the research objectives in using qualitative data to enrich and expand upon the findings generated from the quantitative data. In practice this entailed the collection of qualitative interview data focused on the findings of three significant intersections identified in the analysis of the HSE 2004. Two potential limitations to this approach were firstly in focusing the data on specific intersections at the cost of gathering broader understandings of intersectionality; and, secondly, in presenting informants with a set of significant findings to explain at the risk of leading the line of discussion. With regards to the first point, the adoption of a triangulation design, in which quantitative and qualitative data are collected in parallel, offers an alternative approach from which both quantitative and qualitative

data could be gathered to explore the topic of intersectionality more broadly. With regards to the second point, it is important to note that the informants were asked to speculate as to whether they felt an intersection may or may not exist, prior to being shown the quantitative findings for the intersection. For example, in relation to the intersection between gender and ethnicity in general health, the informants were asked: “Would you expect to see very good and good health to be higher among White English women, higher among White English men, or about the same for White English men and women?” The same question was then asked of Pakistani men and women, as shown in Appendix C.7. Furthermore as highlighted in Section 8.4.2, the presentation of concrete examples of intersections to discuss was well received by the informants. Arguably this may not have been the case had hypothetical examples been described instead. Given the complexity of intersectionality as a concept, there is a risk that attempts to discuss intersectionality more generally may prove to be less accessible to the lay public than through the use of simple concrete examples.

8.5 Recommendations

Drawing on the key findings and the strengths and limitations to the study outlined above, the following sections put forward a number of recommendations with relevance to future research, policy and practice.

8.5.1 Future research

In order to achieve a deeper understanding of the explanatory and contextual factors underlying the intersections of social inequalities in health within the time frame of this study, it was necessary to narrow the focus of the qualitative phase to the findings for just two ethnic groups and one gender group. Further research is therefore needed to explore the significant interactions identified for other ethnic groups in the HSE 2004, such as the Indian and Black Caribbean ethnic groups. In relation to the findings for the Pakistani and White English samples, further qualitative work to explore the perceptions of Pakistani and White English men would enable a fuller understanding encompassing the insights and experiences of both men and women. Looking beyond the findings of the current study, further studies employing intersectional approaches are needed to develop our understanding as to how other important dimensions of social inequalities, such as age, sexuality, and disability, intersect with health. The availability of longitudinal data with adequate coverage of social groups would also enable researchers to explore the intersectional nature of social inequalities in health over time.

As highlighted in Section 8.3 and 8.4 above, the classification of ethnic groups in health survey research is a complex and imperfect process, but of vital importance if ethnic inequalities in health are to be successfully measured and reduced. The first recommendation, which would have considerable benefits for users of secondary data, is for better transparency of ethnic classification methods used in national data sets. For instance, if participants are assigned to ethnic groups differing to the categories they themselves select, this needs to be acknowledged. Similarly, if ethnic group categories are aggregated into broader groupings, this needs to be made explicit.

The second recommendation is for better classification of White majority, White minority, and mixed ethnic groups in data sets. In order to distinguish between the White English majority ethnic group and the many White minority ethnic groups living in England, questionnaires need to incorporate specific questions which capture the diversity of White ethnic origins. Notably, the lack of attention given to White ethnic groups in social surveys and health research is indicative of the tendency for researchers to equate 'ethnicity' with 'non-white' groups (De Bono, 1998). This issue raises a number of important implications of relevance to the study of social inequalities in health, as illustrated by Aspinall (1998, p.1797):

The conceptualisation of ethnicity as primarily the social identity of minorities has meant that the range of invisible groups hidden in an ostensibly homogenous white category has not been explored, even though the members of some of these groups are subject to discrimination and disadvantage common to minorities with their own group labels.

The classification of mixed ethnicity groups is particularly challenging for researchers seeking to represent homogenous ethnic group categories, given the wide range of subgroups within this heterogeneous category. Bhopal (2004, p.444), for example, has described how 'the way to categorise people born of such unions is unclear and the current approaches are inadequate, partly because the number of potential categories is huge'. A fundamental question in need of address regarding mixed ethnicity is whether mixed ethnicity is seen to be a meaningful form of identity to the people categorised within this broad group? Furthermore, does the experience of mixed ethnicity in relation to health vary between different mixed ethnicity groups? Qualitative data from a recent study of 65 interviews with 'mixed race' men and women attending universities in the UK found the majority of respondents did not feel 'a sense of kinship with other mixed people' (Song, 2010, p.351). Furthermore, data from the interviews revealed considerable diversity in experiences of identity within mixed ethnicity groups. For instance, respondents of part Black ethnicity were more likely to experience constraints on their mixed identity due to other people seeing them primarily as Black. By comparison respondents of part

South Asian, East Asian, or Arab ethnicity were more likely to be seen by others as White. The intersection of ethnicity and gender was also evident among the respondents' experiences of being of mixed ethnicity. For example, female respondents in the study were more likely to report positive experiences of being mixed, whilst male respondents were more likely to describe experiences of racism (Song, 2010, p.353).

Given the complex and dynamic nature of mixed ethnicity and the diversity of experience, particularly in relation to racism and its established association with poor psychological health (Paradies, 2006), further research is needed to explore how best to capture intersections of mixed ethnicity, gender, SEP and health (Song, 2010). From a qualitative perspective, to crudely give primacy to one ethnic origin over another as practised in the HSE 2004, or to treat people of mixed ethnicity as a unified social group is unlikely to capture the lived experience of people belonging to these groups. From a quantitative perspective, the capture of interaction effects may in practice be restricted to the more populous mixed ethnic group categories given the requirement for large subgroup sample sizes for such analyses.

8.5.2 Policy and practice

The findings presented from this study demonstrate that significant inequalities in health exist at the intersection of social groups. This evidence has important implications for the targeting of policies that seek to reduce social inequalities in health. Programmes which set out to tackle ethnic inequalities in health may, for instance, fail to address the issues specific to ethnic minority women or to members of ethnic minority groups in the lowest socioeconomic positions. To illustrate this problem, a key issue raised in the interviews with Pakistani women living in South Yorkshire was the lack of leisure and social facilities available for Pakistani women to engage in. Specifically, cultural barriers in the form of mixed-sex settings were described as preventing many Pakistani women from accessing swimming pools, gyms, and exercise classes. By contrast, mixed-sex settings were not seen to act as a cultural barrier for Pakistani men. The need for better access to leisure facilities and opportunities for social engagement in the local communities was strongly expressed by many of the Pakistani women interviewed. Another important issue to emerge from the interviews was the impact of language barriers on access to health care. Specifically, better provision for non-English speaking men and women attending GP surgeries was highlighted by many of the Pakistani women interviewed.

Taking a broader perspective, the prevalence of racial and gender discrimination evident in the data, in addition to the stark socioeconomic inequalities between many of the ethnic groups,

highlights a fundamental need to reduce the level of inequality between social groups. In so doing a reduction in health inequalities will inevitably follow.

8.6 Conclusion

This mixed methods study has demonstrated the value of research investigating the role of intersectionality in health inequalities in England. The systematic review of the UK literature identified the study of intersections of gender, ethnicity, and SEP in health as an important gap in the health inequalities literature. In addressing this gap, the quantitative analysis of the HSE 2004 successfully identified significant interaction effects between gender, ethnicity, and indicators of SEP in three measures of subjective health among adults living in England. The results found each dimension of inequality to interact significantly with at least one other on one or more of the health outcomes.

Focusing on a subset of the significant intersections in relation to Pakistani and White English men and women, the qualitative analysis captured rich insights into the contextual and explanatory factors perceived to underlie these intersections. The key themes to emerge from the interviews with the sample of Pakistani and White English women living in South Yorkshire revealed how overlapping systems of discrimination were perceived to explain the poorer health experienced by Pakistani women. The narratives were also successful in illuminating the changing nature of socio-cultural contexts within which explanations for the intersections were framed. In particular, tensions within and between changing gender roles and pressures experienced by Pakistani women living between cultures with conflicting expectations were highlighted in the narratives.

The findings from this study add to the emerging international literature of intersectionality research in recognising the need to develop a better understanding of intersections of social inequalities in order to reduce inequalities in health. By taking account of intersectionality to identify social groups at risk of multiplicative disadvantage, policies seeking to reduce inequalities in health may be better informed to target interventions at those most in need.

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Appendix A: Systematic Review Methods

A.1 Bibliographic databases

Ovid MEDLINE, 1950 to July 2008.

<http://ovidsp.tx.ovid.com/spb/ovidweb.cgi> (accessed 24 July 2008).

Ovid EMBASE, 1980 to July 2008.

<http://ovidsp.tx.ovid.com/spb/ovidweb.cgi> (accessed 24 July 2008).

Applied Social Sciences Index and Abstracts (ASSIA) accessed via Cambridge Scientific Abstracts, 1987 to July 2008.

http://csaweb111v.csa.com.eresources.shef.ac.uk/ids70/advanced_search.php?SID=0lhcdc1d0s5v17abc1f9bc95r2&tab_collection_id=0 (accessed 24 July 2008).

Social Sciences Citation Index (SCCI) accessed via Web of Science, 1956 to July 2008.

http://apps.isiknowledge.com.eresources.shef.ac.uk/WOS_GeneralSearch_input.do?highlighted_tab=WOS&product=WOS&last_prod=WOS&search_mode=GeneralSearch&SID=W1ljNJ2mAO73GKJhk13 (accessed 23 July 2008).

Ovid Econlit, 1969 to July 2008.

<http://ovidsp.tx.ovid.com.eresources.shef.ac.uk/spb/ovidweb.cgi> (accessed 23 July 2008).

Ovid PsycINFO, 1967 to July 2008.

<http://ovidsp.tx.ovid.com.eresources.shef.ac.uk/spb/ovidweb.cgi> (accessed 24 July 2008).

The Cochrane Library 2008, Issue 4, 1991 to August 2008.

<http://www3.interscience.wiley.com/cgi-bin/mrwhome/106568753/HOME?CRETRY=1&SRETRY=0> (accessed 21 August 2008).

Copac, 1100 to July 2008.

<http://www.copac.ac.uk/> (accessed 24 July 2008).

A.2 Grey literature databases

Index to Theses, 1716 to July 2008.

<http://www.theses.com.eresources.shef.ac.uk/> (accessed 24 July 2008).

Health Management Information Consortium (HMIC), 1919 to October 2008.

<http://ovidsp.tx.ovid.com/spb/ovidweb.cgi> (accessed 6 October 2008).

Turning Research Into Practice (TRIP), start of records to October 2008.

<http://www.tripdatabase.com/index.html> (accessed 6 October 2008).

Specialist Library for Ethnicity and Health, NHS National Library for Health, start of records to September 2008.

<http://www.library.nhs.uk/ethnicity/> (accessed 18 September 2008).

Google Scholar.

http://scholar.google.co.uk/advanced_scholar_search?hl=en&lr=lang_en (accessed 3 November 2008).

A.3 Search strategy for MEDLINE

The MEDLINE database was accessed via OvidSP to search indexed articles dating back to 1950. The search strategy included a combination of mapped terms and free text search terms for each key concept. Search limits were applied for study population type; language; age group and search fields.

Date	Search Set	Search Terms [†]	Operator	Limits	Hits
24-7-08	#1	Ethnic Groups, Minority Groups, Emigrants and Immigrants[all MeSH]; race, racial groups [mapped terms]; ethnic*, minorit*, race, racial, immigrant*.	OR		135,703
	#2	Gender Identity, Women, Men [all MeSH]; gender, men, women.	OR		622,019
	#3	Health Status, Health Status Indicators, Quality of Life [all MeSH]; personal satisfaction [mapped term]; reported health, assessed health, rated health, perceived health, global health, health status, quality of life, morbidity, life satisfaction, EQ-5D, SF-36, SF-12, wellbeing, well-being, well being, general health questionnaire, GHQ12.	OR		323,999
	#4	Social Class, Socioeconomic Factors [all MeSH]; socioeconomic, socio-economic, social class, economic status, employment status, occupational class, income, wealth, education, housing tenure, housing amenities, car access, social inequalit*.	OR		532,469
	#5	#1, #2, #3, #4.	AND	Humans, English language, Abstracts, 13-18 yrs, 19+ yrs.	1453

Notes: [†] = free text terms unless stated otherwise. [MeSH] = medical subject headings. [mapped term] = search terms mapped to titles, original titles, abstracts, subject heading words. * = truncation symbol.

A.4 Search strategy for EMBASE

The EMBASE database was accessed via OvidSP to search articles published between 1980 and July 2008. Searches were made using both free text and mapped terms specific to the database. Limits were applied for the study population, language and search field.

Date	Search Set	Search Terms [†]	Operator	Limits	Hits
24-7-08	#1	ethnic or racial aspects, ethnic difference, ethnicity, race difference, race, ethnic minority, Ethnic Group, Immigrant [mapped terms]; ethnic*, minorit*, race, racial, immigrant*, migrant*.	OR		127,656
	#2	gender, sex [mapped terms]; gender, men, women.	OR		515,496
	#3	health, health status, wellbeing, quality of life, life satisfaction, morbidity [mapped terms]; assessed health, rated health, reported health, global health, life satisfaction, quality of life, general health questionnaire, GHQ12, EQ-5D, SF-36, SF-12, wellbeing, well-being, well being, morbidity.	OR		319,269
	#4	social status, socioeconomics, social class, education, income, employment status [mapped terms]; socioeconomic, socio-economic, social class, education, income, employment, social inequalit*.	OR		327,152
	#5	#1, #2, #3, #4.	AND	Humans, English language, Abstracts.	1377

Notes: [†] = free text terms unless stated otherwise. [mapped terms] = search terms mapped to titles, original titles, abstracts, subject heading words. * = truncation symbol.

A.5 Search strategy for the Applied Social Sciences Index and Abstracts (ASSIA)

The ASSIA database which indexes literature in the social sciences dating back to 1987, was accessed via Cambridge Scientific Abstracts. The ASSIA thesaurus facility was used to search for key search terms and related terms. Searches were limited to the English language and article abstracts.

Date	Search Set	Search Terms [†]	Operator	Limits	Hits
24-7-08	#1	immigrants, ethnic groups, ethnic minorities, ethnicity, race, racial groups [thesaurus terms]; ethnic*, minorit*, race, racial, immigrant*, migrant*.	OR	Abstract	20,707
	#2	gender differences, gender [thesaurus terms]; gender, men, women.	OR	Abstract	49,533
	#3	subjective wellbeing, wellbeing, health, health status, life satisfaction, morbidity, psychological wellbeing, quality of life [thesaurus terms]; assessed health, rated health, reported health, global health, life satisfaction, quality of life, general health questionnaire, GHQ 12, EQ-5D, SF-36, SF-12, well being, well-being, wellbeing, morbidity.	OR	Abstract	71,364
	#4	income, earnings, employment status, qualifications, social class, socioeconomic status [thesaurus terms]; socioeconomic, socio-economic, social class, education, income, employment, social inequalit*.	OR	Abstract	41,768
	#5	#1, #2, #3, #4.	AND	English language, Abstract.	445

Notes: [†] = free text terms unless stated otherwise. * = truncation symbol.

A.6 Search strategy for the Social Sciences Citation Index (SSCI)

The SSCI database was accessed via Web of Science to search a collection of references dating back to 1956. The search strategy was restricted to free text terms due to the lack of available mapping or thesaurus tools. Searches were limited to the English language and topic keywords.

Date	Search Set	Search Terms [†]	Operator	Limits	Hits
23-7-08	#1	ethnic*, minorit*, race, racial, immigrant*.	OR	English Language, Topic.	99,169
	#2	gender, men, women.	OR	English Language, Topic.	<100,000
	#3	reported health, assessed health, rated health, perceived health, global health, health status, quality of life, morbidity, life satisfaction, EQ-5D, SF-36, SF-12, wellbeing, well-being, well being, general health questionnaire, GHQ 12, morbidity.	OR	English Language, Topic.	<100,000
	#4	socioeconomic, socio-economic, social class, economic status, employment status, occupational class, income, wealth, education, housing tenure, housing amenities, car access, social inequalit*.	OR	English Language, Topic.	327,152
	#5	#1, #2, #3, #4.	AND	English language.	3674

Notes: [†] = free text terms unless stated otherwise. * = truncation symbol.

A.7 Search strategy for Econlit

The Econlit database was accessed via OvidSP to search for articles from the economics literature published between 1969 and July 2008. Free text searches were employed as no thesaurus or mapping tools were available for this database.

Date	Search Set	Search Terms [†]	Operator	Limits	Hits
25-7-08	#1	ethnic*, minorit*, race, racial, immigrant*.	OR	Title, Abstract, Heading words.	21,081
	#2	gender, men, women.	OR	Title, Abstract, Heading words.	20,522
	#3	reported health, assessed health, rated health, perceived health, health status, quality of life, morbidity, life satisfaction, EQ-5D, SF-36, SF-12, wellbeing, well-being, general health questionnaire, GHQ 12, depression, mental health.	OR	Title, Abstract, Heading words.	7,266
	#4	socioeconomic, socio-economic, social class, economic status, employment, occupational class, income, wealth, education, housing tenure, housing amenities, car access, social inequalit*.	OR	Title, Abstract, Heading words.	152,578
	#5	#1, #2, #3, #4.	AND	English language, Abstracts.	87

Notes: [†] = free text terms unless stated otherwise. * = truncation symbol.

A.8 Search strategy for PsycINFO

The PsycINFO database was accessed via OvidSP to search for articles dating back to 1967 up until July 2008. The map term tool in PsycINFO was used to search for synonyms for each of the key concepts. The final search employed a combination of mapped terms and free text terms. Searches were limited to humans, English language, and title/abstract.

Date	Search Set	Search Terms [†]	Operator	Limits	Hits
25-7-08	#1	Ethnic Identity, Racial and Ethnic Groups, Minority Groups, race (anthropological), racial and ethnic differences, immigrants [mapped terms]; ethnic*, minorit*, race, racial, immigrant*.	OR		95,578
	#2	Gender identity, Human Males, Human Females [mapped terms]; gender, men, women.	OR		283,860
	#3	quality of life, life satisfaction, well being/health status, health-related quality of life, reported health, assessed health, global health, rated health, perceived health, morbidity, general health questionnaire [mapped terms]; reported health, assessed health, rated health, perceived health, health status, quality of life, morbidity, life satisfaction, EQ-5D, SF-36, SF-12, wellbeing, well being, well-being, general health questionnaire, GHQ12.	OR		72,456
	#4	socioeconomic status, family socioeconomic level, income level, social class, income (economic), economic status, Employment Status/occupational class, wealth, Educational Attainment Level, Academic Achievement/housing tenure, car access, housing amenities, social inequalities [mapped terms]; socio-economic, socioeconomic, social class, economic status, employment status, occupational class, income, wealth, education, housing tenure, housing amenities, car access, social inequalit*.	OR		238,164
	#5	#1, #2, #3, #4.	AND	Humans, English language, Abstracts, 13-17yrs, 18+yrs.	621

Notes: [†] = free text terms unless stated otherwise. [mapped terms] = search terms mapped to titles and abstracts.
* = truncation symbol.

A.9 Search strategy for the Cochrane Library

The Cochrane Library (Issue 4) was searched for relevant systematic reviews dating back to 1991. The library contains a collection of databases including: the Cochrane Database of Systematic Reviews (CDSR); the Database of Abstracts of Reviews of Effects (DARE); the Cochrane Central Register of Controlled Trials (CENTRAL); the Cochrane Methodology Register (CMR); the Health Technology Assessment Database (HTA); and the NHS Economic Evaluation Database (NHS EED). The search strategy employed a combination of MeSH and free text search terms for each key concept. Searches were limited to the title, abstract and keywords of each article.

Date	Search Set	Search Terms [†]	Operator	Limits	Hits
21-8-08	#1	Ethnic Groups, Minority Groups, Emigrants and Immigrants, Minority Health [all MeSH]; ethnic*, minorit*, race, racial, immigrant.	OR	Title, Abstract, Keywords.	4433
	#2	Gender Identity, Women, Men [all MeSH]; gender, men, women.	OR	Title, Abstract, Keywords.	62,699
	#3	Quality of Life, Health Status Disparities, Health Status [all MeSH]; reported health, assessed health, rated health, perceived health, health status,, morbidity, life satisfaction, EQ-5D, SF-36, SF-12, wellbeing, well-being, well being, general health questionnaire, GHQ 12.	OR	Title, Abstract, Keywords.	76,652
	#4	Socioeconomic Factors (explode tree 2) [MeSH]; socioeconomic, socio-economic, social class, economic status, employment status, occupational class, income, wealth, education, housing tenure, housing amenities, car access, social inequalit*.	OR	Title, Abstract, Keywords.	22,122
	#5	#1, #2, #3, #4.	AND	Title, Abstract, Keywords.	115

Notes: [†] = free text terms unless stated otherwise. MeSH = medical subject headings. * = truncation symbol.

A.10 Search strategy for Copac

A broad search strategy using free text terms was used to identify relevant works listed in the Copac Library Catalogue database. The Copac database indexes collections dating back to 1100 from the British Library, National Library of Scotland and a further 27 research libraries.

Date	Search Set	Search Terms [†]	Operator	Limits	Hits
24-7-08	#1	Ethnicity, health.	AND	English, Title.	85
	#2	Race, health.	AND	English, Title.	202
	#3	Ethnicity, gender, health.	AND	English, Title.	10
	#4	Ethnicity, health, socioeconomic status.	AND	English, Keywords.	37
	#5	Socioeconomic status, health.	AND	English, Title.	18
	#6	Social class, health.	AND	English, Title.	63

Notes: [†] = free text terms unless stated otherwise.

A.11 Search strategy for Index to Theses

The database Index to Theses was searched to identify any past theses covering the research topic. Index to theses contains bibliographical information on theses accepted for higher degrees by the universities of Great Britain and Ireland, and by the Council for National Academic Awards, dating back to 1716.

Date	Search Set	Search Terms [†]	Operator	Limits	Hits
24-7-08	#1	ethnicity, race, racial, minority, immigrant.	OR		
	#2	health, wellbeing, well-being, quality of life, life satisfaction, morbidity.	OR		
	#3	#1, #2.	AND		365
	#4	ethnic, ethnicity, race, racial, minority, immigrant, migrant.	OR		
	#5	health, wellbeing, well-being, quality of life, life satisfaction, morbidity.	OR		
	#6	socioeconomic, socio-economic, social class, education, income, employment, social inequality.	OR		
	#7	gender, men, women.	OR		
	#8	#4, #5, #6, #7.	AND		63

Notes: †= free text terms unless stated otherwise.

A.12 Search strategy for the Health Management Consortium (HMIC)

The HMIC database contains published articles and grey literature on health service policy, management and administration, dating back to 1919. The database was accessed via OvidSP and explored using a combination of mapped and free text search terms. No limits were applied to the searches.

Date	Search Set	Search Terms [†]	Operator	Limits	Hits
6-10-08	#1	ethnic minorities, ethnic groups [mapped terms]	OR		2521
	#2	Immigrants [mapped term]			169
	#3	ethnic*, race, racial, minorit*, immigrant*, migrant*.	OR		7708
	#4	#1, #2, #3.	OR		7708
	#5	sex differences [mapped term]			307
	#6	gender groups [mapped term]			54
	#7	gender, women, men.	OR		14,179
	#8	#5, #6, #7.	OR		14,236
	#9	health status, health, health status measures [mapped terms]	OR		4552
	#10	quality of life [mapped term]			1704
	#11	assessed health, rated health, reported health, global health, life satisfaction, quality of life, general health questionnaire, GHQ 12, EQ-5D, SF-36, SF-12, well being, wellbeing, well-being, morbidity.	OR		19,117
	#12	#9, #10, #11.	OR		22,490
	#13	socioeconomic status [mapped term]			387
	#14	socioeconomic factors, educational status, employment status [mapped terms]	OR		1827
	#15	social class [mapped term]			388
	#16	Socioeconomic, socio-economic, social class, education, income, employment, social inequality*.	OR		32,486
	#17	#13, #14, #15, #16.	OR		32,487
	#18	#4, #8, #12, #17.	AND		121

Notes: †= free text terms unless stated otherwise. * = truncation symbol. [mapped terms] = search terms mapped to titles, other titles, abstracts and heading words.

A.13 Search strategy for Turning Research into Practice (TRIP)

The TRIP database was searched using free text search terms applied to the titles and text of indexed articles.

Date	Search Set	Search Terms [†]	Operator	Limits	Hits
6-10-08	#1	ethnic*, race.	OR	Title, Text.	5190
	#2	gender.			3043
	#3	Health, well being, wellbeing, well-being.	OR	Title, Text.	7738
	#4	socio-economic, socioeconomic, income, education, employment.	OR	Title, Text.	7536
	#5	#1, #2, #3, #4.	AND	Title, Text.	262

Notes: [†] = free text terms unless stated otherwise. * = truncation symbol.

A.14 Search strategy for the NHS Ethnicity and Health Specialist Library

The Specialist Library for Ethnicity and Health was accessed via the NHS National Library for Health. The library indexes literature considered to be the 'best available evidence relevant to minority ethnic groups and cultures present in Britain in significant numbers' (add ref <http://www.library.nhs.uk/ethnicity/page.aspx?pagename=NUSH> accessed 29-12-08). The search was performed by examining relevant topic headings from the library collection for key references.

Date	Search Set	Search	Operator	Limits	Hits
18-09-08	#1	Topic = Diseases and Conditions > Subtopic = Mental Health			10
	#2	Topic = Management and Policy > Subtopic = Research and Development			6
	#3	Topic = Management and Policy > Subtopic = Race Equality			3
	#4	Topic = Statistics			3

A.15 Search strategy for Google Scholar

A basic search of the web engine Google Scholar™ was performed using free text search terms. The search was limited to English language articles published in the subject areas of (i) Biology, Life Sciences, and Environmental Science; (ii) Medicine, Pharmacology, and Veterinary Science; and (iii) Social Sciences, Arts and Humanities. As the search engine is designed to display references in order of relevance¹, only the first 100 hits were extracted from the search.

Date	Search Set	Search Terms	Operator	Limits	Hits
03-11-08	#1	ethnicity, race.	OR		
	#2	health, well-being	OR		
	#3	socioeconomic position, socio-economic status	OR		
	#4	#1, #2, #3.	AND	English Language, Subject area.	21,600

¹ Articles are ranked by 'weighing the full text of each article, the author, the publication in which the article appears, and how often the piece has been cited in other scholarly literature'.

A.16 Critical appraisal checklist for quantitative studies²

ITEM	CRITICAL APPRAISAL CHECKLIST Quantitative Evidence	ASSESSMENT			
		Yes	No	Unclear	N/A
	Study Aim and Design				
1	The study addresses an appropriate and clearly focused question.				
2	The study uses an appropriate design to answer the question.				
	Selection of Study Participants				
3	The study employs a random or probability sample to minimise bias.				
4	The response rate is reported.				
5	Differences between responders and non-responders are assessed.				
6	The study sample is representative of the target population.				
	Ethnic Group Definition				
7	The method of assigning participants to ethnic groups is clearly described.				
8	The ethnic origin of participants is accurately measured.				
9	The study employs separate and specific ethnic group categories.				
	Exposure Measurement				
10	The measures of socioeconomic position (SEP) are clearly defined.				
11	Valid and reliable measures of SEP are employed.				
	Outcome Measurement				
12	The measure(s) of health status is clearly defined.				
13	A valid and reliable health status measure is employed.				
14	The measure(s) of psychological wellbeing is clearly defined.				
15	A valid and reliable psychological wellbeing measure is employed.				
	Data Analysis				
16	The study identifies age and gender as potential confounders.				
17	The confounders are controlled for in the study design and/or analysis.				
18	The results report the probability values for outcomes.				
19	The results report the confidence intervals or standard errors for outcomes.				
	Generalisability				
20	The results of the study can be generalised to the target population.				

² Checklist adapted from CASP (2004) and SIGN (2004).

A.17 Supporting notes to the critical appraisal checklist for quantitative studies

- 1: The study addresses an appropriate and clearly focused question.**
Yes: Study aim, including population, exposure and outcome clearly addressed.
No: Not addressed.
Unclear: Not clearly addressed.
- 2: The study uses an appropriate design to answer the question.**
Yes: Cross-sectional study for prevalence and associations; cohort study for incidence or effects over time; qualitative study for understanding perceptions.
No: Study design not suited to research question.
Unclear: Study design and/or research question not clearly stated.
- 3: The study employs a random or probability sample to minimise bias.**
Yes: Random, probability, or stratified sample used.
No: Convenience sample used.
Unclear: Sampling strategy not reported.
- 4: The response rate is reported.**
Yes: Response rate reported.
No: Response rate not reported.
Unclear: Response rate not reported but can be calculated from data presented.
- 5: Differences between responders and non-responders are assessed.**
Yes: Differences tested.
No: Differences not tested.
- 6: The study sample is representative of the target population.**
Yes: No apparent differences between study sample and target population.
No: Systematic differences between study sample and target population.
Unclear: Insufficient information provided to determine representation.
- 7: The method of assigning participants to ethnic groups is clearly described.**
Yes: Method clearly described..
No: Method not described.
Unclear: Method partially described.
- 8: The ethnic origin of participants is accurately measured.**
Yes: Participants provide their own description of their ethnic origin.
No: The researcher selects the ethnic origin on behalf of participants.
Unclear: Participants select their ethnic origin from a predefined list.
- 9: The study employs separate and specific ethnic group categories.**
Yes: Specific group categories are employed, e.g. Indian, Pakistani and Bangladeshi, White English, Irish, White minority.
No: Broad categories are employed, e.g. White, Black, Asian, South Asian, other, etc..
Unclear: Specific ethnic groups are employed but then combined in the analysis, e.g. Pakistani and Bangladeshi.
- 10: The measures of socioeconomic position (SEP) are clearly defined.**
Yes: Clear description of SEP indicator and levels of measurement.
No: No description of how SEP indicator is measured.
Unclear: Partial description of SEP indicator and levels.
- 11: Valid and reliable measures of SEP are employed.**

Yes: Evidence of validity (objective) and reliability (same across groups) stated.
No: No evidence of validity or reliability stated.
Unclear: Evidence of validity and reliability partially stated.

12: The measure(s) of health status is clearly defined.

Yes: Clear description of health status measure and levels reported.
No: No description of health status or levels reported.
Unclear: Partial description of health status and levels.

13: A valid and reliable health status measure is employed.

Yes: Evidence of validity and reliability (same across groups) stated.
No: Evidence of validity and reliability not stated.
Unclear: Evidence of validity and reliability partially stated.

14: The measure(s) of psychological wellbeing (PW) is clearly defined.

Yes: Clear description of PW tool and levels reported.
No: No description of PW tool and levels reported.
Unclear: Partial description of PW tool or levels provided.

15: A valid and reliable psychological wellbeing measure is employed.

Yes: Evidence of validity and reliability stated.
No: Evidence of validity and reliability not stated.
Unclear: Evidence of validity and reliability partially stated.

16: The study identifies age and gender as potential confounders.

Yes: Age and gender identified.
No: Age or gender or neither identified.
Unclear:

17: The confounders are controlled for in the study design and/or analysis.

Yes: Stratification, standardisation or modelling for age and gender.
No: No adjustment made.
Unclear: Adjustment made for only one confounder or only for some analyses.

18: The results report the probability values for outcomes.

Yes: P-values provided.
No: P-values not provided.
Unclear: P-values not provided for all results.

19: The results report the confidence intervals (CIs) or standard errors (SEs) for outcomes.

Yes: CIs or SEs provided.
No: CIs or SEs provided.
Unclear: CIs or SEs not provided for all results.

20: The results of the study can be generalised to the target population.

Yes: No significant differences between people, places and times.
No: Significant difference between people, places or times.
Unclear: Not enough information to decide.

A.18 Critical appraisal checklist for qualitative studies³

ITEM	CRITICAL APPRAISAL CHECKLIST Qualitative Evidence	ASSESSMENT			
		Yes	No	Unclear	N/A
1	Study Aim and Design The study provides a clear statement of the research aim.				
2	A qualitative research design is appropriate.				
3	Selection of Study Participants The study describes how and why the participants were selected.				
4	Ethnic Group Description The method of assigning participants to ethnic groups is clearly described.				
5	The study employs separate and specific ethnic group categories.				
6	Data Collection The method of data collection is clearly described.				
7	The choice of data collection methods is justified.				
8	Research Ethics Ethical issues are adequately addressed.				
9	Data Analysis The data analysis is sufficiently rigorous.				
10	Reflexivity The relationship between researcher and participants is considered and described.				
11	Findings A clear statement of findings is provided.				
12	Research Value The research offers a valuable contribution to the literature.				

A.19 Supporting notes to the critical appraisal checklist for qualitative studies⁴

- 1. The study provides a clear statement of the research aim.**
Yes: Study aim and its importance are clearly stated.
No: No statement provided.
Unclear: Unclear statement provided.
- 2. A qualitative research design is appropriate.**
Yes: Justification for qualitative research design is provided, e.g. the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants.
No: Quantitative methods would be more appropriate.
Unclear: Justification for qualitative methods not provided.
- 3. The study describes how and why participants were selected.**
Yes: Full description provided.
No: No description provided.
Unclear: Partial description provided.
- 4. The method of assigning participants to ethnic groups is clearly described.**
Yes: Method clearly described.
No: Method not described.
Unclear: Method partially described.

³ Checklist adapted from CASP (2006).

⁴ Notes adapted from CASP (2006).

5. The study employs separate and specific ethnic group categories.

Yes: Specific group categories are employed, e.g. Indian, Pakistani and Bangladeshi, White English, Irish, White minority.

No: Broad categories are employed, e.g. White, Black, Asian, South Asian, other, etc..

Unclear: Specific ethnic groups are employed but then combined in the analysis, e.g. Pakistani and Bangladeshi.

6. The method of data collection is clearly described.

Yes: The setting and method of data collection are described.

No: No description provided.

Unclear: Limited description provided.

7. The choice of data collection methods is justified.

Yes: Justification provided.

No: Justification not provided.

Unclear: Partial justification provided.

8. Ethical issues are adequately addressed.

Yes: Study has ethical approval and issues concerning ethics are discussed.

No: Study provides no discussion on ethical issues.

Unclear: Study provides limited information.

9. The data analysis is sufficiently rigorous.

Yes: Full description of analysis provided and sufficient data provided to support the findings.

No: No description of analysis; or insufficient data provided to support the findings.

Unclear: Limited description of analysis and limited supporting data provided.

10. The relationship between researcher and participants is considered and described.

Yes: Critical examination of the researcher's own role, potential bias and influence reported.

No: Not reported.

Unclear: Partially reported.

11. A clear statement of findings is provided.

Yes: Discussion of evidence for and against researcher's arguments and credibility of findings.

No: No discussion provided.

Unclear: Limited discussion provided.

12. The research offers a valuable contribution to the literature.

Yes: Discussion of the study's contribution to the existing literature, transferability of findings and recommendations for future research provided.

No: No discussion provided.

Unclear: Limited discussion provided.

A.20 Critical appraisal checklist and supporting notes for mixed methods studies⁵

ITEM	CRITICAL APPRAISAL CHECKLIST Mixed methods evidence	ASSESSMENT			
		Yes	No	Unclear	N/A
1	Definition The study is defined using the term 'mixed methods research' or a comparable term.				
2	Justification The reasons for collecting both quantitative and qualitative data are provided.				
3	Design The choice of mixed methods research design is clearly described.				
4	Integration The quantitative and qualitative results are reported in combination.				
5	Reflective Critique The strengths and weaknesses of the mixed methods research and design are addressed.				

1. The study is defined using the term 'mixed methods research' or a comparable term.

- Yes: The terms 'mixed methods', 'mixed methodology', or 'quantitative and qualitative methods' are used.
- No: No such terms are used.
- Unclear: An alternative term is used.

2. The reasons for collecting both quantitative and qualitative data are provided.

- Yes: Justification for the collection of quantitative and qualitative data is provided.
- No: No justification provided.
- Unclear: Partial justification provided.

3. The choice of mixed methods research design is clearly described.

- Yes: Study refers to a sequential (explanatory; exploratory), concurrent (triangulation; embedded), or alternative terminology.
- No: No description provided.
- Unclear: Partial description provided.

4. The quantitative and qualitative results are reported in combination.

- Yes: Results are reported in combination or in sequence with reference to the first set of results.
- No: Results are reported separately with no integration.
- Unclear: Results are reported separately with some integration.

5. The strengths and weaknesses of the mixed methods research and design are discussed.

- Yes: Full discussion provided.
- No: No discussion provided.
- Unclear: Limited discussion provided.

⁵ Checklist and notes adapted from Creswell & Plano-Clark (2007).

A.21 Quality assessment results for quantitative studies

Study	Study aim and design		Selection of study participants			
	1. Study addresses an appropriate & clearly focused question	2. Study uses an appropriate design to answer question.	3. Study employs a random or probability sample to minimise bias.	4. Response rate is reported.	5. Differences between responders and non-responders assessed.	6. Study sample is representative of target population.
1. Cochrane & Stopes-Roe (1981)	Yes	Yes	Yes	Yes	Yes	Unclear
2. Mavreas & Bebbington (1987)	Yes	Yes	Yes	Yes	No	Unclear
3. Shams & Jackson (1994)	Yes	Yes	Unclear	Yes	No	Unclear
4. Fenton et al. (1995)	Yes	Yes	No	No	Yes	No
5. Jenkins et al. (1997)	Yes	Yes	Yes	Yes	Yes	Yes
6. Nazroo (1997a)	Yes	Yes	Yes	Yes	Unclear	Yes
7. Nazroo (1997b)	Yes	Yes	Yes	Yes	Yes	Yes
8. Williams & Hunt (1997)	Yes	Yes	Yes	No	No	Yes
9. Silveira & Ebrahim (1998)	Yes	Yes	No	Yes	Yes	No
10. Chandola (2001)	Yes	Yes	Yes	No	No	Yes
11. Erens et al. (2001)	Yes	Yes	Yes	Yes	Yes	Yes
12. Cooper (2002)	Yes	Yes	Yes	Yes	No	Yes
13. Karlsen & Nazroo (2002)	Yes	Yes	Yes	No	No	Yes
14. Shields & Wailoo (2002)	Yes	Yes	Yes	Yes	No	Yes
15. Sproston & Nazroo (2002) ^{MM}	Yes	Yes	Yes	Yes	Yes	Yes
16. Nazroo (2003)	Yes	Yes	Yes	No	No	Yes
17. Shields & Price (2003)	Yes	Yes	Yes	Yes	No	No
18. Moriarty & Butt (2004) ^{MM}	Yes	Yes	No	No	No	No
19. Weich et al. (2004)	Yes	Yes	Yes	Yes	No	Yes
20. Huang & Spurgeon (2006) ^{MM}	Yes	Yes	No	Yes	No	No
21. Kelaher et al. (2008)	Yes	Yes	No	Yes	No	No
22. Smith et al. (2009)	Yes	Yes	Yes	No	No	Yes
Total 'Yes' ratings:	22 [100%]	22 [100%]	16 [73%]	15 [68%]	7 [32%]	13 [59%]

Quality assessment results for quantitative studies: continued

Study	Measurement of ethnicity			Measurement of SEP		Outcome measurement
	7. Method of assigning participants to ethnic groups clearly described.	8. Ethnic origin of participants is accurately measured.	9. Study employs separate & specific ethnic group categories.	10. Measures of socioeconomic position clearly defined.	11. Valid and reliable measures of SEP employed.	12. Measure of health status clearly defined.
1. Cochrane & Stopes-Roe (1981)	No	Unclear	Yes	Yes	No	N/A
2. Mavreas & Bebbington (1987)	Yes	No	Yes	Yes	No	N/A
3. Shams & Jackson (1994)	No	Unclear	Unclear	No	No	N/A
4. Fenton et al. (1995)	Yes	Unclear	Yes	Yes	No	Yes
5. Jenkins et al. (1997)	Yes	Unclear	Unclear	Yes	No	N/A
6. Nazroo (1997a)	Yes	Unclear	No	Yes	No	Yes
7. Nazroo (1997b)	Yes	Unclear	No	Yes	No	N/A
8. Williams & Hunt (1997)	No	Unclear	No	Yes	No	N/A
9. Silveira & Ebrahim (1998)	No	Unclear	No	Yes	No	N/A
10. Chandola (2001)	Yes	Unclear	Unclear	Yes	No	Yes
11. Erens et al. (2001)	Yes	Unclear	No	Unclear	No	Unclear
12. Cooper (2002)	Yes	Unclear	No	Yes	No	Yes
13. Karlsen & Nazroo (2002)	Yes	Unclear	Unclear	Yes	No	Unclear
14. Shields & Wailoo (2002)	Unclear	Unclear	Unclear	Unclear	No	N/A
15. Sproston & Nazroo (2002) ^{MM}	Yes	Unclear	No	Unclear	No	Yes
16. Nazroo (2003)	No	Unclear	Yes	Yes	No	Yes
17. Shields & Price (2003)	Yes	Unclear	Yes	Yes	No	N/A
18. Moriarty & Butt (2004) ^{MM}	Yes	Unclear	No	Unclear	No	Unclear
19. Weich et al. (2004)	Yes	Unclear	No	No	No	N/A
20. Huang & Spurgeon (2006) ^{MM}	No	Unclear	Yes	No	No	N/A
21. Kelaher et al. (2008)	Unclear	Unclear	No	Unclear	No	Unclear
22. Smith et al. (2009)	Yes	Unclear	Yes	Yes	No	Yes
Total 'Yes' ratings:	14 [64%]	0 [0%]	7 [32%]	14 [64%]	0 [0%]	7 [64%]

Quality assessment results for quantitative studies: continued

Study	Outcome measurement			Confounding	
	13. Valid & reliable health status measure employed.	14. Measure of psychological wellbeing clearly defined.	15. Valid & reliable measure of psychological wellbeing employed.	16. Study identifies age & gender as potential confounders.	17. Confounders controlled for in study design or analysis.
1. Cochrane & Stopes-Roe (1981)	N/A	Yes	Unclear	No	No
2. Mavreas & Bebbington (1987)	N/A	Yes	Yes	Unclear	Unclear
3. Shams & Jackson (1994)	N/A	Unclear	Unclear	Yes	Unclear
4. Fenton et al. (1995)	Unclear	N/A	N/A	Yes	Yes
5. Jenkins et al. (1997)	N/A	Yes	Unclear	Yes	Yes
6. Nazroo (1997a)	Unclear	N/A	N/A	Yes	Yes
7. Nazroo (1997b)	N/A	Yes	Yes	Yes	Yes
8. Williams & Hunt (1997)	N/A	Yes	Unclear	Yes	Unclear
9. Silveira & Ebrahim (1998)	N/A	Yes	Unclear	No	Unclear
10. Chandola (2001)	Yes	N/A	N/A	Yes	Unclear
11. Erens et al. (2001)	No	Yes	Unclear	Yes	Yes
12. Cooper (2002)	Yes	N/A	N/A	Yes	Yes
13. Karlsen & Nazroo (2002)	No	Yes	Yes	Yes	Yes
14. Shields & Wailoo (2002)	N/A	Yes	No	Yes	Yes
15. Sproston & Nazroo (2002) ^{MM}	Unclear	Yes	Unclear	Yes	Unclear
16. Nazroo (2003)	No	N/A	N/A	No	No
17. Shields & Price (2003)	N/A	Yes	No	Yes	Yes
18. Moriarty & Butt (2004) ^{MM}	Unclear	N/A	N/A	Unclear	Unclear
19. Weich et al. (2004)	N/A	Yes	Yes	Yes	Yes
20. Huang & Spurgeon (2006) ^{MM}	N/A	Yes	Yes	Yes	Unclear
21. Kelaher et al. (2008)	No	Unclear	No	No	Unclear
22. Smith et al. (2009)	Yes	N/A	N/A	Yes	Yes
Total 'Yes' ratings:	3 [27%]	13 [87%]	5 [33%]	16 [73%]	11 [50%]

Quality assessment results for quantitative studies: continued

Study	Chance		External reliability	Ratings Summary	
	18. Results report probability values for outcomes.	19. Results report CIs or SEs for outcomes.	20. Results of the study can be generalised to target population.	Yes	Per cent
1. Cochrane & Stopes-Roe (1981)	Yes	N/A	Unclear	9	53%
2. Mavreas & Bebbington (1987)	Yes	No	Unclear	10	56%
3. Shams & Jackson (1994)	Yes	Yes	Unclear	6	33%
4. Fenton et al. (1995)	N/A	N/A	No	9	56%
5. Jenkins et al. (1997)	No	Yes	Yes	13	72%
6. Nazroo (1997a)	No	Yes	Yes	12	67%
7. Nazroo (1997b)	Unclear	No	Unclear	12	67%
8. Williams & Hunt (1997)	Yes	Yes	Yes	10	56%
9. Silveira & Ebrahim (1998)	Yes	Yes	No	8	44%
10. Chandola (2001)	No	Yes	Yes	11	61%
11. Erens et al. (2001)	No	Yes	Unclear	11	55%
12. Cooper (2002)	Yes	No	Yes	13	72%
13. Karlsen & Nazroo (2002)	No	Yes	Yes	12	60%
14. Shields & Wailoo (2002)	No	No	Yes	9	50%
15. Sproston & Nazroo (2002) ^{MM}	Unclear	Yes	Yes	12	60%
16. Nazroo (2003)	No	No	Unclear	7	39%
17. Shields & Price (2003)	Yes	No	No	11	61%
18. Moriarty & Butt (2004) ^{MM}	Yes	N/A	No	4	24%
19. Weich et al. (2004)	Yes	Yes	Unclear	12	67%
20. Huang & Spurgeon (2006) ^{MM}	Yes	N/A	No	8	47%
21. Kelaher et al. (2008)	Yes	Yes	No	5	25%
22. Smith et al. (2009)	Yes	Yes	Yes	14	70%
Total 'Yes' ratings:	12 [57%]	12 [67%]	9 [41%]		

A.22 Quality assessment results for qualitative studies:

Study	Study Aim and Design		Participant Selection	Ethnic Group Description	
	1. Study provides a clear statement of research aim	2. Qualitative research design is appropriate	3. Study describes how & why participants were selected	4. Method of assigning participants to ethnic groups clearly described.	5. Study employs separate and specific ethnic group categories.
15. Sproston & Nazroo (2002) ^{MM}	Yes	Yes	Yes	Yes	Yes
18. Moriarty & Butt (2004) ^{MM}	Yes	Yes	Yes	Yes	No
20. Huang & Spurgeon (2006) ^{MM}	Yes	Yes	No	No	Yes
23. Wray (2003)	Yes	Yes	No	Yes	Yes
24. Barn & Sidhu (2004)	Yes	Yes	Yes	Yes	Yes
Total 'Yes' ratings:	5 [100%]	5 [100%]	3 [60%]	4 [80%]	4 [80%]

Study	Data Collection		Research Ethics	Data Analysis	Reflexivity
	6. Data collection method clearly described	7. Data collections method justified	8. Ethical issues adequately addressed	9. Data analysis sufficiently rigorous	10. Relationship between researcher & participants described
15. Sproston & Nazroo (2002) ^{MM}	Yes	Yes	Yes	Yes	Yes
18. Moriarty & Butt (2004) ^{MM}	Yes	Yes	Unclear	Unclear	Yes
20. Huang & Spurgeon (2006) ^{MM}	Unclear	Yes	No	Unclear	Unclear
23. Wray (2003)	Yes	No	No	No	No
24. Barn & Sidhu (2004)	Yes	No	No	No	No
Total 'Yes' ratings:	4 [80%]	3 [60%]	1 [20%]	1 [20%]	2 [40%]

Study	Findings	Research Value	Ratings Summary	
			Yes	Per Cent
	11. Clear statement of findings provided	12. Research offers valuable contribution to literature	Yes	Per Cent
15. Sproston & Nazroo (2002) ^{MM}	Yes	Yes	12	100%
18. Moriarty & Butt (2004) ^{MM}	Yes	Yes	9	75%
20. Huang & Spurgeon (2006) ^{MM}	Yes	Yes	6	50%
23. Wray (2003)	Yes	Yes	7	58%
24. Barn & Sidhu (2004)	Yes	Yes	8	67%
Total 'Yes' ratings:	5 [100%]	5 [100%]		

A.23 Quality assessment results for mixed methods studies

Study	1. Study uses 'mixed methods' or comparable term	2. Rationale for collecting qualitative and quantitative data provided	3. Choice of mixed methods research design clearly described	4. Qualitative and quantitative results reported in combination	5. Strengths and weaknesses of mixed methods research addressed	Ratings Summary	
						Yes	Per Cent
15. Sproston & Nazroo (2002) ^{MM}	Yes	Yes	Unclear	Yes	No	3	60%
18. Moriarty & Butt (2004) ^{MM}	Unclear	Unclear	Unclear	Yes	Unclear	1	20%
20. Huang & Spurgeon (2006) ^{MM}	Yes	Yes	Unclear	Yes	Unclear	3	60%
Total 'Yes' ratings:	2 [67%]	2 [67%]	0 [0%]	3 [100%]	0 [0%]		

Appendix B: Quantitative Phase Methods

B.1 CAPI classification coding system

Details of the coding used in the CAPI program to identify participants belonging to the ethnic groups of interest are provided below.

```

CAPI CODE:

DEthnic.KEEP
  IF (EthnicH = White AND (Irish = No OR Irish = NONRESPONSE)) THEN
    DEthnic:= White
  ELSEIF (EthnicH = White AND Irish = Yes)
    OR (EthnicH = Mixed AND Irish = Yes AND MixMum = Other) THEN
    DEthnic:= Irish
    AnyIri := Yes
  ELSEIF (EthnicH = Black AND (Caribbean IN BlaCult))
    OR (EthnicH = Mixed AND ((BritCarib IN MixCult)
    OR MixMum = MothCarib OR MixFath = FathCarib))
    OR (BlaCarib IN Origin) OR (MixMumO = MothCarib) THEN
    DEthnic:= Caribbean
    AnyCar := Yes
  ELSEIF (EthnicH = Black AND (African IN BlaCult))
    OR (EthnicH = Mixed AND ((BritAfr IN Mixcult) OR MixMum = MothAfr
    OR MixFath = FathAfr)) OR (BlaAfri IN Origin) OR (MixMumO =
MothAfr) THEN
    DEthnic:= BlackAfrican
    AnyAfr := Yes
  ELSEIF (EthnicH = Asian
    AND ((AfrIndia IN IndCult) OR (CarrInd IN IndCult)
    OR (Indian IN IndCult)))
    OR (EthnicH = Mixed
    AND ((BritAfI IN MixCult) OR (BritCarI IN MixCult)
    OR (BritInd IN MixCult)
    OR MixMum = MothInd OR MixFath = FathInd))
    OR (AfrInd IN Origin) OR (IndCarib IN Origin) OR (Indian IN
Origin)
    OR (MixMumO = MothInd) THEN
    DEthnic:= Indian
    AnyInd := Yes
  ELSEIF (EthnicH = Asian AND (Pakistani IN IndCult))
    OR (EthnicH = Mixed AND ((BritPak IN Mixcult) OR MixMum = MothPak
    OR MixFath = FathPak)) OR (Pakistani IN Origin) OR (MixMumO =
MothPak) THEN
    DEthnic:= Pakistani
    AnyPak := Yes
  ELSEIF (EthnicH = Asian AND (Bangladeshi IN IndCult))
    OR (EthnicH = Mixed AND ((BritBang IN Mixcult) OR MixMum =
MothBang
    OR MixFath = FathBang)) OR (Bangladeshi IN Origin)
    OR (MixMumO = MothBang) THEN
    DEthnic:= Bangladeshi
    AnyBang:= Yes
  ELSEIF (Chinese IN OthCult) OR (Chinese IN Origin)
    OR (EthnicH = Mixed AND ((BritChin IN Mixcult) OR MixMum =
MothChin
    OR MixFath = FathChin)) OR (MixMumO = MothChin) THEN
    DEthnic:= Chinese
    AnyChin:= Yes
  ELSE

```

Source: Information Centre (2008)

B.2 HSE 2004 questions for ethnic group variable (Dmethn04) and expanded classification system

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]
	<input type="checkbox"/> White (Go to Q.2) <input type="checkbox"/> Mixed ethnic group (Go to Q.2 and Q.3) <input type="checkbox"/> Black (Go to Q.6) <input type="checkbox"/> Black British (Go to Q.6) <input type="checkbox"/> Asian (Go to Q.7) <input type="checkbox"/> Asian British (Go to Q.7) <input type="checkbox"/> Any other group (Go Q.8 and Q.9)
Q.2:	Can I just check were you or either of your parents born in Ireland?
	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know
Q.3:	What is your cultural background? [Code all that apply]
	<input type="checkbox"/> White and Black Caribbean <input type="checkbox"/> White and Black African <input type="checkbox"/> White and Indian <input type="checkbox"/> White and Pakistani <input type="checkbox"/> Any other cultural background (Go to Q.4 and Q.5) <input type="checkbox"/> White and Bangladeshi <input type="checkbox"/> White and Indian Caribbean <input type="checkbox"/> White and African-Indian <input type="checkbox"/> White and Chinese
Q.4:	What is your (natural) mother's cultural background?
	<input type="checkbox"/> Black Caribbean <input type="checkbox"/> Black African <input type="checkbox"/> Indian <input type="checkbox"/> Pakistani <input type="checkbox"/> Bangladeshi <input type="checkbox"/> Chinese <input type="checkbox"/> Or any other cultural background
Q.5:	White is your (natural) father's cultural background?
	<input type="checkbox"/> Black Caribbean <input type="checkbox"/> Black African <input type="checkbox"/> Indian <input type="checkbox"/> Pakistani <input type="checkbox"/> Bangladeshi <input type="checkbox"/> Chinese <input type="checkbox"/> Or any other cultural background
Q.6:	What is your cultural background? Is it: [Code all that apply]
	<input type="checkbox"/> Caribbean <input type="checkbox"/> African <input type="checkbox"/> Any other cultural background (specify)
Q.7:	What is your cultural background? Is it: [Code all that apply]
	<input type="checkbox"/> Indian <input type="checkbox"/> Pakistani <input type="checkbox"/> Bangladeshi <input type="checkbox"/> Indian Caribbean <input type="checkbox"/> African Indian <input type="checkbox"/> Any other cultural background (specify)
Q.8:	What is your cultural background? Is it: [Code apply that apply]
	<input type="checkbox"/> Chinese <input type="checkbox"/> Japanese <input type="checkbox"/> Philippino <input type="checkbox"/> Vietnamese <input type="checkbox"/> Any other cultural background (specify)
Q.9:	Does your family have origins which are... [Code all that apply]
	<input type="checkbox"/> Black Caribbean <input type="checkbox"/> Black African <input type="checkbox"/> Indian <input type="checkbox"/> Pakistani <input type="checkbox"/> Bangladeshi <input type="checkbox"/> Chinese <input type="checkbox"/> Indian Caribbean <input type="checkbox"/> African Indian <input type="checkbox"/> Any other cultural background (specify)

B.3 CAPI classification of ethnic groups in HSE 2004 data set (Dmethn04)

Details of how the CAPI program coding translates into the ethnic group categories of the derived variable for ethnicity (DMETHN04) in the HSE 2004 data set are provided below. Q1 to Q9 refer to the questions outlined in Section B.2 above.

a) Participants were coded as being White if they selected:

- Q1: White AND Q2: No or nonresponse.

Ethnic origins included:

- White group (not born in Ireland)
- White group (missing data on Ireland)

b) Participants were coded as being Irish if they selected:

- Q1: White AND Q2: Yes; or

- Q1: Mixed ethnic group AND Q2: Yes and Q4: Other.

Ethnic origins included:

- White group (born in Ireland)
- White group (one or more parents born in Ireland)
- Mixed ethnicity group (any other mixed group cultural background)

c) Participants were coded as being Caribbean if they selected:

- Q1: Black or Black British AND Q6: Caribbean; or

- Q1: Mixed ethnic group AND Q3: White and Black Caribbean; or

- Q1: Mixed ethnic group AND Q3: Any other cultural background AND Q4: Black Caribbean; or

- Q1: Mixed ethnic group AND Q3: Any other cultural background AND Q4: Other cultural background AND Q5: Black Caribbean; or

- Q1: Any other group AND Q9: Black Caribbean; or

- Q1: Any other group AND Q9: Black Caribbean plus another group AND Q10: Black Caribbean.

Ethnic origins included:

- Black or Black British group and Caribbean cultural background
- Mixed ethnicity group and White and Black Caribbean cultural background
- Mixed ethnicity group and other mixed ethnicity cultural background and mother with Black Caribbean cultural background
- Mixed ethnicity group and other mixed ethnicity cultural background and father with Black Caribbean cultural background
- Any other group and Black Caribbean family origins

d) Participants were coded as being Black African if they selected:

- Q1: Black or Black British AND Q6: African; or

- Q1: Mixed ethnic group AND Q3: White and Black African; or

- Q1: Mixed ethnic group AND Q3: Any other cultural background AND Q4: Black African; or

- Q1: Mixed ethnic group AND Q3: Any other cultural background AND Q4: Other cultural background AND Q5: Black African; or

- Q1: Any other group AND Q9: Black African; or

- Q1: Any other group AND Q9: Black African plus another group AND Q10: Black African.

Ethnic origins included:

- Black or Black British group and African cultural background
- Mixed ethnicity group and White and Black African cultural background
- Mixed ethnicity group and other mixed ethnicity cultural background and mother with Black African cultural background
- Mixed ethnicity group and other mixed ethnicity cultural background and father with Black African cultural background
- Any other group and Black African family origins

e) Participants were coded as being Indian if they selected:

- Q1: Asian OR Asian British AND Q7: Indian; or
- Q1: Asian OR Asian British AND Q7: African Indian; or
- Q1: Asian OR Asian British AND Q7: Indian Caribbean; or
- Q1: Mixed ethnic group AND Q3: White and Indian; or
- Q1: Mixed ethnic group AND Q3: White and African Indian; or
- Q1: Mixed ethnic group AND Q3: White and Indian Caribbean; or
- Q1: Mixed ethnic group AND Q3: Any other cultural background AND Q4: Indian; or
- Q1: Mixed ethnic group AND Q3: Any other cultural background AND Q4: Other cultural background AND Q5: Indian; or
- Q1: Any other group AND Q9: Indian; or
- Q1: Any other group AND Q9: African Indian; or
- Q1: Any other group AND Q9: Indian Caribbean; or
- Q1: Any other group AND Q9: Indian OR African Indian OR Indian Caribbean plus another group AND Q10: Indian.

Ethnic origins included:

- Asian or Asian British group and Indian cultural background
- Asian or Asian British group and African Indian cultural background
- Asian or Asian British group and Indian Caribbean cultural background
- Mixed ethnicity group and White and Indian cultural background
- Mixed ethnicity group and White and African Indian cultural background
- Mixed ethnicity group and White and Indian Caribbean cultural background
- Mixed ethnicity group and other mixed ethnicity cultural background and mother with Indian cultural background
- Mixed ethnicity group and other mixed ethnicity cultural background and father with Indian cultural background
- Any other group and Indian family origins
- Any other group and African Indian family origins
- Any other group and Indian Caribbean family origins

f) Participants were coded as being Pakistani if they selected:

- Q1: Asian OR Asian British AND Q7: Pakistani; or
- Q1: Mixed ethnic group AND Q3: White and Pakistani; or
- Q1: Mixed ethnic group AND Q3: Any other cultural background AND Q4: Pakistani; or
- Q1: Mixed ethnic group AND Q3: Any other cultural background AND Q4: Other cultural background AND Q5: Pakistani; or
- Q1: Any other group AND Q9: Pakistani; or
- Q1: Any other group AND Q9: Pakistani plus another group AND Q10: Pakistani.

Ethnic origins included:

- Asian or Asian British group and Pakistani cultural background
- Mixed ethnicity group and White and Pakistani cultural background
- Mixed ethnicity group and other mixed ethnicity cultural background and mother with Pakistani cultural background
- Mixed ethnicity group and other mixed ethnicity cultural background and father with Pakistani cultural background
- Any other group and Pakistani family origins

g) Participants were coded as being Bangladeshi if they selected:

- Q1: Asian OR Asian British AND Q7: Bangladeshi; or
- Q1: Mixed ethnic group AND Q3: White and Bangladeshi; or
- Q1: Mixed ethnic group AND Q3: Any other cultural background AND Q4: Bangladeshi; or
- Q1: Mixed ethnic group AND Q3: Any other cultural background AND Q4: Other cultural background AND Q5: Bangladeshi; or
- Q1: Any other group AND Q9: Bangladeshi; or
- Q1: Any other group AND Q9: Bangladeshi plus another group AND Q10: Bangladeshi.

Ethnic origins included:

- Asian or Asian British group and Bangladeshi cultural background

- Mixed ethnicity group and White and Bangladeshi cultural background
- Mixed ethnicity group and other mixed ethnicity cultural background and mother with Bangladeshi cultural background
- Mixed ethnicity group and other mixed ethnicity cultural background and father with Bangladeshi cultural background
- Any other group and Bangladeshi family origins

h) Participants were coded as being Chinese if they selected:

- Q1: Any other group AND Q8: Chinese; or
- Q1: Any other group AND Q9: Chinese; or
- Q1: Mixed ethnic group AND Q3: White and Chinese; or
- Q1: Mixed ethnic group AND Q3: Any other cultural background AND Q4: Chinese; or
- Q1: Mixed ethnic group AND Q3: Any other cultural background AND Q4: Other cultural background AND Q5: Chinese; or
- Q1: Any other group AND Q9: Chinese plus another group AND Q10: Chinese.

Ethnic origins included:

- Any other group and Chinese cultural background
- Mixed ethnicity group and White and Chinese cultural background
- Mixed ethnicity group and other mixed ethnicity cultural background and mother with Chinese cultural background
- Mixed ethnicity group and other mixed ethnicity cultural background and father with Chinese cultural background
- Any other group and Chinese family origins

B.4 Expanded classification system coding

Classification of the Black Caribbean ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input checked="" type="checkbox"/>	Black (Go to Q.6)		
<input checked="" type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.6:	What is your cultural background? Is it: [Code all that apply]		
<input checked="" type="checkbox"/>	Caribbean		
<input type="checkbox"/>	African		
<input type="checkbox"/>	Any other cultural background (specify)		
OR			
Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input checked="" type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.9:	Does your family have origins which are... [Code all that apply]		
<input checked="" type="checkbox"/>	Black Caribbean	<input type="checkbox"/>	Chinese
<input type="checkbox"/>	Black African	<input type="checkbox"/>	Indian Caribbean
<input type="checkbox"/>	Indian	<input type="checkbox"/>	African Indian
<input type="checkbox"/>	Pakistani	<input type="checkbox"/>	Any other cultural background (specify)
<input type="checkbox"/>	Bangladeshi		

Classification of the Black African ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input checked="" type="checkbox"/>	Black (Go to Q.6)		
<input checked="" type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.6:	What is your cultural background? Is it: [Code all that apply]		
<input type="checkbox"/>	Caribbean		
<input checked="" type="checkbox"/>	African		
<input type="checkbox"/>	Any other cultural background (specify)		
OR			
Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input checked="" type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.9:	Does your family have origins which are... [Code all that apply]		
<input type="checkbox"/>	Black Caribbean	<input type="checkbox"/>	Chinese
<input checked="" type="checkbox"/>	Black African	<input type="checkbox"/>	Indian Caribbean
<input type="checkbox"/>	Indian	<input type="checkbox"/>	African Indian
<input type="checkbox"/>	Pakistani	<input type="checkbox"/>	Any other cultural background (specify)
<input type="checkbox"/>	Bangladeshi		

Classification of the Indian ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input checked="" type="checkbox"/>	Asian (Go to Q.7)		
<input checked="" type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.7:	What is your cultural background? Is it: [Code all that apply]		
<input checked="" type="checkbox"/>	Indian	<input type="checkbox"/>	Indian Caribbean
<input type="checkbox"/>	Pakistani	<input type="checkbox"/>	African Indian
<input type="checkbox"/>	Bangladeshi	<input type="checkbox"/>	Any other cultural background (specify)
OR			
Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input checked="" type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.9:	Does your family have origins which are... [Code all that apply]		
<input type="checkbox"/>	Black Caribbean	<input type="checkbox"/>	Chinese
<input type="checkbox"/>	Black African	<input type="checkbox"/>	Indian Caribbean
<input checked="" type="checkbox"/>	Indian	<input type="checkbox"/>	African Indian
<input type="checkbox"/>	Pakistani	<input type="checkbox"/>	Any other cultural background (specify)
<input type="checkbox"/>	Bangladeshi		

Classification of the Pakistani ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input checked="" type="checkbox"/>	Asian (Go to Q.7)		
<input checked="" type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.7:	What is your cultural background? Is it: [Code all that apply]		
<input type="checkbox"/>	Indian	<input type="checkbox"/>	Indian Caribbean
<input checked="" type="checkbox"/>	Pakistani	<input type="checkbox"/>	African Indian
<input type="checkbox"/>	Bangladeshi	<input type="checkbox"/>	Any other cultural background (specify)
OR			
Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input checked="" type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.9:	Does your family have origins which are... [Code all that apply]		
<input type="checkbox"/>	Black Caribbean	<input type="checkbox"/>	Chinese
<input type="checkbox"/>	Black African	<input type="checkbox"/>	Indian Caribbean
<input type="checkbox"/>	Indian	<input type="checkbox"/>	African Indian
<input checked="" type="checkbox"/>	Pakistani	<input type="checkbox"/>	Any other cultural background (specify)
<input type="checkbox"/>	Bangladeshi		

Classification of the Bangladeshi ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]
	<input type="checkbox"/> White (Go to Q.2)
	<input type="checkbox"/> Mixed ethnic group (Go to Q.2 and Q.3)
	<input type="checkbox"/> Black (Go to Q.6)
	<input type="checkbox"/> Black British (Go to Q.6)
	<input checked="" type="checkbox"/> Asian (Go to Q.7)
	<input checked="" type="checkbox"/> Asian British (Go to Q.7)
	<input type="checkbox"/> Any other group (Go Q.8 and Q.9)
Q.7:	What is your cultural background? Is it: [Code all that apply]
	<input type="checkbox"/> Indian <input type="checkbox"/> Indian Caribbean
	<input type="checkbox"/> Pakistani <input type="checkbox"/> African Indian
	<input checked="" type="checkbox"/> Bangladeshi <input type="checkbox"/> Any other cultural background (specify)
OR	
Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]
	<input type="checkbox"/> White (Go to Q.2)
	<input type="checkbox"/> Mixed ethnic group (Go to Q.2 and Q.3)
	<input type="checkbox"/> Black (Go to Q.6)
	<input type="checkbox"/> Black British (Go to Q.6)
	<input type="checkbox"/> Asian (Go to Q.7)
	<input type="checkbox"/> Asian British (Go to Q.7)
	<input checked="" type="checkbox"/> Any other group (Go Q.8 and Q.9)
Q.9:	Does your family have origins which are... [Code all that apply]
	<input type="checkbox"/> Black Caribbean <input type="checkbox"/> Chinese
	<input type="checkbox"/> Black African <input type="checkbox"/> Indian Caribbean
	<input type="checkbox"/> Indian <input type="checkbox"/> African Indian
	<input type="checkbox"/> Pakistani <input type="checkbox"/> Any other cultural background (specify)
	<input checked="" type="checkbox"/> Bangladeshi

Classification of the Chinese ethnic group category

- Q.1:** Can I check, to which of the groups on this card do you consider you belong? [Code only one]
- White (Go to Q.2)
 - Mixed ethnic group (Go to Q.2 and Q.3)
 - Black (Go to Q.6)
 - Black British (Go to Q.6)
 - Asian (Go to Q.7)
 - Asian British (Go to Q.7)
 - Any other group (Go Q.8 and Q.9)
- Q.7:** What is your cultural background? Is it: [Code all that apply]
- Indian Indian Caribbean
 - Pakistani African Indian
 - Bangladeshi Any other cultural background (specify)
- Q.8:** What is your cultural background? Is it: [Code apply that apply]
- Chinese Vietnamese
 - Japanese Any other cultural background (specify)
 - Filipino
- OR**
- Q.1:** Can I check, to which of the groups on this card do you consider you belong? [Code only one]
- White (Go to Q.2)
 - Mixed ethnic group (Go to Q.2 and Q.3)
 - Black (Go to Q.6)
 - Black British (Go to Q.6)
 - Asian (Go to Q.7)
 - Asian British (Go to Q.7)
 - Any other group (Go Q.8 and Q.9)
- Q.8:** What is your cultural background? Is it: [Code apply that apply]
- Chinese Vietnamese
 - Japanese Any other cultural background (specify)
 - Filipino
- OR**
- Q.1:** Can I check, to which of the groups on this card do you consider you belong? [Code only one]
- White (Go to Q.2)
 - Mixed ethnic group (Go to Q.2 and Q.3)
 - Black (Go to Q.6)
 - Black British (Go to Q.6)
 - Asian (Go to Q.7)
 - Asian British (Go to Q.7)
 - Any other group (Go Q.8 and Q.9)
- Q.9:** Does your family have origins which are... [Code all that apply]
- Black Caribbean Chinese
 - Black African Indian Caribbean
 - Indian African Indian
 - Pakistani Any other cultural background (specify)
 - Bangladeshi

Classification of the White Irish ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]
<input checked="" type="checkbox"/>	White (Go to Q.2)
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)
<input type="checkbox"/>	Black (Go to Q.6)
<input type="checkbox"/>	Black British (Go to Q.6)
<input type="checkbox"/>	Asian (Go to Q.7)
<input type="checkbox"/>	Asian British (Go to Q.7)
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)
Q.2:	Can I just check were you or either of your parents born in Ireland?
<input checked="" type="checkbox"/>	Yes
<input type="checkbox"/>	No
<input type="checkbox"/>	Don't know

Classification of the White (not Irish) ethnic group category (this group was not used in the current analyses)

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]
<input checked="" type="checkbox"/>	White (Go to Q.2)
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)
<input type="checkbox"/>	Black (Go to Q.6)
<input type="checkbox"/>	Black British (Go to Q.6)
<input type="checkbox"/>	Asian (Go to Q.7)
<input type="checkbox"/>	Asian British (Go to Q.7)
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)
Q.2:	Can I just check were you or either of your parents born in Ireland?
<input type="checkbox"/>	Yes
<input checked="" type="checkbox"/>	No
<input type="checkbox"/>	Don't know

Classification of the White English ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input checked="" type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.2:	Can I just check were you or either of your parents born in Ireland?		
<input type="checkbox"/>	Yes		
<input checked="" type="checkbox"/>	No		
<input type="checkbox"/>	Don't know		
Q.10:	In which country were you born?		
<input checked="" type="checkbox"/>	England	<input type="checkbox"/>	Pakistan
<input type="checkbox"/>	Scotland	<input type="checkbox"/>	Bangladesh
<input type="checkbox"/>	Wales	<input type="checkbox"/>	Kenya
<input type="checkbox"/>	Northern Ireland	<input type="checkbox"/>	Uganda
<input type="checkbox"/>	Republic of Ireland	<input type="checkbox"/>	Tanzania
<input type="checkbox"/>	West Indies	<input type="checkbox"/>	Other African country (specify)
<input type="checkbox"/>	India	<input type="checkbox"/>	Other country (specify)

Classification of the Indian Caribbean ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]
<input type="checkbox"/>	White (Go to Q.2)
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)
<input type="checkbox"/>	Black (Go to Q.6)
<input type="checkbox"/>	Black British (Go to Q.6)
<input checked="" type="checkbox"/>	Asian (Go to Q.7)
<input checked="" type="checkbox"/>	Asian British (Go to Q.7)
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)
Q.7:	What is your cultural background? Is it: [Code all that apply]
<input type="checkbox"/>	Indian <input checked="" type="checkbox"/> Indian Caribbean
<input type="checkbox"/>	Pakistani <input type="checkbox"/> African Indian
<input type="checkbox"/>	Bangladeshi <input type="checkbox"/> Any other cultural background (specify)
OR	
Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]
<input type="checkbox"/>	White (Go to Q.2)
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)
<input type="checkbox"/>	Black (Go to Q.6)
<input type="checkbox"/>	Black British (Go to Q.6)
<input type="checkbox"/>	Asian (Go to Q.7)
<input type="checkbox"/>	Asian British (Go to Q.7)
<input checked="" type="checkbox"/>	Any other group (Go Q.8 and Q.9)
Q.9:	Does your family have origins which are... [Code all that apply]
<input type="checkbox"/>	Black Caribbean <input type="checkbox"/> Chinese
<input type="checkbox"/>	Black African <input checked="" type="checkbox"/> Indian Caribbean
<input type="checkbox"/>	Indian <input type="checkbox"/> African Indian
<input type="checkbox"/>	Pakistani <input type="checkbox"/> Any other cultural background (specify)
<input type="checkbox"/>	Bangladeshi

Classification of the African Indian ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]
<input type="checkbox"/>	White (Go to Q.2)
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)
<input type="checkbox"/>	Black (Go to Q.6)
<input type="checkbox"/>	Black British (Go to Q.6)
<input checked="" type="checkbox"/>	Asian (Go to Q.7)
<input checked="" type="checkbox"/>	Asian British (Go to Q.7)
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)
Q.7:	What is your cultural background? Is it: [Code all that apply]
<input type="checkbox"/>	Indian <input type="checkbox"/> Indian Caribbean
<input type="checkbox"/>	Pakistani <input checked="" type="checkbox"/> African Indian
<input type="checkbox"/>	Bangladeshi <input type="checkbox"/> Any other cultural background (specify)
OR	
Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]
<input type="checkbox"/>	White (Go to Q.2)
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)
<input type="checkbox"/>	Black (Go to Q.6)
<input type="checkbox"/>	Black British (Go to Q.6)
<input type="checkbox"/>	Asian (Go to Q.7)
<input type="checkbox"/>	Asian British (Go to Q.7)
<input checked="" type="checkbox"/>	Any other group (Go Q.8 and Q.9)
Q.9:	Does your family have origins which are... [Code all that apply]
<input type="checkbox"/>	Black Caribbean <input type="checkbox"/> Chinese
<input type="checkbox"/>	Black African <input type="checkbox"/> Indian Caribbean
<input type="checkbox"/>	Indian <input checked="" type="checkbox"/> African Indian
<input type="checkbox"/>	Pakistani <input type="checkbox"/> Any other cultural background (specify)
<input type="checkbox"/>	Bangladeshi

Classification of the Japanese ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input checked="" type="checkbox"/>	Asian (Go to Q.7)		
<input checked="" type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.7:	What is your cultural background? Is it: [Code all that apply]		
<input type="checkbox"/>	Indian	<input type="checkbox"/>	Indian Caribbean
<input type="checkbox"/>	Pakistani	<input type="checkbox"/>	African Indian
<input type="checkbox"/>	Bangladeshi	<input checked="" type="checkbox"/>	Any other cultural background (specify)
Q.8:	What is your cultural background? Is it: [Code apply that apply]		
<input type="checkbox"/>	Chinese	<input type="checkbox"/>	Vietnamese
<input checked="" type="checkbox"/>	Japanese	<input type="checkbox"/>	Any other cultural background (specify)
<input type="checkbox"/>	Philippino		
OR			
Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input checked="" type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.8:	What is your cultural background? Is it: [Code apply that apply]		
<input type="checkbox"/>	Chinese	<input type="checkbox"/>	Vietnamese
<input checked="" type="checkbox"/>	Japanese	<input type="checkbox"/>	Any other cultural background (specify)
<input type="checkbox"/>	Philippino		

Classification of the Vietnamese ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input checked="" type="checkbox"/>	Asian (Go to Q.7)		
<input checked="" type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.7:	What is your cultural background? Is it: [Code all that apply]		
<input type="checkbox"/>	Indian	<input type="checkbox"/>	Indian Caribbean
<input type="checkbox"/>	Pakistani	<input type="checkbox"/>	African Indian
<input type="checkbox"/>	Bangladeshi	<input checked="" type="checkbox"/>	Any other cultural background (specify)
Q.8:	What is your cultural background? Is it: [Code apply that apply]		
<input type="checkbox"/>	Chinese	<input checked="" type="checkbox"/>	Vietnamese
<input type="checkbox"/>	Japanese	<input type="checkbox"/>	Any other cultural background (specify)
<input type="checkbox"/>	Philippino		
OR			
Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input checked="" type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.8:	What is your cultural background? Is it: [Code apply that apply]		
<input type="checkbox"/>	Chinese	<input checked="" type="checkbox"/>	Vietnamese
<input type="checkbox"/>	Japanese	<input type="checkbox"/>	Any other cultural background (specify)
<input type="checkbox"/>	Philippino		

Classification of the Philippino ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input checked="" type="checkbox"/>	Asian (Go to Q.7)		
<input checked="" type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.7:	What is your cultural background? Is it: [Code all that apply]		
<input type="checkbox"/>	Indian	<input type="checkbox"/>	Indian Caribbean
<input type="checkbox"/>	Pakistani	<input type="checkbox"/>	African Indian
<input type="checkbox"/>	Bangladeshi	<input checked="" type="checkbox"/>	Any other cultural background (specify)
Q.8:	What is your cultural background? Is it: [Code apply that apply]		
<input type="checkbox"/>	Chinese	<input type="checkbox"/>	Vietnamese
<input type="checkbox"/>	Japanese	<input type="checkbox"/>	Any other cultural background (specify)
<input checked="" type="checkbox"/>	Philippino		
OR			
Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input checked="" type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.8:	What is your cultural background? Is it: [Code apply that apply]		
<input type="checkbox"/>	Chinese	<input type="checkbox"/>	Vietnamese
<input type="checkbox"/>	Japanese	<input type="checkbox"/>	Any other cultural background (specify)
<input checked="" type="checkbox"/>	Philippino		

Classification of the Black other ethnic group category

Q.1: Can I check, to which of the groups on this card do you consider you belong? [Code only one]

White (Go to Q.2)

Mixed ethnic group (Go to Q.2 and Q.3)

Black (Go to Q.6)

Black British (Go to Q.6)

Asian (Go to Q.7)

Asian British (Go to Q.7)

Any other group (Go Q.8 and Q.9)

Q.6: What is your cultural background? Is it: [Code all that apply]

Caribbean

African

Any other cultural background (specify)

OR (Q.1 as above and...)

Q.6: What is your cultural background? Is it: [Code all that apply]

Caribbean

African

Any other cultural background (specify)

OR (Q.1 as above and...)

Q.6: What is your cultural background? Is it: [Code all that apply]

Caribbean

African

Any other cultural background (specify)

OR (Q.1 as above and...)

Q.6: What is your cultural background? Is it: [Code all that apply]

Caribbean

African

Any other cultural background (specify)

Classification of the Asian other ethnic group category

Q.1: Can I check, to which of the groups on this card do you consider you belong? [Code only one]

White (Go to Q.2)

Mixed ethnic group (Go to Q.2 and Q.3)

Black (Go to Q.6)

Black British (Go to Q.6)

Asian (Go to Q.7)

Asian British (Go to Q.7)

Any other group (Go Q.8 and Q.9)

Q.7: What is your cultural background? Is it: [Code all that apply]

Indian Indian Caribbean

Pakistani African Indian

Bangladeshi Any other cultural background (specify)

OR (Q.1 as above and two or more categories selected on Q.7, e.g...)

Q.7: What is your cultural background? Is it: [Code all that apply]

Indian Indian Caribbean

Pakistani African Indian

Bangladeshi Any other cultural background (specify)

OR (Q.1 as above and two or more categories selected on Q.8, e.g...)

Q.8: What is your cultural background? Is it: [Code apply that apply]

Chinese Vietnamese

Japanese Any other cultural background (specify)

Philippino

Classification of the White and Black Caribbean mixed ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input checked="" type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.2:	Can I just check were you or either of your parents born in Ireland? (<i>Any answer</i>)		
<input type="checkbox"/>	Yes		
<input type="checkbox"/>	No		
<input type="checkbox"/>	Don't know		
Q.3:	What is your cultural background? [Code all that apply]		
<input checked="" type="checkbox"/>	White and Black Caribbean	<input type="checkbox"/>	White and Bangladeshi
<input type="checkbox"/>	White and Black African	<input type="checkbox"/>	White and Indian Caribbean
<input type="checkbox"/>	White and Indian	<input type="checkbox"/>	White and African-Indian
<input type="checkbox"/>	White and Pakistani	<input type="checkbox"/>	White and Chinese
<input type="checkbox"/>	Any other cultural background (Go to Q.4 and Q.5)		

Classification of the White and Black African mixed ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input checked="" type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.2:	Can I just check were you or either of your parents born in Ireland? (<i>Any answer</i>)		
<input type="checkbox"/>	Yes		
<input type="checkbox"/>	No		
<input type="checkbox"/>	Don't know		
Q.3:	What is your cultural background? [Code all that apply]		
<input type="checkbox"/>	White and Black Caribbean	<input type="checkbox"/>	White and Bangladeshi
<input checked="" type="checkbox"/>	White and Black African	<input type="checkbox"/>	White and Indian Caribbean
<input type="checkbox"/>	White and Indian	<input type="checkbox"/>	White and African-Indian
<input type="checkbox"/>	White and Pakistani	<input type="checkbox"/>	White and Chinese
<input type="checkbox"/>	Any other cultural background (Go to Q.4 and Q.5)		

Classification of the White and Indian mixed ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input checked="" type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.2:	Can I just check were you or either of your parents born in Ireland? (<i>Any answer</i>)		
<input type="checkbox"/>	Yes		
<input type="checkbox"/>	No		
<input type="checkbox"/>	Don't know		
Q.3:	What is your cultural background? [Code all that apply]		
<input type="checkbox"/>	White and Black Caribbean	<input type="checkbox"/>	White and Bangladeshi
<input type="checkbox"/>	White and Black African	<input type="checkbox"/>	White and Indian Caribbean
<input checked="" type="checkbox"/>	White and Indian	<input type="checkbox"/>	White and African-Indian
<input type="checkbox"/>	White and Pakistani	<input type="checkbox"/>	White and Chinese
<input type="checkbox"/>	Any other cultural background (Go to Q.4 and Q.5)		

Classification of the White and Pakistani mixed ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input checked="" type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.2:	Can I just check were you or either of your parents born in Ireland? (<i>Any answer</i>)		
<input type="checkbox"/>	Yes		
<input type="checkbox"/>	No		
<input type="checkbox"/>	Don't know		
Q.3:	What is your cultural background? [Code all that apply]		
<input type="checkbox"/>	White and Black Caribbean	<input type="checkbox"/>	White and Bangladeshi
<input type="checkbox"/>	White and Black African	<input type="checkbox"/>	White and Indian Caribbean
<input type="checkbox"/>	White and Indian	<input type="checkbox"/>	White and African-Indian
<input checked="" type="checkbox"/>	White and Pakistani	<input type="checkbox"/>	White and Chinese

Classification of the White and Bangladeshi mixed ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input checked="" type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.2:	Can I just check were you or either of your parents born in Ireland? (<i>Any answer</i>)		
<input type="checkbox"/>	Yes		
<input type="checkbox"/>	No		
<input type="checkbox"/>	Don't know		
Q.3:	What is your cultural background? [Code all that apply]		
<input type="checkbox"/>	White and Black Caribbean	<input checked="" type="checkbox"/>	White and Bangladeshi
<input type="checkbox"/>	White and Black African	<input type="checkbox"/>	White and Indian Caribbean
<input type="checkbox"/>	White and Indian	<input type="checkbox"/>	White and African-Indian
<input type="checkbox"/>	White and Pakistani	<input type="checkbox"/>	White and Chinese
<input type="checkbox"/>	Any other cultural background (Go to Q.4 and Q.5)		

Classification of the White and Indian Caribbean mixed ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input checked="" type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.2:	Can I just check were you or either of your parents born in Ireland? (<i>Any answer</i>)		
<input type="checkbox"/>	Yes		
<input type="checkbox"/>	No		
<input type="checkbox"/>	Don't know		
Q.3:	What is your cultural background? [Code all that apply]		
<input type="checkbox"/>	White and Black Caribbean	<input type="checkbox"/>	White and Bangladeshi
<input type="checkbox"/>	White and Black African	<input checked="" type="checkbox"/>	White and Indian Caribbean
<input type="checkbox"/>	White and Indian	<input type="checkbox"/>	White and African-Indian
<input type="checkbox"/>	White and Pakistani	<input type="checkbox"/>	White and Chinese
<input type="checkbox"/>	Any other cultural background (Go to Q.4 and Q.5)		

Classification of the White and African Indian mixed ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input checked="" type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.2:	Can I just check were you or either of your parents born in Ireland? (<i>Any answer</i>)		
<input type="checkbox"/>	Yes		
<input type="checkbox"/>	No		
<input type="checkbox"/>	Don't know		
Q.3:	What is your cultural background? [Code all that apply]		
<input type="checkbox"/>	White and Black Caribbean	<input type="checkbox"/>	White and Bangladeshi
<input type="checkbox"/>	White and Black African	<input type="checkbox"/>	White and Indian Caribbean
<input type="checkbox"/>	White and Indian	<input checked="" type="checkbox"/>	White and African-Indian
<input type="checkbox"/>	White and Pakistani	<input type="checkbox"/>	White and Chinese
<input type="checkbox"/>	Any other cultural background (Go to Q.4 and Q.5)		

Classification of the White and Chinese mixed ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]		
<input type="checkbox"/>	White (Go to Q.2)		
<input checked="" type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)		
<input type="checkbox"/>	Black (Go to Q.6)		
<input type="checkbox"/>	Black British (Go to Q.6)		
<input type="checkbox"/>	Asian (Go to Q.7)		
<input type="checkbox"/>	Asian British (Go to Q.7)		
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)		
Q.2:	Can I just check were you or either of your parents born in Ireland? (<i>Any answer</i>)		
<input type="checkbox"/>	Yes		
<input type="checkbox"/>	No		
<input type="checkbox"/>	Don't know		
Q.3:	What is your cultural background? [Code all that apply]		
<input type="checkbox"/>	White and Black Caribbean	<input type="checkbox"/>	White and Bangladeshi
<input type="checkbox"/>	White and Black African	<input type="checkbox"/>	White and Indian Caribbean
<input type="checkbox"/>	White and Indian	<input type="checkbox"/>	White and African-Indian
<input type="checkbox"/>	White and Pakistani	<input checked="" type="checkbox"/>	White and Chinese
<input type="checkbox"/>	Any other cultural background (Go to Q.4 and Q.5)		

Classification of the Black Caribbean and other ethnicity mixed ethnic group category

Q.1: Can I check, to which of the groups on this card do you consider you belong? [Code only one]

White (Go to Q.2)
 Mixed ethnic group (Go to Q.2 and Q.3)
 Black (Go to Q.6)
 Black British (Go to Q.6)
 Asian (Go to Q.7)
 Asian British (Go to Q.7)
 Any other group (Go Q.8 and Q.9)

Q.2: Can I just check were you or either of your parents born in Ireland? (*Any answer*)

Yes
 No
 Don't know

Q.3: What is your cultural background? [Code all that apply]

White and Black Caribbean White and Bangladeshi
 White and Black African White and Indian Caribbean
 White and Indian White and African-Indian
 White and Pakistani White and Chinese
 Any other cultural background (Go to Q.4 and Q.5)

Q.4: What is your (natural) mother's cultural background?

Black Caribbean Bangladeshi
 Black African Chinese
 Indian Or any other cultural background
 Pakistani

OR (Q.1, Q.2, and Q.3 as above and...)

Q.5: White is your (natural) father's cultural background?

Black Caribbean Bangladeshi
 Black African Chinese
 Indian Or any other cultural background
 Pakistani

Classification of the Black African and other ethnicity mixed ethnic group category

Q.1: Can I check, to which of the groups on this card do you consider you belong? [Code only one]

White (Go to Q.2)
 Mixed ethnic group (Go to Q.2 and Q.3)
 Black (Go to Q.6)
 Black British (Go to Q.6)
 Asian (Go to Q.7)
 Asian British (Go to Q.7)
 Any other group (Go Q.8 and Q.9)

Q.2: Can I just check were you or either of your parents born in Ireland? (*Any answer*)

Yes
 No
 Don't know

Q.3: What is your cultural background? [Code all that apply]

White and Black Caribbean White and Bangladeshi
 White and Black African White and Indian Caribbean
 White and Indian White and African-Indian
 White and Pakistani White and Chinese
 Any other cultural background (Go to Q.4 and Q.5)

Q.4: What is your (natural) mother's cultural background?

Black Caribbean Bangladeshi
 Black African Chinese
 Indian Or any other cultural background
 Pakistani

OR (Q.1, Q.2, and Q.3 as above and...)

Q.5: White is your (natural) father's cultural background?

Black Caribbean Bangladeshi
 Black African Chinese

Classification of the Indian and other ethnicity mixed ethnic group category

Q.1: Can I check, to which of the groups on this card do you consider you belong? [Code only one]

White (Go to Q.2)
 Mixed ethnic group (Go to Q.2 and Q.3)
 Black (Go to Q.6)
 Black British (Go to Q.6)
 Asian (Go to Q.7)
 Asian British (Go to Q.7)
 Any other group (Go Q.8 and Q.9)

Q.2: Can I just check were you or either of your parents born in Ireland? *(Any answer)*

Yes
 No
 Don't know

Q.3: What is your cultural background? [Code all that apply]

White and Black Caribbean White and Bangladeshi
 White and Black African White and Indian Caribbean
 White and Indian White and African-Indian
 White and Pakistani White and Chinese
 Any other cultural background (Go to Q.4 and Q.5)

Q.4: What is your (natural) mother's cultural background?

Black Caribbean Bangladeshi
 Black African Chinese
 Indian Or any other cultural background
 Pakistani

OR (Q.1, Q.2, and Q.3 as above and...)

Q.5: What is your (natural) father's cultural background?

Black Caribbean Bangladeshi
 Black African Chinese

Classification of the Pakistani and other ethnicity mixed ethnic group category

Q.1: Can I check, to which of the groups on this card do you consider you belong? [Code only one]

White (Go to Q.2)
 Mixed ethnic group (Go to Q.2 and Q.3)
 Black (Go to Q.6)
 Black British (Go to Q.6)
 Asian (Go to Q.7)
 Asian British (Go to Q.7)
 Any other group (Go Q.8 and Q.9)

Q.2: Can I just check were you or either of your parents born in Ireland? *(Any answer)*

Yes
 No
 Don't know

Q.3: What is your cultural background? [Code all that apply]

White and Black Caribbean White and Bangladeshi
 White and Black African White and Indian Caribbean
 White and Indian White and African-Indian
 White and Pakistani White and Chinese
 Any other cultural background (Go to Q.4 and Q.5)

Q.4: What is your (natural) mother's cultural background?

Black Caribbean Bangladeshi
 Black African Chinese
 Indian Or any other cultural background
 Pakistani

OR (Q.1, Q.2, and Q.3 as above and...)

Q.5: What is your (natural) father's cultural background?

Black Caribbean Bangladeshi
 Black African Chinese
 Indian Or any other cultural background
 Pakistani

Classification of the Bangladeshi and other ethnicity mixed ethnic group category

Q.1: Can I check, to which of the groups on this card do you consider you belong? [Code only one]

White (Go to Q.2)
 Mixed ethnic group (Go to Q.2 and Q.3)
 Black (Go to Q.6)
 Black British (Go to Q.6)
 Asian (Go to Q.7)
 Asian British (Go to Q.7)
 Any other group (Go Q.8 and Q.9)

Q.2: Can I just check were you or either of your parents born in Ireland? *(Any answer)*

Yes
 No
 Don't know

Q.3: What is your cultural background? [Code all that apply]

White and Black Caribbean White and Bangladeshi
 White and Black African White and Indian Caribbean
 White and Indian White and African-Indian
 White and Pakistani White and Chinese
 Any other cultural background (Go to Q.4 and Q.5)

Q.4: What is your (natural) mother's cultural background?

Black Caribbean Bangladeshi
 Black African Chinese
 Indian Or any other cultural background
 Pakistani

OR (Q.1, Q.2, and Q.3 as above and...)

Q.5: What is your (natural) father's cultural background?

Black Caribbean Bangladeshi
 Black African Chinese
 Indian Or any other cultural background
 Pakistani

Classification of the Chinese and other ethnicity mixed ethnic group category

Q.1: Can I check, to which of the groups on this card do you consider you belong? [Code only one]

White (Go to Q.2)
 Mixed ethnic group (Go to Q.2 and Q.3)
 Black (Go to Q.6)
 Black British (Go to Q.6)
 Asian (Go to Q.7)
 Asian British (Go to Q.7)
 Any other group (Go Q.8 and Q.9)

Q.2: Can I just check were you or either of your parents born in Ireland? *(Any answer)*

Yes
 No
 Don't know

Q.3: What is your cultural background? [Code all that apply]

White and Black Caribbean White and Bangladeshi
 White and Black African White and Indian Caribbean
 White and Indian White and African-Indian
 White and Pakistani White and Chinese
 Any other cultural background (Go to Q.4 and Q.5)

Q.4: What is your (natural) mother's cultural background?

Black Caribbean Bangladeshi
 Black African Chinese
 Indian Or any other cultural background
 Pakistani

OR (Q.1, Q.2, and Q.3 as above and...)

Q.5: What is your (natural) father's cultural background?

Black Caribbean Bangladeshi
 Black African Chinese
 Indian Or any other cultural background
 Pakistani

Classification of the Chinese and other ethnicity mixed ethnic group category

Q.1:	Can I check, to which of the groups on this card do you consider you belong? [Code only one]
<input type="checkbox"/>	White (Go to Q.2)
<input checked="" type="checkbox"/>	Mixed ethnic group (Go to Q.2 and Q.3)
<input type="checkbox"/>	Black (Go to Q.6)
<input type="checkbox"/>	Black British (Go to Q.6)
<input type="checkbox"/>	Asian (Go to Q.7)
<input type="checkbox"/>	Asian British (Go to Q.7)
<input type="checkbox"/>	Any other group (Go Q.8 and Q.9)
Q.2:	Can I just check were you or either of your parents born in Ireland? (<i>Any answer</i>)
<input type="checkbox"/>	Yes
<input type="checkbox"/>	No
<input type="checkbox"/>	Don't know
Q.3:	What is your cultural background? [Code all that apply]
<input type="checkbox"/>	White and Black Caribbean
<input type="checkbox"/>	White and Black African
<input type="checkbox"/>	White and Indian
<input type="checkbox"/>	White and Pakistani
<input checked="" type="checkbox"/>	Any other cultural background (Go to Q.4 and Q.5)
<input type="checkbox"/>	White and Bangladeshi
<input type="checkbox"/>	White and Indian Caribbean
<input type="checkbox"/>	White and African-Indian
<input type="checkbox"/>	White and Chinese
Q.4:	What is your (natural) mother's cultural background?
<input type="checkbox"/>	Black Caribbean
<input type="checkbox"/>	Black African
<input type="checkbox"/>	Indian
<input type="checkbox"/>	Pakistani
<input type="checkbox"/>	Bangladeshi
<input type="checkbox"/>	Chinese
<input checked="" type="checkbox"/>	Or any other cultural background
Q.5:	White is your (natural) father's cultural background?
<input type="checkbox"/>	Black Caribbean
<input type="checkbox"/>	Black African
<input type="checkbox"/>	Indian
<input type="checkbox"/>	Pakistani
<input type="checkbox"/>	Bangladeshi
<input type="checkbox"/>	Chinese
<input checked="" type="checkbox"/>	Or any other cultural background
OR (Q.1 and Q.2 as above and two or more categories selected for Q.3 e.g...)	
Q.3:	What is your cultural background? [Code all that apply]
<input checked="" type="checkbox"/>	White and Black Caribbean
<input type="checkbox"/>	White and Black African
<input checked="" type="checkbox"/>	White and Indian
<input type="checkbox"/>	White and Pakistani
<input type="checkbox"/>	Any other cultural background (Go to Q.4 and Q.5)
<input type="checkbox"/>	White and Bangladeshi
<input type="checkbox"/>	White and Indian Caribbean
<input type="checkbox"/>	White and African-Indian
<input type="checkbox"/>	White and Chinese

All other combinations of responses were coded into the category 'other ethnic group'.

B.5 SPSS syntax for expanded classification system

```
COMPUTE ethrev=20.
IF (ethcind=3 AND blaclt1=1 AND blaclt2=0 AND blaclt3=0) ethrev=1.
IF (ethcind=5 AND origi01=1 AND origi02=0 AND origi03=0 AND origi04=0 AND origi05=0 AND origi06=0 AND
origi07=0 AND origi08=0 AND origi09=0) ethrev=1.
IF (ethcind=5 AND origi01=1 AND origi02=0 AND origi03=0 AND origi04=0 AND origi05=0 AND origi06=0 AND
origi07=0 AND origi08=0 AND origi09=0 AND othclt5=1) ethrev=1.
IF (ethcind=3 AND blaclt2=1 AND blaclt1=0 AND blaclt3=0) ethrev=2.
IF (ethcind=5 AND origi02=1) ethrev=2.
IF (ethcind=4 AND indclt1=1) ethrev=3.
IF (ethcind=4 AND origi03=1) ethrev=3.
IF (ethcind=5 AND origi03=1 AND origi01=0 AND origi02=0 AND origi04=0 AND origi05=0 AND origi06=0 AND
origi07=0 AND origi08=0 AND origi09=0) ethrev=3.
IF (ethcind=4 AND indclt2=1) ethrev=4.
IF (ethcind=5 AND origi04=1) ethrev=4.
IF (ethcind=4 AND origi04=1 AND indclt6=1 AND othclt5=1) ethrev=4.
IF (ethcind=4 AND indclt3=1) ethrev=5.
IF (ethcind=5 AND origi05=1) ethrev=5.
IF (ethcind=4 AND indclt6=1 AND othclt1=1 AND othclt2=0 AND othclt3=0 AND othclt4=0 AND othclt5=0) ethrev=6.
IF (ethcind=5 AND othclt1=1 AND othclt2=0 AND othclt3=0 AND othclt4=0 AND othclt5=0) ethrev=6.
IF (ethcind=5 AND origi08=1 AND othclt2=0 AND othclt3=0 AND othclt4=0 AND othclt5=0) ethrev=6.
IF (ethcind=4 AND origi08=1 AND othclt2=0 AND othclt3=0 AND othclt4=0 AND othclt5=0) ethrev=6.
IF (ethcind=1 AND irishi=1) ethrev=7.
IF (ethcind=1 AND irishi=2) ethrev=8.
IF (ethcind=2 AND mixclt01=1 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=0) ethrev=21.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=1 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=0) ethrev=22.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=1 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=0) ethrev=23.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=1 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=0) ethrev=24.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=1 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=0) ethrev=25.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=1
AND mixclt07=0 AND mixclt08=0 AND mixclt09=0) ethrev=26.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=1 AND mixclt08=0 AND mixclt09=0) ethrev=27.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=1 AND mixclt09=0) ethrev=28.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=1 AND mixmumi=1) ethrev=29.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=1 AND mixfathi=1) ethrev=29.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=1 AND mixmumi=2) ethrev=30.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=1 AND mixfathi=2) ethrev=30.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=1 AND mixmumi=3) ethrev=31.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=1 AND mixfathi=3) ethrev=31.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=1 AND mixmumi=4) ethrev=32.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=1 AND mixfathi=4) ethrev=32.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=1 AND mixmumi=5) ethrev=33.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=1 AND mixfathi=5) ethrev=33.
IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
AND mixclt07=0 AND mixclt08=0 AND mixclt09=1 AND mixmumi=6) ethrev=34.
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IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=1 AND mixclt06=0
 AND mixclt07=0 AND mixclt08=0 AND mixclt09=1) ethrev=35.
 IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=1
 AND mixclt07=1 AND mixclt08=0 AND mixclt09=0) ethrev=35.
 IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=1
 AND mixclt07=0 AND mixclt08=1 AND mixclt09=0) ethrev=35.
 IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=1
 AND mixclt07=0 AND mixclt08=0 AND mixclt09=1) ethrev=35.
 IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
 AND mixclt07=1 AND mixclt08=1 AND mixclt09=0) ethrev=35.
 IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
 AND mixclt07=1 AND mixclt08=0 AND mixclt09=1) ethrev=35.
 IF (ethcind=2 AND mixclt01=0 AND mixclt02=0 AND mixclt03=0 AND mixclt04=0 AND mixclt05=0 AND mixclt06=0
 AND mixclt07=0 AND mixclt08=1 AND mixclt09=1) ethrev=35.
 IF (ethcind=4 AND indclt5=1) ethrev=10.
 IF (ethcind=5 AND origi07=1) ethrev=10.
 IF (ethcind=4 AND indclt6=1 AND origi07=1) ethrev=10.
 IF (indclt4=1 OR origi06=1) ethrev=11.
 IF (othclt2=1 AND othclt1=0 AND othclt3=0 AND othclt4=0 AND othclt5=0) ethrev=12.
 IF (othclt3=1 AND othclt1=0 AND othclt2=0 AND othclt4=0 AND othclt5=0) ethrev=13.
 IF (othclt4=1 AND othclt1=0 AND othclt2=0 AND othclt3=0 AND othclt5=0) ethrev=14.
 IF (ethcind=3 AND blaclt3=1) ethrev=18.
 IF (ethcind=3 AND blaclt1=1 AND blaclt2=1) ethrev=18.
 IF (ethcind=3 AND blaclt1=1 AND blaclt3=1) ethrev=18.
 IF (ethcind=3 AND blaclt2=1 AND blaclt3=1) ethrev=18.
 IF (ethcind=4 AND othclt1=1 AND othclt2=1) ethrev=19.
 IF (ethcind=4 AND othclt1=1 AND othclt3=1) ethrev=19.
 IF (ethcind=4 AND othclt1=1 AND othclt4=1) ethrev=19.
 IF (ethcind=4 AND othclt1=1 AND othclt5=1) ethrev=19.
 IF (ethcind=4 AND othclt2=1 AND othclt3=1) ethrev=19.
 IF (ethcind=4 AND othclt2=1 AND othclt4=1) ethrev=19.
 IF (ethcind=4 AND othclt2=1 AND othclt5=1) ethrev=19.
 IF (ethcind=4 AND othclt3=1 AND othclt4=1) ethrev=19.
 IF (ethcind=4 AND othclt3=1 AND othclt5=1) ethrev=19.
 IF (ethcind=4 AND othclt4=1 AND othclt5=1) ethrev=19.
 IF (ethcind=4 AND indclt1=1 AND indclt2=1) ethrev=19.
 IF (ethcind=4 AND indclt1=1 AND indclt3=1) ethrev=19.
 IF (ethcind=4 AND indclt1=1 AND indclt4=1) ethrev=19.
 IF (ethcind=4 AND indclt1=1 AND indclt5=1) ethrev=19.
 IF (ethcind=4 AND indclt1=1 AND indclt6=1) ethrev=19.
 IF (ethcind=4 AND indclt2=1 AND indclt3=1) ethrev=19.
 IF (ethcind=4 AND indclt2=1 AND indclt4=1) ethrev=19.
 IF (ethcind=4 AND indclt2=1 AND indclt5=1) ethrev=19.
 IF (ethcind=4 AND indclt2=1 AND indclt6=1) ethrev=19.
 IF (ethcind=4 AND indclt3=1 AND indclt4=1) ethrev=19.
 IF (ethcind=4 AND indclt3=1 AND indclt5=1) ethrev=19.
 IF (ethcind=4 AND indclt3=1 AND indclt6=1) ethrev=19.
 IF (ethcind=4 AND indclt4=1 AND indclt5=1) ethrev=19.
 IF (ethcind=4 AND indclt4=1 AND indclt6=1) ethrev=19.
 IF (ethcind=4 AND indclt5=1 AND indclt6=1) ethrev=19.
 IF (ethcind=4 AND indclt6=1 AND othclt5=1 AND origi03=0 AND origi04=0 AND origi05=0 AND origi06=0 AND
 origi07=0) ethrev=19.
 VARIABLE LABELS ethrev '[N] Revised Ethnic Group'.
 VALUE LABELS ethrev
 1 'Black Caribbean'
 2 'Black African'
 3 'Indian'
 4 'Pakistani'
 5 'Bangladeshi'
 6 'Chinese'
 7 'White Irish'
 8 'White not Irish'
 10 'African Indian'

- 11 'Indian Caribbean'
 - 12 'Japanese'
 - 13 'Philippino'
 - 14 'Vietnamese'
 - 18 'Black Other'
 - 19 'Asian Other'
 - 20 'Other Ethnicity'
 - 21 'White & Black Caribbean'
 - 22 'White & Black African'
 - 23 'White & Indian'
 - 24 'White & Pakistani'
 - 25 'White & Bangladeshi'
 - 26 'White & Indian Caribbean'
 - 27 'White & African Indian'
 - 28 'White & Chinese'
 - 29 'Black Caribbean & other ethnicity'
 - 30 'Black African & other ethnicity'
 - 31 'Indian & other ethnicity'
 - 32 'Pakistani & other ethnicity'
 - 33 'Bangladeshi & other ethnicity'
 - 34 'Chinese & other ethnicity'
 - 35 'Other mixed ethnicity'.
- EXE.

B.6 Scoring system used in the GHQ-12

Q1.	Have you recently been able to concentrate on whatever you're doing?			
	Better than usual	Same as usual	Less than usual	Much less than usual
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Score	0	0	1	1
Q2.	Have you recently lost much sleep over worry?			
	Not at all	No more than usual	Rather more than usual	Much more than usual
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Score	1	1	0	0

B.7 EQ-5D instrument

'Please answer **ALL** the questions. By ticking one box for each question below, please indicate which statements best describe your own health status **today**.'

Q1	Mobility	I have no problems in walking about I have some problems in walking about I am confined to bed	Tick one box <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Q2	Self-Care	I have no problems with self-care I have some problems with washing or dressing myself I am unable to wash or dress myself	Tick one box <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Q3	Usual activities	I have no problems with performing my usual activities (<i>e.g. work, study, housework, family or leisure activities</i>) I have some problems with performing my usual activities I am unable to perform my usual activities	Tick one box <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Q4	Pain/Discomfort	I have no pain or discomfort I have moderate pain or discomfort I have extreme pain or discomfort	Tick one box <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Q5	Anxiety/Depression	I am not anxious or depressed I am moderately anxious or depressed I am extremely anxious or depressed	Tick one box <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

B.8 Education level breakdown for HSE 2004 adult sample

Education level	Percentage	N	Categories included
No qualifications	36.6%	3,597	-
GCSE/A level	31.2%	3,064	GCSE grades A-C GCSE grades D-G A level / High school certificate AS level ONC / OND / BEC / TEC / BTEC not Higher SLC / SCE / SUPE at Higher Grade or Certificate of Sixth Year Studies SLC Lower SUPE Lower or Ordinary School Certificate of Matric O-level passes taken in 1975 or earlier O-level passes taken after 1975 GRADES A-C O-level passes taken after 1975 GRADES D-E CSE GRADE 1 / SCE BANDS A-C / Standard Grade LEVEL 1-3 CSE GRADES 2-5 / SCE Ordinary BANDS D-E NVQ Level 3 / Advanced level GNVQ NVQ Level 2 / Intermediate level GNVQ City and Guilds Advanced / Final Level City and Guilds Craft / Ordinary Level Recognised Trade Apprenticeship completed Clerical or Commercial Qualification (e.g. typing / book-keeping / commerce)
Degree or above	32.2%	3,159	Degree / degree level qualification (including higher degree) HNC/HND, BEC/TEC Higher, BTEC Higher / SCOTTECH Higher NVQ Level 5 NVQ Level 4 City and Guilds Full Technological Certificate Teaching qualification Nursing qualifications SRN, SCM, SEN, RGN, RM, RHV, Midwife
Excluded from analyses		1,350 137 484	Full-time education Foreign qualifications Other qualifications (below GCSE/A level)

B.9 McClements equivalised household income scoring system

Household member	McClements Factor
First adult (Household representative)	0.61
Spouse/partner of household representative	0.39
Other second adult	0.46
Third adult	0.42
Subsequent adults	0.36
Dependent aged 0-1	0.09
Dependent aged 2-4	0.18
Dependent aged 5-7	0.21
Dependent aged 8-10	0.23
Dependent aged 11-12	0.25
Dependent aged 13-15	0.27
Dependent aged 16+	0.36

To calculate equivalised household income, a McClements factor is assigned to each household member and summed to provide a total score for the household. The household annual income is then divided by this score to produce the equivalised household income. For example, a household comprising a married couple and a three year-old child with a gross annual household income of £45,000 would have an equivalised household income of £38,136 (i.e. £45,000 / (0.61 [first adult] + 0.39 [spouse] + 0.18 [3 year-old dependent]) = £38,136).

B.10 Direct method of age standardisation

The method of direction standardisation for age employed the following three steps:

1. Calculation of Standard Population percentages for age bands 16-19 to 70+ for:
 - (i) All persons
 - (ii) Females
 - (iii) Males
2. Calculation of the frequency and percentage of study participants in each ethnic group by age band for:
 - (i) All persons
 - (ii) Females
 - (iv) Males
3. Calculation of age standardised weights for categories (i) to (iii) by age band for each ethnic group using the following formula:

$$\text{Age standardised weight} = \frac{\text{Standard population \% for age band } i}{\text{Ethnic group \% for age band } i}$$

The tables of age standardised weights for each ethnic group are provided below:

Standard Population

Age group	All persons		Females		Males	
	N	%	N	%	N	%
16-19	2611.4	6.47	1265.4	6.09	1345.9	6.88
20-29	6315.3	15.65	3133.4	15.07	3181.9	16.27
30-39	7579	18.78	3802.9	18.29	3776	19.30
40-49	7039.5	17.44	3546.7	17.06	3492.7	17.85
50-59	6309.8	15.64	3191.8	15.35	3118	15.94
60-69	4742.9	11.75	2438.4	11.73	2304.5	11.78
70+	5758.5	14.27	3415.8	16.43	2342.6	11.98
All adults 16+	40356.4		20794.4		19561.6	

Black Caribbean Sample

Age group	All Persons			Females			Males		
	N	%	Weight	N	%	Weight	N	%	Weight
16-19	55	5.80	1.12	28	4.90	1.24	27	7.18	0.96
20-29	123	12.97	1.21	74	12.94	1.16	49	13.03	1.25
30-39	212	22.36	0.84	135	23.60	0.77	77	20.48	0.94
40-49	224	23.63	0.74	138	24.13	0.71	86	22.87	0.78
50-59	103	10.86	1.44	72	12.59	1.22	31	8.24	1.93
60-69	135	14.24	0.83	76	13.29	0.88	59	15.69	0.75
70+	96	10.13	1.41	49	8.57	1.92	47	12.50	0.96
All adults 16+	948			572			376		

Black African Sample

Age group	All Persons			Females			Males		
	N	%	Weight	N	%	Weight	N	%	Weight
16-19	77	9.53	0.68	44	9.89	0.62	33	9.09	0.76
20-29	172	21.29	0.74	104	23.37	0.64	68	18.73	0.87
30-39	270	33.42	0.56	146	32.81	0.56	124	34.16	0.57
40-49	169	20.92	0.83	89	20.00	0.85	80	22.04	0.81
50-59	71	8.79	1.78	35	7.87	1.95	36	9.92	1.61
60-69	36	4.46	2.64	17	3.82	3.07	19	5.23	2.25
70+	13	1.61	8.87	10	2.25	7.31	3	0.83	14.49
All adults 16+	808			445			363		

Indian Sample

Age group	All Persons			Females			Males		
	N	%	Weight	N	%	Weight	N	%	Weight
16-19	77	6.99	0.93	38	6.45	0.94	39	7.62	0.90
20-29	200	18.17	0.86	112	19.02	0.79	88	17.19	0.95
30-39	253	22.98	0.82	139	23.60	0.77	114	22.27	0.87
40-49	236	21.44	0.81	132	22.41	0.76	104	20.31	0.88
50-59	160	14.53	1.08	87	14.77	1.04	73	14.26	1.12
60-69	118	10.72	1.10	55	9.34	1.26	63	12.30	0.96
70+	57	5.18	2.76	26	4.41	3.72	31	6.05	1.98
All adults 16+	1101			589			512		

Pakistani Sample

Age group	All Persons			Females			Males		
	N	%	Weight	N	%	Weight	N	%	Weight
16-19	94	10.09	0.64	53	10.60	0.57	41	9.49	0.72
20-29	255	27.36	0.57	151	30.20	0.50	104	24.07	0.68
30-39	249	26.72	0.70	121	24.20	0.76	128	29.63	0.65
40-49	147	15.77	1.11	85	17.00	1.00	62	14.35	1.24
50-59	80	8.58	1.82	43	8.60	1.78	37	8.56	1.86
60-69	78	8.37	1.40	35	7.00	1.68	43	9.95	1.18
70+	29	3.11	4.59	12	2.40	6.84	17	3.94	3.04
All adults 16+	932			500			432		

Bangladeshi Sample

Age group	All Persons			Females			Males		
	N	%	Weight	N	%	Weight	N	%	Weight
16-19	118	13.38	0.48	66	13.89	0.44	52	12.78	0.54
20-29	270	30.61	0.51	171	36.00	0.42	99	24.32	0.67
30-39	217	24.60	0.76	115	24.21	0.76	102	25.06	0.77
40-49	139	15.76	1.11	48	10.11	1.69	91	22.36	0.80
50-59	57	6.46	2.42	40	8.42	1.82	17	4.18	3.82
60-69	58	6.58	1.79	26	5.47	2.14	32	7.86	1.50
70+	23	2.61	5.47	9	1.89	8.67	14	3.44	3.48
All adults 16+	882			475			407		

Chinese Sample

Age group	All Persons			Females			Males		
	N	%	Weight	N	%	Weight	N	%	Weight
16-19	54	8.08	0.80	23	6.53	0.93	31	9.81	0.70
20-29	173	25.90	0.60	84	23.86	0.63	89	28.16	0.58
30-39	121	18.11	1.04	73	20.74	0.88	48	15.19	1.27
40-49	158	23.65	0.74	93	26.42	0.65	65	20.57	0.87
50-59	97	14.52	1.08	48	13.64	1.13	49	15.51	1.03
60-69	40	5.99	1.96	17	4.83	2.43	23	7.28	1.62
70+	25	3.74	3.81	14	3.98	4.13	11	3.48	3.44
All adults 16+	668			352			316		

White Irish Sample

Age group	All Persons			Females			Males		
	N	%	Weight	N	%	Weight	N	%	Weight
16-19	32	2.79	2.32	16	2.46	2.48	16	3.23	2.13
20-29	120	10.47	1.49	72	11.06	1.36	48	9.70	1.68
30-39	236	20.59	0.91	140	21.51	0.85	96	19.39	1.00
40-49	233	20.33	0.86	133	20.43	0.83	100	20.20	0.88
50-59	206	17.98	0.87	114	17.51	0.88	92	18.59	0.86
60-69	167	14.57	0.81	88	13.52	0.87	79	15.96	0.74
70+	152	13.26	1.08	88	13.52	1.22	64	12.93	0.93
All adults 16+	1146			651			495		

White English Sample

Age group	All Persons			Females			Males		
	N	%	Weight	N	%	Weight	N	%	Weight
16-19	263	4.91	1.32	140	4.60	1.32	123	5.33	1.29
20-29	576	10.76	1.45	322	10.58	1.42	254	11.01	1.48
30-39	896	16.74	1.12	506	16.62	1.10	390	16.91	1.14
40-49	904	16.89	1.03	531	17.44	0.98	373	16.17	1.10
50-59	906	16.93	0.92	506	16.62	0.92	400	17.34	0.92
60-69	841	15.72	0.75	474	15.57	0.75	367	15.91	0.74
70+	965	18.03	0.79	565	18.56	0.88	400	17.34	0.69
All adults 16+	5351			3044			2307		

B.11 Multicollinearity checks

Multicollinearity checks for predictor variables of poor general health

Variables	VIF value	Tolerance value
Age	1.868	0.535
Gender	1.025	0.976
Ethnicity	1.109	0.902
Education level	1.775	0.563
Economic status	2.041	0.490
Social class	1.637	0.611
Income level	1.601	0.625

Notes: VIF (variance inflation factor)

Multicollinearity checks for predictor variables of poor psychological wellbeing

Variables	VIF value	Tolerance value
Age	1.879	0.532
Gender	1.022	0.978
Ethnicity	1.110	0.901
Education level	1.731	0.578
Economic status	2.021	0.495
Social class	1.590	0.629
Income level	1.575	0.635

Notes: VIF (variance inflation factor)

Multicollinearity checks for predictor variables of problems with HRQoL

Variables	VIF value	Tolerance value
Age	1.879	0.532
Gender	1.022	0.978
Ethnicity	1.110	0.901
Education level	1.724	0.580
Economic status	2.018	0.495
Social class	1.592	0.628
Income level	1.572	0.636

Notes: VIF (variance inflation factor)

B.12 Bivariate correlation for predictor variables

Spearman's rho correlation coefficients for predictor variables

	Age	Gender	Ethnicity	Education level	Economic status	Social class	Income level
Age	1.000	-0.001	*** 0.241	*** 0.321	*** 0.544	0.015	*** 0.042
Gender		1.000	0.009	*** 0.074	*** 0.123	*** 0.062	*** 0.059
Ethnicity			1.000	0.016	*** 0.061	*** -0.103	*** -0.215
Education level				1.000	*** 0.408	*** 0.555	*** 0.461
Economic status					1.000	*** 0.244	*** 0.414
Social class						1.000	*** 0.455
Income level							1.000

Notes: α level: *** P<0.001

B.13 Independent samples *t*-tests for age differences between ethnic groups**Age comparison between ethnic minority groups and the White English ethnic majority group**

Ethnic group	N	Mean age	SD	P value of <i>t</i> -test
White English [Reference]	5351	50.11	18.67	-
Black Caribbean	948	45.25	16.96	0.001
Black African	808	36.40	12.88	0.001
Indian	1101	41.60	15.84	0.001
Pakistani	932	36.88	14.93	0.001
Bangladeshi	882	34.77	14.59	0.001
Chinese	668	38.83	15.37	0.001
White Irish	1146	48.57	16.85	0.010

B.14 Additive models for poor general health (7a, 8a, 9a, 10a, 11a)

Model 7a:

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.044	.001	1071.341	1	.000	1.045	1.043	1.048
female(1)	.175	.044	15.758	1	.000	1.191	1.093	1.298
ethgroup			303.225	7	.000			
ethgroup(1)	.786	.080	96.972	1	.000	2.194	1.877	2.566
ethgroup(2)	.320	.099	10.464	1	.001	1.377	1.134	1.671
ethgroup(3)	.631	.078	65.243	1	.000	1.880	1.613	2.192
ethgroup(4)	.919	.085	118.165	1	.000	2.506	2.123	2.958
ethgroup(5)	1.167	.086	184.857	1	.000	3.214	2.716	3.803
ethgroup(6)	.196	.107	3.372	1	.066	1.216	.987	1.498
ethgroup(7)	.214	.077	7.807	1	.005	1.239	1.066	1.440
Constant	-3.498	.088	1571.256	1	.000	.030		

a. Variable(s) entered on step 1: age, female, ethgroup.

Model 8a:

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.034	.002	436.827	1	.000	1.035	1.032	1.038
female(1)	.113	.048	5.433	1	.020	1.119	1.018	1.230
ethgroup			164.299	7	.000			
ethgroup(1)	.706	.088	64.633	1	.000	2.026	1.706	2.407
ethgroup(2)	.285	.111	6.606	1	.010	1.330	1.070	1.652
ethgroup(3)	.599	.086	49.065	1	.000	1.820	1.539	2.152
ethgroup(4)	.685	.094	52.870	1	.000	1.983	1.649	2.385
ethgroup(5)	.910	.096	89.784	1	.000	2.484	2.058	2.999
ethgroup(6)	.244	.118	4.291	1	.038	1.276	1.013	1.608
ethgroup(7)	.169	.082	4.208	1	.040	1.184	1.008	1.391
top_qual			302.336	2	.000			
top_qual(1)	.477	.066	51.777	1	.000	1.612	1.415	1.836
top_qual(2)	1.082	.063	292.640	1	.000	2.952	2.607	3.341
Constant	-3.491	.108	1049.508	1	.000	.030		

a. Variable(s) entered on step 1: age, female, ethgroup, top_qual.

Model 9a:

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.038	.002	337.539	1	.000	1.038	1.034	1.042
female(1)	-.102	.048	4.493	1	.034	.903	.822	.992
ethgroup			146.230	7	.000			
ethgroup(1)	.724	.084	73.662	1	.000	2.063	1.749	2.435
ethgroup(2)	.093	.109	.733	1	.392	1.097	.887	1.358
ethgroup(3)	.579	.084	47.954	1	.000	1.784	1.514	2.101
ethgroup(4)	.562	.092	37.586	1	.000	1.753	1.465	2.098
ethgroup(5)	.733	.094	60.623	1	.000	2.082	1.731	2.504
ethgroup(6)	.219	.117	3.543	1	.060	1.245	.991	1.565
ethgroup(7)	.188	.079	5.573	1	.018	1.206	1.032	1.410
employ3			582.100	2	.000			
employ3(1)	1.408	.058	581.968	1	.000	4.087	3.645	4.582
employ3(2)	.621	.079	61.818	1	.000	1.860	1.593	2.171
Constant	-3.444	.109	1006.010	1	.000	.032		

a. Variable(s) entered on step 1: age, female, ethgroup, employ3.

Model 10a:

		Variables in the Equation					95% C.I. for EXP(B)		
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	age	.042	.001	892.413	1	.000	1.043	1.040	1.046
	female(1)	.113	.045	6.200	1	.013	1.120	1.024	1.224
	ethgroup			215.070	7	.000			
	ethgroup(1)	.732	.082	79.000	1	.000	2.080	1.770	2.444
	ethgroup(2)	.162	.103	2.465	1	.116	1.176	.960	1.441
	ethgroup(3)	.568	.080	49.900	1	.000	1.764	1.507	2.065
	ethgroup(4)	.756	.088	73.985	1	.000	2.129	1.792	2.529
	ethgroup(5)	1.001	.090	124.219	1	.000	2.722	2.283	3.246
	ethgroup(6)	.258	.110	5.498	1	.019	1.294	1.043	1.604
	ethgroup(7)	.206	.078	6.957	1	.008	1.228	1.054	1.431
	class3			253.583	2	.000			
	class3(1)	.383	.069	30.640	1	.000	1.467	1.281	1.680
	class3(2)	.873	.057	235.606	1	.000	2.395	2.142	2.677
	Constant	-3.835	.098	1546.002	1	.000	.022		

a. Variable(s) entered on step 1: age, female, ethgroup, class3.

Model 11a:

		Variables in the Equation					95% C.I. for EXP(B)		
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	age	.040	.002	640.673	1	.000	1.040	1.037	1.044
	female(1)	.143	.051	7.815	1	.005	1.154	1.044	1.275
	ethgroup			81.170	7	.000			
	ethgroup(1)	.602	.094	40.928	1	.000	1.825	1.518	2.194
	ethgroup(2)	-.027	.114	.055	1	.815	.974	.779	1.218
	ethgroup(3)	.469	.092	25.839	1	.000	1.598	1.334	1.914
	ethgroup(4)	.464	.101	20.933	1	.000	1.591	1.304	1.940
	ethgroup(5)	.576	.107	29.038	1	.000	1.779	1.443	2.194
	ethgroup(6)	.135	.131	1.063	1	.302	1.144	.886	1.478
	ethgroup(7)	.175	.087	4.038	1	.044	1.191	1.004	1.414
	income			390.913	2	.000			
	income(1)	.808	.069	136.581	1	.000	2.243	1.959	2.568
	income(2)	1.381	.070	389.217	1	.000	3.980	3.470	4.566
	Constant	-3.917	.106	1363.357	1	.000	.020		

a. Variable(s) entered on step 1: age, female, ethgroup, income.

KEY:

Ethnic groups: (1) Black Caribbean; (2) Black African; (3) Indian; (4) Pakistani; (5) Bangladeshi; (6) Chinese; (7) White Irish; Reference = White English. Top Qual: (1) GCSE or A-level; (2) No qualifications; Reference = Degree or Above. Employ3: (1) Inactive; (2) Retired; Reference = Active. Class3: (1) Intermediate; (2) Routine, manual, never worked, or long-term unemployed; Reference = Professional or managerial. Income: (1) Middle tertile; (2) Lower tertile; Reference = Upper tertile.

B.15 Additive models for poor psychological wellbeing (7b, 8b, 9b, 10b, 11b)

Model 7b:

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.006	.002	11.589	1	.001	1.006	1.003	1.009
female(1)	.252	.059	18.201	1	.000	1.287	1.146	1.445
ethgroup			32.300	7	.000			
ethgroup(1)	.255	.111	5.301	1	.021	1.291	1.039	1.604
ethgroup(2)	.301	.123	5.950	1	.015	1.351	1.061	1.721
ethgroup(3)	.148	.105	1.967	1	.161	1.159	.943	1.424
ethgroup(4)	.498	.114	19.047	1	.000	1.645	1.315	2.056
ethgroup(5)	.405	.128	9.979	1	.002	1.499	1.166	1.927
ethgroup(6)	-.103	.141	.536	1	.464	.902	.684	1.189
ethgroup(7)	.180	.098	3.397	1	.065	1.198	.989	1.451
Constant	-2.347	.105	495.709	1	.000	.096		

a. Variable(s) entered on step 1: age, female, ethgroup.

Model 8b:

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	-.001	.002	.068	1	.794	.999	.995	1.004
female(1)	.219	.065	11.513	1	.001	1.245	1.097	1.413
ethgroup			29.910	7	.000			
ethgroup(1)	.344	.118	8.563	1	.003	1.411	1.120	1.777
ethgroup(2)	.316	.138	5.215	1	.022	1.371	1.046	1.798
ethgroup(3)	.167	.115	2.105	1	.147	1.181	.943	1.480
ethgroup(4)	.532	.126	17.932	1	.000	1.702	1.331	2.177
ethgroup(5)	.322	.143	5.052	1	.025	1.381	1.042	1.829
ethgroup(6)	-.130	.163	.634	1	.426	.878	.638	1.209
ethgroup(7)	.212	.103	4.227	1	.040	1.237	1.010	1.514
top_qual			33.433	2	.000			
top_qual(1)	-.012	.082	.021	1	.886	.988	.842	1.160
top_qual(2)	.415	.083	25.098	1	.000	1.514	1.287	1.781
Constant	-2.162	.131	272.729	1	.000	.115		

a. Variable(s) entered on step 1: age, female, ethgroup, top_qual.

Model 9b:

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.004	.003	2.043	1	.153	1.004	.999	1.009
female(1)	.033	.064	.271	1	.602	1.034	.912	1.171
ethgroup			12.501	7	.085			
ethgroup(1)	.227	.116	3.848	1	.050	1.255	1.000	1.574
ethgroup(2)	.191	.135	2.002	1	.157	1.211	.929	1.578
ethgroup(3)	.111	.111	.993	1	.319	1.117	.898	1.390
ethgroup(4)	.321	.123	6.841	1	.009	1.378	1.084	1.752
ethgroup(5)	.051	.142	.130	1	.719	1.052	.797	1.389
ethgroup(6)	-.101	.158	.407	1	.523	.904	.664	1.231
ethgroup(7)	.160	.101	2.539	1	.111	1.174	.964	1.429
employ3			202.726	2	.000			
employ3(1)	1.020	.073	196.230	1	.000	2.773	2.404	3.198
employ3(2)	.241	.111	4.743	1	.029	1.273	1.024	1.582
Constant	-2.382	.129	341.672	1	.000	.092		

a. Variable(s) entered on step 1: age, female, ethgroup, employ3.

Model 10b:

		Variables in the Equation					95% C.I. for EXP(B)		
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	age	.004	.002	5.799	1	.016	1.004	1.001	1.008
	female(1)	.237	.060	15.421	1	.000	1.267	1.126	1.427
	ethgroup			29.465	7	.000			
	ethgroup(1)	.225	.113	3.964	1	.046	1.252	1.004	1.563
	ethgroup(2)	.295	.127	5.401	1	.020	1.343	1.047	1.723
	ethgroup(3)	.144	.107	1.800	1	.180	1.155	.936	1.425
	ethgroup(4)	.544	.117	21.787	1	.000	1.723	1.371	2.165
	ethgroup(5)	.321	.135	5.610	1	.018	1.378	1.057	1.797
	ethgroup(6)	-.055	.146	.139	1	.709	.947	.711	1.262
	ethgroup(7)	.182	.099	3.375	1	.066	1.199	.988	1.456
	class3			32.020	2	.000			
	class3(1)	.066	.088	.554	1	.457	1.068	.898	1.269
	class3(2)	.364	.071	26.288	1	.000	1.439	1.252	1.654
	Constant	-2.449	.116	447.807	1	.000	.086		

a. Variable(s) entered on step 1: age, female, ethgroup, class3.

Model 11b:

		Variables in the Equation					95% C.I. for EXP(B)		
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	age	.003	.002	3.293	1	.070	1.003	1.000	1.007
	female(1)	.228	.065	12.160	1	.000	1.256	1.105	1.428
	ethgroup			6.628	7	.469			
	ethgroup(1)	.190	.122	2.420	1	.120	1.210	.952	1.537
	ethgroup(2)	.135	.136	.981	1	.322	1.144	.876	1.494
	ethgroup(3)	.042	.119	.125	1	.724	1.043	.826	1.318
	ethgroup(4)	.215	.135	2.525	1	.112	1.240	.951	1.617
	ethgroup(5)	.137	.157	.765	1	.382	1.147	.844	1.560
	ethgroup(6)	-.054	.163	.109	1	.741	.947	.688	1.305
	ethgroup(7)	.167	.106	2.508	1	.113	1.182	.961	1.454
	income			87.404	2	.000			
	income(1)	.439	.084	27.502	1	.000	1.551	1.317	1.828
	income(2)	.788	.084	87.325	1	.000	2.200	1.865	2.595
	Constant	-2.561	.121	451.193	1	.000	.077		

a. Variable(s) entered on step 1: age, female, ethgroup, income.

KEY:

Ethnic groups: (1) Black Caribbean; (2) Black African; (3) Indian; (4) Pakistani; (5) Bangladeshi; (6) Chinese; (7) White Irish; Reference = White English. Top Qual: (1) GCSE or A-level; (2) No qualifications; Reference = Degree or Above. Employ3: (1) Inactive; (2) Retired; Reference = Active. Class3: (1) Intermediate; (2) Routine, manual, never worked, or long-term unemployed; Reference = Professional or managerial. Income: (1) Middle tertile; (2) Lower tertile; Reference = Upper tertile.

B.16 Additive models for problems with HRQoL (7c, 8c, 9c, 10c, 11c)

Model 7c:

		Variables in the Equation					95% C.I. for EXP(B)		
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	age	.039	.001	825.032	1	.000	1.040	1.037	1.042
	female(1)	.363	.044	69.451	1	.000	1.437	1.320	1.565
	ethgroup			69.283	7	.000			
	ethgroup(1)	.274	.085	10.363	1	.001	1.315	1.113	1.554
	ethgroup(2)	.086	.095	.818	1	.366	1.090	.905	1.313
	ethgroup(3)	.146	.077	3.625	1	.057	1.158	.996	1.346
	ethgroup(4)	.407	.091	20.008	1	.000	1.502	1.257	1.795
	ethgroup(5)	.411	.099	17.035	1	.000	1.508	1.241	1.832
	ethgroup(6)	-.368	.101	13.241	1	.000	.692	.567	.844
	ethgroup(7)	-.131	.074	3.107	1	.078	.877	.758	1.015
	Constant	-2.354	.081	852.013	1	.000	.095		

a. Variable(s) entered on step 1: age, female, ethgroup.

Model 8c:

		Variables in the Equation					95% C.I. for EXP(B)		
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	age	.033	.002	400.427	1	.000	1.034	1.031	1.037
	female(1)	.335	.048	49.116	1	.000	1.398	1.273	1.535
	ethgroup			47.928	7	.000			
	ethgroup(1)	.288	.093	9.615	1	.002	1.334	1.112	1.600
	ethgroup(2)	.101	.106	.912	1	.340	1.106	.899	1.361
	ethgroup(3)	.150	.084	3.174	1	.075	1.162	.985	1.371
	ethgroup(4)	.389	.103	14.247	1	.000	1.475	1.206	1.805
	ethgroup(5)	.280	.113	6.115	1	.013	1.323	1.060	1.653
	ethgroup(6)	-.348	.113	9.423	1	.002	.706	.565	.882
	ethgroup(7)	-.145	.079	3.334	1	.068	.865	.740	1.011
	top_qual			107.439	2	.000			
	top_qual(1)	.216	.058	14.016	1	.000	1.242	1.109	1.390
	top_qual(2)	.632	.061	106.007	1	.000	1.882	1.669	2.123
Constant	-2.347	.099	557.961	1	.000	.096			

a. Variable(s) entered on step 1: age, female, ethgroup, top_qual.

Model 9c:

		Variables in the Equation					95% C.I. for EXP(B)		
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	age	.035	.002	302.269	1	.000	1.036	1.032	1.040
	female(1)	.192	.047	16.834	1	.000	1.212	1.105	1.328
	ethgroup			34.540	7	.000			
	ethgroup(1)	.229	.089	6.601	1	.010	1.257	1.056	1.498
	ethgroup(2)	-.028	.104	.074	1	.785	.972	.794	1.191
	ethgroup(3)	.104	.082	1.602	1	.206	1.109	.945	1.302
	ethgroup(4)	.181	.101	3.195	1	.074	1.198	.983	1.460
	ethgroup(5)	.059	.112	.282	1	.596	1.061	.853	1.320
	ethgroup(6)	-.417	.112	13.926	1	.000	.659	.530	.820
	ethgroup(7)	-.172	.077	5.003	1	.025	.842	.725	.979
	employ3			279.049	2	.000			
	employ3(1)	.980	.059	277.423	1	.000	2.665	2.375	2.991
	employ3(2)	.367	.081	20.741	1	.000	1.444	1.233	1.691
	Constant	-2.306	.101	524.822	1	.000	.100		

a. Variable(s) entered on step 1: age, female, ethgroup, employ3.

Model 10c:

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.038	.001	742.933	1	.000	1.039	1.036	1.042
female(1)	.333	.045	55.588	1	.000	1.395	1.278	1.523
ethgroup			49.251	7	.000			
ethgroup(1)	.259	.087	8.919	1	.003	1.296	1.093	1.537
ethgroup(2)	.024	.099	.060	1	.807	1.024	.844	1.243
ethgroup(3)	.123	.079	2.423	1	.120	1.131	.969	1.321
ethgroup(4)	.384	.096	16.078	1	.000	1.468	1.217	1.771
ethgroup(5)	.271	.106	6.527	1	.011	1.312	1.065	1.615
ethgroup(6)	-.334	.105	10.123	1	.001	.716	.583	.880
ethgroup(7)	-.134	.075	3.159	1	.076	.875	.754	1.014
class3			114.392	2	.000			
class3(1)	.206	.062	10.909	1	.001	1.228	1.087	1.388
class3(2)	.541	.052	108.942	1	.000	1.717	1.551	1.901
Constant	-2.599	.089	858.228	1	.000	.074		

a. Variable(s) entered on step 1: age, female, ethgroup, class3.

Model 11c:

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.036	.002	553.018	1	.000	1.037	1.034	1.040
female(1)	.311	.049	40.494	1	.000	1.364	1.240	1.501
ethgroup			19.829	7	.006			
ethgroup(1)	.198	.096	4.215	1	.040	1.219	1.009	1.472
ethgroup(2)	-.165	.106	2.424	1	.119	.848	.689	1.044
ethgroup(3)	-.027	.088	.094	1	.759	.973	.819	1.157
ethgroup(4)	.013	.109	.015	1	.904	1.013	.818	1.256
ethgroup(5)	-.120	.126	.910	1	.340	.887	.692	1.135
ethgroup(6)	-.369	.121	9.346	1	.002	.692	.546	.876
ethgroup(7)	-.114	.081	1.961	1	.161	.893	.761	1.046
income			191.561	2	.000			
income(1)	.407	.058	48.683	1	.000	1.503	1.340	1.685
income(2)	.867	.063	191.472	1	.000	2.379	2.104	2.690
Constant	-2.521	.092	746.945	1	.000	.080		

a. Variable(s) entered on step 1: age, female, ethgroup, income.

KEY:

Ethnic groups: (1) Black Caribbean; (2) Black African; (3) Indian; (4) Pakistani; (5) Bangladeshi; (6) Chinese; (7) White Irish; Reference = White English. Top Qual: (1) GCSE or A-level; (2) No qualifications; Reference = Degree or Above. Employ3: (1) Inactive; (2) Retired; Reference = Active. Class3: (1) Intermediate; (2) Routine, manual, never worked, or long-term unemployed; Reference = Professional or managerial. Income: (1) Middle tertile; (2) Lower tertile; Reference = Upper tertile.

B.17 Interaction model for gender × ethnicity with poor general health (Model 12a)

Logistic Regression

Categorical Variables Codings

	Frequency	Parameter coding							
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	
[N] Ethnic Group									
Black Caribbean	946	1.000	.000	.000	.000	.000	.000	.000	.000
Black African	807	.000	1.000	.000	.000	.000	.000	.000	.000
Indian	1101	.000	.000	1.000	.000	.000	.000	.000	.000
Pakistani	930	.000	.000	.000	1.000	.000	.000	.000	.000
Bangladeshi	882	.000	.000	.000	.000	1.000	.000	.000	.000
Chinese	668	.000	.000	.000	.000	.000	1.000	.000	.000
White Irish	1146	.000	.000	.000	.000	.000	.000	.000	1.000
White English	5348	.000	.000	.000	.000	.000	.000	.000	.000
[d] male vs female									
Male	5205	.000							
Female	6623	1.000							

Block 0: Beginning Block

Iteration History^{a,b,c}

Iteration		-2 Log likelihood	Coefficients	
				Constant
Step 0	1	14050.241		-.878
	2	14040.409		-.941
	3	14040.407		-.941

- a. Constant is included in the model.
- b. Initial -2 Log Likelihood: 14040.407
- c. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	-.941	.020	2116.308	1	.000	.390

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

	Chi-square	df	Sig.
Step 1 Step	1337.799	9	.000
Block	1337.799	9	.000
Model	1337.799	9	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	12702.607 ^a	.107	.154

- a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	40.240	8	.000

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a age	.044	.001	1071.341	1	.000	1.045	1.043	1.048
female(1)	.175	.044	15.758	1	.000	1.191	1.093	1.298
ethgroup			303.225	7	.000			
ethgroup(1)	.786	.080	96.972	1	.000	2.194	1.877	2.566
ethgroup(2)	.320	.099	10.464	1	.001	1.377	1.134	1.671
ethgroup(3)	.631	.078	65.243	1	.000	1.880	1.613	2.192
ethgroup(4)	.919	.085	118.165	1	.000	2.506	2.123	2.958
ethgroup(5)	1.167	.086	184.857	1	.000	3.214	2.716	3.803
ethgroup(6)	.196	.107	3.372	1	.066	1.216	.987	1.498
ethgroup(7)	.214	.077	7.807	1	.005	1.239	1.066	1.440
Constant	-3.498	.088	1571.256	1	.000	.030		

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	1337.799	9	.000
	Block	1337.799	9	.000

a. Variable(s) entered on step 1: age, female, ethgroup.

Block 2: Method = Enter**Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	28.890	7	.000
	Block	28.890	7	.000
	Model	1366.690	16	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	12673.717 ^a	.109	.157

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	30.545	8	.000

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.045	.001	1076.422	1	.000	1.046	1.043	1.048
female(1)	.074	.067	1.239	1	.266	1.077	.945	1.228
ethgroup			103.463	7	.000			
ethgroup(1)	.513	.130	15.636	1	.000	1.670	1.295	2.154
ethgroup(2)	.022	.158	.020	1	.889	1.022	.751	1.392
ethgroup(3)	.625	.115	29.615	1	.000	1.867	1.491	2.338
ethgroup(4)	.671	.127	28.053	1	.000	1.956	1.526	2.508
ethgroup(5)	1.033	.125	68.756	1	.000	2.809	2.201	3.586
ethgroup(6)	.139	.159	.769	1	.380	1.149	.842	1.569
ethgroup(7)	.400	.114	12.258	1	.000	1.492	1.193	1.867
ethgroup * female			28.689	7	.000			
ethgroup(1) by female(1)	.446	.164	7.431	1	.006	1.563	1.134	2.154
ethgroup(2) by female(1)	.509	.199	6.552	1	.010	1.664	1.127	2.459
ethgroup(3) by female(1)	.011	.154	.005	1	.945	1.011	.747	1.367
ethgroup(4) by female(1)	.445	.165	7.271	1	.007	1.560	1.129	2.156
ethgroup(5) by female(1)	.248	.164	2.288	1	.130	1.282	.929	1.767
ethgroup(6) by female(1)	.102	.212	.231	1	.631	1.107	.731	1.677
ethgroup(7) by female(1)	-.334	.154	4.687	1	.030	.716	.529	.969
Constant	-3.453	.092	1409.541	1	.000	.032		

a. Variable(s) entered on step 1: ethgroup * female .

B.18 Interaction model for gender × ethnicity × education level with poor general health (Model 13a)**Logistic Regression****Categorical Variables Codings**

		Frequency	Parameter coding						
			(1)	(2)	(3)	(4)	(5)	(6)	(7)
[N] Ethnic Group	Black Caribbean	789	1.000	.000	.000	.000	.000	.000	.000
	Black African	614	.000	1.000	.000	.000	.000	.000	.000
	Indian	915	.000	.000	1.000	.000	.000	.000	.000
	Pakistani	733	.000	.000	.000	1.000	.000	.000	.000
	Bangladeshi	697	.000	.000	.000	.000	1.000	.000	.000
	Chinese	496	.000	.000	.000	.000	.000	1.000	.000
	White Irish	1016	.000	.000	.000	.000	.000	.000	1.000
	White English	4553	.000	.000	.000	.000	.000	.000	.000
[R] Top qualification	Degree or above	3158	.000	.000					
	GCSE or A level	3060	1.000	.000					
	No qualifications	3595	.000	1.000					
[d] male vs female	Male	4254	.000						
	Female	5559	1.000						

Block 0: Beginning Block**Iteration History^{a,b,c}**

Iteration		-2 Log likelihood	Coefficients	
				Constant
Step 0	1	12007.041		-.797
	2	12002.518		-.843
	3	12002.517		-.843

- a. Constant is included in the model.
b. Initial -2 Log Likelihood: 12002.517
c. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-.843	.022	1468.042	1	.000	.430

Block 1: Method = Enter**Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	1390.926	11	.000
	Block	1390.926	11	.000
	Model	1390.926	11	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	10611.591 ^a	.132	.187

- a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	7.514	8	.482

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.034	.002	436.827	1	.000	1.035	1.032	1.038
female(1)	.113	.048	5.433	1	.020	1.119	1.018	1.230
ethgroup			164.299	7	.000			
ethgroup(1)	.706	.088	64.633	1	.000	2.026	1.706	2.407
ethgroup(2)	.285	.111	6.606	1	.010	1.330	1.070	1.652
ethgroup(3)	.599	.086	49.065	1	.000	1.820	1.539	2.152
ethgroup(4)	.685	.094	52.870	1	.000	1.983	1.649	2.385
ethgroup(5)	.910	.096	89.784	1	.000	2.484	2.058	2.999
ethgroup(6)	.244	.118	4.291	1	.038	1.276	1.013	1.608
ethgroup(7)	.169	.082	4.208	1	.040	1.184	1.008	1.391
top_qual			302.336	2	.000			
top_qual(1)	.477	.066	51.777	1	.000	1.612	1.415	1.836
top_qual(2)	1.082	.063	292.640	1	.000	2.952	2.607	3.341
Constant	-3.491	.108	1049.508	1	.000	.030		

a. Variable(s) entered on step 1: age, female, ethgroup, top_qual.

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

	Chi-square	df	Sig.
Step 1 Step	27.766	23	.225
Block	27.766	23	.225
Model	1418.692	34	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	10583.825 ^a	.135	.191

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	5.448	8	.709

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.035	.002	434.301	1	.000	1.035	1.032	1.039
female(1)	.009	.115	.006	1	.938	1.009	.805	1.265
ethgroup			17.553	7	.014			
ethgroup(1)	.476	.209	5.176	1	.023	1.610	1.068	2.427
ethgroup(2)	.206	.215	.915	1	.339	1.228	.806	1.872
ethgroup(3)	.475	.177	7.218	1	.007	1.608	1.137	2.274
ethgroup(4)	.526	.233	5.093	1	.024	1.691	1.072	2.669
ethgroup(5)	.745	.264	7.963	1	.005	2.106	1.255	3.533
ethgroup(6)	.246	.222	1.226	1	.268	1.278	.828	1.974
ethgroup(7)	.176	.197	.790	1	.374	1.192	.809	1.755
top_qual			73.881	2	.000			
top_qual(1)	.481	.122	15.555	1	.000	1.618	1.274	2.055
top_qual(2)	.986	.116	72.529	1	.000	2.680	2.136	3.362
ethgroup * female			15.799	7	.027			
ethgroup(1) by female(1)	.557	.181	9.490	1	.002	1.746	1.225	2.490
ethgroup(2) by female(1)	.267	.224	1.425	1	.233	1.306	.842	2.026
ethgroup(3) by female(1)	-.046	.172	.070	1	.791	.955	.682	1.339
ethgroup(4) by female(1)	.135	.185	.530	1	.466	1.144	.797	1.643
ethgroup(5) by female(1)	.123	.186	.443	1	.506	1.131	.786	1.628
ethgroup(6) by female(1)	.116	.235	.246	1	.620	1.124	.709	1.780
ethgroup(7) by female(1)	-.253	.168	2.275	1	.132	.776	.559	1.079
female * top_qual			.267	2	.875			
female(1) by top_qual(1)	.059	.135	.194	1	.659	1.061	.815	1.382
female(1) by top_qual(2)	.060	.124	.231	1	.631	1.061	.833	1.353
ethgroup * top_qual			10.665	14	.712			
ethgroup(1) by top_qual(1)	-.170	.229	.546	1	.460	.844	.538	1.323
ethgroup(1) by top_qual(2)	-.141	.220	.410	1	.522	.869	.565	1.336
ethgroup(2) by top_qual(1)	-.188	.274	.469	1	.493	.829	.484	1.419
ethgroup(2) by top_qual(2)	-.087	.260	.111	1	.739	.917	.551	1.526
ethgroup(3) by top_qual(1)	.068	.221	.093	1	.760	1.070	.693	1.651
ethgroup(3) by top_qual(2)	.329	.207	2.513	1	.113	1.389	.925	2.085
ethgroup(4) by top_qual(1)	-.079	.290	.073	1	.786	.924	.523	1.633
ethgroup(4) by top_qual(2)	.189	.249	.574	1	.449	1.208	.741	1.969
ethgroup(5) by top_qual(1)	-.059	.315	.035	1	.851	.942	.508	1.748
ethgroup(5) by top_qual(2)	.199	.279	.508	1	.476	1.220	.706	2.106
ethgroup(6) by top_qual(1)	-.006	.309	.000	1	.984	.994	.543	1.820
ethgroup(6) by top_qual(2)	-.172	.266	.419	1	.517	.842	.500	1.418
ethgroup(7) by top_qual(1)	-.046	.236	.038	1	.845	.955	.601	1.517
ethgroup(7) by top_qual(2)	.307	.212	2.092	1	.148	1.359	.897	2.058
Constant	-3.428	.129	706.174	1	.000	.032		

a. Variable(s) entered on step 1: ethgroup * female , female * top_qual , ethgroup * top_qual .

Block 3: Method = Enter**Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	12.316	14	.581
	Block	12.316	14	.581
	Model	1431.009	48	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	10571.509 ^a	.136	.192

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	6.633	8	.577

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	age	.035	.002	433.129	1	.000	1.035	1.032	1.039
	female(1)	-.025	.154	.025	1	.873	.976	.722	1.319
	ethgroup			13.455	7	.062			
	ethgroup(1)	.141	.322	.191	1	.662	1.151	.612	2.165
	ethgroup(2)	.111	.265	.174	1	.677	1.117	.664	1.878
	ethgroup(3)	.442	.216	4.164	1	.041	1.555	1.018	2.378
	ethgroup(4)	.649	.280	5.347	1	.021	1.913	1.104	3.314
	ethgroup(5)	.871	.315	7.650	1	.006	2.390	1.289	4.432
	ethgroup(6)	.168	.270	.389	1	.533	1.183	.697	2.007
	ethgroup(7)	.254	.252	1.016	1	.313	1.289	.787	2.113
	top_qual			51.241	2	.000			
	top_qual(1)	.448	.144	9.673	1	.002	1.565	1.180	2.075
	top_qual(2)	.973	.137	50.144	1	.000	2.645	2.021	3.463
	ethgroup * female			12.217	7	.094			
	ethgroup(1) by female(1)	1.036	.385	7.250	1	.007	2.817	1.326	5.987
	ethgroup(2) by female(1)	.450	.363	1.534	1	.215	1.568	.769	3.197
	ethgroup(3) by female(1)	.024	.313	.006	1	.938	1.025	.555	1.891
	ethgroup(4) by female(1)	-.173	.447	.150	1	.698	.841	.350	2.019
	ethgroup(5) by female(1)	-.232	.531	.190	1	.663	.793	.280	2.245
	ethgroup(6) by female(1)	.270	.376	.515	1	.473	1.310	.627	2.736
	ethgroup(7) by female(1)	-.395	.352	1.263	1	.261	.673	.338	1.342
	female * top_qual			.389	2	.823			
	female(1) by top_qual(1)	.122	.199	.378	1	.539	1.130	.765	1.670
	female(1) by top_qual(2)	.088	.188	.219	1	.640	1.092	.755	1.580
	ethgroup * top_qual			9.051	14	.828			
	ethgroup(1) by top_qual(1)	.382	.413	.857	1	.355	1.466	.652	3.295
	ethgroup(1) by top_qual(2)	.209	.380	.304	1	.581	1.233	.586	2.596
	ethgroup(2) by top_qual(1)	-.273	.446	.374	1	.541	.761	.318	1.825
	ethgroup(2) by top_qual(2)	.292	.406	.517	1	.472	1.339	.604	2.970
	ethgroup(3) by top_qual(1)	-.026	.326	.006	1	.936	.974	.514	1.845
	ethgroup(3) by top_qual(2)	.487	.302	2.596	1	.107	1.628	.900	2.943
	ethgroup(4) by top_qual(1)	.076	.392	.037	1	.847	1.079	.500	2.326
	ethgroup(4) by top_qual(2)	-.098	.338	.085	1	.771	.906	.468	1.757

ethgroup(5) top_qual(1)	by	-.317	.449	.497	1	.481	.728	.302	1.757
ethgroup(5) top_qual(2)	by	.071	.360	.039	1	.844	1.074	.530	2.174
ethgroup(6) top_qual(1)	by	.263	.469	.315	1	.575	1.301	.519	3.262
ethgroup(6) top_qual(2)	by	-.113	.397	.081	1	.776	.893	.410	1.945
ethgroup(7) top_qual(1)	by	-.108	.347	.097	1	.755	.897	.454	1.773
ethgroup(7) top_qual(2)	by	.183	.309	.350	1	.554	1.200	.655	2.198
ethgroup * female * top_qual				12.199	14	.590			
ethgroup(1) by female(1) by top_qual(1)		-.799	.500	2.555	1	.110	.450	.169	1.198
ethgroup(1) by female(1) by top_qual(2)		-.506	.471	1.157	1	.282	.603	.240	1.516
ethgroup(2) by female(1) by top_qual(1)		.087	.569	.024	1	.878	1.091	.358	3.329
ethgroup(2) by female(1) by top_qual(2)		-.608	.527	1.331	1	.249	.544	.194	1.530
ethgroup(3) by female(1) by top_qual(1)		.151	.445	.115	1	.735	1.163	.486	2.782
ethgroup(3) by female(1) by top_qual(2)		-.285	.416	.470	1	.493	.752	.333	1.699
ethgroup(4) by female(1) by top_qual(1)		-.216	.590	.133	1	.715	.806	.254	2.563
ethgroup(4) by female(1) by top_qual(2)		.580	.508	1.302	1	.254	1.786	.660	4.835
ethgroup(5) by female(1) by top_qual(1)		.549	.660	.690	1	.406	1.731	.475	6.312
ethgroup(5) by female(1) by top_qual(2)		.357	.580	.378	1	.539	1.428	.458	4.454
ethgroup(6) by female(1) by top_qual(1)		-.466	.622	.560	1	.454	.628	.185	2.125
ethgroup(6) by female(1) by top_qual(2)		-.122	.535	.052	1	.819	.885	.310	2.523
ethgroup(7) by female(1) by top_qual(1)		.114	.475	.058	1	.809	1.121	.442	2.843
ethgroup(7) by female(1) by top_qual(2)		.226	.425	.282	1	.596	1.253	.545	2.883
Constant		-3.413	.138	612.294	1	.000	.033		

a. Variable(s) entered on step 1: ethgroup * female * top_qual .

B.19 Interaction model for gender × ethnicity × economic status with poor general health (Model 14a)

Logistic Regression

Categorical Variables Codings

		Frequency	Parameter coding						
			(1)	(2)	(3)	(4)	(5)	(6)	(7)
[N] Ethnic Group	Black Caribbean	864	1.000	.000	.000	.000	.000	.000	.000
	Black African	663	.000	1.000	.000	.000	.000	.000	.000
	Indian	982	.000	.000	1.000	.000	.000	.000	.000
	Pakistani	792	.000	.000	.000	1.000	.000	.000	.000
	Bangladeshi	750	.000	.000	.000	.000	1.000	.000	.000
	Chinese	523	.000	.000	.000	.000	.000	1.000	.000
	White Irish	1103	.000	.000	.000	.000	.000	.000	1.000
	White English	5100	.000	.000	.000	.000	.000	.000	.000
Employment status	active	5990	.000	.000					
	inactive	2572	1.000	.000					
	retired	2215	.000	1.000					
[d] male vs female	Male	4695	.000						
	Female	6082	1.000						

Block 0: Beginning Block

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-.861	.021	1668.748	1	.000	.423

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	1728.423	11	.000
	Block	1728.423	11	.000
	Model	1728.423	11	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	11385.016 ^a	.148	.211

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	age	.038	.002	337.539	1	.000	1.038	1.034	1.042
	female(1)	-.102	.048	4.493	1	.034	.903	.822	.992
	ethgroup			146.230	7	.000			
	ethgroup(1)	.724	.084	73.662	1	.000	2.063	1.749	2.435
	ethgroup(2)	.093	.109	.733	1	.392	1.097	.887	1.358
	ethgroup(3)	.579	.084	47.954	1	.000	1.784	1.514	2.101
	ethgroup(4)	.562	.092	37.586	1	.000	1.753	1.465	2.098
	ethgroup(5)	.733	.094	60.623	1	.000	2.082	1.731	2.504
	ethgroup(6)	.219	.117	3.543	1	.060	1.245	.991	1.565
	ethgroup(7)	.188	.079	5.573	1	.018	1.206	1.032	1.410
	employ3			582.100	2	.000			
	employ3(1)	1.408	.058	581.968	1	.000	4.087	3.645	4.582
	employ3(2)	.621	.079	61.818	1	.000	1.860	1.593	2.171
	Constant	-3.444	.109	1006.010	1	.000	.032		

a. Variable(s) entered on step 1: age, female, ethgroup, employ3.

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	139.953	23	.000
	Block	139.953	23	.000
	Model	1868.376	34	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	11245.063 ^a	.159	.226

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.037	.002	325.509	1	.000	1.038	1.034	1.042
female(1)	-.023	.092	.060	1	.807	.978	.816	1.171
ethgroup			38.192	7	.000			
ethgroup(1)	.281	.168	2.782	1	.095	1.324	.952	1.842
ethgroup(2)	-.203	.200	1.032	1	.310	.816	.552	1.208
ethgroup(3)	.520	.142	13.419	1	.000	1.683	1.274	2.223
ethgroup(4)	.356	.179	3.977	1	.046	1.428	1.006	2.026
ethgroup(5)	.838	.174	23.298	1	.000	2.312	1.645	3.249
ethgroup(6)	.166	.198	.703	1	.402	1.181	.801	1.741
ethgroup(7)	.021	.155	.018	1	.894	1.021	.753	1.384
employ3			271.745	2	.000			
employ3(1)	2.091	.127	269.684	1	.000	8.090	6.303	10.383
employ3(2)	.393	.114	11.889	1	.001	1.481	1.185	1.851
ethgroup * female			30.474	7	.000			
ethgroup(1) by female(1)	.675	.178	14.477	1	.000	1.965	1.387	2.782
ethgroup(2) by female(1)	.580	.231	6.271	1	.012	1.785	1.134	2.810
ethgroup(3) by female(1)	-.057	.177	.103	1	.749	.945	.668	1.337
ethgroup(4) by female(1)	-.016	.217	.005	1	.942	.984	.643	1.507
ethgroup(5) by female(1)	.482	.202	5.699	1	.017	1.619	1.090	2.404
ethgroup(6) by female(1)	.215	.242	.787	1	.375	1.240	.771	1.992
ethgroup(7) by female(1)	-.269	.169	2.553	1	.110	.764	.549	1.063
employ3 * female			39.947	2	.000			
employ3(1) by female(1)	-.716	.126	32.223	1	.000	.489	.382	.626
employ3(2) by female(1)	.076	.118	.416	1	.519	1.079	.856	1.361
employ3 * ethgroup			81.546	14	.000			
employ3(1) by ethgroup(1)	-.539	.206	6.831	1	.009	.584	.390	.874
employ3(1) by ethgroup(2)	-.485	.236	4.232	1	.040	.616	.388	.977
employ3(1) by ethgroup(3)	-.191	.203	.886	1	.347	.826	.554	1.230
employ3(1) by ethgroup(4)	.021	.238	.008	1	.928	1.022	.640	1.630
employ3(1) by ethgroup(5)	-.892	.219	16.603	1	.000	.410	.267	.629
employ3(1) by ethgroup(6)	-.737	.289	6.489	1	.011	.479	.272	.844
employ3(1) by ethgroup(7)	.454	.210	4.667	1	.031	1.575	1.043	2.378
employ3(2) by ethgroup(1)	.484	.209	5.355	1	.021	1.623	1.077	2.445
employ3(2) by ethgroup(2)	.711	.403	3.108	1	.078	2.037	.924	4.490
employ3(2) by ethgroup(3)	.615	.233	6.932	1	.008	1.849	1.170	2.922
employ3(2) by ethgroup(4)	.998	.307	10.587	1	.001	2.714	1.487	4.951
employ3(2) by ethgroup(5)	.791	.361	4.790	1	.029	2.205	1.086	4.475
employ3(2) by ethgroup(6)	.465	.318	2.131	1	.144	1.591	.853	2.969
employ3(2) by ethgroup(7)	.475	.193	6.071	1	.014	1.608	1.102	2.347
Constant	-3.423	.119	825.432	1	.000	.033		

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	139.953	23	.000
	Block	139.953	23	.000

a. Variable(s) entered on step 1: ethgroup * female , employ3 * female , employ3 * ethgroup .

Block 3: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	28.917	14	.011
	Block	28.917	14	.011
	Model	1897.293	48	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	11216.146 ^a	.161	.229

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.037	.002	325.917	1	.000	1.038	1.034	1.042
female(1)	-.062	.109	.324	1	.569	.940	.759	1.163
ethgroup			33.598	7	.000			
ethgroup(1)	.423	.198	4.536	1	.033	1.526	1.034	2.251
ethgroup(2)	-.497	.253	3.846	1	.050	.609	.370	1.000
ethgroup(3)	.459	.160	8.265	1	.004	1.582	1.157	2.162
ethgroup(4)	.355	.197	3.242	1	.072	1.427	.969	2.101
ethgroup(5)	.809	.195	17.229	1	.000	2.247	1.533	3.293
ethgroup(6)	-.057	.234	.060	1	.806	.944	.597	1.494
ethgroup(7)	.102	.179	.327	1	.567	1.108	.780	1.573
employ3			159.622	2	.000			
employ3(1)	2.124	.169	158.720	1	.000	8.363	6.010	11.637
employ3(2)	.330	.126	6.913	1	.009	1.391	1.088	1.779
ethgroup * female			24.035	7	.001			
ethgroup(1) by female(1)	.465	.254	3.338	1	.068	1.592	.967	2.621
ethgroup(2) by female(1)	1.089	.324	11.310	1	.001	2.971	1.575	5.605
ethgroup(3) by female(1)	.075	.232	.105	1	.746	1.078	.684	1.698
ethgroup(4) by female(1)	-.044	.368	.014	1	.905	.957	.465	1.969
ethgroup(5) by female(1)	.555	.342	2.634	1	.105	1.742	.891	3.405
ethgroup(6) by female(1)	.620	.308	4.048	1	.044	1.860	1.016	3.404
ethgroup(7) by female(1)	-.449	.265	2.864	1	.091	.639	.380	1.074
employ3 * female			21.096	2	.000			
employ3(1) by female(1)	-.747	.204	13.405	1	.000	.474	.317	.707
employ3(2) by female(1)	.184	.154	1.423	1	.233	1.202	.889	1.626
employ3 * ethgroup			56.027	14	.000			
employ3(1) by ethgroup(1)	-1.328	.372	12.729	1	.000	.265	.128	.550
employ3(1) by ethgroup(2)	.136	.422	.104	1	.747	1.146	.501	2.620
employ3(1) by ethgroup(3)	.153	.388	.155	1	.694	1.165	.545	2.492
employ3(1) by ethgroup(4)	.101	.358	.080	1	.778	1.106	.548	2.234
employ3(1) by ethgroup(5)	-.987	.312	9.980	1	.002	.373	.202	.688
employ3(1) by ethgroup(6)	.015	.562	.001	1	.979	1.015	.337	3.055
employ3(1) by ethgroup(7)	.065	.335	.037	1	.847	1.067	.553	2.059

employ3(2) ethgroup(1)	by	.569	.315	3.272	1	.070	1.766	.954	3.272
employ3(2) ethgroup(2)	by	1.464	.646	5.134	1	.023	4.323	1.219	15.338
employ3(2) ethgroup(3)	by	.627	.317	3.907	1	.048	1.871	1.005	3.484
employ3(2) ethgroup(4)	by	.779	.379	4.233	1	.040	2.179	1.038	4.578
employ3(2) ethgroup(5)	by	1.210	.471	6.604	1	.010	3.353	1.333	8.436
employ3(2) ethgroup(6)	by	.982	.434	5.128	1	.024	2.670	1.141	6.247
employ3(2) ethgroup(7)	by	.450	.279	2.603	1	.107	1.568	.908	2.709
employ3 * ethgroup * female				28.543	14	.012			
employ3(1) ethgroup(1) by female(1)	by	1.125	.449	6.279	1	.012	3.081	1.278	7.427
employ3(1) ethgroup(2) by female(1)	by	-.941	.507	3.439	1	.064	.390	.144	1.055
employ3(1) ethgroup(3) by female(1)	by	-.482	.459	1.101	1	.294	.618	.251	1.519
employ3(1) ethgroup(4) by female(1)	by	-.060	.497	.014	1	.904	.942	.356	2.494
employ3(1) ethgroup(5) by female(1)	by	.095	.445	.045	1	.831	1.099	.460	2.630
employ3(1) ethgroup(6) by female(1)	by	-1.080	.658	2.697	1	.101	.339	.093	1.233
employ3(1) ethgroup(7) by female(1)	by	.629	.433	2.112	1	.146	1.876	.803	4.382
employ3(2) ethgroup(1) by female(1)	by	-.215	.418	.264	1	.607	.807	.356	1.830
employ3(2) ethgroup(2) by female(1)	by	-1.266	.821	2.377	1	.123	.282	.056	1.410
employ3(2) ethgroup(3) by female(1)	by	-.001	.469	.000	1	.998	.999	.398	2.503
employ3(2) ethgroup(4) by female(1)	by	.646	.657	.969	1	.325	1.909	.527	6.913
employ3(2) ethgroup(5) by female(1)	by	-1.120	.746	2.253	1	.133	.326	.076	1.408
employ3(2) ethgroup(6) by female(1)	by	-1.097	.641	2.928	1	.087	.334	.095	1.173
employ3(2) ethgroup(7) by female(1)	by	.081	.388	.043	1	.836	1.084	.507	2.319
Constant		-3.409	.123	770.003	1	.000	.033		

a. Variable(s) entered on step 1: employ3 * ethgroup * female .

B.20 Interaction model for gender × ethnicity × social class with poor general health (Model 15a)**Logistic Regression****Categorical Variables Codings**

	Frequenc y	Parameter coding							
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	
[N] Ethnic Group									
Black Caribbean	897	1.000	.000	.000	.000	.000	.000	.000	.000
Black African	716	.000	1.000	.000	.000	.000	.000	.000	.000
Indian	1039	.000	.000	1.000	.000	.000	.000	.000	.000
Pakistani	832	.000	.000	.000	1.000	.000	.000	.000	.000
Bangladeshi	772	.000	.000	.000	.000	1.000	.000	.000	.000
Chinese	594	.000	.000	.000	.000	.000	1.000	.000	.000
White Irish	1128	.000	.000	.000	.000	.000	.000	1.000	.000
White English	5252	.000	.000	.000	.000	.000	.000	.000	.000
social class									
professional	3247	.000	.000						
managerial									
intermediate	2297	1.000	.000						
routine or manual or	5686	.000	1.000						
never worked or long-									
term unemployed									
[d] male vs									
female									
Male	4919	.000							
Female	6311	1.000							

Block 0: Beginning Block**Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	-.894	.021	1850.422	1	.000	.409

Block 1: Method = Enter**Omnibus Tests of Model Coefficients**

	Chi-square	df	Sig.
Step 1 Step	1489.121	11	.000
Block	1489.121	11	.000
Model	1489.121	11	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	12039.322 ^a	.124	.177

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.042	.001	892.413	1	.000	1.043	1.040	1.046
female(1)	.113	.045	6.200	1	.013	1.120	1.024	1.224
ethgroup			215.070	7	.000			
ethgroup(1)	.732	.082	79.000	1	.000	2.080	1.770	2.444
ethgroup(2)	.162	.103	2.465	1	.116	1.176	.960	1.441
ethgroup(3)	.568	.080	49.900	1	.000	1.764	1.507	2.065
ethgroup(4)	.756	.088	73.985	1	.000	2.129	1.792	2.529
ethgroup(5)	1.001	.090	124.219	1	.000	2.722	2.283	3.246
ethgroup(6)	.258	.110	5.498	1	.019	1.294	1.043	1.604
ethgroup(7)	.206	.078	6.957	1	.008	1.228	1.054	1.431
class3			253.583	2	.000			
class3(1)	.383	.069	30.640	1	.000	1.467	1.281	1.680
class3(2)	.873	.057	235.606	1	.000	2.395	2.142	2.677
Constant	-3.835	.098	1546.002	1	.000	.022		

a. Variable(s) entered on step 1: age, female, ethgroup, class3.

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

	Chi-square	df	Sig.
Step 1 Step	50.970	23	.001
Block	50.970	23	.001
Model	1540.091	34	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	11988.352 ^a	.128	.183

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
age	.042	.001	884.346	1	.000	1.043	1.040	1.046
female(1)	.072	.106	.465	1	.495	1.075	.874	1.322
ethgroup			23.871	7	.001			
ethgroup(1)	.350	.208	2.845	1	.092	1.419	.945	2.132
ethgroup(2)	-.230	.262	.771	1	.380	.794	.475	1.328
ethgroup(3)	.408	.185	4.834	1	.028	1.503	1.045	2.162
ethgroup(4)	.324	.287	1.281	1	.258	1.383	.789	2.425
ethgroup(5)	1.139	.280	16.570	1	.000	3.122	1.805	5.402
ethgroup(6)	.102	.226	.204	1	.651	1.108	.711	1.726
ethgroup(7)	.032	.186	.030	1	.863	1.033	.717	1.488
class3			64.940	2	.000			
class3(1)	.448	.126	12.618	1	.000	1.565	1.222	2.004
class3(2)	.808	.101	64.455	1	.000	2.244	1.842	2.734
ethgroup * female			25.052	7	.001			
ethgroup(1) by female(1)	.627	.172	13.290	1	.000	1.871	1.336	2.621
ethgroup(2) by female(1)	.545	.210	6.714	1	.010	1.724	1.142	2.602
ethgroup(3) by female(1)	-.055	.160	.118	1	.731	.946	.691	1.296
ethgroup(4) by female(1)	.214	.179	1.422	1	.233	1.239	.871	1.760
ethgroup(5) by female(1)	.223	.174	1.634	1	.201	1.250	.888	1.759
ethgroup(6) by female(1)	.134	.222	.367	1	.545	1.144	.741	1.766

ethgroup(7) by female(1)	by	-0.211	.159	1.756	1	.185	.810	.593	1.106
class3 * female				4.499	2	.105			
class3(1) by female(1)		-0.253	.142	3.168	1	.075	.777	.588	1.026
class3(2) by female(1)		-0.100	.116	.007	1	.932	.990	.788	1.243
class3 * ethgroup				18.335	14	.192			
class3(1) by ethgroup(1)		-0.090	.246	.133	1	.715	.914	.565	1.480
class3(1) by ethgroup(2)		.248	.349	.505	1	.478	1.282	.646	2.542
class3(1) by ethgroup(3)		.422	.245	2.981	1	.084	1.525	.944	2.463
class3(1) by ethgroup(4)		.151	.348	.187	1	.665	1.162	.588	2.299
class3(1) by ethgroup(5)		-0.371	.368	1.015	1	.314	.690	.335	1.420
class3(1) by ethgroup(6)		.466	.284	2.682	1	.102	1.593	.912	2.783
class3(1) by ethgroup(7)		.268	.237	1.280	1	.258	1.307	.822	2.078
class3(2) by ethgroup(1)		.033	.203	.026	1	.872	1.033	.695	1.537
class3(2) by ethgroup(2)		.056	.267	.044	1	.834	1.057	.626	1.785
class3(2) by ethgroup(3)		.175	.201	.759	1	.384	1.191	.804	1.765
class3(2) by ethgroup(4)		.383	.298	1.653	1	.199	1.467	.818	2.630
class3(2) by ethgroup(5)		-0.263	.291	.812	1	.368	.769	.434	1.361
class3(2) by ethgroup(6)		-0.142	.266	.283	1	.595	.868	.515	1.463
class3(2) by ethgroup(7)		.427	.196	4.773	1	.029	1.533	1.045	2.249
Constant		-3.760	.116	1058.511	1	.000	.023		

a. Variable(s) entered on step 1: ethgroup * female , class3 * female , class3 * ethgroup .

Block 3: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	7.717	14	.904
	Block	7.717	14	.904
	Model	1547.808	48	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	11980.635 ^a	.129	.184

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a age	.042	.001	881.400	1	.000	1.043	1.040	1.046
female(1)	.119	.130	.840	1	.359	1.126	.873	1.453
ethgroup			22.632	7	.002			
ethgroup(1)	.482	.305	2.489	1	.115	1.619	.890	2.944
ethgroup(2)	-.197	.350	.317	1	.574	.821	.413	1.631
ethgroup(3)	.353	.235	2.256	1	.133	1.424	.898	2.257
ethgroup(4)	.520	.339	2.344	1	.126	1.681	.865	3.270
ethgroup(5)	1.377	.327	17.767	1	.000	3.962	2.089	7.516
ethgroup(6)	.098	.278	.124	1	.724	1.103	.640	1.900
ethgroup(7)	.053	.247	.046	1	.831	1.054	.650	1.710
class3			53.928	2	.000			
class3(1)	.448	.149	8.983	1	.003	1.565	1.168	2.097
class3(2)	.855	.117	53.610	1	.000	2.352	1.871	2.957
ethgroup * female			4.602	7	.708			
ethgroup(1) by female(1)	.433	.365	1.405	1	.236	1.541	.754	3.152
ethgroup(2) by female(1)	.480	.472	1.035	1	.309	1.616	.641	4.077
ethgroup(3) by female(1)	.069	.340	.041	1	.840	1.071	.550	2.085
ethgroup(4) by female(1)	-.321	.596	.290	1	.590	.725	.225	2.334
ethgroup(5) by female(1)	-.513	.609	.708	1	.400	.599	.181	1.976
ethgroup(6) by female(1)	.147	.403	.134	1	.715	1.159	.526	2.553
ethgroup(7) by female(1)	-.253	.330	.588	1	.443	.776	.406	1.483
class3 * female			1.767	2	.413			

class3(1) by female(1)	-.262	.198	1.753	1	.186	.769	.522	1.134
class3(2) by female(1)	-.097	.161	.363	1	.547	.908	.663	1.243
class3 * ethgroup			16.517	14	.283			
class3(1) by ethgroup(1)	-.028	.441	.004	1	.949	.972	.409	2.309
class3(1) by ethgroup(2)	.337	.541	.389	1	.533	1.401	.485	4.046
class3(1) by ethgroup(3)	.586	.343	2.916	1	.088	1.796	.917	3.519
class3(1) by ethgroup(4)	-.050	.430	.014	1	.907	.951	.410	2.207
class3(1) by ethgroup(5)	-.964	.491	3.846	1	.050	.382	.146	.999
class3(1) by ethgroup(6)	.625	.406	2.365	1	.124	1.868	.842	4.141
class3(1) by ethgroup(7)	.255	.367	.483	1	.487	1.290	.629	2.647
class3(2) by ethgroup(1)	-.193	.348	.308	1	.579	.824	.416	1.632
class3(2) by ethgroup(2)	-.028	.408	.005	1	.946	.973	.437	2.165
class3(2) by ethgroup(3)	.206	.286	.518	1	.472	1.228	.701	2.151
class3(2) by ethgroup(4)	.142	.378	.141	1	.707	1.153	.549	2.418
class3(2) by ethgroup(5)	-.500	.359	1.937	1	.164	.606	.300	1.227
class3(2) by ethgroup(6)	-.261	.400	.423	1	.515	.771	.352	1.689
class3(2) by ethgroup(7)	.389	.291	1.781	1	.182	1.475	.833	2.611
class3 * ethgroup * female			7.590	14	.910			
class3(1) by ethgroup(1) by female(1)	-.083	.531	.025	1	.875	.920	.325	2.606
class3(1) by ethgroup(2) by female(1)	-.132	.708	.035	1	.852	.877	.219	3.514
class3(1) by ethgroup(3) by female(1)	-.338	.491	.474	1	.491	.713	.272	1.867
class3(1) by ethgroup(4) by female(1)	.593	.743	.637	1	.425	1.809	.422	7.762
class3(1) by ethgroup(5) by female(1)	1.468	.787	3.479	1	.062	4.341	.928	20.305
class3(1) by ethgroup(6) by female(1)	-.292	.570	.263	1	.608	.746	.244	2.281
class3(1) by ethgroup(7) by female(1)	.031	.480	.004	1	.948	1.032	.403	2.644
class3(2) by ethgroup(1) by female(1)	.361	.428	.709	1	.400	1.434	.619	3.322
class3(2) by ethgroup(2) by female(1)	.146	.540	.073	1	.787	1.157	.401	3.336
class3(2) by ethgroup(3) by female(1)	-.083	.401	.043	1	.835	.920	.419	2.018
class3(2) by ethgroup(4) by female(1)	.610	.632	.931	1	.335	1.841	.533	6.358
class3(2) by ethgroup(5) by female(1)	.735	.641	1.315	1	.252	2.085	.594	7.325
class3(2) by ethgroup(6) by female(1)	.182	.539	.114	1	.736	1.199	.417	3.452
class3(2) by ethgroup(7) by female(1)	.071	.393	.032	1	.857	1.073	.497	2.320
Constant	-3.786	.123	953.707	1	.000	.023		

a. Variable(s) entered on step 1: class3 * ethgroup * female .

B.21 Interaction model for gender × ethnicity × income level with poor general health (Model 16a)**Logistic Regression****Categorical Variables Codings**

	Frequenc y	Parameter coding							
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	
[N] Ethnic Group									
Black	708	1.000	.000	.000	.000	.000	.000	.000	.000
Caribbean									
Black African	639	.000	1.000	.000	.000	.000	.000	.000	.000
Indian	823	.000	.000	1.000	.000	.000	.000	.000	.000
Pakistani	662	.000	.000	.000	1.000	.000	.000	.000	.000
Bangladeshi	587	.000	.000	.000	.000	1.000	.000	.000	.000
Chinese	436	.000	.000	.000	.000	.000	1.000	.000	.000
White Irish	955	.000	.000	.000	.000	.000	.000	1.000	.000
White English	4557	.000	.000	.000	.000	.000	.000	.000	.000
[N] Equivalised									
household income									
Upper tertile	3120	.000	.000						
Middle tertile	3127	1.000	.000						
Lower tertile	3120	.000	1.000						
[d] male vs female									
Male	4142	.000							
Female	5225	1.000							

Block 0: Beginning Block**Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	-.966	.023	1745.801	1	.000	.381

Block 1: Method = Enter**Omnibus Tests of Model Coefficients**

	Chi-square	df	Sig.
Step 1 Step	1455.841	11	.000
Block	1455.841	11	.000
Model	1455.841	11	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	9574.671 ^a	.144	.208

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a age	.040	.002	640.673	1	.000	1.040	1.037	1.044
female(1)	.143	.051	7.815	1	.005	1.154	1.044	1.275
ethgroup			81.170	7	.000			
ethgroup(1)	.602	.094	40.928	1	.000	1.825	1.518	2.194
ethgroup(2)	-.027	.114	.055	1	.815	.974	.779	1.218
ethgroup(3)	.469	.092	25.839	1	.000	1.598	1.334	1.914
ethgroup(4)	.464	.101	20.933	1	.000	1.591	1.304	1.940
ethgroup(5)	.576	.107	29.038	1	.000	1.779	1.443	2.194
ethgroup(6)	.135	.131	1.063	1	.302	1.144	.886	1.478
ethgroup(7)	.175	.087	4.038	1	.044	1.191	1.004	1.414
income			390.913	2	.000			
income(1)	.808	.069	136.581	1	.000	2.243	1.959	2.568
income(2)	1.381	.070	389.217	1	.000	3.980	3.470	4.566
Constant	-3.917	.106	1363.357	1	.000	.020		

a. Variable(s) entered on step 1: age, female, ethgroup, income.

Block 2: Method = Enter**Omnibus Tests of Model Coefficients**

	Chi-square	df	Sig.
Step 1 Step	60.471	23	.000
Block	60.471	23	.000
Model	1516.312	34	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	9514.201 ^a	.149	.216

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a age	.040	.002	639.197	1	.000	1.041	1.037	1.044
female(1)	.052	.119	.195	1	.659	1.054	.835	1.330
ethgroup			18.872	7	.009			
ethgroup(1)	.420	.229	3.353	1	.067	1.522	.971	2.386
ethgroup(2)	-.411	.345	1.418	1	.234	.663	.337	1.304
ethgroup(3)	.674	.201	11.241	1	.001	1.962	1.323	2.909
ethgroup(4)	-.454	.493	.850	1	.356	.635	.242	1.667
ethgroup(5)	.303	.639	.225	1	.636	1.354	.387	4.734
ethgroup(6)	-.285	.317	.807	1	.369	.752	.404	1.401
ethgroup(7)	.078	.200	.153	1	.695	1.082	.730	1.602
income			119.310	2	.000			
income(1)	.847	.118	51.269	1	.000	2.332	1.849	2.939
income(2)	1.398	.129	117.923	1	.000	4.048	3.145	5.210
ethgroup * female			24.682	7	.001			
ethgroup(1) by female(1)	.551	.192	8.204	1	.004	1.734	1.190	2.528
ethgroup(2) by female(1)	.520	.233	4.973	1	.026	1.681	1.065	2.655
ethgroup(3) by female(1)	.253	.181	1.958	1	.162	1.288	.903	1.838
ethgroup(4) by female(1)	.574	.200	8.266	1	.004	1.775	1.200	2.626
ethgroup(5) by female(1)	.299	.205	2.129	1	.145	1.348	.903	2.013
ethgroup(6) by female(1)	.181	.263	.472	1	.492	1.198	.716	2.005
ethgroup(7) by female(1)	-.297	.182	2.645	1	.104	.743	.520	1.063
female * income			.505	2	.777			
female(1) by income(1)	-.046	.139	.109	1	.741	.955	.727	1.255
female(1) by income(2)	-.099	.143	.484	1	.487	.906	.685	1.197
ethgroup * income			35.371	14	.001			
ethgroup(1) by income(1)	-.139	.252	.304	1	.581	.870	.531	1.426
ethgroup(1) by income(2)	-.223	.245	.825	1	.364	.800	.495	1.294
ethgroup(2) by income(1)	-.102	.370	.076	1	.783	.903	.437	1.865
ethgroup(2) by income(2)	.216	.349	.384	1	.536	1.242	.626	2.462
ethgroup(3) by income(1)	-.567	.231	6.037	1	.014	.567	.361	.892
ethgroup(3) by income(2)	-.357	.226	2.493	1	.114	.700	.449	1.090
ethgroup(4) by income(1)	.715	.508	1.979	1	.160	2.044	.755	5.537
ethgroup(4) by income(2)	.615	.494	1.549	1	.213	1.850	.702	4.872
ethgroup(5) by income(1)	.397	.659	.364	1	.546	1.488	.409	5.411
ethgroup(5) by income(2)	.068	.637	.011	1	.915	1.070	.307	3.728
ethgroup(6) by income(1)	.655	.353	3.445	1	.063	1.925	.964	3.846
ethgroup(6) by income(2)	.232	.349	.442	1	.506	1.261	.637	2.497
ethgroup(7) by income(1)	-.014	.233	.004	1	.951	.986	.624	1.558
ethgroup(7) by income(2)	.693	.230	9.052	1	.003	2.000	1.273	3.142

Constant	-3.867	.125	964.850	1	.000	.021		
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a. Variable(s) entered on step 1: ethgroup * female , female * income , ethgroup * income .

Block 3: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	9.169	14	.820
	Block	9.169	14	.820
	Model	1525.481	48	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	9505.032 ^a	.150	.217

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a age	.040	.002	638.689	1	.000	1.041	1.037	1.044
female(1)	.067	.143	.218	1	.641	1.069	.808	1.413
ethgroup			11.782	7	.108			
ethgroup(1)	.580	.299	3.747	1	.053	1.785	.993	3.210
ethgroup(2)	-.799	.601	1.767	1	.184	.450	.139	1.461
ethgroup(3)	.549	.271	4.121	1	.042	1.732	1.019	2.944
ethgroup(4)	-.368	.740	.247	1	.619	.692	.162	2.954
ethgroup(5)	-18.573	12077.132	.000	1	.999	.000	.000	.
ethgroup(6)	-.390	.441	.781	1	.377	.677	.285	1.607
ethgroup(7)	.281	.240	1.369	1	.242	1.325	.827	2.121
income			87.486	2	.000			
income(1)	.860	.134	40.853	1	.000	2.362	1.815	3.075
income(2)	1.404	.153	83.875	1	.000	4.072	3.015	5.500
ethgroup * female			10.402	7	.167			
ethgroup(1) by female(1)	.276	.400	.478	1	.489	1.318	.602	2.884
ethgroup(2) by female(1)	1.089	.707	2.373	1	.123	2.971	.743	11.872
ethgroup(3) by female(1)	.465	.353	1.741	1	.187	1.593	.798	3.180
ethgroup(4) by female(1)	.428	.967	.196	1	.658	1.534	.230	10.215
ethgroup(5) by female(1)	19.656	12077.132	.000	1	.999	3.441E8	.000	.
ethgroup(6) by female(1)	.361	.574	.396	1	.529	1.435	.466	4.417
ethgroup(7) by female(1)	-.727	.360	4.083	1	.043	.484	.239	.978
female * income			.318	2	.853			
female(1) by income(1)	-.071	.183	.149	1	.700	.932	.651	1.334
female(1) by income(2)	-.111	.200	.309	1	.578	.895	.604	1.324
ethgroup * income			14.159	14	.438			
ethgroup(1) by income(1)	-.273	.391	.488	1	.485	.761	.354	1.637
ethgroup(1) by income(2)	-.496	.388	1.633	1	.201	.609	.285	1.303
ethgroup(2) by income(1)	.180	.681	.070	1	.791	1.197	.315	4.552
ethgroup(2) by income(2)	.738	.653	1.277	1	.258	2.091	.582	7.515
ethgroup(3) by income(1)	-.387	.352	1.214	1	.270	.679	.341	1.352
ethgroup(3) by income(2)	-.201	.351	.327	1	.568	.818	.411	1.629

ethgroup(4) income(1)	by	.487	.790	.379	1	.538	1.627	.346	7.657
ethgroup(4) income(2)	by	.579	.766	.571	1	.450	1.783	.398	7.997
ethgroup(5) income(1)	by	19.341	12077.132	.000	1	.999	2.510E8	.000	.
ethgroup(5) income(2)	by	18.949	12077.132	.000	1	.999	1.696E8	.000	.
ethgroup(6) income(1)	by	.737	.536	1.886	1	.170	2.089	.730	5.978
ethgroup(6) income(2)	by	.412	.543	.576	1	.448	1.510	.521	4.378
ethgroup(7) income(1)	by	-.236	.329	.516	1	.473	.790	.415	1.504
ethgroup(7) income(2)	by	.347	.332	1.090	1	.297	1.415	.737	2.714
ethgroup * female * income				6.449	14	.954			
ethgroup(1) female(1) by income(1)	by	.235	.511	.211	1	.646	1.265	.464	3.443
ethgroup(1) female(1) by income(2)	by	.444	.501	.785	1	.375	1.559	.584	4.165
ethgroup(2) female(1) by income(1)	by	-.395	.816	.234	1	.628	.674	.136	3.336
ethgroup(2) female(1) by income(2)	by	-.776	.776	1.000	1	.317	.460	.101	2.106
ethgroup(3) female(1) by income(1)	by	-.314	.467	.453	1	.501	.730	.292	1.824
ethgroup(3) female(1) by income(2)	by	-.268	.460	.340	1	.560	.765	.311	1.884
ethgroup(4) female(1) by income(1)	by	.385	1.032	.140	1	.709	1.470	.195	11.102
ethgroup(4) female(1) by income(2)	by	.056	1.001	.003	1	.955	1.058	.149	7.525
ethgroup(5) female(1) by income(1)	by	-19.485	12077.132	.000	1	.999	.000	.000	.
ethgroup(5) female(1) by income(2)	by	-19.366	12077.132	.000	1	.999	.000	.000	.
ethgroup(6) female(1) by income(1)	by	-.136	.714	.036	1	.849	.873	.216	3.533
ethgroup(6) female(1) by income(2)	by	-.311	.708	.193	1	.661	.733	.183	2.936
ethgroup(7) female(1) by income(1)	by	.465	.471	.974	1	.324	1.592	.632	4.007
ethgroup(7) female(1) by income(2)	by	.675	.466	2.094	1	.148	1.964	.787	4.898
Constant		-3.876	.132	868.174	1	.000	.021		

a. Variable(s) entered on step 1: ethgroup * female * income .

B.22 Poster presentation: Reconsidering ethnic group classification in the HSE 2004



Reconsidering Ethnic Group Classification in the Health Survey for England 2004: Balancing the Utility and Validity of Aggregated Ethnicities

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1. Background

- The Health Survey for England 2004 (HSE 2004) provides national-level data on the health, wellbeing and socio-demographics of the ethnic minority and majority population¹.
- Data on participant ethnicity were captured through a series of questions using computer aided personal interviewing (CAPI).
- Participants were coded automatically into nine ethnic group categories (Black Caribbean, Black African, Indian, Pakistani, Bangladeshi, Chinese, Irish, White, and Other).
- Closer inspection of the CAPI ethnic group classification revealed multiple ethnicities were aggregated to form each category.

¹Spurgeon, K. & Miah, J. (2006). Health Survey for England 2004. Issue 2. Demography and Socio-demographics. National Centre for Social Research.

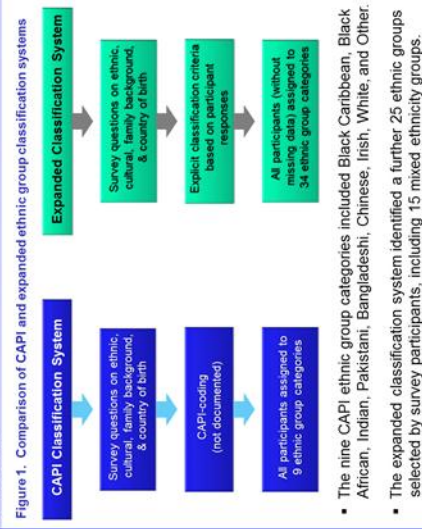
2. Objectives

- To review the validity of the CAPI ethnic group classification against participants' original responses to questions on ethnicity.
- To develop an expanded classification system, representing the range of ethnic groups originally selected by survey participants.

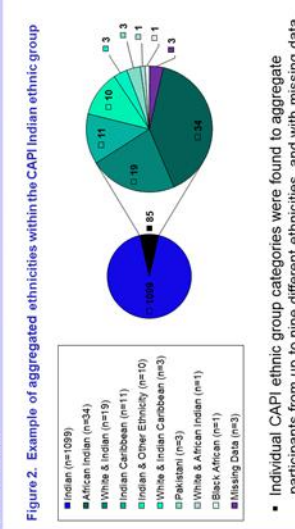
3. Methods

- Secondary analysis of ethnicity data from the HSE 2004 was performed for the adult participant sample (aged ≥16 years, n=12,758). A comparison of CAPI-coded and participant-selected ethnic group membership was undertaken.
- Participant-selected ethnic groups were identified from a series of 10 variables collecting information on participants' ethnic, cultural, and family background, and country of birth.
- An expanded classification system (available as an SPSS syntax file) was then developed to identify the range of participant-selected ethnic groups represented within each CAPI category.
- Analyses were performed to assess the rate of discordance probability and Kappa agreement between the CAPI and expanded classification systems.

4. Methods



5. Results



6. Results

Figure 3. Comparison of CAPI-coded and participant-selected ethnic groups

Ethnic Group	CAPI-coded		Participant-selected		Discordance Probability %	Kappa Agreement
	Yes	No	Yes	No		
Black Caribbean	848	121	2	11,099	0.96	0.85
Black African	807	52	11,099	52	0.42	0.97
Indian	1,099	85	11,099	85	0.68	0.86
Pakistani	609	12	11,099	12	0.12	0.99
Bangladeshi	3	11,814	11,814	3	0.07	1.00
Chinese	1	11,856	11,856	1	0.00	0.98
Irish	1,136	17	11,099	17	0.21	0.99
White (not Irish)	5,008	20	11,099	20	0.25	1.00
Other	12	6,918	6,918	12	0.73	0.42
All Groups	13	12,031	12,031	13	0.45	0.86
All Groups	12,308	450	12,308	450	3.97	0.86

7. Conclusions and Implications


- The HSE 2004 CAPI ethnic group classification holds implications for analysis wishing to accurately represent participant-selected ethnicity.
- The expanded classification system offers an additional ethnicity variable capturing the range of ethnic groups originally selected by participants.
- Promoting validity in ethnic group classification may, however, impact on utility where ethnic group sample sizes become too small for analysis.

8. Acknowledgements & Further Information *

Sally J. Hartnell is supported by an ESRC PhD Studentship Award. Special thanks go to the advisory team, Steven Julious and Richard Edlin, for their contribution to this work. Further information, including an SPSS syntax file of the expanded classification algorithm and supporting notes, will be provided in a forthcoming Discussion Paper. Please contact s.hartnell@sheffield.ac.uk for further details.

Appendix C Qualitative Methods

C.1 Faith Community Development Training Course Certificate



This is to certify that

Sally Hartnell

has been awarded

16 Credits at Level One

on a course entitled


Faith Community Development

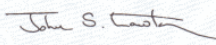
provided by

Pakistan Muslim Centre


Units achieved

Unit Title	Unit Code	Credit(s)	Level
Introduction to equality and diversity for voluntary and community faith groups *A/501/9309	EE3/1/QQ/016	1	One
Preparing to work with vulnerable adults *A/501/9360	EE3/1/QQ/023	3	One
Introduction to safeguarding children *F/501/9358	EE3/1/QQ/022	3	One
Introduction to legal obligations for voluntary and community faith groups *J/501/9314	EE3/1/QQ/018	1	One
Preparing to work with children and young people *J/501/9359	EE5/1/QQ/001	3	One
Community Development within a faith context *M/501/9100	EE3/1/QQ/014	2	One
Introduction to working with vulnerable adults *M/501/9324	EE3/1/QQ/019	1	One





John Lawton
Chief Executive Officer
Open College Network Yorkshire & Humber Region



Jill Brunt
Chief Executive
National Open College Network

Registration No: 8866618
Award Date: 02 Mar 2010
Certificate No: 4477242



Sally Hartnell

<u>Unit Title</u>	<u>Unit Code</u>	<u>Credit(s)</u>	<u>Level</u>
Diversity and Faith *T/501/9308	EE3/1/QQ/015	2	One

*Unit/s marked with an asterisk form part of an accredited qualification.



John S. Lawton

John Lawton
Chief Executive Officer
Open College Network Yorkshire & Humber Region

Jill Brunt

Jill Brunt
Chief Executive
National Open College Network

Registration No: 8866618
Award Date: 02 Mar 2010
Certificate No: 4477242

C.2 Interview Invitation Letter for the Pakistani Sample

The
University
Of
Sheffield.

School Of
Health
And
Related
Research.

The South Yorkshire Women's Health and Wellbeing Study

School of Health and Related Research
University of Sheffield
30 Regent Street
Sheffield
S1 4DA

Date

Dear ...

I would like to invite you to take part in a research study being run by the School of Health and Related Research at the University of Sheffield. The study is looking at people's perceptions of how social circumstances affect health and wellbeing. The study has received ethical approval from the University of Sheffield and is being undertaken as part of a PhD degree in Public Health.

We are inviting women from different ethnic groups to share their thoughts on this topic by taking part in a one-hour interview. Participants will receive £10 in cash towards travel expenses and will be given the opportunity to enter a prize draw with the chance of winning one of two £50 cash prizes.

We are currently sending invitations to women of Pakistani ethnic origin aged 18 years and above who live in South Yorkshire. If you are interested in taking part, please read the attached Information Sheet which tells you more about the study.

If you wish to take part in this study, please call Sally on **0790XXXXXXX** or send me an email at **s.hartnell@sheffield.ac.uk** to arrange a convenient date and time for your interview. If you would like any further information before deciding, please contact myself or a member of the research team and we will be happy to answer your questions. Our contact details can be found on the attached Information Sheet.

Thank you for your time.
Yours sincerely,

Sally Hartnell
PhD Researcher

C.3 Interview Invitation Letter for the White English Sample

The
University
Of
Sheffield.

School Of
Health
And
Related
Research.

The South Yorkshire Women's Health and Wellbeing Study

School of Health and Related Research
University of Sheffield
30 Regent Street
Sheffield
S1 4DA

Date

Dear ...

I would like to invite you to take part in a research study being run by the School of Health and Related Research at the University of Sheffield. The study is looking at people's perceptions of how social circumstances affect health and wellbeing. The study has received ethical approval from the University of Sheffield and is being undertaken as part of a PhD in Public Health.

We are inviting women from different ethnic groups to share their thoughts on this topic by taking part in a one-hour interview. Participants will receive £10 in cash towards travel expenses and will be given the opportunity to enter a prize draw with the chance of winning one of two £50 cash prizes.

We are currently recruiting women of White English ethnic origin aged 18 years and above who live in South Yorkshire. If you are interested in taking part, please read the attached Information Sheet which tells you more about the study.

If you wish to take part in this study, please call Sally on **0790XXXXXXX** or send me an email at **s.hartnell@sheffield.ac.uk** to arrange a convenient date and time for your interview. If you would like any further information before deciding, please do not hesitate to contact myself or a member of the research team and we will be happy to answer your questions. Our contact details can be found on the enclosed Information Sheet.

Thank you for your time.
Yours sincerely,

Sally Hartnell
PhD Researcher

C.4 Interview Information Sheet for the Pakistani Sample

The
University
Of
Sheffield.

School Of
Health
And
Related
Research.

The South Yorkshire Women's Health and Wellbeing Study Information Sheet

What is the study about?

The aim of the South Yorkshire Women's Health and Wellbeing Study is to explore how social circumstances influence health and wellbeing, from the perspectives of women from different ethnic origins living in South Yorkshire. The study forms part of a larger research project which aims to build a better understanding of how inequalities in health and wellbeing can best be reduced.

Who can take part?

We are currently inviting women aged 18 years and above of Pakistani ethnic origin to take part. Women born in Pakistan and British-born women of Pakistani descent are equally welcome.

What does taking part in the study involve?

The study involves taking part in an interview conducted in English with Sally Hartnell, held at the University of Sheffield. Arrangements can also be made to hold the interview at an alternative convenient location. Before the interview you will be given the opportunity to ask any questions about the study, and then be asked to sign a consent form. The interview is expected to last approximately 1 hour, with refreshments available throughout. Following the interview you will be given £10 cash towards your travel expenses and have the opportunity to enter a prize draw with the chance to win one of two £50 cash prizes.

In the interview, you will be shown some findings from a recent study on the health and wellbeing of Pakistani women and men living in England, and asked to comment on these findings. In particular, we will be interested to hear your thoughts on how social circumstances influence the health and wellbeing of Pakistani women living in South Yorkshire. You will then be asked to complete a short questionnaire providing some background information about yourself.

Will the interview be recorded, and what will happen to the recording?

Yes, the interview will be tape recorded to ensure the responses we collect are accurate and to avoid the extra time that would otherwise be required to write down everything said. Sally will be the only person to listen to your recording, after which point the recording will be destroyed.

Will all information I give be kept confidential?

Yes, all the information we collect from you during the study will be made anonymous and any personal information kept strictly confidential. Access to anonymised individual data will be restricted to members of the research team.

What will happen to the findings from the study?

The findings from this study will be presented in a short report and made available to all study participants. A detailed report of the study will form part of a PhD thesis which will be available at the British Library and University of Sheffield main library. We also hope to raise awareness by presenting the study findings to both community and academic organisations. Please note that participants will not be identified in any report or publication from this study.

Do I have to take part?

No. It is entirely your choice to decide whether or not you wish to take part in this study. You will also be free to withdraw from the study at any time without having to give a reason.

Who do I contact to take part?

If you would like to take part in the study, please email Sally Hartnell at s.hartnell@sheffield.ac.uk or call Sally on 0790XXXXXXX and give your name and contact number. Sally will then call you back to arrange a convenient date and time with you for your interview to be held.

Who can I ask for further information on the study?

For further information, please contact a member of the research team. Our contact details are provided below:

	Research Team Contact Details		
Name	Sally Hartnell	Prof. Elizabeth Goyder	Dr. Aki Tsuchiya
Role	PhD Researcher	Research Supervisor	Research Supervisor
Email	s.hartnell@sheffield.ac.uk	e.goyder@sheffield.ac.uk	a.tsuchiya@sheffield.ac.uk
Telephone	0790XXXXXXX	0114 XXXXXXX	0114 XXXXXXX
Address	The South Yorkshire Women's Health and Wellbeing Study School of Health and Related Research, University of Sheffield, 30 Regent Street, Sheffield, S1 4DA.		

Who do I contact if I have a complaint about this study?

If you have a complaint regarding this study you can contact the University Registrar and Secretary's Office at the University of Sheffield on 0114 2221104.

Thank you for taking the time to read this Information Sheet.

*We look forward to hearing from you if you wish to take part in this study.
Sally Hartnell, Liddy Goyder, and Aki Tsuchiya.*

C.5 Interview Information Sheet for the White English Sample

The
University
Of
Sheffield.

School Of
Health
And
Related
Research.

The South Yorkshire Women's Health and Wellbeing Study Information Sheet

What is the study about?

The aim of the South Yorkshire Women's Health and Wellbeing Study is to explore how social circumstances influence health and wellbeing, from the perspectives of women from different ethnic origins living in South Yorkshire. The study forms part of a larger research project which aims to build a better understanding of how inequalities in health and wellbeing can best be reduced.

Who can take part?

We are currently inviting women aged 18 years and above, who are of White ethnic origin and who were born in England, to take part in the study.

What does taking part in the study involve?

The study involves taking part in an interview with Sally Hartnell, held at the University of Sheffield. Before the interview you will be given the opportunity to ask any questions about the study, and then be asked to sign a consent form. The interview is expected to last approximately 1 hour, with refreshments available throughout. Following the interview you will be given £10 cash towards your travel expenses and have the opportunity to enter a prize draw with the chance to win one of two £50 cash prizes.

In the interview, you will be shown some findings from a recent study on the health and wellbeing of women and men living in England, and asked to comment on these findings. In particular, we will be interested to hear your thoughts on how social circumstances influence the health and wellbeing of women living in South Yorkshire. You will then be asked to complete a short questionnaire providing some background information about yourself.

Will the interview be recorded, and what will happen to the recording?

Yes, the interview will be tape recorded to ensure the responses we collect are accurate and to avoid the extra time that would otherwise be required to write down everything said. Sally will be the only person to listen to your recording, after which point the recording will be destroyed.

Will all information I give be kept confidential?

Yes, all the information we collect from you during the study will be made anonymous and any personal information kept strictly confidential. Access to anonymised individual data will be restricted to members of the research team.

What will happen to the findings from the study?

The findings from this study will be presented in a short report and made available to all study participants. A detailed report of the study will form part of a PhD thesis which will be available at the British Library and University of Sheffield main library. We also hope to raise awareness by presenting the study findings to both community and academic organisations. Please note that participants will not be identified in any report or publication from this study.

Do I have to take part?

No. It is entirely your choice to decide whether or not you wish to take part in this study. You will also be free to withdraw from the study at any time without having to give a reason.

Who do I contact to take part?

If you would like to take part in the study, please email Sally Hartnell at s.hartnell@sheffield.ac.uk or call Sally on 0790XXXXXXX and give your name and contact number. Sally will then call you back to arrange a convenient date and time for your interview to be held.

Who can I ask for further information on the study?

For further information, please contact a member of the research team. Our contact details are provided below:

	Research Team Contact Details		
Name	Sally Hartnell	Prof. Elizabeth Goyder	Dr. Aki Tsuchiya
Role	PhD Researcher	Research Supervisor	Research Supervisor
Email	s.hartnell@sheffield.ac.uk	e.goyder@sheffield.ac.uk	a.tsuchiya@sheffield.ac.uk
Telephone	0790XXXXXXX	0114 XXXXXXX	0114 XXXXXXX
Address	The South Yorkshire Women's Health and Wellbeing Study School of Health and Related Research, University of Sheffield, 30 Regent Street, Sheffield, S1 4DA.		

Who do I contact if I have a complaint about this study?

If you have a complaint regarding this study you can contact the University Registrar and Secretary's Office at the University of Sheffield on 0114 2221104.

***Thank you for taking the time to read this Information Sheet.
We look forward to hearing from you if you wish to take part in this study.
Sally Hartnell, Liddy Goyder, and Aki Tsuchiya.***

C.6 Interview Consent Form



The
University
Of
Sheffield.

School Of
Health
And
Related
Research.

Participant ID: 4002

**The South Yorkshire Women's Health and Wellbeing Study
Participant Consent Form**

Please tick each box below

1. I confirm that I have read and understood the information sheet for the above project and have had the opportunity to ask questions.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.
3. I understand that my interview will be tape recorded.
4. I understand that only Sally will listen to the recording to transcribe my responses, after which point the tape will be destroyed.
5. I understand that my responses will be made **anonymous** to protect my identity.
6. I give permission for members of the research team to have access to my **anonymised** responses.
7. I agree to take part in the interview.

Please write your name, the date, and your signature below:

Name of Participant Date Signature

Sally Hartnell _____
Name of Researcher Date Signature

Copies:

A signed and dated copy of this consent form will be given to you at the beginning of the interview for you to keep. A second copy will be filed in the research project records, and stored securely at the University of Sheffield.

Researcher Contact Details: Sally Hartnell ☎ : s.hartnell@sheffield.ac.uk 📞 : 0790XXXXXX

C.7 Interview Schedule

The South Yorkshire Women's Health and Wellbeing Study

WELCOME AND REFRESHMENTS

Welcome the participant and aim to put them at ease. Show the participant to the interview room and offer them a choice of refreshments. Give a brief introduction to yourself.

INTRODUCTION

- Before we begin the interview, I would like to give you the chance to look at the Information Sheet for the study.

⇒ GIVE THE PARTICIPANT AN INFORMATION SHEET.

- If you have any questions please feel free to ask me.
- I'd also like to reassure you about our confidentiality and anonymity agreement. All personal information you provide is treated as strictly confidential.
- Your responses to the interview questions will be made anonymous in order to protect your privacy and identity.
- After the interview I will listen to the tape recording and type up the interview as a transcript. The tape recording will then be destroyed.
- Any personal information that you mention during the interview such as names, ages, locations, etc., will be removed from the transcript to ensure that no-one else can identify you from what was said.
- Only after I have made the transcript anonymous will the other members of the research team be given access to the transcript.
- Are you are happy to go ahead with the interview?
- Please could you complete this consent form to say that you agree to take part. There are two copies to fill in, one for you to keep and one for me to keep on file.

⇒ GIVE THE PARTICIPANT TWO COPIES OF THE CONSENT FORM. ADD YOUR OWN SIGNATURE.

⇒ SEND A TEXT TO THE BUDDY TO CONFIRM THE START OF THE INTERVIEW.

- If you wish to stop at any point during the interview please just say so and we will take a break. We are not expecting a fire alarm test, so if we hear the alarm we will stop the interview and go to the fire meeting point.

⇒ **TURN THE TAPE RECORDERS ON**

- Thank you for agreeing to take part in the interview.
- The topic I would like to ask you about is how peoples' social circumstances affect their general health and wellbeing. To explore this, we will begin the interview by looking at some findings from a recent survey on the health and wellbeing of people living in England.
- I would then like to ask you some questions on how you think social factors might influence the health and wellbeing of women living in South Yorkshire.
- The aim of the interview is to hear your own thoughts and feelings on this topic, so there are no right or wrong answers to any of the questions.

1. MEASURES OF HEALTH

- I'd like to start by showing you some questions that were used in a recent survey of men and women living in England...
- This is the first question...
- ⇒ SHOW THE PARTICIPANT QUESTION CARD 1
- This is the second question...
- ⇒ SHOW THE PARTICIPANT QUESTION CARD 2
- And this is the third question...
- ⇒ SHOW THE PARTICIPANT QUESTION CARD 3
- The first question is a simple measure of people's general health.
- Could you describe to me what you feel the second question is trying measure? (...find out about people)
- And what do you feel the third question is trying to measure? (...find out about people)

2. PATTERNS OF HEALTH BY GENDER AND ETHNICITY

- I'd now like to show you the survey results for these questions. The survey was completed by 12,000 men and women of Black Caribbean, Black African, Indian, Pakistani, Bangladeshi, Chinese, White Irish, and White English ethnic origin.
- ⇒ SHOW THE PARTICIPANT QUESTION CARD 1
- If we start with the results for question 1 which asked participants to rate how their health was in general... Can you tell me if you would expect there to be a difference in general health between men and women?
- ⇒ SHOW THE PARTICIPANT GRAPH 1A
- The first graph shows the percentage of women and men from all ethnic groups in the survey who said that their health was very good or good.
- Here we can see that 67 per cent of women and 72 per cent of men in the survey said their health was very good or good.
- What in your opinion might explain why more men report having very good and good health compared to women?
- * * *
- I'd now like to us to focus on the results from two of the ethnic groups in the survey, the White English and the Pakistani ethnic groups. So, the next graph shows the percentage of White English women and men in the survey who reported having very good or good health.
- Would you expect to see very good and good health to be higher among White English women, higher among White English men, or about the same for White English women and men?
- ⇒ SHOW THE PARTICIPANT GRAPH 1B
- So for the White English participants, 74 per cent of women said their health was very good or good, compared to 77 per cent of men.
- What are your thoughts on these results?
- Are there any reasons you think might explain why very good and good health were lower among the women compared to men?

* * *

- The next graph shows the percentage of Pakistani women and men who said that their health was very good or good.
- Would you expect to see very good and good health to be higher among Pakistani women, higher among Pakistani men, or about the same for Pakistani women and men?

⇒ SHOW THE PARTICIPANT GRAPH 1C

- So for the Pakistani participants, 50 per cent of women said their health was very good or good, compared to 65 per cent of men.
- What are your thoughts on these results?
- If we compare these two graphs (1b and 1c), what in your opinion might explain why there is more of a difference in very good and good health between men and women in the Pakistani ethnic group compared to men and women in the White English group?

* * *

- Here we can see the three sets of results for good and very good health put together on the same graph.

⇒ SHOW THE PARTICIPANT GRAPH 1D

- Are there any reasons you think might explain why very good and good health were lower among Pakistani men and women compared to White English women and men?

* * *

3. PATTERNS OF WELLBEING BY ETHNICITY AND SOCIAL POSITION

- The next topic I would like to ask you about is the influence of people's social position on their health and wellbeing. The social circumstances I'd like us to focus on are people's education level and employment status.
- So I'd like to show you a couple more graphs from survey results which show how participants' wellbeing varied by their education level and their employment status.

⇒ SHOW THE PARTICIPANT QUESTION CARD 3

- What effects do you think education and employment might have on the people's wellbeing?

⇒ SHOW THE PARTICIPANT GRAPH 2A

- So in this graph we can see the percentage of White English participants who said their wellbeing was very good. The participants were split into three education levels, those with no qualifications, those with A-levels, and those with a degree.
- So, if we look at the results for the White English participants, we can see that for men and women with no qualifications, 60 per cent said they had very good wellbeing. This increased to 67 per cent for men and women with A-levels, whilst for men and women with degrees, 65 per cent said they had very good wellbeing.
- Could you tell me your thoughts on why very good wellbeing was lower among the participants with no qualifications compared to those with A-levels and degrees?
- How might having no qualifications lead to lower wellbeing?

⇒ SHOW THE PARTICIPANT GRAPH 2B

- Here I have added the results for the Pakistani participants. We can see that for participants with degrees, a similar percentage of White English and Pakistani participants said they had very good wellbeing. However,

among participants with no qualifications or with A-levels, the percentage of participants with very good wellbeing was significantly lower among Pakistani participants compared to White English participants.

- What are your thoughts on why this is so?
- We can also see that for the Pakistani participants, that the percentage of participants with very good wellbeing is the same for those with no qualifications and those with A-levels.

* * *

- The last graphs I would like to show you give the results for the percentage of White English and Pakistani participants with very good wellbeing from different employment groups.

⇒ SHOW THE PARTICIPANT GRAPH 3A

- Again the numbers indicate the percentage of participants who said their wellbeing was very good. The participants were split into three employment groups, economically inactive, retired and economically active. The economically inactive group includes people who are unemployed, unable to work due to ill health, or who are looking after the family or home. The economically active group include people who are currently in paid work.
- So if we look at the results for the White English participants, we can see that for economically inactive men and women, 50 per cent said they had very good wellbeing. Among retired men and women 65 per cent said they had very good wellbeing, whilst for economically active men and women, 67 per cent said they had very good wellbeing.
- How, in your opinion, might being economically inactive lead to lower wellbeing?

⇒ SHOW THE PARTICIPANT GRAPH 3B

- Here I have added the results for the Pakistani participants. We can see that the percentage of economically active participants reporting very good wellbeing was similar for the White English and Pakistani participants.
- However, among the economically inactive and retired participants, the percentage of participants with very good wellbeing was significantly lower among the Pakistani participants compared to the White English.
- Why do you think this might be happening?
- We can also see that percentages of very good wellbeing for the retired and economically active groups show a greater difference among the Pakistani sample.
- Why do you think wellbeing is much lower among the retired Pakistanis?

4. PATTERNS OF HEALTH AND WELLBEING FOR WOMEN

- So we started by looking at how health and wellbeing differ between men and women from the White English and Pakistani ethnic groups in the survey. And then at how these differences in health and wellbeing are related to social factors.
- I'd now like to ask you some questions which focus on how social factors affect the health-related quality of life of women in particular.

⇒ SHOW THE PARTICIPANT QUESTION CARD 2

- To help with this we have put together some examples based on the survey findings, which illustrate how women's quality of life was found to vary depending on their social background.
- Vignette 1 – Emma
- How might Emma's social position be related to her very good health-related quality of life?
- Vignette 2 – Aisha
- How might Aisha's social position be related to her very bad health-related quality of life?

- Vignette 3 – Fozia
- How might Sofia's social position be related to her very good health-related quality of life?

5. UNDERLYING FACTORS

- I would like to ask you about your thoughts on the main reasons which lead to social inequalities in health and wellbeing for women in general.
- Do you feel that society discriminates against women in any way?
- Do you feel that the culture of our society has an impact on women's health and wellbeing, because of the roles and expectations it places on women?
- Do you feel that society discriminates against Pakistani women in any way?
- We have looked at the impact on health and wellbeing of being a woman, belonging to an ethnic minority group, and being in a disadvantaged social position. Do you think that those factors have separate effects, or do you think that they have a combined effect?
- Do you think there is anything that causes these inequalities in health and wellbeing to persist?

6. THE FUTURE FOR WOMEN'S HEALTH AND WELLBEING

- The last topic I would like to ask you about is the future for women's health and wellbeing.
- Firstly, can you tell me, what, for you, are the main problems that affect women's health and wellbeing?
- What do you think could be done that would improve health and wellbeing of women improve in the future?

7. CLOSE

- Thank you so much for sharing your thoughts with me, do you have anything further you would like to add or any questions you would like to ask?
 - Before we finish, I'd like to ask you to fill in a short questionnaire to provide some background information about yourself.
 - The information will remain strictly confidential and will be destroyed at the end of the study. We need the information to ensure that we recruit women from a wide range of backgrounds.
- ⇒ GIVE THE PARTICIPANT A QUESTIONNAIRE TO FILL IN.
- ⇒ SWITCH OFF THE TAPE RECORDER.
- Thank you again for giving up your time to take part in this study. I'd like to give you a sheet to take away with you which has some further information on it about the study and also has our contact details should you want to get in touch.
- ⇒ GIVE THE PARTICIPANT THE FURTHER INFORMATION SHEET.
- I can now give you the payment for taking part in the study which is £10 in cash. If you could just sign here to confirm that you have received the payment and I will give you your copy of the receipt.
- ⇒ ASK THE PARTICIPANT TO SIGN FOR THE £, GIVE THEM THE £10 & RECEIPT.
- We are also giving study participants the opportunity to enter a cash prize draw with the chance of winning one of two £50 prizes. Would you like to enter the prize draw?
- ⇒ GIVE THE PARTICIPANT AN ENTRY FORM IF THEY WISH TO TAKE PART IN THE PRIZE DRAW.
- Thank you again for taking part in the study.

- ⇒ SHOW THE PARTICIPANT TO THE ENTRANCE OF THE BUILDING.
- ⇒ SEND A TEXT TO THE BUDDY TO CONFIRM THAT THE INTERVIEW HAS ENDED.
- ⇒ RETURN TO OFFICE/HOME AND TEXT BUDDY AND LEAD SUPERVISOR TO CONFIRM SAFE RETURN.
- ⇒ BEGIN WRITING THE FIELD NOTES ON THE INTERVIEW.

C.8 Interview Visual Aids: Health and Wellbeing Measures

QUESTION CARD 1**Question 1:**

How is your health in general? Would you say it was...

Very Good Good Fair Bad Very Bad

(Please tick one box)

QUESTION CARD 2

Question 2:

Please indicate which statements best describe your own health state today, by ticking one box for each category below...

(a) Mobility	(b) Self-Care
<input type="checkbox"/> I have no problems in walking about.	<input type="checkbox"/> I have no problems with self-care.
<input type="checkbox"/> I have some problems in walking about.	<input type="checkbox"/> I have some problems with self-care.
<input type="checkbox"/> I am confined to bed.	<input type="checkbox"/> I am unable to wash or dress myself
(c) Pain/Discomfort	(d) Anxiety/Depression
<input type="checkbox"/> I have no pain or discomfort.	<input type="checkbox"/> I am not anxious or depressed.
<input type="checkbox"/> I have moderate pain or discomfort.	<input type="checkbox"/> I am moderately anxious or depressed.
<input type="checkbox"/> I have extreme pain or discomfort.	<input type="checkbox"/> I am extremely anxious or depressed.
(e) Usual Activities (e.g. work, study, housework, family, or leisure activities)	
<input type="checkbox"/> I have no problems with performing my usual activities.	
<input type="checkbox"/> I have some problems with performing my usual activities.	
<input type="checkbox"/> I am unable to perform my usual activities.	

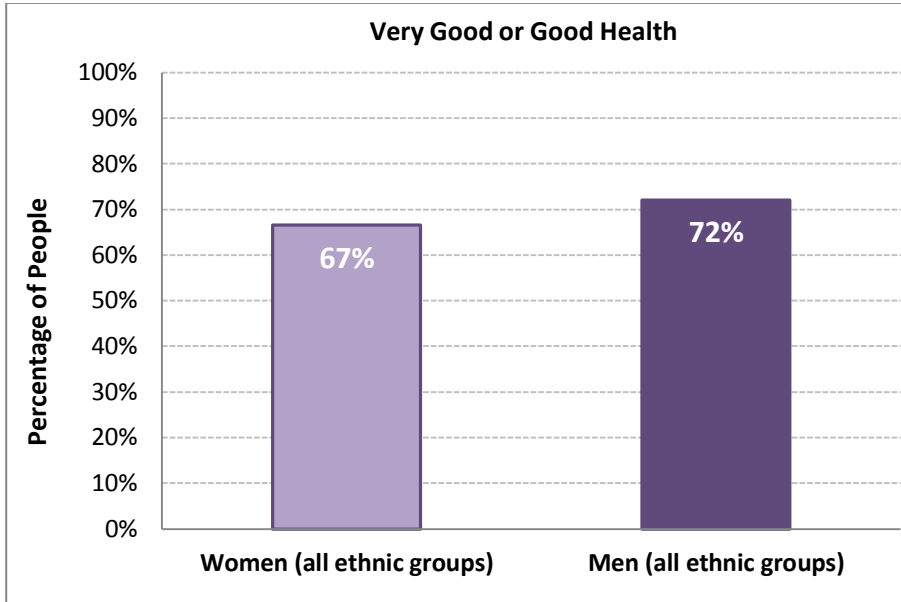
QUESTION CARD 3

Question 3: We would like to know how your health has been in general over the past few weeks. Please answer ALL the questions below by ticking the box next to the answer which you think applies to you.

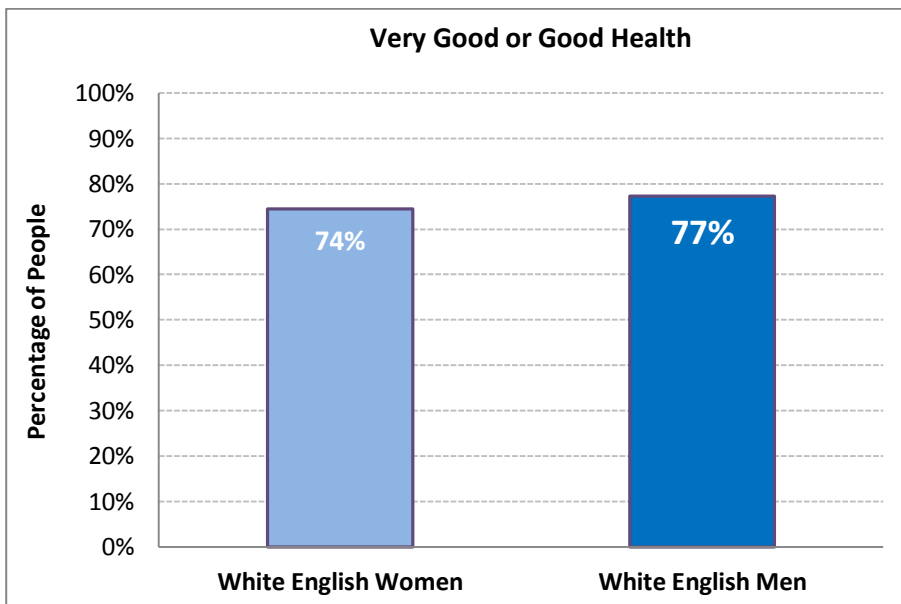
- a) Have you recently been able to concentrate on whatever you're doing? Better than usual Same as usual Less than usual Much less than usual
- b) Have you recently lost much sleep over worry? Not at all No more than usual Rather more than usual Much more than usual
- c) Have you recently felt you were playing a useful part in things? More so than usual Same as usual Less so than usual Much less than usual
- d) Have you recently felt capable of making decisions about things? More so than usual Same as usual Less so than usual Much less than usual
- e) Have you recently felt constantly under strain? Not at all No more than usual Rather more than usual Much more than usual
- f) Have you recently felt you couldn't overcome your difficulties? Not at all No more than usual Rather more than usual Much more than usual
- g) Have you recently been able to enjoy your normal day-to-day activities? More so than usual Same as usual Less so than usual Much less than usual
- h) Have you recently been able to face up to your problems? More so than usual Same as usual Less so than usual Much less than usual
- i) Have you recently been feeling unhappy and depressed? Not at all No more than usual Rather more than usual Much more than usual
- j) Have you recently been losing confidence in yourself? Not at all No more than usual Rather more than usual Much more than usual
- k) Have you recently been thinking of yourself as a worthless person? Not at all No more than usual Rather more than usual Much more than usual
- l) Have you recently been feeling reasonably happy, all things considered? More so than usual Same as usual Less so than usual Much less than usual

C.9 Interview Visual Aids: Graphs Illustrating Intersections

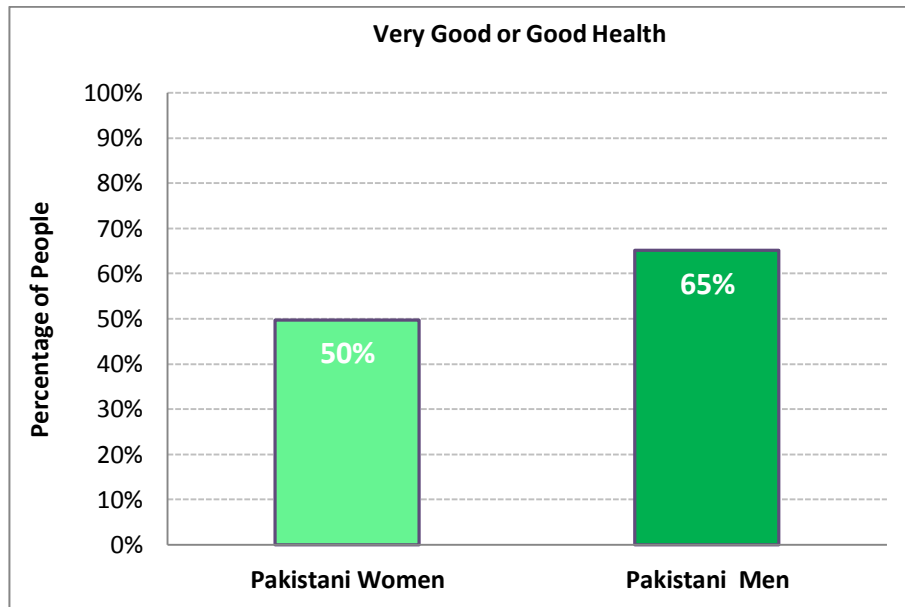
Graph 1a:



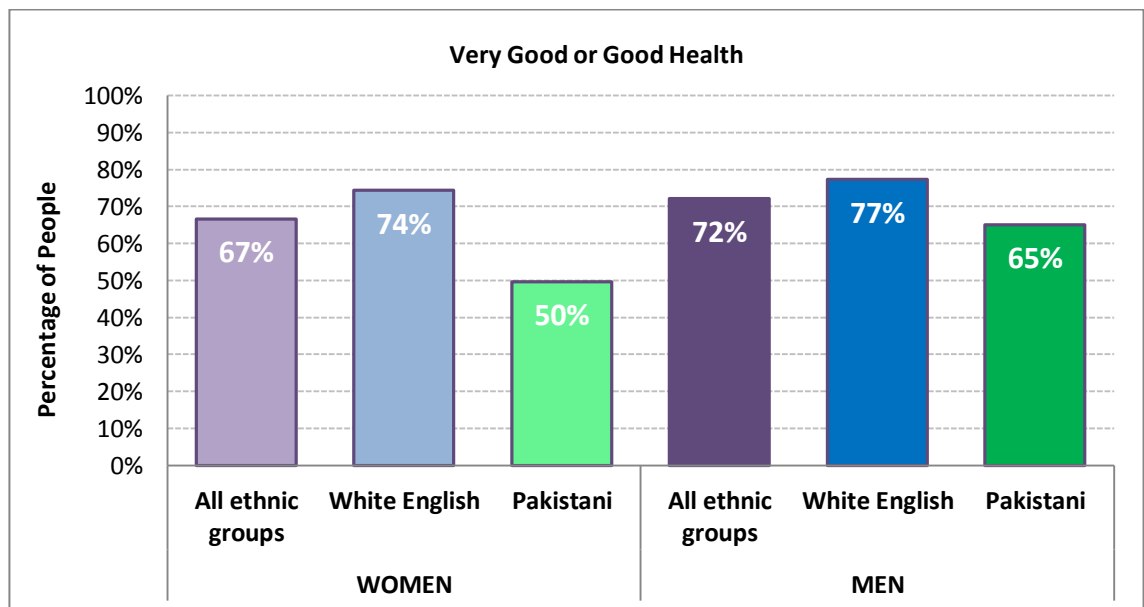
GRAPH 1b:



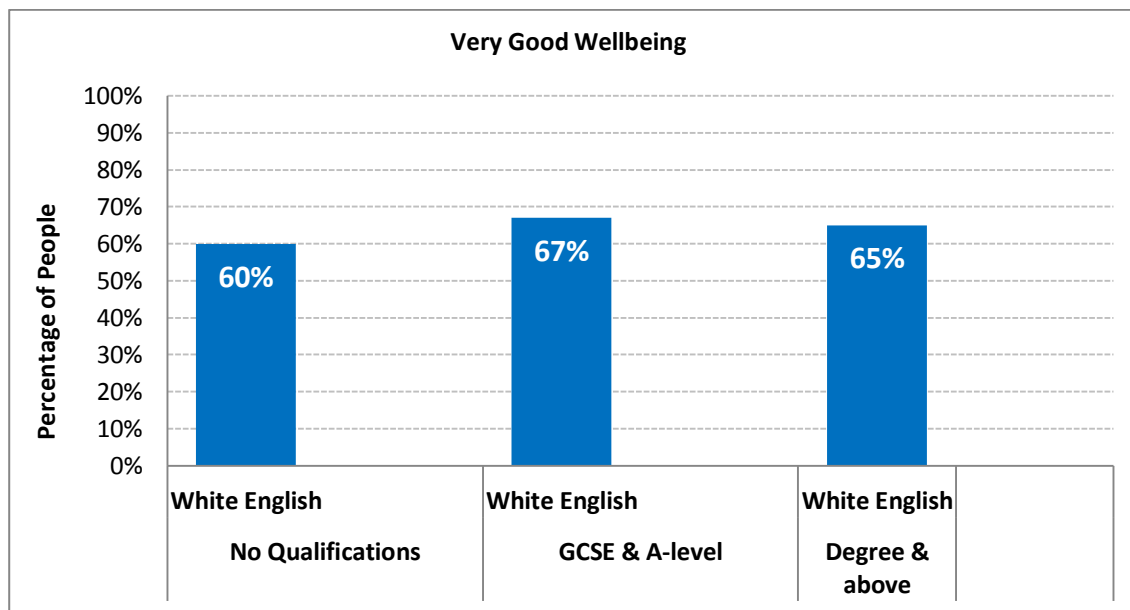
GRAPH 1c:



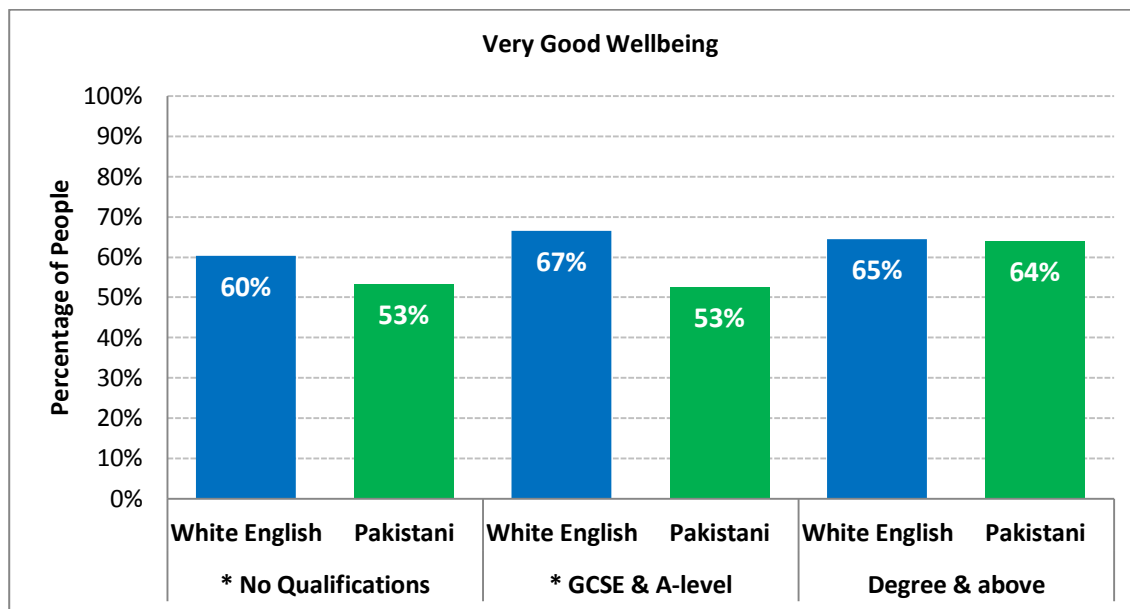
GRAPH 1d:



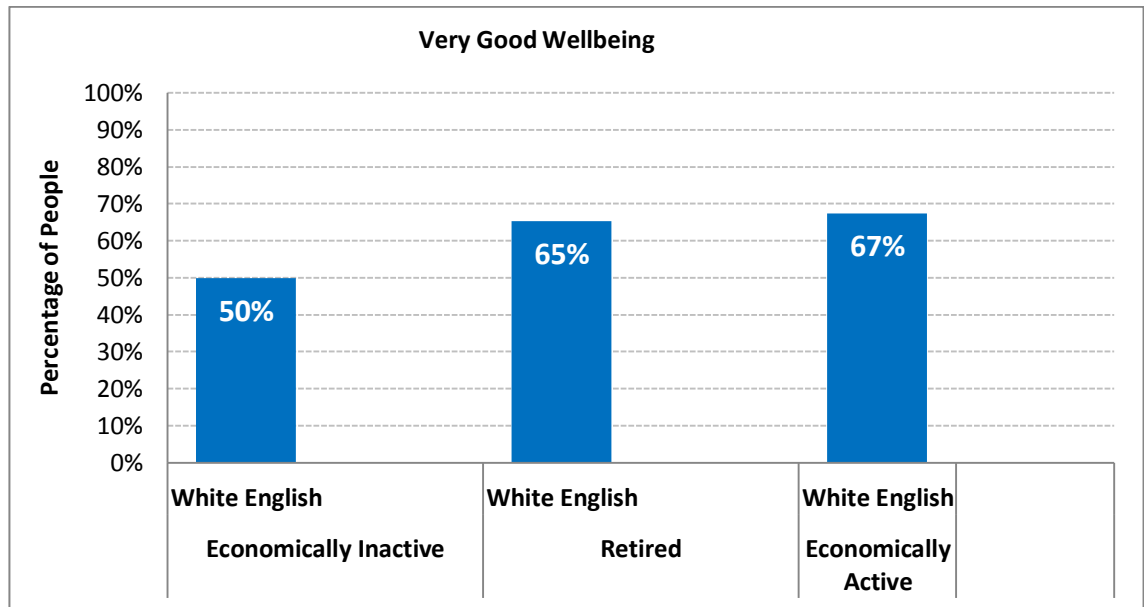
GRAPH 2a:



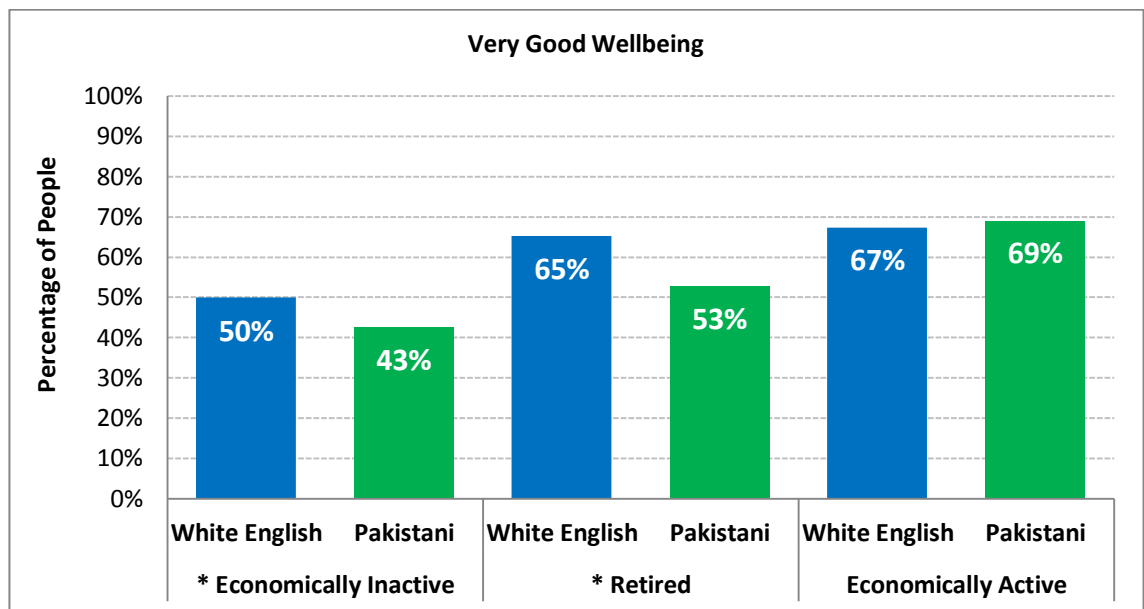
GRAPH 2b:



GRAPH 3a:



GRAPH 3b:



C.10 Interview Vignettes

Aisha

Aisha is 25 years old. She has lived in Sheffield all her life and is of Pakistani ethnic origin. She lives in a two-bedroom house with her husband.

She left school at 17 with GCSEs and currently works full-time as an administrative assistant for Sheffield City council.

She is a practising Muslim and speaks English, Punjabi, and Urdu very well.

When completing the survey, Aisha rated her health-related quality of life as being very bad.

Emma

Emma is 26 years old. She has lived in Sheffield all her life and is of White English ethnic origin. She lives in a two-bedroom house with her boyfriend.

She left school at 16 with GCSEs and currently works full-time as an administrative assistant for the Royal Hallamshire Hospital in Sheffield.

She is a non-practising Christian and speaks a little French in addition to English.

When completing the survey, Emma rated her health-related quality of life as being very good.

Fozia

Fozia is 24 years old and has lived in Sheffield all her life. She is of Pakistani ethnic origin and lives in a three bedroom house with her parents and younger sister.

She left school at 15 without any qualifications and currently works as a cashier at her local supermarket.

She is a non-practising Muslim and speaks a little Punjabi and Urdu in addition to English.

When completing the survey, Fozia rated her health-related quality of life as being very good.

C.11 Participant Questionnaire for the Pakistani Sample

The South Yorkshire Women's Health and Wellbeing Study Participant Questionnaire

Please could you provide the following information about your background. All information provided in this questionnaire will remain **strictly confidential** and will be destroyed at the end of the study.

Participant ID: 4002		
1) Age:		
<input type="checkbox"/> 18 – 29 years	<input type="checkbox"/> 30 – 49 years	<input type="checkbox"/> 50+ years
2) Marital status:		
<input type="checkbox"/> Single	<input type="checkbox"/> Cohabiting	<input type="checkbox"/> Married
<input type="checkbox"/> Civil Partnership	<input type="checkbox"/> Separated	<input type="checkbox"/> Divorced
<input type="checkbox"/> Widowed		
3) People living in your household:		
Number of adults (18 years +):	Women =	Men =
Number of children (0-17 years):	Girls =	Boys =
4a) Current activity:		
<input type="checkbox"/> Unable to work due to ill-health or disability	<input type="checkbox"/> Looking after the home/family	
<input type="checkbox"/> Currently looking for work	<input type="checkbox"/> Student	
<input type="checkbox"/> Employed or self-employed	<input type="checkbox"/> Retired	
4b) Current activity:		
Please write your current/last main job title here:		
5) Highest qualification held:		
<input type="checkbox"/> No Qualifications	<input type="checkbox"/> First degree (e.g. BA, BSc, BEng)	
<input type="checkbox"/> GCSE/O level/CSE/NVQ 1-2	<input type="checkbox"/> Higher degree (e.g. MA, PGCE, PhD)	
<input type="checkbox"/> A level/AS Level/NVQ 3-5	<input type="checkbox"/> Professional degree (e.g. MD, Nursing)	
<input type="checkbox"/> Other qualification -please write the qualification here:		
6a) Faith:		
<input type="checkbox"/> None	<input type="checkbox"/> Muslim	<input type="checkbox"/> Jewish
<input type="checkbox"/> Hindu	<input type="checkbox"/> Sikh	<input type="checkbox"/> Bahá'í
<input type="checkbox"/> Christian		
<input type="checkbox"/> Buddhist		
<input type="checkbox"/> Other faith – please write the faith here:		
6b) Faith:		
<input type="checkbox"/> Practicing	<input type="checkbox"/> Non-practicing	<input type="checkbox"/> Not applicable
7) Country of birth:		
<input type="checkbox"/> England		
<input type="checkbox"/> Pakistan	Year arrived in the UK?	
<input type="checkbox"/> Other country – please write name here:		
8) Ethnic identity:		
Please describe your ethnic identity here:		

Please turn over to complete the next question ⇨

9) How is your health in general? Would you say it was...

Very Good Good Fair Bad Very Bad (please tick one box)

10) Please indicate which statements best describe your own health state today, by ticking one box for each category below...

(a) Mobility

I have no problems in walking about.

I have some problems in walking about.

I am confined to bed.

(b) Self-Care

I have no problems with self-care.

I have some problems with self-care.

I am unable to wash or dress myself

(c) Pain/Discomfort

I have no pain or discomfort.

I have moderate pain or discomfort.

I have extreme pain or discomfort.

(d) Anxiety/Depression

I am not anxious or depressed.

I am moderately anxious or depressed.

I am extremely anxious or depressed.

(e) Usual Activities (e.g. work, study, housework, family, or leisure activities)

I have no problems with performing my usual activities.

I have some problems with performing my usual activities.

I am unable to perform my usual activities.

Please turn over to complete the last question ⇨

Q11) We would like to know how your health has been in general over the past few weeks. Please answer ALL the questions by ticking the box next to the answer which you think applies to you.

- a) Have you recently been able to concentrate on whatever you're doing? Better than usual Same as usual Less than usual Much less than usual
- b) Have you recently lost much sleep over worry? Not at all No more than usual Rather more than usual Much more than usual
- c) Have you recently felt you were playing a useful part in things? More so than usual Same as usual Less so than usual Much less than usual
- d) Have you recently felt capable of making decisions about things? More so than usual Same as usual Less so than usual Much less than usual
- e) Have you recently felt constantly under strain? Not at all No more than usual Rather more than usual Much more than usual
- f) Have you recently felt you couldn't overcome your difficulties? Not at all No more than usual Rather more than usual Much more than usual
- g) Have you recently been able to enjoy your normal day-to-day activities? More so than usual Same as usual Less so than usual Much less than usual
- h) Have you recently been able to face up to your problems? More so than usual Same as usual Less so than usual Much less than usual
- i) Have you recently been feeling unhappy and depressed? Not at all No more than usual Rather more than usual Much more than usual
- j) Have you recently been losing confidence in yourself? Not at all No more than usual Rather more than usual Much more than usual
- k) Have you recently been thinking of yourself as a worthless person? Not at all No more than usual Rather more than usual Much more than usual
- l) Have you recently been feeling reasonably happy, all things considered? More so than usual Same as usual Less so than usual Much less than usual

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE

C.12 Participant Questionnaire for the White English Sample

The South Yorkshire Women's Health and Wellbeing Study Participant Questionnaire

Please could you provide the following information about your background. All information provided in this questionnaire will remain **strictly confidential** and will be destroyed at the end of the study.

Participant ID: 3005		
1) Age:		
<input type="checkbox"/> 18 – 29 years	<input type="checkbox"/> 30 – 49 years	<input type="checkbox"/> 50+ years
2) Marital status:		
<input type="checkbox"/> Single	<input type="checkbox"/> Cohabiting	<input type="checkbox"/> Married
<input type="checkbox"/> Civil Partnership	<input type="checkbox"/> Separated	<input type="checkbox"/> Divorced
<input type="checkbox"/> Widowed		
3) People living in your household:		
Number of adults (18 years +):	Women =	Men =
Number of children (0-17 years):	Girls =	Boys =
4a) Current activity:		
<input type="checkbox"/> Unable to work due to ill-health or disability	<input type="checkbox"/> Looking after the home/family	
<input type="checkbox"/> Currently looking for work	<input type="checkbox"/> Student	
<input type="checkbox"/> Employed or self-employed	<input type="checkbox"/> Retired	
4b) Current activity:		
Please write your current/last main job title here:		
5) Highest qualification held:		
<input type="checkbox"/> No Qualifications	<input type="checkbox"/> First degree (e.g. BA, BSc, BEng)	
<input type="checkbox"/> GCSE/O level/CSE/NVQ 1-2	<input type="checkbox"/> Higher degree (e.g. MA, PGCE, PhD)	
<input type="checkbox"/> A level/AS Level/NVQ 3-5	<input type="checkbox"/> Professional degree (e.g. MD, Nursing)	
<input type="checkbox"/> Other qualification - please write the qualification here:		
6a) Faith:		
<input type="checkbox"/> None	<input type="checkbox"/> Muslim	<input type="checkbox"/> Jewish
<input type="checkbox"/> Hindu	<input type="checkbox"/> Sikh	<input type="checkbox"/> Bahá'í
<input type="checkbox"/> Christian		
<input type="checkbox"/> Buddhist		
<input type="checkbox"/> Other faith – please write the faith here:		
6b) Faith:		
<input type="checkbox"/> Practicing	<input type="checkbox"/> Non-practicing	<input type="checkbox"/> Not applicable
7) Country of birth:		
<input type="checkbox"/> England		
<input type="checkbox"/> Other country – please write name below:	Year arrived in the UK?	
.....		
8) Ethnic identity:		
Please describe your ethnic identity here:		

Please turn over to complete the next question ⇨

C.13 Further Information Sheet for the Pakistani Sample



The
University
Of
Sheffield.

School Of
Health
And
Related
Research.

The South Yorkshire Women's Health and Wellbeing Study

Further Information Sheet

We would like to thank you, for taking part in the South Yorkshire Women's Health and Wellbeing Study today. Your contribution to this research study is greatly appreciated. The findings from this study will provide valuable information enabling a better understanding of how socioeconomic factors affect the health and wellbeing of women living in South Yorkshire.

What will happen to the findings from this study?

The research findings will be written up as a short report and made available to all study participants on request. A more detailed report will form part of a PhD thesis which will be available at the British Library and University of Sheffield main library. The study findings will also be presented to community and academic organisations interested in reducing inequalities in health and wellbeing.

Who can I contact if I have any further questions?

Please contact a member of the research team if you have any further questions about this study.

Research Team Contact Details			
Name	Sally Hartnell	Prof. Elizabeth Goyder	Dr. Aki Tsuchiya
Role	PhD Researcher	Research Supervisor	Research Supervisor
Email	s.hartnell@sheffield.ac.uk	e.goyder@sheffield.ac.uk	a.tsuchiya@sheffield.ac.uk
Telephone	0790XXXXXXX	0114 XXXXXXX	0114 XXXXXXX
Address	The South Yorkshire Women's Health and Wellbeing Study, School of Health and Related Research, University of Sheffield, 30 Regent Street, Sheffield, S1 4DA.		

Who can I contact if I need support and advice?

We have provided a list of national advice lines, support groups, and local community organisations that offer information and advice on a range of issues:

National Advice Lines:

NHS Direct	☎ 0845 46 47	www.nhsdirect.nhs.uk
Samaritans	☎ 0845 790 90 90	www.samaritans.org
Victim Support	☎ 0845 30 30 900	www.victimsupport.org.uk
Citizen's Advice Bureau		www.citizensadvice.org.uk
Women's Aid	☎ 0117 944 4411	www.womensaid.org.uk
Rights of Women	☎ 020 7251 6577	www.rights of women.org.uk

Local Support Groups and Organisations:

Sheffield NHS		www.sheffield.nhs.uk
Sheffield Mind	☎ 0114 258 4489	www.sheffieldmind.co.uk
Age Concern Sheffield	☎ 0114 250 2859	www.ageconcernsheffield.org.uk
Pakistani Community Advice Centre	☎ 0114 261 9130	
Roshni Sheffield Asian Women's Resource Centre	☎ 0114 250 8898	www.roshnisheffield.co.uk

Who can I contact if I have a complaint about this study?

If you have a complaint regarding this study you can contact the University Registrar and Secretary's Office at the University of Sheffield on 0114 2221104.

C.14 Further Information Sheet for the White English Sample



The
University
Of
Sheffield.

School Of
Health
And
Related
Research.

The South Yorkshire Women's Health and Wellbeing Study

Further Information Sheet

We would like to thank you, for taking part in the South Yorkshire Women's Health and Wellbeing Study today. Your contribution to this research study is greatly appreciated. The findings from this study will provide valuable information enabling a better understanding of how socioeconomic factors affect the health and wellbeing of women living in South Yorkshire.

What will happen to the findings from this study?

The research findings will be written up as a short report and made available to all study participants on request. A more detailed report will form part of a PhD thesis which will be available at the British Library and University of Sheffield main library. The study findings will also be presented to community and academic organisations interested in reducing inequalities in health and wellbeing.

Who can I contact if I have any further questions?

Please contact a member of the research team if you have any further questions about this study.

Research Team Contact Details			
Name	Sally Hartnell	Prof. Elizabeth Goyder	Dr. Aki Tsuchiya
Role	PhD Researcher	Research Supervisor	Research Supervisor
Email	s.hartnell@sheffield.ac.uk	e.goyder@sheffield.ac.uk	a.tsuchiya@sheffield.ac.uk
Telephone	0790XXXXXXX	0114 XXXXXXX	0114 XXXXXXX
Address	The South Yorkshire Women's Health and Wellbeing Study, School of Health and Related Research, University of Sheffield, 30 Regent Street, Sheffield, S1 4DA.		

Who can I contact if I need support and advice?

We have provided a list of national advice lines, support groups, and local community organisations that offer information and advice on a range of issues:

National Advice Lines:

NHS Direct	☎ 0845 46 47	www.nhsdirect.nhs.uk
Samaritans	☎ 0845 790 90 90	www.samaritans.org
Victim Support	☎ 0845 30 30 900	www.victimsupport.org.uk
Citizen's Advice Bureau		www.citizensadvice.org.uk
Women's Aid	☎ 0117 944 4411	www.womensaid.org.uk
Rights of Women	☎ 020 7251 6577	www.rightsof women.org.uk

Local Support Groups and Organisations:

Sheffield NHS		www.sheffield.nhs.uk
Sheffield Mind	☎ 0114 258 4489	www.sheffieldmind.co.uk
Age Concern Sheffield	☎ 0114 250 2859	www.ageconcernsheffield.org.uk

Who can I contact if I have a complaint about this study?

If you have a complaint regarding this study you can contact the University Registrar and Secretary's Office at the University of Sheffield on 0114 2221104.

C.15 Cash Prize Draw Entry Form

The South Yorkshire Women's Health and Wellbeing Study**Cash Prize Draw
Entry Form****1st Prize: £50 cash****2nd Prize: £50 cash****Dear Study Participant,**

Thank you for your assistance with this study, in return we are offering each participant the chance to enter a cash prize draw. If you would like to enter, please complete the form at the bottom of this page. Details of the prize draw terms and conditions are provided below:

Prize Draw Terms and Conditions:

1. Entrants must be aged 18 years or over and resident in the UK.
2. The draw is open only to participants of the SYWH&W 'main' study who successfully complete their interview. SYWH&W 'pilot' study participants are not eligible to enter the draw.
3. Only one entry per person is allowed.
4. Entry to the prize draw is free.
5. To enter, please complete the form at the bottom of this page. Entries must be received at the time of your interview appointment. An independent person will make the draw and an independent observer will be in attendance. The draw will take place on 1st July 2010* and winners will be notified by post by 8th July 2010*. Prizes are to be collected from SchARR, University of Sheffield, 30 Regent Street, Sheffield, S1 4DA following notification.
6. The first prize is £50 cash. The second prize is £50 cash. No alternative prizes are available.
7. The judge's decision is final. No correspondence can be entered into.
8. Entry to the draw implies your acceptance of these rules as final and legally binding.
9. The promoter of this offer is SchARR, University of Sheffield, 30 Regent Street, Sheffield, S1 4DA.
10. Entrants' personal details will remain strictly confidential and will be destroyed following the draw.

* Should the study over run, the draw will take place at the earliest possible time.

⌘ -----

Name: _____

Address: _____

Telephone: _____

Participant ID:

C.16 Final Thematic Framework

1.0 INTERSECTIONS OF GENDER AND ETHNICITY WITH GENERAL HEALTH

1.1 Differences in general health between Pakistani men and women

- 1.1.1 Women have more responsibilities
- 1.1.2 Women stay at home
- 1.1.3 Men are in authority
- 1.1.4 Access to health care
- 1.1.5 Access to leisure facilities

1.2 Differences in general health between Pakistani and White English women

- 1.2.1 Pakistani women have more responsibilities
- 1.2.2 Pakistani women stay at home
- 1.2.3 Access to leisure facilities
- 1.2.4 Access to health care

2.0 INTERSECTIONS OF ETHNICITY AND EDUCATION LEVEL IN PSYCHOLOGICAL WELLBEING

2.1 Differences in psychological wellbeing between Pakistani and White English people with no qualifications

- 2.1.1 Racial discrimination
- 2.1.2 Opportunity to get an education
- 2.1.3 Valuing education
- 2.1.4 Confidence
- 2.1.5 Language barriers
- 2.1.6 Joining the family business

2.2 Similarities in psychological wellbeing between Pakistani and White English people with a degree or above

- 2.2.1 Choosing professional careers
- 2.2.2 Family expectations

2.3 Differences in psychological wellbeing between Pakistani people with no qualifications and those with a degree or above

- 2.3.1 Status of having a degree
- 2.3.2 Better standard of living
- 2.3.3 Independence from the family

3.0 INTERSECTIONS OF ETHNICITY AND ECONOMIC STATUS WITH PSYCHOLOGICAL WELLBEING

3.1 Differences in psychological wellbeing between retired Pakistani and White English people

- 3.1.1 Pakistani perspective of retirement
- 3.1.2 Western perspective of retirement
- 3.1.3 Available pension fund
- 3.1.4 Family responsibilities

3.1.5 Lack of social interaction

3.1.6 Wanting to return to Pakistan

4.0 VIEWS ON INTERSECTIONALITY

4.1 Factors intersect to influence health and wellbeing

4.2 Factors work separately influence on health and wellbeing

4.3 Factors add up to influence health and wellbeing

5.0 CONTEXTUAL FACTORS AROUND INTERSECTIONS

5.1 Social & cultural expectations

5.2 Generation differences

5.3 Culture clashes

C.17 Extract from thematic chart for intersection of gender and ethnicity in general health

Interviewee	Women have more responsibilities	Women stay at home
Jameela Aged 18-29, born in England, Pakistani, Muslim.		Expect the younger generation of PK women to have better health than the older generation because 'the Pakistani culture, the tradition's sort of worn off, so we're not staying at home as much as the older women'. [P.36]; Expect PK men to report better health because they go out a lot more whereas the women are usually encouraged to stay at home because of the tradition and the culture. They still fall into that trap a lot. They're breaking out of it now, but it seems like a really slow change. [P.44-46] **
Husna Aged 18-29, born in England, British Pakistani, Muslim.		Diff in VG health between PK men & women is because the PK women are 'not really out there in the world working. Most of them are just at home and generally feeling low' [P.43]
Amina Aged 18-29, born in England, Pakistani, Muslim.	PK women are often 'the primary carers for not just the children but the in-laws and the extended family as well' which brings stress and may have a part to play in the diff in health between PK men & women. [P.75]	
Maysoon Aged 18-29, born in England, Pakistani, Muslim.		
Leena Aged 18-29, born in England, Pakistani, Muslim.		
Nadira Aged 18-29, born in England, British Pakistani, Muslim.		Young & middle-aged PK men tend to have good general health because they do work and tend to be out and about quite a lot. [P.52] A cause of lower health among PK women compared to men could be the 'whole cultural aspect' - not as much social interaction which can cause depression and anxiety and impact your general health. [P.48]
Ameera Aged 30-49, born in England, Pakistani, Muslim.	PK women's health suffers more because they have a lot more to do than PK men with bringing up children. [P.54-56]	

<p>Safia Aged 30-49, born in England, Pakistani, Muslim.</p>		<p>PK women have a lot of pressures at home that bring them down and prevent them going out. They've got to cover themselves. 'They've got husbands that maybe don't want them to go out and work, want them to be at home, safe and secure place.' The may be lacking confidence, education, language. [P.83]</p>
<p>Fatima Aged 30-49, born in England, British Asian, Muslim.</p>	<p>Within the PK culture, the woman's priority is looking after the family and home, then after that you can look after yourself. Their health isn't good because they don't have time. [P.93] They are 'taking the kids to school, fetching them back, staying at home, cleaning, that's their role.' [P.229] It's going to make them depressed, low self-esteem, it will affect their health mentally, physically.' [P.231]</p>	<p>PK women have poorer health because they are looking after the home, family and not able to get out. [P.76]; Some areas are a bit behind culturally in letting women out. [P.80]</p>
<p>Habiba Aged 30-49, born in Pakistan, British Asian, Muslim.</p>	<p>PK women's health is worse than men's because 'they're not getting the exercise, most of them are at home looking after children or the extended families' [P.49]</p>	<p>PK men have better health because they are 'more active and out at work, whereas a woman's at home, cooking and whatever so she probably suffers from depression. [P.30 & 45]; PK men, whether employed or unemployed, will be out socialising and have more of an active life.' [P.49]</p>
<p>Zaina Aged 30-39, born in Pakistan, Pakistani, Muslim.</p>	<p>PK women who are doing everything at home and fulfilling all their responsibilities can feel angry and not in good health because they feel like their partner is not helping enough [P.60]; PK-born women generally have more household responsibilities compared to men. [P.62]</p>	
<p>Asma Aged 50+, born in Pakistan, Pakistani, Muslim, married.</p>	<p>PK women can't go to work because they have to bring up the children and rely on their husband to work. [P.53]</p>	
<p>Shirin Aged 50+, born in Pakistan, Pakistani, Muslim.</p>		
<p>Jenny Aged 18-29, White British, practicing Christian.</p>		

<p>Lucy Aged 18-29, White British, practicing Christian.</p>		
<p>Louise Aged 30-49, White British, non-practicing Christian.</p>	<p>PK women have poorer health than PK men because a lot of responsibilities fall to the women. [P.75]</p>	<p>PK women new to this culture may experience social isolation which can be a factor. [P.75]</p>
<p>Hannah Aged 30-49, White British, practicing Christian.</p>		
<p>Clare Aged 30-49, White British, non-practicing Christian & other.</p>	<p>PK women don't have as good a quality of life as the men because they have to do a lot more due to their culture and their religion. [P.81]</p>	
<p>Julia Aged 30-49, White English, practicing Christian.</p>	<p>PK women might report poorer health because they can be in 'heavy and suppressing environments. Not always, but within family restraints and constraints, and not having their own homes, being tied into looking after relatives and elderly relatives, nursing... the demands of being a mum, being a carer, being bound by cultural ties. ** [P.88] PK culture 'dictates' that women do the child raising. [P.108]</p>	<p>A high proportion of PK women stay at home, feel very isolated and have low mood. [P.52 & 76]</p>
<p>Cathy Aged 50+, British, no faith.</p>		
<p>Elizabeth Aged 50+, White, non- practicing Christian.</p>		
<p>Linda Aged 50+, British White, non-practicing Christian.</p>		

Doris Aged 50+, British, non- practicing Christian.	PK women have poorer health because they're worn down, they have to do everything. ** [P.98]; PK women have got children to see to and a house to see to. The men can just pack their little bag and go to work and that's it till they come home. The wife's left with it all the time. ** [P.246]	
Betty Aged 50+, English, Christian.		PK women have poorer health because they don't have as much of a social life as the men do. PK men go out more than the women. The women go out shopping but then they're in the house. [P.95-97]
Judy Aged 50+, White English, non-practicing Christian.		

C.18 Ethics Approval Certificate



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Of
Sheffield.

Cheryl Oliver
Ethics Committee Administrator

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Our ref: /CAO

16 November 09

Sally Hartnell
SchARR

Dear Sally

The South Yorkshire Women's Health & Wellbeing Study

Thank you for submitting the above research project for approval by the SchARR Research Ethics Committee. On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that the project was approved.

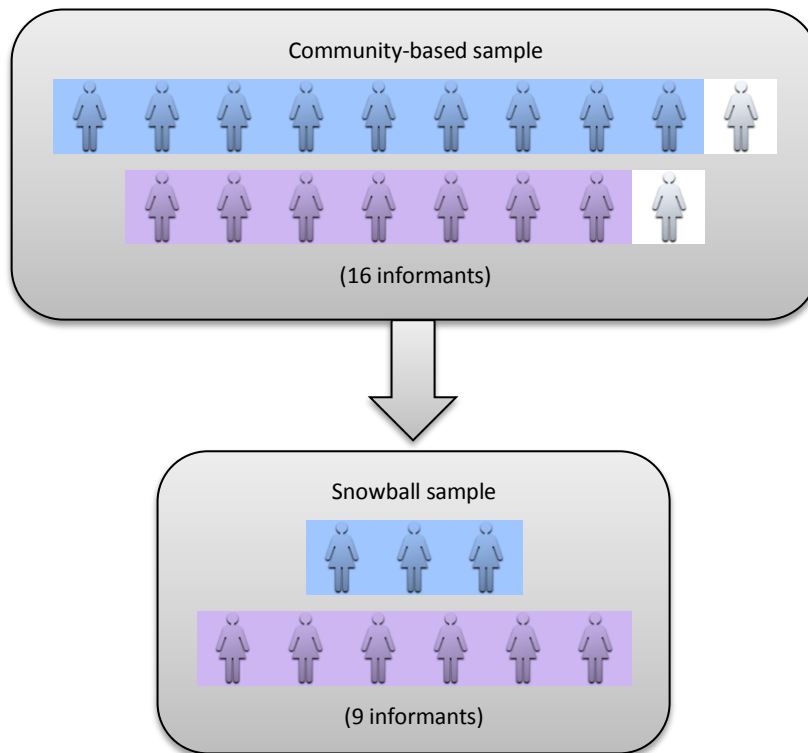
If during the course of the project you need to deviate significantly from the documents you submitted for review, please inform me since written approval will be required.

Yours sincerely

A handwritten signature in black ink, appearing to read 'C. Oliver'.

Cheryl Oliver
Ethics Committee Administrator

C.19 Interview Recruitment Summary



KEY:

= Pakistani informant;



= White English informant;



= non-responder