

**Sexual Activity, Sexually Transmitted Diseases and
Risk Behaviour among Older Adults**

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Abstract

Few data are currently available regarding the extent to which older people (defined here as those aged >50 years): i) are sexually active; ii) engage in 'risky' sexual behaviours; and iii) contract sexually transmitted diseases (STDs).

It was the primary aim of research described in this thesis to address these specific knowledge deficits and to ascertain whether the exclusion of this age group as a research focus within this subject field can be reasonably justified. The dearth of previous research undertaken in this area necessitated that a secondary goal be addressed, namely the development of methodologies appropriate to the collection from older people of data concerning such issues.

Using a combination of self-administered questionnaire studies and secondary data analyses, undertaken both in health care settings and within the community at large, the programme of research clearly indicates that:

1. Older people represent a consistent minority of patients attending specialised genitourinary (GUM) clinics. Members of this group are further regularly diagnosed with STDs. Moreover, older clinic attenders exhibit distinctive socio-demographic and clinical characteristics relative both to younger clinic attenders and to the general population of the same age group.
2. The majority of older GUM clinic attenders are first time attenders and have not been diagnosed with an STD before.

3. In the community at large the majority of older adults are sexually active, of whom a small minority (approximately 7%) engage in behaviours that place them at risk of contracting STDs.

4. Most older people, recruited from both health care and non-health care settings, feel that they have received very little information about STDs and HIV, and many indicated that they would like to receive more information on these topics.

Given the ageing of the UK population, and more specifically, the ageing of cohorts with changing sexual mores, it is likely that levels of sexual risk-taking behaviour amongst those over 50 will increase over coming decades. This has implications both for sexual health policy formulation and future research in this area.

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SECTION 1: INTRODUCTION AND LITERATURE REVIEW

Thesis Overview

Introduction

It is widely acknowledged that 'rewarding personal and sexual relationships promote health and well-being' (*Health of the Nation, HIV/AIDS and Sexual Health Key Area Handbook*, p.7), an opinion exemplified by the identification of sexually transmitted diseases (STDs) as one of the key targets for disease reduction in the *Health of the Nation* White Paper. Indeed, since the advent of the AIDS pandemic in the early 1980s, a substantial body of research has been undertaken in the area of sexual health (Bierbaum, Brooks and Brooks, 1992).

However, it is perhaps indicative of the ageism pervasive within modern society that the focus of such research has been almost exclusively upon the young. This neglect of older people as a topic for study within this field appears to be fuelled by two related assumptions:

1. That older people are not sexually active or, if they are, this is always within the context of a mutually monogamous married relationship.
2. That the implications of engaging in 'risky' sexual behaviours are less important for older people than for younger people.

Background to thesis

A review of relevant literature identified that little prior research has been undertaken concerning later-life sexual health issues. Although previous authors have established that sexual activity often continues into very old age, it is rarely acknowledged that older people may engage in sexual behaviours that place them at risk of contracting STDs, including HIV/AIDS. Indeed, the few UK studies that have been undertaken in this area have tended to be small-scale and lacking a sound theoretical and methodological framework.

Moreover, older people have also been excluded from supposed 'general population' studies. An analysis of large-scale studies exploring sexual activity and sexual risk-taking revealed that the majority had arbitrary age-cut offs of anywhere between 40 and 65 years. The National Survey of Sexual Attitudes and Lifestyles (NSSAL; Wellings, Field, Johnson and Wadsworth, 1994), for example, considered to be the most comprehensive UK-based sexual health survey ever carried out and responsible for informing policy on many levels (Johnson, 1997), only recruited participants up to the age of 59 years. This was justified on the grounds that:

many of the topics for which data were collected are known not to affect older people greatly. (p. 23).

It is however unclear how this is 'known', given the lack of empirical data on these issues. Indeed, this statement confirms that it is the assumption that older people do not engage in behaviours that place them at risk of contracting STDs, and not sound factual evidence that determines their exclusion from the research agenda.

Thesis aims

It was the primary aim of the work described in this thesis to provide information relevant to the provision of sexual health services for older people (defined here as those over 50 years) by identifying the extent to which this age group:

1. Are sexually active;
2. Engage in 'risky' sexual behaviours; and
3. Contract sexually transmitted diseases (STDs).

The primary aim of the thesis was addressed in the following ways:

- By examining the characteristics of a group of older people with well-defined sexual health needs, namely attenders at genitourinary medicine (GUM) clinics.

- By exploring the prevalence of sexual activity, including sexual risk-taking, among a sample of the general population aged over 50 years.

It was not the aim of this programme of research to provide comparative data on factors under examination for younger adults (i.e. those under 50 years). Rather, it was felt that an exclusive focus upon older adults was warranted by the dearth of research in this area.

Methodological issues

The dearth of research in this area necessitated that a secondary goal be addressed, namely the development of methodologies to enable data collection in the areas of interest identified above. Specifically, from the community-based work, a study design had to be formulated which was appropriate to information generation about older individuals who did not present at health care facilities, so as to provide a complete picture of sexual health issues in later-life. This involved addressing a number of complex and largely unresearched issues, such as the willingness of older people to be involved in sexuality research, ways of identifying older individuals who take sexual 'risks' and the feasibility of generating a sample group representative of the general population.

Thesis structure

The organisation of the thesis reflects the objectives as stated above:

Chapter 1 presents a critical review of previous research in this area, focusing upon literature which: i) explores rates and correlates of sexual activity in later-life; ii) identifies whether older people engage in sexual 'risk' taking; iii) discusses the incidence and prevalence of STDs and HIV/AIDS in older populations; iv) examines existing data sets in an attempt to compile a descriptive epidemiology of STDs and HIV/AIDS amongst this age group; v) ascertains which health services are used by individuals with an STD (or suspected STD); and vi) assesses evidence whether the illness behaviours of people with an STD (or suspected STD) are age-specific.

Chapter 2 explores the evidence for STD diagnoses in older populations by focusing upon a group with well-defined sexual health needs, namely attenders at GUM clinics. Issues relating to the characteristics of older attenders as compared with those of all age attenders and with the general population of the same age group are examined through the analysis of clinic workload statistics from three GUM clinics within the Trent Region (Sheffield, Leicester and Nottingham). This exploratory data collection exercise was undertaken for two consecutive calendar years so as to establish whether identified trends were historically enduring, and thus to provide a sound basis from which to formulate future research questions.

Chapter 3 addresses research questions arising from the literature review and exploratory data collection exercise through a self-administered questionnaire study, linked to patient notes, undertaken within the same three GUM clinics. Issues under examination include motivations for clinic attendance, latency between symptom recognition and clinic attendance, suspected source of STD infection, experience of HIV testing and information needs on STDs and HIV.

Chapter 4 discusses the results of the clinic study described in the previous chapter and identifies potential future research directions.

Chapter 5 presents findings from a postal survey of the general population involving 319 individuals over the age of 50. Focus is placed upon prevalence of sexual activity, prevalence of risk-taking, information needs and contact with health care professionals.

Chapter 6 discusses the findings of the study presented in the previous chapter.

Chapter 7 draws cross-study comparisons between the different samples studied in the thesis.

Chapter 8 pulls together the key findings of the thesis and discusses their implications for policy and future research.

Chapter 1

Literature Review

Introduction

An analysis of literature surrounding the topic of sexual health in later-life will be presented in this chapter. Initial discussions will relate to the concept 'sexual health' and an operational definition of the term for the purposes of this thesis will be presented. This will be followed by an exploration of sexuality and ageing, providing the context for a discussion of later-life sexual health issues. Specific focus will be placed upon literature concerning STDs in older populations. The HIV/AIDS literature will be presented separately because of the unique nature both of this condition, and of the way in which it has been researched. This information will be supplemented by exploring available data sets in an attempt to compile a descriptive epidemiology of STD and HIV/AIDS within older cohorts. Finally, treatment issues will be examined, with attention paid to factors involved in seeking medical care for STDs.

This analysis of the literature, as presented above, will address the following questions:

1. To what extent are older people sexually active? Are there specific factors that correlate with being sexually active in later-life?

2. Is there evidence that older people engage in sexual behaviours that place them at risk of contracting STDs? If so, can a population profile of 'risk-takers' be compiled?

3. Do data sets exist detailing levels of STD in older populations? Are there data sets recording contact with health care professionals on STD-related issues?

4. Which health services are commonly used by individuals in the UK with STD-related concerns? Are there barriers that may impede attendance at such services, specifically for older people?

1.1. Defining Sexual Health

Prior to discussing relevant literature it is useful to clarify the meaning of the term 'sexual health'. This discussion will be contextualised by an exploration of definitions of 'health' and will consider the ways in which 'sexual health' is employed within different disciplines, before stating how the term has been conceptualised within this thesis.

Defining 'health'

The term 'health', although widely used, is problematic to define. Bowling (1995) identifies discipline-specific definitions from medical, sociological and humanistic perspectives:

A medical conception of health is freedom from disease and abnormalities; a sociological view can be defined in terms of the possession of acceptable levels of mental and physical fitness in order to perform one's social role in society.....; a humanistic view...in which optimal autonomy, personal strength and the positive meaning of life are central components. (p. 7)

An attempt to incorporate elements of these perspectives into one global concept can be seen in the definition offered by the World Health Organisation in 1946 (WHO, 1958) which stresses the importance of a holistic approach to health, conceptualised as:

...a state of complete physical, mental and social well being and not merely the absence of disease or infirmity. (p.100)

However, although this definition has proved very influential in the post-

war period Doll, (1992) argues that it is fine and inspiring, but of little practical use. Indeed, it introduces problems in differentiating health care, from social care and economic provision, as well as defining health outcomes.

There is not space here to do justice to the complex debate concerning the conceptualisation of health, but the above issues are important to identify as defining 'sexual health' proves equally problematic.

Defining 'sexual health'

The term 'sexual health' has been adopted into common usage with little discussion as to its exact definition. The few attempts that have been made to explore the concept in any detail have been from a political (WHO, 1974) or health promotion background (Hendriks, 1992) and stress the positive benefits of sexual relationships for personal fulfilment. Conversely, the medical perspective:

appears as a more or less comprehensive list of serious health problems associated with sexual activity, giving an entirely negative impression. (Greenhouse, 1995, p.1468)

However, most authors do not define what they mean by 'sexual health' and although, typically, the term is equated with sexually transmitted infections and teenage pregnancy rates (Health of the Nation, 1992), issues ranging from impotence through to homosexuality have been discussed under this heading (Tomlinson, 1998). As Greenhouse (1995) acknowledges, there is a need for a clear, concise definition of sexual health that is applicable to policy formulation,

research and clinical practice.

‘Sexual health’ within the context of this thesis

It is recognised that the term ‘sexual health’ can incorporate many elements relating to personal sexuality. Within the context of this thesis, sexual health will be considered exclusively in relation to STDs, STD-related risk-taking behaviours, the health seeking behaviours of individuals with suspected STD symptoms and health education and health promotion related to STDs. This organic conceptualisation of sexual health does not incorporate psycho-sexual factors that impact upon sexual functioning.

1.2. Later-life Sexuality

Introduction

Despite the burgeoning literature on the ageing process, there is one facet of later-life that remains relatively unexplored, namely sexuality. A dominant stereotype is that of the 'asexual older person' (George and Weiler, 1981, p. 919). It could be argued that this stereotype is at least partially responsible for the marginalisation of this 'major quality-of-life issue' (Wiley and Bortz II, 1996, p. M142) as a topic of serious study and research.

However, this marginalisation is not justified in the light of previous research. Indeed, since Kinsey's groundbreaking studies of human sexual behaviour (Kinsey, Pomeroy and Martin, 1948; Kinsey, Pomeroy, Martin and Gebhard, 1953), it has been shown that sexual activity can persist throughout the lifecourse and is often still central to well-being in very old age (Bretschneider and McCoy, 1988). Yet, the mythology which has emerged concerning sexuality in later-life has hindered the development of this field of inquiry, the result being a lack of both normative data, and a sound conceptual framework (Wiley and Bortz II, 1996).

This is exemplified by an analysis of current literature. The majority of studies undertaken to date do nothing more than establish that normal ageing does not bring about a cessation of either sexual interest or sexual activity. Furthermore, they have, for the most part, been initiated within the US, and as such may not be directly comparable to the UK context. Indeed, cross-cultural

differences in sexual behaviours between the two countries have been identified in samples under 60 years of age (Johnson, Michael, Wadsworth, Feinleib and Laumann, 1997). However, as very little has been written on later-life sexuality within the UK, the US literature will be analysed (albeit separately), but it is important to remember that this may not be directly comparable to the UK experience.

It must also be highlighted that differences in terminology may preclude direct comparisons between studies. In particular, although it is the aim of this section of the review to establish the extent to which older people engage in sexual intercourse, it is not always possible to infer this from the literature. A commonly measured variable of analysis is 'sexual activity'. Usually this is equated with engaging in sexual intercourse, but sometimes the term is not explicitly defined. Any definitions given will be stated and justifications for utilising particular terminology explored.

Themes

Sexuality in later-life is typically discussed under one or more of the following subject headings:

1. Behavioural: i.e. establishing rates and correlates of sexual activity in later-life.
2. Physiological: i.e. examining physical age-related changes in sexual interest and activity in later-life, including the impact of conditions which are increasingly common in later-life, such as diabetes and dementia, upon sexual behaviour.
3. Practical: i.e. exploring the implications of the continuation of sexual activity in later-life for health professionals involved in the care of older people.

The bulk of this review will be devoted to the first theme as it is of most relevance to this thesis. The history of addressing the issue of ageing and sexuality will be investigated, and key studies critically evaluated. The state of current knowledge will then be assessed and the integration of ageing and sexuality research within both gerontology and social science more generally discussed. Potential future research directions will then be suggested. The remainder of the review will consider the third theme as it relates to sexual health issues and health care provision in later-life.

Levels of sexual activity in later-life

Kinsey, Pomeroy and Martin (1948) were among the first empirically to challenge commonly held misconceptions concerning ageing and sexuality. They state that the dominant assumption among biologists and health care professionals at the time when their study was initiated was that males reach a peak of sexual 'capacity' in their thirties and forties, beyond which point such capacity 'drops away abruptly into the inactivity and complete impotence of old age' (p. 222). However, amongst a sample of 5,300 males aged 10-80 years, the authors identify no such abrupt cut-off, but rather a gradual decline in all measures of sexual activity. They conclude that they do not have enough evidence to isolate factors associated with this decline, but postulate that it could be related to physiological factors, psychological factors, reduced availability of partners, or preoccupation with 'social or business functions' (p. 229). Presumably this decline relates to individuals under the age of 80, because they later conclude that 'most males, but not all of them, would become so (impotent) if they all lived into their eighties' (p. 237). However, these conclusions cannot be regarded as definitive because they are derived from a sample which only included four males in their eighties. Indeed, subsequent research does appear to indicate that estimated rates of impotence are over-exaggerated (Gibson, 1992).

A comparable study of female sexual behaviour was initiated in the same research centre five years later (Kinsey, Pomeroy, Martin and Gebhard, 1953) and involved the analysis of data from 5,940 females aged up to 90 years. The conclusions of this study regarding the interaction of sexuality and ageing included that:

among females the median frequencies of those sexual activities, which are not dependent upon the male's initiation of socio-sexual contacts, remain more or less constant from the late teens into the fifties and sixties. (p. 715)

However, rates of marital coitus declined after 20 years of age for females, and by the age of 56-60 were approximately one-seventh of those recorded for the age groups 16-20. Rates of extra-marital coitus were also lowest for the youngest and oldest age groups interviewed. This indicates a possible discrepancy between sexual interest and sexual activity among older women, which is attributed by the authors to declining sexual function and interest amongst their male partners (see above). Amongst unmarried women, there was reported to be a gradual decline in sexual activity after age 40. However, measures of activity included masturbation, 'petting' and 'nocturnal orgasms' and it is unclear what proportion of unmarried women were actually engaging in sexual intercourse. Furthermore, all conclusions concerning sexuality and ageing must again be regarded as tentative, as only a small proportion of the female sample were in the older age bandings (n=214 over 50; n=46 over 60; n=10 over 70).

In addition to problems relating to a small sample size, further criticisms have been leveled at Kinsey's conclusions concerning the interaction between ageing and sexuality on the grounds that these were based upon a cross-sectionally derived sample. It is argued that a longitudinal design is more suited to explore the interaction between ageing and sexuality because of the confounding nature of cohort effects (George and Weiler, 1981).

However, despite these identified flaws, Kinsey's study did at least acknowledge the sexuality of older people and provide a reference for future

study. Indeed, very few of the human behaviour studies subsequently undertaken in either the US or the UK included anyone over the age of 60 (e.g. Wellings, Field, Johnson and Wadsworth, 1994; Laumann, Gagnon, Michael and Michaels, 1994).

One of the most influential sexual behaviour projects undertaken subsequent to Kinsey was initiated by Masters and Johnson, although again not many older individuals were included. In their two books, *Human Sexual Response* (1966) and *Human Sexual Inadequacy* (1970), the authors aimed to explore the nature and causes of possible sexual dysfunction at all ages. Findings were derived from a sample of 382 female and 312 male participants aged 18-89 years old who were subject to a series of laboratory tests. Research with 34 women and 39 men over the age of 50 led the authors to challenge the common preconception that physiological ageing processes preclude sexual activity in later-life, and even stressed the potential *benefits* of ageing on sexual response. A further important conclusion was that the most common causes of sexual dysfunction in later-life are socio-cultural and not physiological as widely believed.

This potential for continued sexual relations in old age was explored in more detail by researchers working at the Duke University Center for the Study of Aging. Their research is of special interest because of both its longitudinal design and the fact that it has been termed the most comprehensive study undertaken to date (Diokono, Brown and Herzog, 1990). It was set up in 1954 to quantify levels of sexual activity and interest in later-life (Verwoerd, Pfeiffer and Wang, 1969), based on a sample of 254 men and women aged between 60 and 94 years at baseline. Participants were interviewed between 1955 and 1957

(study I), 1959 and 1961 (study II) and 1959 to 1961 (study III). A longitudinal analysis of data from all research stages indicated that observed sexual behaviour patterns were related to many factors. Engaging in sexual intercourse was found to be associated with being married, being in good general health, and being sexually active and interested earlier in the lifecourse. In addition, very different patterns of sexual behaviour were reported by men and women, with

the intensity, presence, or absence of sexual interest and activity among elderly women....primarily.....(reflecting) the availability of a socially sanctioned, sexually capable partner. (p. 1262)

It was concluded that, over time, sexual interest remains fairly stable, but sexual activity (defined as sexual intercourse) declines. Reasons for this discrepancy were not fully examined, but have been attributed to worsening general health, psychological factors, and a dearth of suitable partners (Barrow, 1992).

The researchers involved in this project initiated a second longitudinal study, which aimed to clarify some of the findings reported above (Pfeiffer, Verwoerd and Davis, 1972). This study involved data collection from middle-aged and elderly participants, aged 46 to 71 years (n=502). This study is particularly noteworthy as it is the first known study of this scale to attempt to generate a random sample. However, the primary source of participants was health insurance lists, and as such the sample group was obviously not fully representative of the general population as those without medical insurance were excluded (i.e. individuals from lower socio-economic classes).

Notable findings from this study included an identified gender discrepancy in levels of sexual interest and behaviour for all age groups surveyed. Indeed, where sexual intercourse between married partners had ceased

(for 12% of men and 44% of women) this was most frequently attributed to the man, even when death of a spouse and separation from a spouse were excluded from the analyses. The authors concluded that this finding confirms their earlier study which showed that, for older people involved in a married relationship, it is typically the man who is responsible for ceasing sexual relations.

These data were further re-analysed by George and Weiler (1981), who studied both aggregate and intra-individual levels of sexual activity within this sample group, concluding that levels of sexual activity amongst older people do not decline to the extent that was previously believed. Rather, the identification of cohort differences in sexual interest and activity led the authors to conclude that these may be more pronounced than ageing effects *per se*. The implication of this is that any study of later-life sexuality cannot be generalised beyond the cohort under investigation, a finding which will be discussed in more detail later.

The next large-scale study to be undertaken was again initiated within the US, and was considered to involve the largest sample ever assembled for a geriatric sexuality study (Brecher, 1984). Participants were subscribers to the Consumers Union publication who responded to an advertisement for volunteers to be involved in a later-life sexuality study. Just under half (41.6%) of individuals who responded to the advertisement returned questionnaires of a suitable standard for analysis. The final sample included 4,246 men and women aged 50 – 93 years who completed self-administered questionnaires involving candid questions about their sexuality.

A more diverse range of relationship patterns was explored than in previous studies, including marital, non-marital, extra-marital and post-marital

sexual partnerships. Various behaviours, attitudes and beliefs were examined, and pertinent data elicited relating to sexual partnerships amongst divorced and widowed individuals. Findings included: i) that sex was rated as more important for men than women within marriage; ii) that unmarried men and women who are sexually active after the age of 50 report greater life satisfaction than those who are not sexually active; iii) that more men than women have been involved in a gay relationship after age 50; iv) that, while fewer men and women are sexually active (including engaging in sexual intercourse) in their eighties than in younger age groupings studied, a significant proportion are sexually active (40% of women and 60% of men aged 80 years and older in this sample); and v) that men are more likely than women to have extra-marital relationships. Furthermore, from these data Brecher concludes that older people do engage in 'risky' sexual activities, including sexual intercourse with people who are not well known to them, with prostitutes, and extra-marital relationships. Unfortunately, no questions were included concerning condom use and experience of STD, presumably because the study was initiated prior to the AIDS epidemic.

Overall, Brecher states that:

The panorama of love, sex and aging here presented is far richer and more diverse than the stereotype of life after 50, or than the view presented by earlier studies of aging. (p. 17)

However, given that these findings were derived from a convenience sample, it is unclear whether they are representative of the general population as a whole. Indeed, this is a limitation of the majority of later-life sexuality studies

undertaken to date. Typically, study participants are recruited from residential homes (e.g. Bretschneider and McCoy, 1988; Bullard-Poe, Powell and Mulligan 1994; Mulligan and Palguta, 1991), clinic populations (Weizman and Hart, 1987), retirement fund databases (Vallery-Masson, Valleron and Poitrenaud, 1981), male veterans (Mulligan and Moss, 1991), or respondents to advertisements for study volunteers (Kinsey, Pomeroy and Martin, 1948; Kinsey, Pomeroy, Martin and Gebhard, 1953; Masters and Johnson, 1966; Masters and Johnson, 1970). Even the second wave Duke longitudinal study (Pfeiffer, Verwoerd and Davis, 1972), which has been recognised as recruiting a more representative sample than previous research, has been seen to exclude individuals from low socio-economic classes.

This reliance upon convenience samples was recognised by Diokono, Brown and Herzog (1990), who initiated a community-based study involving randomly selected households in Michigan, US. The final sample included 1,956 participants aged 60 years or older, who were interviewed as part of a clinical evaluation of ageing, including items on sexuality. The authors estimated that approximately 73% of married men and 56% of married women were currently 'sexually active' (the term is not defined). These figures dropped to 31% of unmarried men and only 5% of unmarried women. Factors associated with being sexually active included being male, being married, drinking coffee regularly and not having health problems.

Another recent study that warrants discussion was undertaken by Matthias, Lubben, Atchison and Schweitzer (1997), involving a sample of 1,216 individuals over the age of 70 who were initially recruited as participants in a Medicare screening programme. This longitudinal study found that 29.5% of the

sample had been sexually active in the last month, and that married individuals were six times more likely than unmarried individuals to be currently sexually active. Additional predictors of being sexually active included being male, having more education, being younger and having good social networks. It was unclear whether being currently sexually active was taken as engaging in sexual intercourse as the specific question asked was “During the past month have you had sexual relationships?”. However, this limitation was recognised by the authors, who further acknowledged that asking explicitly about sexual intercourse might not be appropriate with a sample of this age, although they do not explain why.

Correlates of sexual activity in later-life

Several factors have been identified above, and elsewhere in the literature, as being related to sexual activity in later-life (typically defined as engaging in sexual intercourse). These include being male (Verwoerd, Pfeiffer and Wang, 1969; Pfeiffer, Verwoerd and Davis, 1972; Bretschneider and McCoy, 1988; Diokono, Brown and Herzog, 1990; Matthias, Lubben, Atchison and Schweitzer, 1997), being in a ‘young elderly’ age banding (i.e. 50 – 70 years) (Pfeiffer, Verwoerd and Davis, 1972; Marsiglio and Donnelly, 1991; Mulligan and Moss, 1991; Thomas, 1991; Matthias, Lubben, Atchison and Schweitzer 1997), being married (Verwoerd, Pfeiffer and Wang, 1969; Diokono, Brown and Herzog, 1990; Matthias, Lubben, Atchison and Schweitzer 1997), being in good physical and mental health (Verwoerd, Pfeiffer and Wang, 1969;

Diokono, Brown and Herzog, 1990; Mooradian and Grieff, 1990; Mooradian, 1991), being well educated (Matthias, Lubben, Atchison and Schweitzer, 1997), having a good social network (Matthias, Lubben, Atchison and Schweitzer, 1997) and being sexually active and interested when younger (Verwoerd, Pfeiffer and Wang, 1969; Martin, 1981).

However, it has been recognised (Matthias, Lubben, Atchison and Schweitzer, 1997) that each of these variables are inconsistent predictors of sexual activity in later-life, which may be due to differences in study design and sample age. Furthermore, the use of different participant recruitment techniques may also have impacted upon study findings.

Gay ageing

A brief discussion will now follow concerning an often ignored aspect of later-life sexuality, namely gay ageing. It is estimated that 10% of the general population is gay (Reinish and Beasley, 1990), indicating that there are potentially 1.6 million gay individuals in the UK aged over 50 years (OPCS, 1991). However, very little is known about this sub-population, and there are no known UK surveys of sexual activity amongst older gay people.

It is especially important to consider older gay people in the context of later-life sexual health issues because rates of STD infection, including HIV/AIDS, are known to be relatively high among gay men and, although STD levels are low among lesbians, it is known that STD transmission can occur from woman to woman (Edwards and Thin, 1990). Men having sex with men

remains the predominant mode of HIV transmission for individuals over the age of 50 in the UK and data detailing cumulative AIDS cases to the end of 1997 show that three-quarters of cases diagnosed in men over the age of 50 were transmitted through men having sex with men (PHLS, 1998).

US-based studies have indicated that older gay men may not adopt safer sexual practices because they perceive HIV/AIDS (as well as other STDs) as a young man's disease (Grossman, 1995). Furthermore, they may be isolated from the social 'scene', which is often the target for safe sex educational interventions, and so may not be exposed to sexual health promotions.

Although further studies within the area of gay ageing have been undertaken (e.g. Taylor and Robertson, 1994; Slusher, Mayer and Dunkle, 1996; Quam and Whitford, 1992), few have focused specifically upon STD-related issues. Overall, it is worth noting that if older heterosexuals are invisible within sexuality research, older gay men and women are doubly so.

Later-life sexuality: summary

It has been seen that people have the potential to remain sexually active into very old age, and that engaging in sexual intercourse in later-life is related to a variety of socio-demographic and health related variables. However, it is important to reiterate that these conclusions have, for the most part, been derived from US samples of older people. Therefore, findings related to socio-cultural aspects of later-life sexuality must be explored within a UK context before definitive conclusions regarding sexual behaviours amongst older UK residents

can be made. However no population studies investigating levels and correlates of sexual activity could be identified within the UK literature. Indeed, two recent large-scale studies initiated in response to the AIDS pandemic excluded older people.

Sexual Behaviour and AIDS in Britain (Knox, McArthur and Simons, 1993) and *The National Survey of Sexual Attitudes and Lifestyles* (NSSAL; Wellings, Field, Johnson and Wadsworth, 1994) both produced important data pertaining to the sexual behaviour of the British population. However, data which could have significantly advanced the field of ageing and sexuality were not collected because of a sample age cut-off of 59 years (Wellings, Field, Johnson and Wadsworth, 1994) and adoption of a 'place of work' sampling frame (Knox, McArthur and Simons, 1993).

The authors of the NSSAL justify this by claiming that:

many of the topics for which data were collected are known not to affect older people greatlyIntrusion into this personal area of life was therefore less justified for older people.
(p. 23)

However, as has been seen, there would seem to be insufficient research to state categorically that these topics do not affect older people. Furthermore, it is somewhat ironic that before these studies were commissioned, data drawn from Kinsey's research (Kinsey, Pomeroy and Martin, 1948; Kinsey, Pomeroy, Martin and Gebhard, 1953) were being used to predict patterns and rates of HIV transmission (Turner, Danella and Rogers, 1995). Yet, even the youngest individuals from Kinsey's sample would have been considered too old for inclusion in this national survey.

Similarly, one of the large US-based studies aiming to clarify issues surrounding HIV transmission (Laumann, Gagnon, Michaels and Michaels, 1994) did not include participants over the age of 60. However, two national US studies which did not limit the age of their sample in this way could be identified (Leigh, Temple and Trocki, 1993; Stall and Catania, 1994). The results of these studies will be discussed in more detail below in relation to sexual risk practices (see Section 1.3).

These latter studies appear to be the exception to the rule and it must be reiterated that there are no known national studies of sexual behaviour undertaken within the UK including individuals over the age of 60. Potential barriers to such research may include the assumption that older people do not engage in sexual activity. This assumption is supported by LaTorre and Kear (1977) in their study of attitudes towards ageing and sexuality amongst both students and nursing home staff. It was identified that an older couple having a sexual relationship were perceived as less credible than a sexual relationship between a younger couple. They concluded that the guiding opinion amongst study participants was that older people *do not* have sexual relations.

A further barrier to research appears to be the perceived difficulties of conducting sexuality research with an older sample group. Pointon (1997), for example, states that

studies of sexuality in later-life tend to be methodologically difficult because of the topic's sensitivity. (p. 6)

The attitude that older people would be embarrassed to be asked about sex is reiterated elsewhere (Rybash, Roodin and Santrock, 1991; Schlesinger, 1996),

although there is little empirical evidence that this is the case. Indeed, a recent postal lifestyle survey of all age individuals including one sexual health item elicited an age-independent response rate of 53% for the first screening and 70% for the second screening (Barker and Cooper, 1996). However, this response rate may have been age-independent because the item asked which contraception participants used¹ and as such was not relevant to the experiences of most older people. Nevertheless, more research is needed to explore the most effective ways of researching issues relating to sexuality with older populations.

Finally, it is likely that ageism has also influenced the amount of research undertaken with older people. It has been recognised that older people are regularly excluded from clinic trials (Bugeja, Kumar and Banerjee, 1997), and that ageism is widespread within contemporary society in general (Greengross, Murphy, Quam, Rochon and Smith, 1997). Thus, it is likely that the implications of being sexually active, and specifically in engaging in 'risky' sexual behaviours, are considered to be less important for older people than for younger people, and that this belief has influenced the research agenda. Indeed, a study of sexual health promotion in Canada identified that individuals over the age of 40 were consistently rated as the lowest priority for education by 42 public health units (Sahai and Demeyere, 1996).

Furthermore, within all aspects of ageing and sexuality research, there is a need for a more broadly defined research focus. Indeed, although the pace of research in this field is increasing, a review of the major studies to date reveals

¹ The exact wording of the question was: 'If you have had a sexual partner in the past 12 months please indicate below the type of contraception you and your partner regularly use (you may tick more than one box). The following options were given: None, Rhythm (safe period) method, Pill, Condom, Femidom, Coil, Cap, Withdrawal, Vasectomy/Female sterilisation/Hysterectomy, Post menopause, Other - please give details and Doesn't apply to me.' (Barker and Cooper, 1996, p. 50).

that analyses have not moved beyond establishing whether older people are sexually active. Although this narrow focus is warranted to some extent by the general neglect of this subject area, more sophisticated analyses should now be demanded. Having established that older individuals have sexual relationships, the nature of these relationships should be explored in more detail.

Future research directions

This research field should be encouraged to develop in two ways. Firstly, gerontologists should become more aware of the significance of studying sexuality as an important facet of ageing. Indeed, this may be encouraged by the 'greying' of Western populations and cohort changes in attitudes towards sexuality amongst the older population.

Secondly, researchers working in the domain of sexuality research should recognise that, as the studies above have shown, sexual activity does not cease in later-life. If this two-fold marginalisation of the sexuality of older people were tackled from both sides, the benefits of multi-disciplinary research would be reaped. Within social science research, this could easily be achieved by including older people within supposed 'general population studies', such as the two just discussed.

It is to be hoped that ageism does not mask the fact that over half a century of research has shown that older people have sexual relations. The need is now for more sophisticated analyses, incorporating a more broadly defined understanding of sexuality, as well as the development of a conceptually sound

methodological and theoretical framework. It is no longer acceptable, for example, to make conclusions concerning the interaction of sexuality and ageing based on cross-sectional data. Furthermore, a theoretical base underpinning research in this area must be developed, given that any brief allusions made to theoretical stances in the literature are often so out of date as to be completely disregarded (see, for example, LaTorre and Kear's (1977) discussion of disengagement theory).

Although this review will continue to examine the particular issue of sexual health in later-life, and argue for specific theoretical and methodological advancements within this particular context, many other directions have been suggested within all three research 'themes' identified earlier (for example, see Gibson, 1992). Indeed, it is now time to build upon what is already known, not to replicate it.

1.3. Sexual Risk-taking in Later-life

Introduction

Having established that people often engage in sexual activity into very late life, the question of whether this age group is at risk of STDs will now be addressed. Literature focusing on this issue will be reviewed, with attention paid to research specific to this age group as well as general population studies which include older participants. This review will be preceded by a summary of behaviours of interest within this context, and the term sexual 'risk-taking' will be defined.

Sexual risk-taking defined

Risk-taking has been studied with reference to various aspects of health behaviour, focusing mainly on those practices which have the potential to cause illness and disease, such as smoking, excessive alcohol consumption and the use of illicit drugs. There was little significant research focusing specifically on sexual 'risk' until the emergence of HIV as a public health threat in the mid-1980s, although a substantial amount of work has been undertaken in this relatively short period of time, leading to important theoretical and methodological advances in this subject field. Nevertheless, although the bulk of this literature is relevant to the study of STD-related risk behaviours in general, the existence of epidemiological and social factors unique to HIV means that

conclusions specific to HIV-related risk-taking may not be strictly comparable.

However, before a more detailed discussion of sexual risk-taking, it is important that the term is adequately defined. This is especially important given that it is a concept which, although absorbed into general usage, is rarely explored in any detail. At the most basic level it is obvious that the term 'sexual risk', as used within this context, refers to exposure to STD, which is a function of unprotected sexual intercourse with an infected individual. Precise determinants of this 'risk' therefore include:

number of partners per unit of time, number and nature of sexual acts (oral, anal, vaginal sex), use of protective measures (condoms, spermicides), partner selection, probability of infection in a partner (which depends on behavior and the availability of treatment), prevalence of STD infections in the population from which partners are chosen, and health care behavior (such as early seeking of treatment, which may forestall serious disease and curtail infectiousness).

(Widdus, Meheus and Short, 1990, p. 183)

Although these authors further note that specific 'risk groups' can be identified, highlighting sub-populations with a high rate of STD prevalence such as adolescents, gay men, prostitutes and international travelers, they stress that such a concept is of limited use. Fundamentally, it can result in the stigmatization of certain groups, as has been seen in the case of AIDS. It can further lead to an individual's levels of risk for infection going unrecognised by themselves and health care professionals if they do not belong to a 'high risk group' (Briggs, Patnaude, Scavron, Whelan and Etkind, 1995).

Thus, a more useful classification is provided in the concept of 'risk behaviours' i.e. behaviours that place an individual at increased risk of exposure

to STD (see above). As Widdus, Meheus and Short recognise:

while these (risk behaviors) may be more prevalent in some groups defined by other criteria, (such as involvement in prostitution, either as prostitute or client), they occur to a greater or a lesser degree throughout society and not necessarily uniformly or only within risk groups. (p. 183)

Sexual risk and older individuals

Having clarified the meaning of sexual risk-taking, this concept can be explored in more detail with relation to older individuals. Data will largely be drawn from the US because of the dearth of UK-based research in this area. However, evidence of risk-taking patterns of behaviour within the older UK population will be explored by examining results from the oldest age category of participants in the NSSAL (Wellings, Wadsworth, Field and Johnson, 1994). The bulk of literature addressing sexual risk-taking in later-life is derived from the HIV/AIDS literature as no STD-specific work in this area could be identified.

Although one of the largest US sexual behaviour studies initiated in response to the AIDS epidemic did not include individuals over 60 years of age (Laumann, Gagnon, Michaels and Michaels, 1994), two other national surveys of sexual behaviour focusing on sexual risk-taking behaviours had a less rigid age cut-off. The National AIDS Behavioral Study (NABS), for example, included individuals aged up to 75 years, and, to allow more statistically sound analysis of data relating to the older age group, over-sampled those over 50 years (Stall and Catania, 1994). Overall, the study involved 2,673 individuals randomly selected from 48 US states and 11,429 respondents from cities with a higher than

average proportion of diagnosed HIV and AIDS cases (total n=14,102). Individuals over the age of 50 represented 22.8% of total participants (n=3,219). Interviews were undertaken by telephone and information was gathered concerning the prevalence of HIV risk factors. Risk factors were defined as: having had two or more sexual partners in the last 12 months, being a blood transfusion recipient between 1978 and 1984, being haemophiliac (unless recently tested HIV-negative) and reporting a risky sexual partner (HIV-positive, intravenous drug user in the last five years, non-monogamous, transfusion recipient or hemophiliac). Basic socio-demographic data were also collected.

The findings of this study were analysed by Stall and Catania (1994), with specific reference to participants over the age of 50. They identified that approximately 10% of the older sample had at least one risk factor for HIV infection and that for approximately 5.5% of older nationally recruited participants, and 7.5% of the high risk cities recruited participants, this was a result of their sexual behaviour. In addition, at risk individuals of this age were one-sixth as likely to use condoms during sex, and one-fifth as likely to have been tested for HIV, when compared to risk-takers in their twenties.

Binson, Pollack and Catania (1997) further examined these data sets with specific reference to HIV risk behaviours among female participants aged 40-75 years. Key findings included the fact that 8% of women in the national sample, and 9% of women in the high risk cities sample, reported at least one sexual risk factor (defined as above), but that 90% of this 'high risk' group did not consider themselves to be at risk of contracting HIV. Divorced and separated women were more likely than widowed, married or never married women to report such a risk factor, although married and never married women reported similar levels

of risk. Furthermore, 13% of the national sample, and 22% of the high risk cities sample with a primary sex partner did not know if their partner had any risk factors for HIV. This finding is especially important given that 90% of the national sample and 75% of the high risk cities sample never used condoms.

A second national US study which warrants discussion was undertaken by Leigh, Temple and Trocki (1993), and included a randomly selected sample aged 18 years and older (n=2,058). Data were collected by interview, apart from sexual behaviour information, which was recorded in self-administered questionnaires. Respondents over the age of 70 were the least likely group to have had sexual intercourse in the last five years, although 44.7% stated that they had had sex during this period (the comparable figures for individuals aged 50-59 and 60-69 were 92.7% and 74.6% respectively). Approximately 10% of those aged 50-59, 9% of those aged 60-69 and 8% of participants over 70 reported more than two partners during the past five years. Only a small minority of these individuals stated that they consistently used condoms, and this age group in general was less likely to consider that HIV/AIDS had had an impact on their sexual behaviour.

These studies therefore identify that older Americans engage in sexual behaviour that place them at risk of contracting STD and HIV/AIDS. Unfortunately, comparable studies have not been undertaken within the UK. However, the analysis of data derived from the NSSAL (Wellings, Field, Johnson and Wadsworth, 1994) for the oldest age group surveyed indicates that older people do engage in risky sexual behaviour. Indeed, study participants aged 45-59 reported having had more than one sexual partner in the last year (men 5.4%; women 1.8%), rising to 13.7% of men and 6.8% of women in the last

five years. Members of this group of older individuals with multiple sexual partners were predominantly male and unmarried. In addition, 1.0% of males aged 45-59 stated that they had had sexual intercourse with a commercial sex worker within the past five years. Overall, however, condom use was lowest in this oldest age group, with only approximately one-fifth reporting any condom use within the past year.

Summary

The studies presented above indicate that older people do engage in behaviour that place them at risk of contracting STDs, with approximately 5.5% - 7.5% of an American sample aged 50 years and older reporting at least one sexual risk factor for HIV. Comparable data concerning prevalence of sexual risk-taking amongst this age group are not currently available in the UK. However, evidence from studies presented above indicates that condom use is universally lower among this age group in both the UK and the US, with obvious implications for the prevalence of risk-taking. A further interesting finding related to the higher proportion of men than women engaging in sexual risk-taking, as well as the high proportion of women in an American study reporting that they did not know what HIV related risks their primary sex partner took.

Evidence of risk-taking behaviour will now be explored in relation to literature examining incidence and prevalence of STD in older populations.

1.4. STD-related Health Issues and Older People

Introduction

STD-related health issues in later-life will now be explored, focusing initially upon the UK literature, followed by an analysis of US-based studies and reviews. HIV/AIDS will be considered in a separate section because of the unique transmission dynamics of this condition and the way in which it has been researched.

UK research to date

Very little has been written within the UK about the incidence of STD amongst older people, although interest in the area seems to be increasing, partly following the advent of AIDS. Research to date can be characterised as either undertaken within a general medical setting such as a hospital, or within a specialised genitourinary medicine (GUM) clinic. Work which focuses directly on older people will be discussed first, but that which includes older people in all-age general population studies will also be included.

Two original studies have been identified which draw attention to STD in patients presenting at general hospitals for unrelated disorders. Woolley and Anderson (1986) describe the routine testing for syphilis of all new patients over the age of 55 attending the department of medicine and rehabilitation in a city hospital. Of the 1,820 new patients in this age group between 1982 to 1985

(1,170 women and 650 men), 45 (2.5%) were positive on one of the three tests used. The author concludes that:

there remains a large group of patients with undiagnosed syphilis that will only be picked up by routine screening. (p. 1034)

It is, however, unfortunate that nothing is known about the demographic and clinical characteristics of these patients other than their age group and diagnosis. Furthermore, although it was known that ten of those testing positive had already been treated for syphilis between 1920 and 1962, the date of contracting the disease was unknown for the remainder, therefore it is not known whether these data reflect recent sexual transmission or not. It is, perhaps, a reflection of dominant assumptions that older people are not sexually active that this issue was not explored at all. However, this information would have been essential for contact tracing, which is recommended for all cases of early stage infectious syphilis (Adler, 1995).

A similar study by Chattopadhyay (1992) identifies the existence of chlamydia trachomatis in elderly people. The analysis of 294 urine samples taken from a random sample of all-age in-patients at a general hospital resulted in the identification of ten individuals with the infection, two of whom were over the age of 65. The author thus asks the question 'Do we know the true incidence of chlamydia in the elderly population?' (p. 194).

Although these two studies do illustrate that older people contract STDs, they have several limitations. Firstly, both are small scale and uni-centred and thus their findings may not be generalisable to other settings. Secondly, very little is reported about the infected individuals in terms of their demographic and

clinical attributes. Furthermore, the authors only report on testing for one STD, despite the fact that a significant proportion of individuals are known to have two or more infections concurrently (Adler, 1995). This has ethical implications, as information is not given as to whether infected individuals were given a thorough clinical evaluation post diagnosis. These identified limitations, coupled with the seemingly low priority given to this subject area within the literature, may explain why both were reported in letters rather than in original research papers. Nevertheless, it is interesting that undiagnosed cases of STD were identified.

More detailed information concerning STD in older populations is provided by UK studies focusing on the sexual health of older people attending GUM clinics, which are thought to predominantly attract individuals with STD-related concerns (Wellings, Field, Johnson and Wadsworth, 1994). The characteristics and role of GUM clinics will be explored in more detail later (see Section 1.7.). Three studies exploring attendance at GUM clinics by older people can be identified, all of which share several characteristics. Notably they are all small-scale and uni-centred and use patient case note analysis as their main methodology.

The earliest study is by Kohiyar (1983), who investigated the numbers and diagnoses of patients over retirement age (65 for men and 60 for women) attending the GUM clinic at St. Thomas's Hospital in London during 1980/1981. He identified that 65 individuals (51 men and 14 women) attended this clinic during a one year period, representing 0.4% of total clinic attendance. The majority had self-referred to the clinic (73.3%), while 6.2% had been referred by their GP, 2.5% referred by specialist hospital departments, 14.3% had received contact slips and 3.7% had been referred by 'other' sources. The ethnicity of the

sample was recorded, with 80% defined as Caucasian, 18.5% as West Indian and 1.5% as Arab. However, more detailed socio-demographic data were not presented.

An analysis of the sexual histories of the sample group led the author to conclude that:

these patients tend to carry their earlier sexual patterns at least into the early period of senescence. (p. 127)

Thus, this study would appear to support the hypothesis that sexual risk-taking practices amongst older people reflects a continuation of patterns of behaviour established earlier in the life course.

Many of the themes identified by the above study are further explored by Opaneye (1991), whose analysis of older male attenders at a GUM clinic in Birmingham provides additional evidence for the existence of STD in men of this age (no justification is given for the exclusion of women from this study). The author draws attention to the ethnic stratification of the sample population (all of whom were over the age of 60); of the eighty seven patients comprising the sample, 67.8% were Caucasian, 20.7% Afro-Caribbean, and 11.5% Asian. Although this would appear to be a high proportion of ethnic minority attenders, the extent to which this reflects stratification in younger clinic attenders, or indeed the ethnic composition of the region as a whole is unclear.

Furthermore, although attention is drawn to the fact that, out of the nineteen patients diagnosed with syphilis, 'a significant proportion' (p.7) were Afro-Caribbean, confounding variables such as socio-economic class are not considered. Thus, it is simplistic for Opaneye to conclude that sexual health

education is needed for:

younger members of the ethnic minority hopefully to prevent the mistakes of the older generation. (p.7)

Not only does this negate the possibility of educating older generations, but it also fails to consider cultural factors which may mediate between messages about safer practices and actual sexual activity.

The marital status of the sample was also given; 54% were married, 24.1% single, 10.3% divorced and 6.9% widowed. Marital status was not given for the 4.6% of the sample defined as gay. This appears to indicate that there is an over-representation of unmarried individuals within the sample group. However, it is again unclear to what extent this finding is unique to this clinic, and indeed to this sample group, which excludes women.

Little is known of the clinical characteristics of these older male GUM clinic attenders, although it is recorded that 18.4% had previously been diagnosed with an STD. More detailed information concerning sexual histories would be needed, though, to ascertain whether these individuals are 'life time risk-takers' or not.

The final study to be considered in this section is a case note review of 242 patients over the age of 60 (191 men; 51 women) attending two GUM clinics in the Trent region of England during a two year period (1988-1989) (Rogstad and Bignell, 1991). It would appear that men are proportionately over-represented when compared to women within the clinic. However, this gender imbalance is not explored.

The finding concerning the treatment pathways of older attenders

supports Kohiyar (1983) who identified that most older GUM clinic attenders self-refer to the clinic. Indeed, 73% of the Trent sample self-referred to the clinic and:

their general practitioners were not aware of their concerns or referral. (p. 377)

The reasons for this are unknown, as is the extent to which it reflects treatment patterns in other age groups.

It was also interesting that a relatively large proportion of this sample reported 'risky' sexual behaviours. Approximately one-quarter of older clinic attenders (28.1%) had had casual sexual relations, 2.1% had paid for sex abroad and 2.5% had participated in casual ano-receptive intercourse without a condom. A further 7.8% of men were participating concurrently in both marital and extra-marital sexual relationships. Such findings reinforce the notion that older people engage in behaviour that places them at risk of STDs, including HIV/AIDS.

However, this study again fails to provide enough information to develop a detailed demographic and clinical profile of older GUM clinic attenders. In order to establish whether older GUM clinic attenders represent a unique sub-population within the clinic, as well as within the general population of their age group, more detailed analyses of larger samples would have to be undertaken, including comparisons with younger clinic attenders and relevant census statistics.

US literature

Further evidence for the presence of STDs within older populations can be drawn from the American literature. Although this too is limited, there is one study in particular which warrants attention. Berinstein and DeHertogh (1992) retrospectively analysed the case histories of all patients over 60 diagnosed with primary, secondary and early latent syphilis attending Mount Sinai Hospital and the outpatient STD clinic of the Hartford Health Department during a five year period (January 1985 to June 1990). Their final sample consisted of 35 individuals diagnosed with syphilis, of whom only two were female. Further demographic information pertained to the ethnicity of the sample: 71.4% individuals were black, 14.3% were white, and 14.3% were Hispanic. This represents a much higher proportion of ethnic minorities diagnosed with STD than shown in the UK studies and is likely in part to reflect the differing ethnic composition of the US population. However, explanations are not offered either for this stratification, or for the gender ratio of patients.

During the five year census period of their study, the authors identified a 169% increase in rates of syphilis among the elderly population, a figure which they state reflects trends within the population as a whole. Furthermore, 19 of the individuals presenting with syphilis had a previous history of STD. This finding would appear to support the conclusion that engaging in risk-taking behaviour is a lifelong phenomenon for at least a proportion of older people. Regarding sexual histories, of the 24 individuals for whom more detailed sexual histories were taken, ten recorded multiple sexual partners and five contact with prostitutes. Furthermore, two were intravenous drug users. However, despite this, only four individuals had ever been tested for HIV, even though many more

would appear to have been at risk of infection. Thus the authors underline the importance of routine testing among all individuals presenting with another STD, regardless of age.

Our experience shows that not only are many elderly patients sexually active, but that a significant number of them engage in risky sexual practices, e.g. having sex with multiple partners or prostitutes. Older patients also need to be instructed that condoms provide protection against STDs, including HIV infection.
(p. 331)

The importance of educating older people about safe sexual practices in relation to STD is also discussed in a review by Talashek, Tichy and Epping (1990) who stress the importance of recognising that

the incidence of STDs in the elderly population is significant for both newly acquired diseases and residual complications from prior infections.
(p. 33)

Recent reviews of STD-related issues in later-life undertaken within the US have further drawn attention to the fact that not only is there evidence that older people engage in behaviour that places them at risk of contracting STDs, but that ageing can in fact lead to increased susceptibility to contracting such infections (Fletcher, 1995). This is due to immune response changes with age, the impact of underlying diseases that increase in prevalence with age (for example, diabetes), physiological changes and specific medications most frequently prescribed to older individuals. A further consideration for clinicians treating STD infection is highlighted, namely that drug dosages have been based upon clinical trials undertaken with younger people. As it is known that physiological age-related changes influence the impact of many types of drugs,

Fletcher stresses the importance of prescribing drugs for individuals with STD on an age-specific basis.

DeHertogh (1994) further recognises that health care professionals may be 'surprised' by the fact that older people contract STDs. This may be because ageist assumptions of which age groups are sexually active are prevalent within the medical profession, as well as within society at large. The result of this is likely to be that sexual histories are not taken from older patient, possibly resulting in missed or delayed diagnoses with significant implications for the care of the individual, as well as for the spread of infection to sexual partners.

Summary

Overall, the little research that has been undertaken in this subject area has been small-scale and lacking in a sound theoretical and methodological base. However, studies reviewed above have identified that small numbers of older people contract STDs and attend specialist GUM clinics. Both UK and US study participants reported 'risky' sexual behaviours and an interesting question posed, if not answered, was the extent to which older risk takers have engaged in such behaviours throughout their life course. Although definitive conclusions cannot be drawn as to the socio-demographic characteristics of older people diagnosed with STDs, as well as other GUM clinic attenders of this age, there is evidence that individuals from ethnic minority groups, men, and unmarried individuals may be over-represented within this group, compared to the general population of the same age group.

However, overall the need for additional research is obvious. Specific research areas to address within the UK context include a more detailed analysis of the socio-demographic and clinical characteristics of older GUM clinic attenders, which may help develop a greater understanding of the prevalence and determinants of sexual risk-taking in later-life.

1.5. HIV/AIDS and Older People

Introduction

The fact that approximately 12% of cases of AIDS and 7% of cases of HIV have been diagnosed in individuals over the age of 50 (PHLS, 1998) has prompted research on later-life sexual health issues. Although the current literature concerning different facets of HIV/AIDS infection with relation to older people is very limited when compared to the total literature on this subject, it still exceeds everything ever written on general STD infection in this age group.

However, the majority of literature is from the US, with only a few studies undertaken within the UK. Although the American literature is important and must be discussed, it is necessary to remember that cross-cultural differences do exist between the UK and the US with regards to many aspects of sexual behaviour (Johnson, Michael, Wadsworth, Feinleib and Laumann, 1997).

US literature

Original studies will be discussed first and key findings evaluated. A number of reviews will then be presented which give an overview of the topic.

US: original studies

Studies identifying the presence of HIV in older cohorts will be examined first. Research addressing the implications of HIV within older populations for both health care professionals and older people themselves will then be discussed.

Ship, Wolff and Selik (1991) analysed data routinely collected by the Center for Disease Control (CDC), aiming to compile a descriptive epidemiology of HIV and AIDS cases diagnosed among individuals over the age of 50. Comparisons were made with individuals under the age of 50 in order to identify any age-specific trends. Approximately 10% of AIDS diagnoses (n=11,984) up to December 1989 were identified as being in individuals over the age of 50, of whom 7.3% were aged 50-59 years (n=8,480), 2.4% were aged 60-69 years (n=2,741), and 0.7% (n=763) over 70 years. Exposure categories were distinct for older individuals, with those over 50 more likely to have acquired HIV by transfusion, or to have an indeterminable means of infection. However the majority of cases were transmitted homosexually for all ages under 70 years, while transmission heterosexually was also recognised as an important mode of transmission. The percentage of patients diagnosed in the same month as death rose sharply by age to 37% in those aged over 80 years.

The fact that older people were more likely to have an indeterminable mode of HIV transmission was attributed to reticence on the part of individuals of this age group to report information on sexual behaviour and intravenous drug use. This finding, coupled with the fact that there was an increase in diagnosis in the same month as death for older people, indicates a reluctance on the part of

health care professionals to explore sexual histories, or further to consider STD diagnoses among this age group.

However, overall results from this study may have been enhanced by the use of statistical testing to establish whether observed relationships, such as that between being older and mode of HIV transmission, were statistically significant. Furthermore, comparisons with census statistics could have identified any differences between the characteristics of individuals diagnosed with AIDS and the general population of the same age group.

The issue of under-diagnosis was also addressed by El-Sadr and Gettler (1995), who tested all individuals over the age of 60 who had died in the Harlem Hospital Center, New York for presence of the HIV antibody; patients diagnosed with HIV/AIDS prior to death were excluded from the study. A significant minority of those tested (5.05%; $n=13$) were found to be HIV-antibody positive, although this diagnosis had not previously been identified by hospital personnel. Indeed, none of these individuals had been tested for HIV, despite having risk factors for the virus, including intravenous drug use. Although it is stressed that these findings cannot be extrapolated to either the general population, or to other older hospital patients, this study does highlight that older people do contract HIV and that health care professionals do not appear to anticipate this.

Gordon and Thompson (1995) explored the characteristics of individuals over the age of 60 diagnosed with HIV or AIDS within a large urban hospital. They found that this group included over five times as many men as women, and that the primary risk factor for HIV/AIDS transmission was homosexual or bisexual intercourse. Furthermore, it was also identified that the majority of

patients presenting with characteristic HIV symptoms had not been tested for HIV immediately, but had waited a median of 3.1 months (range 1-10 months) before this was suggested by their doctor.

Similar analyses were reported by Ferro and Salit (1992) who provide data concerning the socio-demographic and clinical characteristics of patients aged over 55 diagnosed with HIV or AIDS within a large Canadian hospital. Older patients were matched with similarly diagnosed younger patients and any differences highlighted. Findings included the fact that an HIV diagnosis was made significantly later in older patients and that individuals of this age group were more likely to be infected by transfusion (although primary transmission route was homosexual/bisexual contact for all ages).

Having identified that HIV has the potential to affect a significant number of older Americans of both sexes, the implications of this for clinical practice have been explored. Martin, Colford, Ngo and Tager (1995), for example, highlighted that after 50 years of age survival time after diagnosis with HIV infection decreases, but can be improved by aggressive management. Furthermore, Piette, Wachtel, Mor and Mayer, (1995) found that older patients, independent of HIV disease stage, were significantly more likely to have a poorer quality of life (measured on a variety of physical and psychological health variables) following HIV diagnosis than younger patients.

US: review studies

A number of reviews have been carried out within the US looking at issues surrounding older people and HIV/AIDS. These reviews have been

targeted at gerontological nurses (Scura and Whipple, 1990; Whipple and Scura, 1989), social workers (Crisologo, Campbell and Forte, 1996; Linsk, 1994) and clinicians (Mack, Green, Goldberg and Fulton, 1990; Wallace, Paauw and Spach, 1993; Adler and Nagel, 1994; Woolery, 1997; Nocera, 1997). The majority of papers have been very general, but at least one focuses on a specific sub-population, namely older gay men (Grossman, 1995). Two books have also been written on the subject of older people and AIDS, providing a valuable synthesis of current thinking (Riley, Ory and Zablotsky, 1989; Nokes, 1996).

Summary

The studies and papers discussed above provide important information concerning AIDS/HIV and older people within a US and Canadian context. They confirm that older people living in the US and Canada do contract HIV infection and suggest that health care professionals have a low perception of risk of infection for individuals in this age group. However, these perceptions may be challenged by the growing body of literature exploring the implications of the presence of HIV/AIDS within older populations for health and social care professionals. That sexual modes of transmission are predominant for all ages (at least under 70 years), confirms reports that older Americans engage in risky sexual behaviour (see Section 1.3.).

However, significant research gaps can still be identified. Issues to address include the development of a population profile of older individuals with HIV/AIDS specifically focusing upon the distinctiveness of this group within the general population as a whole. Having ascertained whether there is an

identifiable segment of this older cohort in need of education concerning safe sexual practices, research is needed to establish the best means of providing this information so as to effect behaviour change. Although this would appear to represent a significant knowledge gap, it will be seen that the need for data is even more marked within the UK context.

UK literature

Very little has been written in the UK about HIV/AIDS and older adults. Only three original studies could be identified, all of which are very small-scale. Rickard (1995), for example, described the characteristics, living situations and carer support available for a sample of six HIV positive individuals over 55 years of age. She identified that these individuals experienced a high degree of social isolation and, because of their age, did not feel comfortable using general HIV services.

Similar findings are reported by Youdell, Warwick and Whitty (1995) in a study undertaken in collaboration with Age Concern. 30 individuals were interviewed, of whom five were living with HIV/AIDS, eight were partners or parents of people with HIV/AIDS and 17 were employed by statutory or voluntary services. Key recommendations included the tailoring of services more specifically to older people, the need for support for carers and a befriending scheme for older people with HIV/AIDS.

A more clinical perspective is adopted by McBride *et al* (1992) who present two case studies of HIV in patients aged 68 and 72. The authors stress

that these examples highlight the importance of getting away from preconceived notions of HIV risk groups, as well as having important clinical implications concerning management of HIV infection and AIDS in older patient groups. Similarly, O'Neill, Coakley, Walsh and O'Neill (1988) present a case study of a 73 year old who received a post-mortem diagnosis of HIV infection, and advise clinicians not to exclude a routine sexual history from their discussions with older patients.

Review articles have also been provided by Marr (1994a, 1994b) and George (1995), drawing attention to the need for additional research in this area. Age Concern have additionally produced a number of publications on the issue, including *A Crisis of Silence* (1995) and *HIV and AIDS and Older People* (Kaufmann, 1995). These publications include case studies taken from interviews with older people with HIV and AIDS and also specific information for people with AIDS, their carers, family and friends and health care professionals.

Summary

It has been seen that little research has been undertaken on the issue of AIDS and older people, and that which has tended to be within a US context, although UK studies have produced useful findings, including evidence that HIV/AIDS services may not be adequately meeting the needs of older patients. The need for further research in many areas has been highlighted. With regard to the study of STD infection in general, it must also be recognised that HIV/AIDS-related research is not directly comparable, firstly because of the non-sexual

modes of transmitting HIV, (even though it has been seen that over three quarters of HIV/AIDS in those of 50+ years is sexually transmitted, PHLS, 1998), and secondly, because of the cultural significance that the disease has acquired. However, it is important to discuss this literature because it contributes to our current, albeit inadequate, knowledge of risk-taking in later-life.

1.6. Analysing Existing Data Sets

Introduction

Having established that there is a dearth of literature concerning STD-related issues and older people, alternative data sources will be examined. Specifically, available data sets will be used to try and compile a descriptive epidemiology of STD in older people.

Workload statistics from GUM clinics

It has been a statutory requirement since 1917 for GUM clinics to return workload data to the Department of Health. The actual data collection form has been revised several times since its inception, most notably in 1988 by Dame Edith Körner as part of a larger review of government statistics (Simms, Hughes, Swan, Rogers and Catchpole, 1998). The responsibility for data collection has recently been taken over by the PHLS Communicable Disease Surveillance Centre (CDSC), which also manages the collation of HIV/AIDS statistics. It

produced its first GUM workload report in February 1998 covering the 1996 calendar year (Simms, Hughes, Swan, Rogers and Catchpole, 1998).

All conditions seen, whether requiring treatment or not, are recorded for every clinic attender. As each patient may be diagnosed with more than one condition per attendance, more cases are listed than actual individual attenders; in fact the overall number of attenders is not recorded. Further information is collected for people diagnosed with specified conditions, including age group, and for men, sexual orientation.

The data collected by these 'KC60' forms represent 'the primary data-set for the surveillance of STIs in England' (Simms, Hughes, Swan, Rogers and Catchpole, 1998, p. S2). They do not, however, reflect the true incidence of infection, as it is estimated that around 10% of patients receive treatment for STDs from sources other than GUM clinics (Waugh 1991), including their GP, family planning clinics and hospitals. Additional problems of using these data to provide estimates of the incidence and prevalence of STD in the community include the fact that some individuals who have contracted STDs may not present at health care facilities (Ross, 1995).

The use of GUM workload statistics for the analysis of STDs by age is limited by the fact that only a proportion of conditions seen are reported in this way. Furthermore, even these conditions are presented by crude age bandings, with older attenders recorded as either aged 45-64 or 65+. For the 1996 period the following data can be extracted as pertinent to levels of STD amongst older adults:

Table 1.6.1. New Cases seen, selected conditions, by sex and age: 1996

| Condition | All ages | | 45-64 | | 65+ | |
|--|----------|--------|-------|--------|------|--------|
| | Male | Female | Male | Female | Male | Female |
| Primary and secondary syphilis | 84 | 33 | 13 | 3 | 3 | 2 |
| Uncomplicated gonorrhoea (all) | 7,749 | 3902 | 300 | 51 | 9 | 2 |
| Uncomplicated gonorrhoea – homosexually acquired | 1,642 | n/a | 73 | n/a | 2 | n/a |
| Uncomplicated chlamydial infection | 13,694 | 18,163 | 329 | 154 | 28 | 11 |
| Genital herpes simplex (first attack) | 5,641 | 9,349 | 464 | 449 | 50 | 27 |
| Genital warts (first attack) | 27,101 | 26,636 | 1,286 | 849 | 107 | 49 |

Source: (Simms, Hughes, Swan, Rogers and Catchpole, 1998: Table 2, p. S3)

Little can be concluded from these statistics except that older people were diagnosed with these specific conditions at GUM clinics in 1996. It can be seen that more older men than older women are represented in these figures. Beyond this, however, a descriptive epidemiology of infection in this age group cannot be compiled by reference to these statistics.

Published AIDS/HIV statistics

Although statistics for HIV/AIDS cases seen in GUM clinics are provided by KC60 data of the sort summarised above, separate statistics are also produced by the Public Health Laboratory Service (PHLS) AIDS Centre. These returns are voluntary and confidential and are compiled from various sources, including clinician and microbiology reports of newly diagnosed HIV antibody positive individuals and returns to the Oxford Haemophilia Centre, the Institute of Child Health and the National Study of HIV in Pregnancy at the Royal College of Obstetrics and Gynaecology (PHLS, 1998). It must be recognised that only diagnosed cases of HIV and AIDS are included in this data-set, and that an unknown proportion of infection remains undiagnosed.

These data do, however, provide the most detailed information available about the epidemiology of this condition in the UK and are presented using more sensitive age bandings than those utilised on the KC60 return, as the incidence of HIV and AIDS is collated into five year age bands up to the age of 60 (Table 1.6.2.). These statistics reveal that 12% of cases of AIDS in men, and 5% of cases of AIDS in women have been in individuals over the age of 50. Similarly, 7% of diagnosed cases of HIV in men and 2% of cases of diagnosed HIV in women have been in individuals of this older age group.

It is important, nevertheless, to remember that not all cases of HIV infection are transmitted sexually. Important non-sexual modes of transmission include intravenous drug use, exposure to infected blood products and mother to infant transmission. However, the latter exposure category is obviously not of relevance to older individuals, while negligible numbers of people in this age group have been infected through the use of infected needles for intravenous

drug use (PHLS, 1998). Furthermore, although older people were disproportionately infected via blood products in the early stages of the epidemic, routine testing of all blood donation has eliminated this as a source of infection within the UK. The most recent quarterly statistics reveal that approximately three-quarters of both HIV and AIDS infection for individuals over the age of 50 is known to have been sexually transmitted.

Table 1.6.2. AIDS cases and HIV infection for individuals aged 50 and over at diagnosis, by sex.

| Age | AIDS | | | | HIV | | | |
|-----------------------|--------|-------|-------|------|--------|------|-------|------|
| | Men | | Women | | Men | | Women | |
| | n | (%) | n | (%) | n | (%) | n | (%) |
| All ages ² | 13,384 | n/a | 1,669 | n/a | 25,695 | n/a | 4,869 | n/a |
| 50-54 | 753 | (6%) | 63 | (2%) | 848 | (3%) | 67 | (1%) |
| 55-59 | 437 | (3%) | 18 | (1%) | 459 | (2%) | 46 | (1%) |
| 60-64 | 222 | (2%) | 16 | (1%) | 245 | (1%) | 19 | (0%) |
| 65+ | 135 | (1%) | 9 | (1%) | 177 | (1%) | 22 | (0%) |
| Total aged 50+ | 1,547 | (12%) | 106 | (5%) | 1,729 | (7%) | 154 | (2%) |

(Source: PHLS AIDS and STD Centre- Communicable Disease Surveillance Centre, and Scottish Centre for Infection & Environmental Health. Unpublished Quarterly Surveillance Tables No. 38, 97/4 Table 19).

There are two important observations that need to be made about these statistics. The first relates to the significantly higher proportion of men than women being diagnosed with both HIV and AIDS, the second relates to the higher proportion of individuals being diagnosed with AIDS than HIV.

That a higher number of men than women have been diagnosed with HIV and AIDS to date is typical of all age groups and relates to the fact that homosexually acquired infection remains the predominant mode of infection. Indeed, until the end of September 1997 69.7% of cases of AIDS, and 59.8% of cases of HIV, where mode of transmission was known, were reported to be transmitted through men having sex with men. For individuals over the age of 50 comparable figures were 71.0% for AIDS and 62.0% for HIV (PHLS, 1998. Tables No. 19, Table 21 and 38). The higher percentage of infection attributed to men having sex with men for this age group probably reflects a lower number of individuals infected by intravenous drug use.

However, this does not explain the lower *proportion* of older women being diagnosed with HIV and AIDS when compared with younger women. This may reflect many factors, including gender differences in age-specific trends in sexual behaviour. However, given the identified dearth of information concerning this topic, this is merely speculation.

Concerning the discrepancy between the proportion of individuals diagnosed with HIV compared with AIDS within the older age groups, tentative conclusions can be made drawing upon already presented literature exploring the prevalence of these conditions in later-life. Several authors (Ferro and Salit,

² The total excludes 21 individuals diagnosed with AIDS and 400 individuals diagnosed with HIV for whom age was unknown.

1992; Ship, Wolff and Selik, 1991; El-Sadr and Gettler, 1995) have stated that individuals over the age of 50 are far more likely than younger patients to be diagnosed with AIDS in the month prior to death, without having received a previous HIV diagnosis, or for AIDS not even to be diagnosed until autopsy. Reasons proffered for this, as previously discussed, include the fact that clinicians do not perceive older people to be at risk of contracting HIV and therefore do not take full sexual histories or offer HIV testing to at risk individuals of this age. Similarly, a low level of risk perception among older people themselves may provide a barrier to seeking HIV testing.

Overall, these statistics indicate that older people are in fact diagnosed with sexually acquired HIV and AIDS, and an unknown proportion of individuals, especially with HIV infection, may remain undiagnosed. Gender differences in prevalence of infection have been identified, but it is uncertain whether these reflect gender differences in sexual behaviour patterns, factors specific to this condition or patterns of reporting.

Morbidity statistics from general practice

The final identified source of information concerning rates of STDs in later-life is general practice morbidity statistics. These summarise consultations with general practitioners (GPs) in England and Wales, and the last data-set was produced in 1991/1992 (Royal College of General Practitioners, OPCS and the Department of Health, 1995).

Table 1.6.3. provides figures for rates of consultation per 10,000 people

for very detailed age groupings up to 85+ years. These data indicate that older people do consult their GP with sexual health concerns and, indeed, that rates of such consultation appear to be proportionately higher relative to all age groups than GUM clinic attendance. However, it is impossible to draw firm conclusions given the fact that the KC60 statistics do not detail actual GUM attendance rates by age.

Table 1.6.3. All consultations with general practitioner for syphilis and other venereal diseases for the 1991/2 period (rates per 10,000 persons years at risk)

| Age: | 0-4 | 5-15 | 16-24 | 25-44 | 45-64 | 65-74 | 75-84 | 85+ |
|--------------|-----|------|-------|-------|-------|-------|-------|-----|
| Rate: | 2 | 1 | 18 | 10 | 5 | 6 | 2 | 4 |

(Source: Royal College of General Practitioners, OPCS and the Department of Health, 1995, Table 24, p.244-245)

Table 1.6.4. indicates that rates of consultation for those over the age of 50 during the 1991/2 period, although lower than those among younger adults, were still significant, especially for those aged 70 to 79 years. There does not appear to be any clear gender- or age-related trend in consultation in those patients over the age of 50. However, this is more likely to be indicative of GP consultation patterns than actual diagnostic profiles.

Table 1.6.4. All consultations with general practitioner by patients 50+ for syphilis and other venereal diseases for the 1991/2 period, split by sex (rates per 10,000 persons years at risk)

| Age | Male | Female |
|------------|-------------|---------------|
| All Ages | 17 | 16 |
| 50-59 | 1 | 1 |
| 60-69 | 0 | 2 |
| 70-79 | 11 | 4 |
| 80+ | 4 | 5 |

(Source: Royal College of General Practitioners, OPCS and the Department of Health, 1995: Table 24, pp.244-245)

Overall, although GP morbidity statistics provide valuable indicators of concern about STDs among older people, they do not provide actual data regarding diagnoses, but reflect the patterns of GP attendance. Thus, they cannot provide a descriptive epidemiology of infection amongst individuals in later-life.

Summary

It has been seen that available data are insufficiently detailed to provide a descriptive epidemiology of rates of STD in older cohorts. Two of the identified

information sources record contact with health care professionals with specific STD-related concerns and do not detail actual diagnosed levels of infection for all STDs. Furthermore, although more detailed data are available concerning HIV/AIDS, these only reflect patterns of transmission for one unique condition, which need not be sexually acquired.

However, one interesting finding to emerge from the above exploration of data-sets is the gender difference in rates of STDs diagnosed at GUM, as well as reported cases of HIV and AIDS. That more men than women have been diagnosed with such infections may support tentative conclusions drawn above relating to gender differences in sexual risk-taking and GUM clinic attendance within this age group.

Overall, however, additional information is required before meaningful conclusions concerning the true incidence and prevalence of STD amongst different sections of the older population can be made.

1.7. Treatment Issues

Introduction

An analysis of statistics detailing presentation at health care services with STD-related concerns revealed that the majority of individuals with such concerns attend specialist GUM clinics. Although STD is also managed in the community by GPs, it is thought that this amounts to only approximately 10% of diagnosed cases (Waugh, 1991). Therefore, this section will focus upon the role of the GUM clinic in the management of STD in the UK, exploring the main aims of these services, their potential limitations and the known characteristics of clinic attenders.

The role of GUM clinics

By 1988 there were approximately 200 GUM clinics in the UK (Allen and Hogg, 1993) and it is estimated that approximately 90% of all STDs diagnosed within the UK are treated within this setting (Waugh, 1991). In 1996, 900,602 cases were seen in GUM clinics in England and Wales (Simms, Hughes, Swan, Rogers and Catchpole, 1998). The continued importance of GUM clinics in managing STD transmission and promoting sexual health is exemplified by the *Health of the Nation* White Paper, which stressed that:

...the establishment of easily accessible GUM provision for the residents of every district should continue to be a priority within the NHS. (p. 98)

This prioritisation of GUM services is reflected in the fact that they are still free to all, and can be accessed without referral from a health care

professional. Indeed, self-referral has been seen to be the primary means of accessing such services for older clinic attenders (Rogstad and Bignell, 1991).

Although the main aim of GUM clinics is to help prevent STD transmission (de Ruiter and Bingham, 1994), GUM workload statistics analysed above indicate that a wide range of conditions are diagnosed and treated within GUM clinics. Indeed, the figures for 1996 reveal that only approximately half of GUM clinic attenders are diagnosed with an STD (Simms, Hughes, Swan, Rogers and Catchpole, 1998), and this definition further includes some conditions which can, but need not, be sexually transmitted. Common non-sexually transmitted conditions treated in GUM clinics include urinary tract infections and gynaecological conditions.

Characteristics of GUM clinic attenders

It has been stated that the majority of GUM clinic attenders are 'likely to perceive themselves to be at risk of (STD) infection' (Wellings, Field, Johnson and Wadsworth, 1994, p. 297). Therefore, this population represents a well-defined group of individuals with sexual health concerns. This conclusion, that GUM clinic attenders are at higher risk of STD acquisition than non-attenders, is supported by data from the NSSAL (Johnson, Wadsworth, Wellings and Field, 1996). This study identified that 8.3% of male participants and 5.6% of female participants had attended a GUM clinic and clinic attendance was associated with number of heterosexual partners for both men and women, and with a number of same-sex partners for men. However, although the authors conclude that their findings show that clinics are 'relatively efficient at attracting only those with

high risk lifestyles' (p. 197), they further state that only a minority of total respondents reporting risk factors associated with STD acquisition had attended a GUM clinic.

Limitations of GUM services

This latter finding indicates that barriers may exist to clinic attendance amongst individuals with GUM-related needs, despite the fact that a recent study concluded that over 90% of clinic attenders are satisfied or very satisfied with their clinic visit (Monteiro, 1995). However, at the most fundamental level individuals may not be aware that their behaviour places them at risk of STD acquisition, or that regular check ups as provided by GUM services can screen for asymptomatic STDs (these can include chlamydia and HIV). They may not be aware of the location of their local GUM clinic, or they may be embarrassed or afraid to attend. That stigma may prevent clinic attendance has been recognised, and authors have gone as far as to state that it may be only individuals with 'serious symptoms' who can overcome it (Fitzgerald, Goldsmith, Belfield and Hayton, 1994). They indicate a need for increased provision of information about GUM services to the population in general, as well as the introduction of an audit of all GUM clinic attenders. This could help provide specific targets for health education, as well as ensuring that the sexual health needs of the population in general were adequately met.

There is also evidence that health care professionals are not fully aware of the range of services offered by, or even of the location, of GUM clinics. A recent study identified that a range of non-GUM health care professionals were

ill-informed about GUM services, and that stigma was considered to exist about these services (McClellan, Reid and Scouler, 1995). Furthermore, it was concluded that these attitudes had resulted in under-utilisation of GUM clinics by other service providers. These findings are worrying given that a wide range of STD infections can be most appropriately managed within GUM because of the presence of staff trained in partner notification and the provision of safer sex advice (Woolley and Chandiok, 1997).

It is thought that recent changes in the organisation of primary care may also have had a significant impact upon GUM services. A recent postal survey of 1,584 GPs in England and Wales indicated that an increase in GP fundholding could result in a contraction of GUM services as increasing numbers of GPs choose to manage a range of STDs in the community (Woolley and Chandiok, 1997). However, the policy of the present government towards the role of GUM services remains unclear.

1.8. Accessing GUM Clinics and Other Sexual Health Services

It has been established that GUM services are considered to be the first point of contact for the majority of individuals within the UK who experience sexual health concerns. However, a range of factors are likely to mediate between having sexual health concerns and actual attendance at health care services. Apart from the obvious influences of knowing which services are most appropriate for specific conditions and where these are located, social and psychological processes are also likely to influence actual attendance. These processes have been termed 'illness behaviour', defined by Mechanic (1961) as:

the ways in which given symptoms may be differentially perceived, evaluated and acted (or not acted upon) by different persons. (p. 189)

However, within the current context it is important to broaden this definition so as to include individuals who may be asymptomatic. This is because a proportion of STDs are known not to produce symptoms for all individuals (for example, chlamydia and HIV infection). Thus, sexual health concerns may be prompted by worries regarding perceived involvement in 'risky' sexual behaviours.

There is, unfortunately, little known published research addressing issues relating to health care-seeking behaviours amongst individuals with sexual health concerns, and none exploring these issues in relation to older people. However, a recent review of this literature (Aral and Wasserheit, in press) identified key areas of interest when studying STD-specific health behaviours. The authors support the conclusion that there are many factors which can result in delay in

receiving treatment for suspected STD infection. Indeed, it is widely recognised that a common response to illness is to 'wait and see' whether symptoms persist, subside or worsen (Suchman, 1965). This attitude can be especially marked if there is uncertainty regarding the nature of symptoms experienced. Regarding STD infection, such uncertainty can be precipitated by mild symptoms, such as those of chlamydia, or by symptoms which resolve spontaneously, for example syphilitic chancres (Aral and Wasserheit, in press). It should not therefore be surprising that delay-behaviour is a feature of STD-related health seeking.

Such delay-behaviour has been identified in previous research. Leenaars, Rombouts and Kok (1993), for example, found that, of 855 subjects with STD-related symptoms, 27% waited more than four weeks between symptom recognition and health care presentation. Factors predicting delay-behaviour included being female, living in a village as opposed to a town, being homosexual and living with a long-term partner (for women only). Interestingly, having attended health care services before with similar symptoms to the current episode did not influence the delay period. The authors concluded that one of the principal determinants of STD-related delay-behaviour is the stigma attached to having an STD.

This conclusion is supported by a recent study exploring delay-behaviour amongst adolescents with suspected STD infection (Fortenberry, 1997). From a sample of 323 symptomatic and asymptomatic individuals aged under 21 years attending a US STD-clinic, 27% of male and 34% of female participants waited over one week between 'problem' recognition and obtaining medical care. Cognitive factors were identified as the most important variables studied in predicting delay-behaviour for both men and women. These included perceived

barriers to care-seeking, lower self-efficacy³ and perceived seriousness of STDs. Furthermore, for women only, delay was predicated by knowing more about STDs, having received a past STD diagnosis, and being symptomatic. The presence or absence of symptoms did not influence care-seeking amongst men.

Hook *et al* (1997) support and extend the above conclusions in a US-based study regarding risk behaviour, specifically focusing upon self-reported reasons for delay-behaviour (defined as waiting for seven or more days between symptom recognition and public clinic attendance). A sample of 2,590 patients attending five STD clinics across the US were interviewed and the following findings elicited. The majority of clinic attenders reported genitourinary symptoms (62.6%), of whom one-third experienced these symptoms for over seven days prior to clinic presentation and 11.5% experienced symptoms for over one month. Main reasons given for such delay-behaviour included 'hoping symptoms would resolve' (n=286), that 'symptoms were not a priority for them' (n=114) and 'did not know where to go for treatment' (n=64).

All studies discussed above recommend that increased attention be paid to identifying and subsequently minimising barriers to seeking prompt treatment for STDs. It is recognised that such efforts can reduce the duration of infectiousness amongst individuals with STD and prevent the development of secondary sequelae. Furthermore, the medical and economic impact of STD on the community in general could be limited by preventing the spread of infection to uninfected individuals. A study of gonorrhoea transmission (Orduna, 1980), for example, concluded that if the duration of symptoms for each heterosexual partner were reduced by one day the number of cases reported would decline by

³ The concept of perceived self-efficacy is a key construct in social cognitive theory and refers to personal action control or agency (Bandura, 1989).

8%.

Unfortunately, no data concerning STD-related health behaviour amongst older individuals could be identified. Indeed, there is a dearth of research in general on issues relating to health-seeking behaviour among older adults. However, several factors could be hypothesised to influence the decision to seek health care amongst individuals with STD-related concerns. The first is that the dominant assumptions discussed above relating to the sexuality of older people may increase the stigma associated with contracting an STD for individuals in later-life. They may encounter a lack of social support from their peers and, in addition, may have difficulties in seeking advice and support from adult children and other family members. These factors have been identified as issues encountered by older people with HIV and AIDS (Kornharber and Malone, 1996), and may indeed contribute towards delay-behaviour on the part of older people with sexual health concerns.

Furthermore, previous studies have shown that stereotypes can emerge within society of the typical sufferer of certain diseases (Calnan, 1987). This can result in 'disidentification' if an individual does not conform to this stereotype (Gilmore and Somerville, 1994), and indicate to these individuals that they are not at risk from these diseases. A dominant perceived feature of the stereotype of the typical sexual risk-taker is, for instance, that he or she is young (see, for example, Waugh, 1991). This could influence STD-related health-seeking behaviours, specifically creating a barrier to health care presentation.

Finally, it is known that older people delay in seeking health care because they attribute certain symptoms to 'normal ageing' (Cunningham-Burley, Allbutt, Garraway, Lee and Russell, 1996). Given that the symptoms of certain

STDs have been seen to be mild and spontaneously resolving this may be a feature of some older individuals' health behaviours.

1.9. Overall Summary

A brief synopsis of the themes presented in this review will be provided by returning to the original questions posed at the beginning of this chapter. To reiterate, these were:

- 1. To what extent are older people sexually active ? Are there specific factors that correlate with being sexually active in later-life?**
- 2. Is there evidence that older people engage in sexual behaviours that place them at risk of contracting STDs? If so, can a population profile of 'risk-takers' be compiled?**
- 3. Do data sets exist detailing levels of STD in older populations? Are there data sets recording contact with health care professionals on STD-related issues?**
- 4. Which health services are commonly used by individuals in the UK with STD-related concerns? Are there barriers that may impede attendance at such services, specifically for older people?**

It has been seen that people have the potential to remain sexually active into very old age, and that cessation of sexual activity in later-life is often attributed to socio-cultural factors rather than to underlying physiology. Thus, factors identified as being associated with being older and sexually active include being male, being married, being young-elderly (i.e. aged 50-70 years) and having a good social network. These factors support the conclusion that sexual activity in later-life is strongly determined by partner availability. It was seen that there was little evidence that women, for example, were less sexually interested than men in later-life, but rather that the demography of this age group, certainly within the US and the UK from where these studies were drawn, results in women having fewer available partners because of gender differences in life expectancy.

Similarly, demography may influence possible gender differences in sexual risk-taking in later-life. It was seen that a significant minority of older people appear to engage in behaviour that places them at risk of contracting STDs, do indeed attend GUM clinics or their GP with STD-related concerns, and are diagnosed with sexually transmitted HIV/AIDS. Again, being male was identified as a possible correlate of later-life risk-taking, as was having taken sexual risks at a younger age. However, overall it was concluded that there are insufficient data currently available to explore issues of risk-taking in older age cohorts, especially within the UK.

Moreover, it was seen that existing data sets are not sufficiently detailed to allow a descriptive epidemiology of STD to be compiled for older age groups. Thus, no definitive conclusions can be drawn as to the incidence and prevalence of STD in later-life.

The role of GUM clinics was considered to warrant further investigation, as these specialised settings are seen to treat the majority of STD diagnosed within the UK, as well as attracting a well-defined group of individuals with STD-related concerns. In addition, STD-related illness behaviour was considered important because of the impact of seeking prompt treatment for STD on levels of infection within the general community. However, again there was not enough information available to draw conclusions concerning STD-related illness behaviour among older people, although it was suggested that there may be barriers to seeking treatment within this age group. These were hypothesised to include the assumption by health care professionals, as well as this cohort themselves, that older people are not at risk of STD, and the tendency for individuals of this cohort to attribute symptoms to normal ageing.

Overall, however, a significant dearth of research was identified in the area of STDs and older people, and a number of future research directions indicated. Fundamentally, exploratory research is needed to clarify the dimensions of this issue so to provide a basis for future study.

SECTION 2: GUM CLINIC

ACTIVITY IN THREE

CENTRES

Chapter 2

Estimating Levels of STD and Sexual Health Concerns Among Older People: GUM Clinic Activity in Three Centres

Introduction

It was concluded in the previous chapter that little is currently known about sexual health issues in later life and that reported estimates of STD among older people (PHLS, 1998; Simms, Hughes, Swan, Rogers and Catchpole, 1998), are too crude to provide a detailed epidemiology of infection within this age group. Similarly, data concerning attendance at health care facilities do little more than confirm that older people consult their GP with concerns relating to STDs (Royal College of General Practitioners, OPCS and the Department of Health, 1995) and attend specialist GUM clinics (PHLS, 1998).

It is also clear, however, that while there is a dearth of published information on STD levels and sexual health concerns among older people in Britain, health service datasets do currently exist from which such information could be extracted. Since 1917, it has been the statutory responsibility of all health service GUM clinics to record clinic activity data. Collected by medical

and administrative staff within each clinic, these data include diagnostic and demographic information on all patients. Nevertheless, although the data is collated centrally to provide NHS activity statistics (e.g. in the form of the KC60 reports discussed in Chapter 1), information on GUM clinic attendance:

- Is not processed at local levels;
- Is not collated at regional levels; and
- Has not been used to address research questions.

In order to quantify levels of STD and explore issues of sexual health in later life the study described in this chapter was designed to collate and analyse NHS GUM clinic activity data. Given the points listed above, the study was divided into three distinct phases:

1. Negotiating access to routinely collected GUM clinic activity data;
2. Extracting, standardising and collating these data; and
3. Analysing activity data in relation to specific research questions.

All three research phases were initiated and managed by the principle investigator (MG).

Defining older people

In the context of the present analyses 'older' applies to individuals aged 50 years and over for the following reasons. Firstly, sexual health studies rarely include participants in this age group resulting in a significant knowledge deficit concerning STD-related issues within this cohort (Coates, 1990). Furthermore, although a review of relevant literature identified little consensus concerning

older age categories (with older defined as anything from 40-65 years), the most comprehensive study (Stall and Catania, 1994) adopted an age cut-off of 50 years (Stall and Catania, 1994). In similar surveys of later life sexual health issues, this cut-off has also been employed (Brecher, 1984; Ship, Wolff and Selik, 1991; Martin, Colford, Ngo and Tager, 1995; Youdell, Warwick and Whitty, 1995; Kaufmann, 1995). Therefore, in this study, 'older' is defined as aged 50 years and over and data have been further sub-divided into five year age bands according to convention.

Method

Clinic selection

Clinic selection was guided by three broad requirements. Collectively, the clinics needed:

1. To show a high volume of patient contacts per year for statistical credibility;
2. To show geographical variability in GUM attendance by older people; and
3. To be reachable from the research centre (Sheffield).

According to these criteria, the three largest GUM clinics within the Trent Region were identified as the most suitable for participation in the study: Sheffield (population 482,226), Leicester (population 259,264) and Nottingham (population 250,161) (OPCS, 1991). The three centres selected offered both high

patient volumes and the opportunity to compare geographically distinct urban centres.

Phase 1

Following a letter of introduction, meetings were held with the heads of department of the three selected clinics. At these meetings the aims of the project were explained and the administrative demands of providing data discussed. All clinics agreed to be involved.

After negotiations with heads of department and staff responsible for maintenance of the clinic patient database, a data collection pro forma was designed by the principal investigator. It was agreed that the following data would be supplied for each individual clinic attender: age, gender, ethnicity, marital status, mode of referral to the clinic and diagnostic code (if any). Data on clinic attenders of all ages were provided from each clinic so as to allow for the identification of age-specific trends.

For the purposes of this study, two one-year census periods were selected: period 1: 1st January 1995 - 31st December 1995 and period 2: 1st January 1996 - 31st December 1996. Data collation was conducted between 1st June 1996 and 30th September 1996 (for period 1) and 1st October 1997 and 31st January 1998 for period 2). At the time of initial data collation (1st June 1996) the period 1st January 1995 - 31st December 1995 provided the most recent year for which complete KC60 datasets were available. For the purposes of analysis, period 1 data were treated as point prevalence estimates while period 2 data were used to assess stability.

Discussions of ethical issues between the principal investigator, clinic

heads of department and South Sheffield Ethics Committee indicated that Ethical Committee approval would not be required for the study. However, in order to protect patient confidentiality, information had to be retrieved from clinic records by individuals working within the three clinics. Therefore, it was agreed that crude data would be extracted from clinic computer databases by clinic staff in an anonymised format. All subsequent data collation, analysis and quality control was undertaken by the principal investigator.

Phase 2

On receipt of the crude data (presented as a computer printout of variables listed above), data were coded and entered into an SPSS (Windows version 7) database by the principle investigator. The data were rigorously checked by the researcher for inconsistencies and where discrepancies were identified, the individual responsible for providing the data within the individuals clinics was asked to double check the source dataset. It was felt these data provided the most accurate record of clinic attendances available, given that they were known to form the basis of official GUM workload statistics.

Statistics from the 1991 census for age, sex, marital status and ethnicity were extracted for each corresponding clinic catchment area and entered onto a Minitab (version 11) database. These census data were collated into the following categories to allow for direct comparisons with the clinic population: gender ratio of residents over 50 years of age; proportion of non-married residents over 50 years of age split by gender; and proportion of non-white residents over 50 years of age. This database was again rigorously checked by

the principle investigator for inconsistencies.

Diagnostic data were coded according to published GUM workload statistics for 1995 (Department of Health, 1996). Although it was recognised that some conditions included in the 'sexually-transmitted diseases other than HIV/AIDS' category could, but need not, be transmitted sexually (e.g. candidas, bacterial vaginosis), it was felt that this category provided a useful conceptual grouping. The recommendation of Catchpole *et al* (1997) was used to sub-divide this category further into 'acute' and 'non-acute' STD diagnoses. Acute STD diagnoses are defined as:

.....diagnoses being most likely to indicate recent acquisition through sexual intercourse: infectious syphilis, all gonorrhoea, all chlamydia, first attack of genital herpes, first attack of genital warts, trichomoniasis, antigen positive Hepatitis B, non-specific urethritis, scabies and pediculosis. (Catchpole *et al*, 1997, p.458)

As the data were mainly categorical, χ^2 analyses were used to establish bivariate associations.

Phase 3

A review of relevant literature led to the identification of the following research questions to clarify issues surrounding older people's attendance at GUM clinics. Analyses were conducted so as to address these questions.

Research questions

1. What proportion of GUM clinic attenders are over the age of 50?
2. What are the socio-demographic characteristics of older

attenders?

3. Do older attenders represent a discrete sub-population within both the clinic and the general population of their age group?
4. Do the diagnostic profiles of older attenders differ from those of younger attenders?
5. Is the proportion of individuals being tested for HIV similar between age groups?
6. How do the majority of older attenders access GUM clinics?

Results

Results for period 1 (1st January 1995 - 31st December 1995) will be presented first, structured according to the research questions identified above. Comparisons with period 2 data (1st January 1996 - 31st December 1996) will follow, allowing for conclusions to be drawn as to the stability of cross-sectional trends in clinic attendance by older people.

The data for period 1 (1st January 1995 - 31st December 1995) were complete with the exception of information for younger attenders in the Leicester clinic. This was because the Leicester clinic was in the process of updating its computer system and could not extract this information at the time. However, given that this was the clinic with the smallest annual turnover, it was felt that this would not seriously impact upon the results.

Similar constraints meant that the Leicester clinic could not provide data for period 2 (1st January 1996 - 31st December 1996). Again, it was felt that this omission would not be overly detrimental to the study aims.

Data for period 1 (1st January 1995 - 31st January 1995)

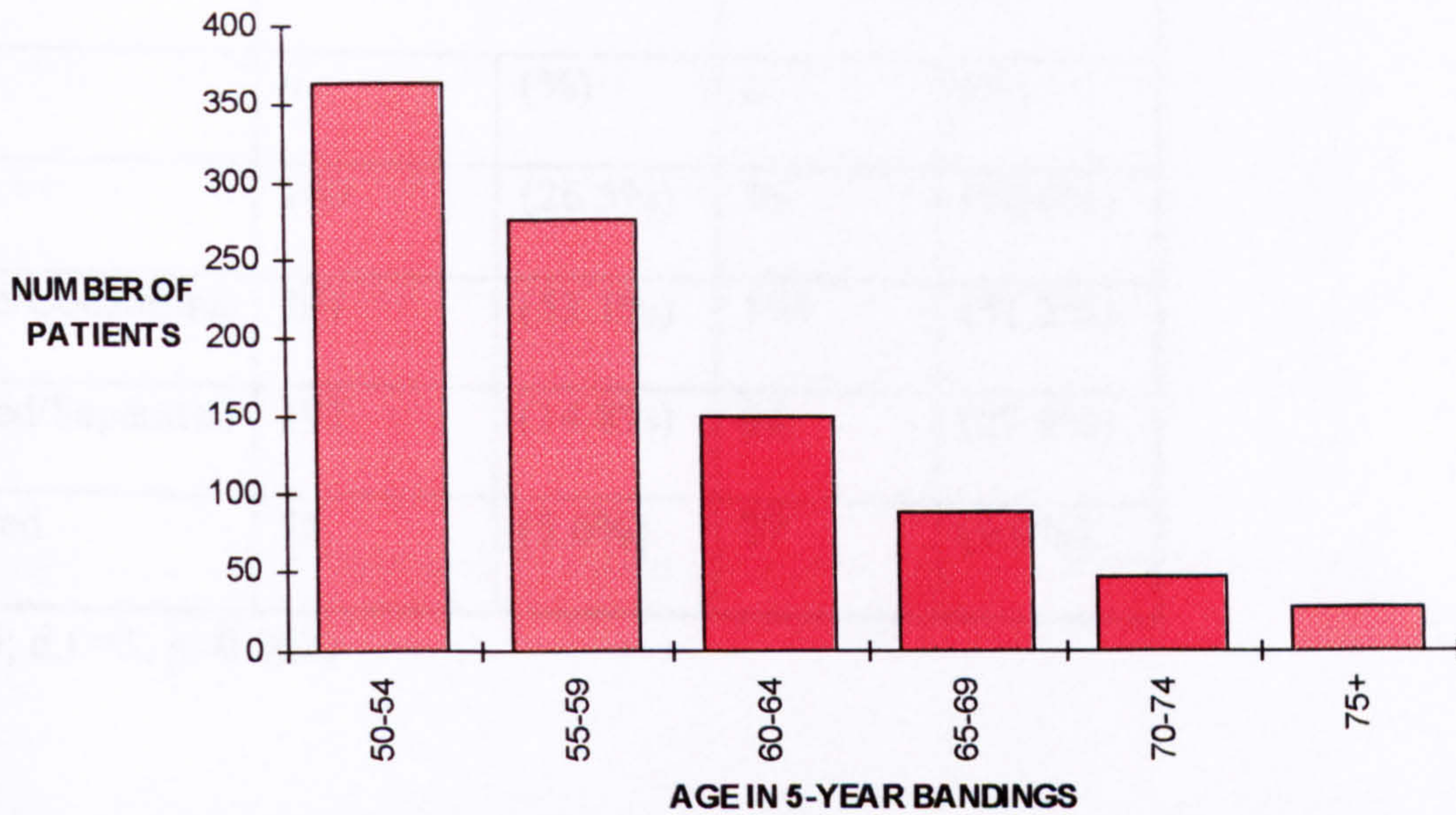
Research question 1) What proportion of GUM clinic attenders are over the age of 50?

Of 25,508 clinic attenders for 1995, 3.9% (n=1,003) were over the age of 50 (Nottingham, 405; Sheffield, 325; Leicester, 273).

Research question 2) What are the socio-demographic characteristics of older attenders?

The patients ranged between the age bands 50-54 to 85-89 with a modal age banding of 50-54 years (Figure 2.1.). The age distribution of older attenders was positively skewed. Men represented 69.2% of older attenders (n=694) and women 30.8% (n=309).

Figure 2.1. The age distribution of older clinic attenders: 1995



The age, gender and marital status of the older attenders were similar across the three clinics. Of the total older clinic population, 515 (51.3%) were in long-term relationships (i.e. married or cohabiting) and 466 were not (46.5%): 216 (21.5%) were single; 138 (13.7%) were divorced, 65 (6.5%) were widowed and 47 (4.7%) were separated; marital status was unknown for 22 attenders (2.2%). There was an association between gender and marital status ($\chi^2=42.5$; d.f.=3; $p<0.001$: Table 2.1.), with men more likely to be single and women more likely to be divorced, separated or widowed.

Table 2.1. Older clinic attenders by marital status and gender:

1995[†]

| Marital status | Men | | Women | |
|--------------------|-----|---------|-------|---------|
| | n | (%) | n | (%) |
| Single | 180 | (26.5%) | 36 | (12.0%) |
| Married/Cohabiting | 361 | (53.1%) | 154 | (51.2%) |
| Divorced/Separated | 101 | (14.8%) | 84 | (27.9%) |
| Widowed | 38 | (5.6%) | 27 | (9.0%) |

($\chi^2=42.5$; d.f.=3; $p<0.001$)

Inter-clinic variance emerged for ethnicity, reflecting the varying ethnic composition of the clinic catchment populations (ethnic minority members Sheffield: 28 (9.1%); Leicester: 48 (17.6%); Nottingham 30 (9.0%); $\chi^2=13.7$; d.f.=2; $p=0.001$). Overall, patients from ethnic minorities represented 11.6% of the total sample (87 cases had to be excluded as ethnicity was unknown).

Research question 3) Do older attenders represent a discrete sub-population within both the clinic and the general population of their age group?

Characteristics of older attenders compared to the general population aged 50<

Comparisons with relevant census data (OPCS, 1991) revealed that men were significantly over-represented when compared to the general population aged over 50 years (census: men 147,355 (44.3%); clinic: men 694 (69.2%); $\chi^2=251.4$; d.f.=1; $p<0.001$).

Furthermore, male clinic attenders were significantly less likely to be married than the general population of their age group (census: 38,200 (25.9%) unmarried; clinic: 304 (45.2%) unmarried⁵; ($\chi^2=124.1$; d.f.=1; $p<0.001$). However, the marital status of women was consistent between the clinic and the general population (census: 87,644 (47.3%) unmarried; clinic: 127 (41.1%) unmarried; ($\chi^2=3.1$; d.f.=1; $p=0.08$).

Socio-demographic characteristics of clinic attenders aged 50< with those aged <50

Older attenders were more likely to be male (males <50: 12,487 (48.9%) males 50+ 694 (69.2%) $\chi^2= 158.1$ d.f.=1; $p<0.001$) and married (married <50: married 50+ $\chi^2=$; d.f.=1; $p=0.$) than younger attenders.

The ethnic profile for older attenders was consistent with that for all clinic attenders for Sheffield (ethnic minority members 50+: 28 (9.1%); <50: 795 (10.2%); $\chi^2=0.4$; d.f.=1; $p=0.5$). However, younger attenders at the Nottingham clinic were significantly more likely to be ethnic minority members than older attenders (ethnic minority members 50+: 30 (9.0%); <50: 1170 (13.8%); $\chi^2=4.3$; d.f.=1; $p<0.05$).

Research question 4) Do the diagnostic profiles of older attenders differ from those of younger attenders?

In Sheffield and Nottingham there was an association between age and

¹Analysis excludes n=22 individuals for whom marital status was unknown (n=14 men; n=8 women).

⁵All individuals whose marital status was given as 'separated' (n=27 men; n=20 women) were included in the married category.

diagnostic profile ($\chi^2=64.6$; d.f.=1; $p<0.001$: Table 2.2.), with older attenders less likely to be diagnosed with STDs than younger attenders.

Table 2.2. Diagnoses of older and younger clinic attenders⁶

| Diagnoses | 50+ | | <50 | |
|---|-----|---------|--------|---------|
| | n | (%) | n | (%) |
| Sexually acquired infections (including HIV/AIDS) | 464 | (41.9%) | 15,761 | (54.1%) |
| Other diagnoses | 644 | (58.1%) | 13,350 | (45.8%) |

($\chi^2=64.6$; d.f.=1; $p<0.001$)

Furthermore, a smaller proportion of older attenders was diagnosed with an acute STD when compared to all attenders. Indeed, 13.1% of male diagnoses over 50 (n=99) and 10.7% of female diagnoses in this age group (n=38) were for acute STDs compared to 28.6% (n=3738) of male and 20.5% (n=3300) of female diagnoses under 50. The association between age and acute STD diagnosis was statistically significant for both sexes (acute STD diagnosis: men 50+: 99 (13.1%); men <50: 3785 (28.6%); $\chi^2=85.3$; d.f.=1; $p<0.001$; women 50+: 38 (10.7%); women <50 3300 (20.5%); $\chi^2=54.5$; d.f.=1; $p<0.001$).

Research question 5) Is the proportion of individuals being tested for HIV similar between age groups?

Overall, 11.1% (n=136) of total diagnoses for older attenders at all three GUM clinics were for HIV testing. There was no association between being

⁶ Data for Sheffield and Nottingham GUM clinics only.

older and likelihood of being tested for HIV for Sheffield and Nottingham (HIV test 50+: 101 (9.1%); <50: 2989 (10.3%); $\chi^2=1.5$; d.f.=1; p=0.21).

Research question 6) How do the majority of older attenders access GUM clinics?

There was a significant variation in rates of GP referral between the three clinics ($\chi^2=57.0$; d.f.=2; p<0.001; Table 2.3.), with older attenders at the Leicester GUM clinic significantly more likely to have been referred by their GP. Overall, however, the majority of attenders self-referred to all three clinics (Sheffield: 248 (76.3%); Leicester: 144 (52.7%); Nottingham 328 (81.0%)).

Table 2.3. The association between clinic and mode of referral: 1995⁷

| Mode of referral | Sheffield | | Leicester | | Nottingham | |
|------------------|-----------|---------|-----------|---------|------------|---------|
| | n | (%) | n | (%) | n | (%) |
| GP referral | 54 | (16.6%) | 90 | (33.0%) | 45 | (11.1%) |
| Other | 270 | (83.4%) | 173 | (67.0%) | 360 | (88.9%) |

($\chi^2=57.0$; d.f.=2; p<0.001).

⁷ Analysis excludes n=11 individuals for whom mode of clinic referral was unknown.

Stability and Change: 1995 - 1996 analysis

Demographic variables

The proportion of Sheffield and Nottingham clinic attenders over the age of 50 during 1996 was consistent with the proportion of older attenders at all three GUM clinics during 1995 (50+: 1995 1003 (3.9%); 1996 691 (3.6%); $\chi^2=0.96$; d.f.=1; p=0.3). The age distribution of 1996 attenders was similar to that identified in the previous chapter with the same modal age banding, although 1996 attenders had a slightly greater age range. There was no association between the gender ratio of older attenders and the year of clinic attendance (male attenders: 1995 694 (69.2%); 1996 464 (67.1%); $\chi^2=0.8$; d.f.=1; p=0.37).

As Table 2.4. shows, the marital status of 1996 attenders was consistent with that of 1995 attenders for both men and women (men: $\chi^2=4.3$; d.f.=1; p=0.22; women: $\chi^2=3.0$; d.f.=1; p=0.39). Furthermore, the same relationship was observed between gender and marital status, with men more likely to be single and women more likely to be divorced or widowed. Differences in gender ratio identified between the clinic sample and general population of the same age group were consistent between 1995 and 1996. Similarly, the over-representation of unmarried men in the clinic sample was identified for both time periods.

Table 2.4. Marital status by gender for 1995 and 1996

| Marital status | 1995 | | | | 1996 | | | |
|------------------------|------|---------|-------|---------|------|---------|-------|---------|
| | Men | | Women | | Men | | Women | |
| | n | (%) | n | (%) | n | (%) | n | (%) |
| Married/ cohabiting | 361 | (48.5%) | 154 | (51.1%) | 219 | (53.1%) | 95 | (43.6%) |
| Single | 180 | (31.9%) | 36 | (12.0%) | 144 | (26.5%) | 31 | (14.2%) |
| Divorced/ separated | 101 | (14.8%) | 84 | (27.9%) | 67 | (14.8%) | 71 | (32.6%) |
| Widowed | 38 | (4.6%) | 27 | (9.0%) | 21 | (5.6%) | 21 | (9.6%) |

(men: $\chi^2=4.3$; d.f.=3; p=0.22; women: $\chi^2=3.0$; d.f.=3; p=0.39)

The ethnic profile of attenders was similar for 1995 and 1996 (ethnic minority members: 1996 68 (10.6%); 1995 106 (11.6%); $\chi^2=0.34$; d.f.=1; p=0.56). However, the inter-clinic difference in ethnicity for 1995 was not repeated in 1996.

Clinical variables

The proportion of individuals self-referring to the clinics was consistent between 1995 and 1996 (self-referred: 1995 720 (72.6%); 1996 522 (75.5%); $\chi^2=1.8$, d.f.=1; p=0.17). As in 1995, however, no inter-clinic differences were identified in the mode of referral for 1996.

The diagnostic profile of older attenders was consistent between 1995 and 1996 ($\chi^2=2.1$; d.f.=2; p=0.35: Table 2.5.).

Table 2.5. Diagnostic profile of older attenders: 1995 and 1996

| | 1995 | | 1996 | |
|-----------------|------|---------|------|---------|
| | n | (%) | n | (%) |
| Acute STD | 137 | (12.4%) | 154 | (14.3%) |
| Other STD | 327 | (29.5%) | 299 | (27.8%) |
| Other Diagnoses | 644 | (58.1%) | 621 | (57.8%) |

($\chi^2=2.1$; d.f.=2; p=0.34)

An association was again identified between age and diagnostic profile for attenders during 1996. As reported for 1995, older attenders were significantly less likely to be diagnosed with STDs (including acute STDs) when compared to younger individuals (Table 2.2.). Similarly, the proportion of older attenders tested for HIV was consistent between the two years (HIV testing: 1995 101 (9.1%); 1996 111 (10.3%); $\chi^2= 0.92$; d.f.=1; p=0.34), as was the absence of an identified relationship between age and HIV testing.

Discussion

Stability and change: 1995 - 1996

It is first of all important to examine the extent to which the 1996 data-set confirms the findings presented for 1995, and to establish what implications this may have for data quality and trends in GUM clinic attendance by older people. To focus initially upon socio-demographic variables, it has been seen above that no important differences could be identified between 1995 and 1996 attenders.

This finding provides support for the conclusion that GUM clinics are used by a distinctive group of older individuals and that this trend is historically enduring. Indeed, it has been identified that, in comparison to the general population over 50, these individuals are more likely to be male, unmarried (if male) and at the younger end of this older age group.

Although the ethnic profile of attenders was consistent between years, no significant inter-clinic difference was identified for 1996, unlike 1995. This finding can, however, be explained by the absence of data for the Leicester clinic (there was no significant inter-clinic difference between Sheffield and Nottingham in ethnic profile for 1995).

A similar stability in the diagnostic profile and referral patterns of older attenders was identified between the two data collection years. It was identified for both patient groups that older individuals were less likely to be diagnosed with STDs, including acute STDs, when compared to younger individuals. The proportion of HIV testing was also consistent between time periods, and similar relationships between HIV testing and age identified.

The majority of older clinic attenders self-referred to the clinic in 1995 and 1996. The lack of an inter-clinic difference in the mode of referral can again be attributed to the absence of data from the Leicester clinic for 1996 (there was no significant inter-clinic difference in mode of referral for Sheffield and Nottingham for 1995).

Overall conclusions

This study has highlighted the fact that older people represent a stable minority of clinic attenders. Indeed, if clinic attendance within this age group

throughout England were consistent with the three clinics involved in this study, total number of cases seen in GUM clinics for individuals over the age of 50 would approach 16,000 for both 1995 and 1996⁸. Thus, as identified previously (Rogstad and Bignell, 1991; Opaneye, 1991; Kohiyar, 1983), STD obviously remains a significant health issue in later life.

The study has also clearly indicated that older people represent a distinct clinic sub-population. Notably, men are significantly over-represented within this group when compared both with total clinic attenders, and with the general population of this age group. This gender imbalance amongst older clinic attenders has also been picked up in previous studies (as above), and may be indicative of gender differences in levels of sexual risk-taking in later life. Indeed, research has shown that men are more likely than women to be sexually active in later life (Diokono, Brown and Herzog, 1990), and are in addition more likely to engage in extra-marital relationships (Brecher, 1984).

A further influence upon this observed gender imbalance may be that symptoms of STD among women are less obvious or even absent and therefore more difficult to diagnose than among men (Amaro and Gornemann, 1991). Although it is unclear what impact this has on care seeking in older age groups (especially given that similar gender imbalances have not been observed for clinic attenders under the age of 50), this may be a factor contributing to the lower proportion of older female GUM attenders.

The finding that unmarried men were over-represented within the clinic when compared with the general population of the same age may reflect clinic usage by older gay men (although it is recognised that a proportion of men who

⁸ Estimate based on total cases seen in GUM clinics in England in 1995 and 1996 according to workload statistics.

have sex with other men are married). However, the high proportion of divorced, widowed and separated clinic attenders may reflect partnership changes in later life. It could be hypothesised that individuals attending the clinic in later life may be doing so following either perceived or actual exposure to STD following the start of a new relationship after becoming single. Furthermore, although the proportion of unmarried women was consistent between the clinic and the general population, this reflects the fact that older women are more frequently widowed in later life than men because of gender differences in life expectancy. Therefore, approximately half the older women were also unmarried, indicating that older female attenders may also be visiting the clinic in response to later life partnership changes.

Something which must be remembered when utilising census statistics for the purposes of comparative analysis is that, in the UK, this exercise is decennial and it is known that a slight shift in the demography of the country's population has occurred since 1991. However, this is common to all UK research undertaken at the tail end of the decade and is unlikely to have had a significant impact on these findings.

The differing diagnostic profiles of older and younger clinic attenders, specifically relating to the proportionately higher number of individuals diagnosed with non-sexually-acquired infections and conditions not requiring treatment also warrants further investigation. It may be that some older people are using GUM services explicitly for conditions they know are not sexually-acquired, but may be sexually-related (for example psychosexual problems, menopausal problems, or conditions that occur in the genital area such as dermatoses). Alternatively, there may be confusion surrounding the underlying

causes of an infection or concern about sexual practices.

Regarding the mode of referral to the GUM clinic, significant inter-clinic differences emerged for 1995, with older attenders at the Leicester clinic significantly more likely to have been referred by their GP. Whether this reflects regional differences in the referral habits of GPs or in decision making amongst clinic attenders is unknown.

Having established that older GUM attenders have distinct socio-demographic and clinical characteristics over time, it is important to identify what proportion of these attenders are first time, and what proportion are repeat attenders. This information will indicate whether historically enduring trends in attendance are the result of repeated use by a minority of older individuals, or whether these characteristics are typical of all older attenders. Furthermore, this may help ascertain whether older attenders are first time risk-takers, possibly responding to partnership changes which are increasingly common in later life (as exemplified by the rising divorce rate amongst this age group; Cain, 1988), or whether they are 'life time' risk-takers. Such information could prove critical to the planning of future GUM services, especially when viewed within the context of an ageing population.

Future Research Directions

Issues identified as in need of further research in relation to GUM clinic attendance by older individuals were identified with reference to this study and the preceding literature review (see Chapter 1). These included:

- Motivation for GUM clinic attendance by older individuals.
- Relationship status of older clinic attenders, specifically focusing on their relationship to the individual from whom they believe they contracted an STD (if applicable).
- Proportion of people attending the clinic for the first time in later life.
- Proportion of older attenders with a previous STD diagnosis.
- Evidence for delay-behaviour among older attenders.
- Information needs of older attenders in respect of STDs and HIV.

SECTION 3: GUM CLINIC SURVEY

Chapter 3

GUM Clinic Study: Methods and Results

Introduction

The data gathered in the clinic audits clarified issues pertinent to older peoples' attendance at GUM clinics, allowing preliminary research questions to be refined and more specific hypotheses to emerge. It was decided that these issues would be more fully explored by gathering information directly from clinic attenders themselves.

This chapter will begin by stating the primary research questions. Methodological issues will then be discussed and the study design outlined. Piloting strategies will be explored and methods of data analysis, including statistical testing, presented. Preliminary data analyses, involving an examination of response rates, participation bias and sample characteristics, will precede the main results section. This will be structured around the primary research questions. Conclusions from the main body of research will be presented in the next chapter.

Primary research questions

The conclusions of the exploratory data collection exercise, as well as

information gathered as part of the literature review, led to the development of the following research questions:

1. Do older people attend GUM clinics with suspected STD infection, or for non-STD related conditions, e.g. prostate problems?
2. What factors predict attendance at a GUM clinic by older people with a suspected sexually acquired infection?
3. Are older GUM attenders aware of whether infections/conditions are sexually acquired or not?
4. What is the relationship between older GUM attenders and the individuals from whom their STD infection was contracted (if applicable)?
5. a) What is the average latency period between symptom recognition and clinic attendance (for symptomatic attenders)?
b) What are the reasons given for this 'delay-behaviour'?
c) What factors predict this 'delay behaviour'?
6. What factors predict older GUM attenders being diagnosed with an 'acute' STD infection?
7. a) What proportion of older GUM attenders are tested for HIV?

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significantly more likely to have self-referred to the clinic (O.R.=0.43, 95% C.I.=0.19 - 0.97).

Table 3.4.1. Logistic regression estimation for likelihood of completing a questionnaire

| Predictor Variables | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|--|-----------------|-------------------------------|---------|
| Gender 0=female 1=male | 2.06 | 1.03 - 4.13 | p<0.05 |
| Referred to the clinic? 0=no 1=yes | 0.43 | 0.19 - 0.97 | p<0.05 |

Reliability and validity

Test for reliability (gender, age, marital status, previous STD diagnosis)

Tests for reliability were carried out as stated above. Kappa values were as follows: 1.0 for gender, 0.94 for age in 5-year bands, 0.77 for marital status, 0.54 for mode of referral and 0.51 for previous STD diagnosis.

Questionnaire item non-completion

For the 224 individuals who completed a questionnaire, item non-completion was identified. Items which were most commonly not answered were those concerning previous STD diagnosis (previous STD diagnosis was

GUM attenders who want more information about STDs and HIV?

3.1. Study Design

Introduction

The three GUM clinics (Sheffield, Leicester and Nottingham) which had participated in the initial study also agreed to be involved in this research phase.

Participants

All new patients (including past patients with new episodes) over the age of 50 attending the three GUM clinics (Sheffield, Leicester and Nottingham) during the research period were eligible for inclusion in the study. The research period for each clinic was decided upon in consultation with clinicians, and was as follows:

Sheffield: 1st January 1997 - 31st December 1997

Nottingham: 1st April 1997 - 20th February 1998

Leicester: 1st May 1997 - 20th March 1998

It was not possible for all clinics to run the study over the same period due to their involvement in other research projects. However, this was not considered to introduce significant bias into study findings.

Materials

A self-administered questionnaire (SAQ) was selected as the primary research tool for a number of reasons, both methodological and practical. Firstly, the SAQ is a mainstay of sexuality research, especially within the clinic context. A combined *Medline* and *Psychlit* search up to March 1998 revealed that relatively few studies of a behavioural (as opposed to a clinical) nature had been undertaken within a GUM clinic setting. Of those that had (n=25), 15 had utilised the same form of data collection instrument, namely a SAQ. Of the remainder, the majority either did not describe their methodology adequately, or utilised secondary data sources such as patient notes or other clinic data. Only one stated an alternative methodology (an interviewer-administered questionnaire).

The popularity of the SAQ within sexuality research relates to the specific advantages it displays, especially within a GUM setting. Primarily, if the questionnaire is either confidential, or anonymous, more detailed responses, especially to sensitive questions, are expected. Breakwell (1990) has noted that

in sensitive areas of questioning, people are often more willing to disclose information to the un-seeing page than to an interviewer.
(p. 81-83)

This is exemplified by research undertaken with gay men focusing upon disclosure of HIV risk behaviours (Siegel, Krauss and Karus, 1994). It was found that risky behaviours were more likely to be reported in the questionnaire format than in an interview. The authors therefore concluded that

the higher mean risk rating in questionnaire reports suggests the efficiency of less costly questionnaires in gathering sensitive information.
(p.226)

Within the current context utilising an SAQ had two additional (and largely practical) advantages, relating to the fact that it could be distributed by clinic staff. Firstly, this allowed data to be collected on clinic attenders from three different clinics during the same time period. This enabled a greater number of individuals to participate in the study and overcame the practical problems inherent in studying a patient sub-population whose frequency of attendance is relatively low. The second additional advantage related to the stringent controls in place within the clinic to protect patient confidentiality. These would not be compromised if the questionnaires were administered by clinic staff.

Although it was recognised that problems can be encountered in SAQ studies, for example misinterpretation on the part of the respondent, poor literacy skills or ambiguous responses, this was considered the most appropriate data collection instrument to use within the current context.

Questionnaire design

The paucity of previous research within this field meant that there were no standardised or validated questionnaires available to address the research questions identified above. Therefore a questionnaire had to be designed. Questionnaire design was guided by previous research undertaken within complementary subject areas, as well as by the results of the exploratory investigation. The final structure of the questionnaire was decided after initial piloting work and is presented in Section 3.2.

Participant information sheet

A participant information sheet was attached to the front of the questionnaire (see Appendix B). This explained the purpose of the study and what would be involved if the individual decided to participate. The confidential nature of the questionnaire was stressed, as was the fact that the participant could withdraw from the study at any time without affecting the quality of the care they received.

Procedure

The questionnaire was administered to patients eligible for the study by the clinic receptionist before their consultation. The receptionist explained the purpose of the study and invited them to participate. The questionnaire was handed to the participant in an envelope, and they were asked to complete it, and then return the sealed envelope to the receptionist. They were told that if they did not wish to participate, they should seal the uncompleted questionnaire into the envelope and return it as above. It was hoped that this would mean that individuals did not feel pressurised into participating. A private room/quiet area was provided for questionnaire completion.

Utilising clinic information

Introduction and procedures

Questionnaire data was supplemented with information gathered from patient notes. This allowed important information such as diagnoses to be

collected and enabled reliability checks to be carried out. The procedure for collecting this information had to comply with the rigorous confidentiality mechanisms in operation in all GUM clinics. Thus, the actual data gathering could not be done by the researcher, but only by clinic staff. This had the disadvantage that collection mechanisms could not be rigorously assessed (although any discrepancies with questionnaire data were double checked), but the advantage that people with clinical knowledge could elicit diagnostic information more readily than the researcher.

To gather information, questionnaires had to be linked to patient identity in some way, without compromising patient confidentiality. The questionnaires were therefore numbered individually, the receptionist recording which questionnaire was given to which individual. The individual was tagged according to his or her unique clinic identifier. The researcher, therefore, was never given the patient's name at any point.

The data collection form

The data collection form to be utilised to gather information from patient notes was developed by the researcher and a clinician at Sheffield GUM clinic (see Appendix C). Socio-demographic data (age, gender, ethnicity, marital status, mode of referral to the clinic) were collected so as to enable questionnaire answers to be validated. Further information was collected concerning past history of STDs, sexuality and diagnosis for that visit. This information allowed a very detailed profile of each participant to be developed.

Ethical issues

The principal ethical consideration in this study was that of protecting patient identity. This was a major consideration in study design as outlined above. As a consequence, safeguards built into the design meant that patients' names were never revealed to the researcher (see below).

A further issue to consider was the use of medical records to obtain supplementary patient data as detailed above and, specifically, the need for patient consent to retrieve this information. Guidelines produced by the Royal College of Physicians Committee on Ethical Issues in Medicine (Anon, 1994) were followed, which state that:

It is, in principle, ethically acceptable to use personal medical records without approaching or involving the patients concerned, provided that confidentiality and anonymity are preserved. (p.439)

They further stipulate that the official custodian of the records give their consent for records to be accessed. As outlined above, these criteria were fulfilled in the present study.

The study was also approved by the local Ethics Committees in all appropriate regions (South Sheffield Ethics Committee, Nottingham City Hospital Ethics Committee, Leicestershire Ethics Committee; for letters of approval see Appendix D).

3.2. Pilot work

Issues of reliability and validity

As no comparable research has been undertaken involving data collection from older GUM clinic attenders, little information was available to guide the adoption of reliability and validity checks. However, certain measures could be utilised.

Firstly, it has been seen that the data collection instrument chosen, namely the SAQ, had been shown to generate valid and reliable data within a GUM setting. James, Bignell and Gillies (1991), for example, reported high levels of agreement between sexual behaviour data generated by questionnaire and interview for a sample of GUM clinic attenders in Nottingham. A comparable US study by Upchurch *et al* (1991), undertaken within an STD clinic (the US equivalent of a GUM clinic) found that inter-partner reliability was very high among individuals reporting STD infection. This led them to conclude that reliable information regarding sexual behaviour may be obtained within a clinic setting.

Filipe *et al* (1994) state that in their study of sexual behaviour among attenders to a London GUM clinic, the fact that questionnaire items related to the context of their current attendance, coupled with the assurance of confidentiality, was 'likely to enhance the reliability of the findings' (p.349). However, they further acknowledge that it was unfortunate that data could not be corroborated by collecting information on specific diagnoses from patient notes.

Within the context of the current study, however, not only would additional information from patient notes testify to the validity and reliability of

information given in the questionnaire, but it would also supplement it, for example by providing data concerning sexual orientation and diagnoses (if relevant). Any discrepancies between the two information sources would obviously have to be examined and might provide additional important methodological information.

Reliability was further tested statistically, utilising the kappa coefficient for categorical data, originally proposed by Cohen (1960). The kappa coefficient measures the level of concurrence for categorical data between two *judges or raters* (Fleiss, 1971) whilst accounting for the proportion of agreement likely to be attributable to chance. The kappa value ranges from -1 to +1, with a value of 0 indicating that the observed agreement is the same as that which would be expected by chance, a minus value less than chance, and a positive value more than chance. A kappa value of 0.7 is normally utilised as an appropriate level of agreement (Cramer, 1998).

The kappa co-efficient was therefore used to measure agreement between questionnaire data and patient note information for the following variables: gender, marital status, age in five-year bands, mode of referral to the clinic and previous diagnosed STD.

Readability score

The questionnaire was constructed in such a way that it could be easily understood by the majority of respondents. This was important given that literacy problems increase after 54 years (Basic Skills Agency, 1994). Readability scores were used to measure ease of comprehension empirically. The questionnaire's readability score was measured using two scales, the Flesch

Reading Ease Scale and the Flesch-Kincaid Grade Level.

The Flesch Reading Ease Scale

This scale estimates what percentage of the population would be able to understand a document based on the average number of words in a sentence and the number of syllables per 100 words. Ley and Florio (1996) advise setting an upper difficulty level of 70 to 80.

The questionnaire was measured on this scale, and received a score of 73.1. As this score corresponds with the above recommendation, it indicates that the majority of individuals would be able to understand the questionnaire. However, Ley and Florio advise basing final conclusions concerning readability on more than one test, so the Flesch-Kincaid Grade Level test was also used.

The Flesch-Kincaid Grade Level

This scale estimates the level of education needed to understand any document in much the same way as the Flesch reading scale described above. Ley and Florio (1996) set an upper limit of 6th to 7th Grade (equivalent to ages 11-12) and advise to aim for a score between Grades 4 to 5 (equivalent to ages 9-10). The questionnaire's score of 5.2 is therefore acceptable according to both these criteria.

Analysis of first 50 responses

In order to ensure that the questionnaire was acceptable and comprehensive to study participants, an analysis of the first 50 completed questionnaires was undertaken. This focused upon completeness of answering,

appropriateness of answering and overall response rates. In addition, clinic staff were asked about any difficulties they had experienced in administering the questionnaire, as well as problems participants had reported to them concerning questionnaire completion.

The overall response rate after 50 patients had completed the questionnaire was 80%. The majority of questionnaires had been completed thoroughly and appropriately; no problematic questions could be identified. Furthermore, clinic staff reported neither difficulties in administering the questionnaire nor problems identified by participants. Average length of questionnaire completion was estimated to be 15 minutes, consistent with the average waiting time in the clinic.

It was therefore decided that no changes should be made to either the questionnaire or the way in which it was administered within the clinics. The first 50 completed questionnaires were therefore included in the total data set.

Questionnaire structure

The final version of the questionnaire included 29 questions (see Appendix A):

- **Questions 1-4:**

gathered socio-demographic information about the respondent (age, gender, marital status, ethnicity). The wording of the questionnaire concerning ethnic origin was guided by the recommendations of McKenzie and Crowcroft (1996).

- **Questions 5-12:**

addressed reasons for current attendance at the clinic, history of clinic attendance and/or diagnosis of sexually-acquired infections/conditions and mode of referral to the clinic upon this occasion. It was recognised that past studies have not collected information on past STD diagnoses because of the inherent difficulties in recalling whether a diagnosis was sexually transmitted and the name of that diagnosis (Wellings, Field, Johnson, and Wadsworth, 1994). This difficulty was addressed by collecting the information from patient note data (see below), but the item was still included in the questionnaire as the reliability of collecting such information from older individuals does not appear to have been addressed before.

- **Questions 13-20:**

examined information needs surrounding sexually-acquired infections/conditions. Questions about HIV/AIDS were included separately as it was hypothesised that information issues may be different for these than for other sexually acquired infections.

- **Questions 21-24:**

explored past experiences/concerns about sexually-acquired infections/conditions, specifically focusing upon any occasions when the respondent feared he/she may have contracted such an infection, but did not seek medical help. Question 24 asked about any previous history of HIV/AIDS testing.

- **Questions 25-29:**

constituted a separate section, only to be completed by those respondents who attending the clinic because they thought they might have a sexually-acquired infection/condition. Information was gathered concerning latency between symptom recognition and clinic attendance, reasons for any 'delay-behaviour' and suspected source of infection. A conservative definition of delay-behaviour was adopted (Hook *et al*, 1997; Fortenberry, 1997), with delay defined as waiting more than two weeks between symptom recognition and clinic attendance. This time period was selected after Leenaars, Rombouts and Kok (1993). Individuals whose delay was the result of seeking other sources of medical treatment were not considered to exhibit delay-behaviours.

3.3. Strategies for Data Analysis

Introduction

Methods of data analysis will be explored first. The rationale for using particular statistical tests will be explained and a brief description of each test given. Issues pertaining to the quality of the data collected will then be addressed, focusing on participation bias, inter-clinic variability and the overall reliability and validity of findings. The socio-demographic characteristics of the sample will then be described. Finally, the main study results will be presented

in a separate section, structured according to the research questions identified at the beginning of the chapter.

Statistical Analyses

Data were entered into an SPSS (Windows, Version 7.1) database and checked for accuracy. Individual variables were initially explored at a univariate level and bivariate relationships between all variables established using Chi Square tests (where numbers were sufficient). Chi square was chosen as an appropriate test of association because variables of interest were primarily categorical. Multivariate statistical modelling was then used to identify more complex relationships between variables. This type of analysis yields a regression model in which the dependent (or outcome) variable is expressed as a combination of the explanatory variables (sometimes called predictor variables or covariates), (Altman, 1991).

As data collected were primarily categorical, forward stepwise logistic regression modelling was selected to undertake multivariate analyses. The selection of dependent variables was guided by the primary research questions (reiterated below). As no prior data were available exploring these issues, and there was no reason to assume relationships between variables, no pre-selection of independent variables was undertaken and all variables were included in the model unless numbers were insufficient. Variables were only not included in the model if less than 10% of responses were recorded in any one category and merging categories was not an option. Variables excluded for this reason included sexuality, ethnicity and suspected STD on a previous occasion. As no

inter-relationships between variables were assumed, interaction terms were not added to the model.

There was also no screening of independent variables by establishing bivariate associations as:

variables may contribute to a multiple regression model due to complex interrelationships between the variables. (p. 349, Altman, 1991).

Altman (1991), therefore does not advocate this approach, and considers it 'saves nothing' (p.349) when using forward stepwise regression.

Regarding model selection, it was recognised that there is no 'right approach' or 'best model' (referring to the ability of the model to predict the dependent variable). The two main approaches to logistic regression are forwards stepwise and backwards stepwise selection, both of which are equally valid approaches (Altman, 1991). The forward selection procedure was selected because there were a large number of explanatory variables to include in the model (Altman, 1991).

In forward selection the single variable that has the most significant association with the dependent variable is identified first and entered into the model. The variable among those not in the model which, when added to the model so far obtained, explains and largest amount of the remaining variability is then identified and added. This step is repeated until the addition of an extra variable is not statistically significant at some chosen level. In this instance the $p=0.05$ level was chosen, as advocated by Altman (1991).

The coding of each variable is given in Appendix F. As discussed above, the forward stepwise mode of logistic identifies which of the independent variables (if any) best predict the dependent variable of interest. These 'best

predictors' will therefore be presented for each logistic regression model undertaken, along with the level at which the variable was significant.

Continuous and ordered variables in comparisons of three or more groups were tested using the Kruskal Wallis test, a more general form of the non-parametric Mann-Whitney test (Altman, 1991). This test is appropriate to independent samples of interval data and is equivalent to the one-way ANOVA (Kinnear and Gray, 1997).

Log-linear analyses were employed where associations needed to be identified in complex contingency tables in which individuals were classified with respect to several categorical variables. The purpose of a log-linear analysis is to construct a model that best accounts for the data available. It contains both main effect terms and interaction terms, so that the values in the contingency table are expressed as the sum of the main effects and the interaction components (Kinnear and Gray, 1997). The evaluation of the final model is made by comparing the observed and the expected frequencies for each cell using the likelihood ratio, but it is also advisable to examine the distribution of residuals (the difference between the observed and the expected frequencies), or more conveniently, the standardised residuals (the residuals expressed in standardised form) (Kinnear and Gray, 1997).

Presentation of results

All data will be described at a univariate level. Analyses (both bivariate and multivariate) that directly address the research questions of interest will also be presented. For reasons of space remaining bivariate relationships are not presented, but can be seen in Appendix E.

3.4. Preliminary Data Analyses

Response rate and final sample size

Overall, 274 individuals over the age of 50 who attended the clinics during the research period were invited to participate in the study. Of these, 224 (81.7%) completed a questionnaire. There was no significant association between response rates at the three clinics (completed a questionnaire: Sheffield 99 (79.8%); Leicester 62 (84.9%); Nottingham 63 (81.8%); $\chi^2=0.80$; d.f.=2; $p=0.67$).

Participation bias

Information was gathered from patient notes for all eligible clinic attenders invited to participate in the study during the research period, as outlined above. These data allowed any bias in study participation to be identified.

In total, 50 individuals who were asked to participate in the study failed to complete a questionnaire. A logistic regression analysis was carried out with variables collected for all individuals (age, gender, marital status, mode of referral, previous STD diagnosis and acute STD diagnosis) to identify factors predicting non-response (Table 3.4.1.). The analysis identified that, of the independent variables included in the model (age, gender, marital status, mode of referral, previous STD diagnosis and acute STD diagnosis), the best predictors comprised gender, with men being twice as likely as women to participate (O.R.=2.06, 95% C.I.=1.03 - 4.13) and mode of referral, with participants being

unknown for 8.5% of respondents; n=19), previous anxiety regarding STDs (whether the respondent had previously suspected an STD infection, but not sought treatment, was unknown for 12.9%; n=29) and history of HIV testing (unknown for 12.9%; n=29). There was a substantial amount of overlap between the individuals who did not complete these items; for example, 75.9% (n=22) of those who did not complete the question concerning HIV testing also did not state whether they had had anxieties concerning STDs in the past.

The difference between respondents and non-respondents was assessed with relation to the item concerning HIV testing. Where numbers were sufficient, χ^2 testing was used to test the associations between not completing this item and other known participant characteristics. Significant associations between not completing the item on HIV testing were identified for age and marital status, with individuals over 60 (replied: <60 141 (91.0%); 60+ 48 (73.8%); $\chi^2=11.1$; d.f.=1; $p<0.001$) and married individuals (replied: married 87 (81.3%); unmarried 99 (91.7%); $\chi^2=4.94$; d.f.=1; $p<0.05$) less likely to complete this item.

Another area where incomplete answering was identified was in relation to information issues. Items concerning the amount of information received about both STDs and HIV were not completed by 10.3% (n=23), and concerning source of information about HIV by 13.8% (n=31). There was again a tendency for individuals who did not answer one information question to not answer any of the others (for example, all individuals who did not answer the item concerning amount of information about STDs and HIV did not answer the question concerning source of information about HIV).

Statistical testing was employed to identify any difference in the

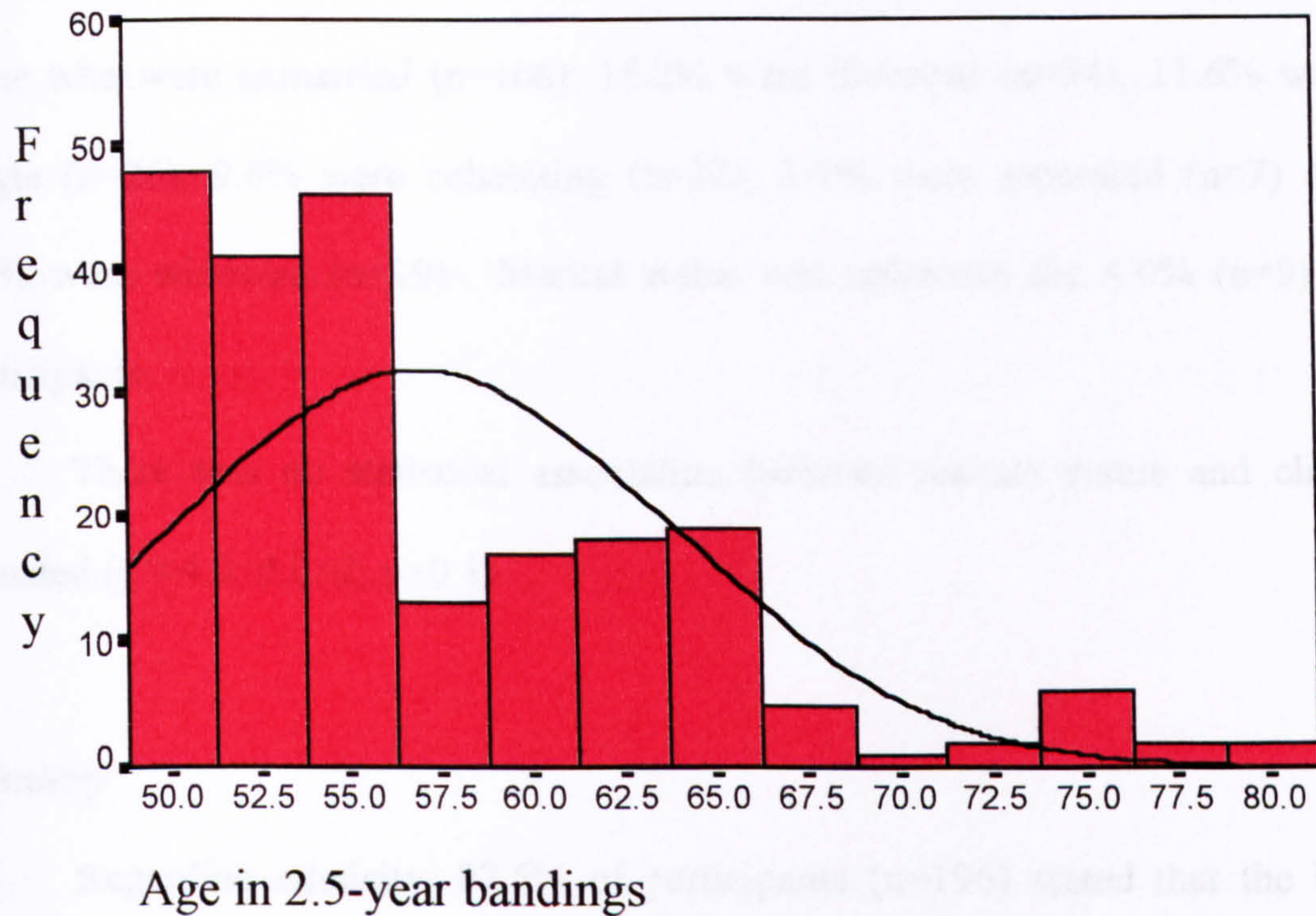
characteristics of individuals who replied to the item relating to source of information about HIV compared to those who did not (for all variables where numbers were sufficient). Significant associations were identified between age, referral to the clinic and item completion, with individuals over the age of 60 (completed: <60 137 (88.4%); 60+ 50 (76.9%); $\chi^2=4.72$; d.f.=1; $p<0.05$) and participants who had been referred to the clinic (completed: referred to the clinic 61 (80.3%); self-referred 126 (90.6%); $\chi^2=4.68$; d.f.=1; $p<0.05$) significantly less likely to complete this item.

Socio-demographic characteristics of the sample

Age

Overall, respondents ranged in age from 50 - 81 years, with a median age of 54 and an inter-quartile range 52 - 61.7 years. The age distribution was positively skewed (Figure 3.4.1).

Figure 3.4.1. The age of study participants



There was an association between the ages of respondents and the clinic from where they were recruited (Sheffield: median 54 years, inter-quartile range 51.0-59.0; Leicester: median 55 years, inter-quartile range 52.5-63.0; Nottingham: median 55 years, inter-quartile range 52.0-62.0; Kruskal Wallis: $\chi^2=6.04$; d.f.=2; $p<0.05$).

Gender

Men represented 53.6% of participants (n=120) and women 45.5% (n=102). Gender was unknown for 0.9% (n=2) of participants. There was no significant association between clinic and the gender ratio of participants ($\chi^2=5.05$; d.f.=2; $p=0.8$).

Marital status

Approximately half the participants were married (n=107; 47.8%). Of those who were unmarried (n=108), 15.2% were divorced (n=34), 11.6% were single (n=26), 9.8% were cohabiting (n=22), 3.1% were separated (n=7) and 8.5% were widowed (n=19). Marital status was unknown for 4.0% (n=9) of participants.

There was no statistical association between marital status and clinic attended ($\chi^2=4.0$; d.f.=2; p=0.1).

Ethnicity

Regarding ethnicity, 87.5% of participants (n=196) stated that the UK was their country of birth, and 87.9% (n=197) defined themselves as being white British. Of the remainder who reported their ethnicity as non-white UK (6.2%; n=14), 2.2% defined themselves as Irish (n=5) and 1.8% as Asian or Indian (n=4). Ethnicity was unknown for 6.2% of participants (n=14).

Insufficient numbers precluded statistical testing, but ethnicity did not vary proportionately between clinics.

Relationship between socio-demographic variables

Log-linear model analysis was used to establish the relationship between the age, sex and marital status of respondents. The best model of fit was hierarchical and had a sex-marital status association (likelihood ratio $\chi^2=8.3$; d.f.=9; p=0.5). Indeed, 57.0% of men were married (n=65) compared with 43.2% of women (n=42). The standardised residuals for each cell were between +/-2.

Socio-demographic characteristics of the sample compared to the general population

1991 census data for the relevant catchment areas were utilised to compare the older patient group and the general population within this age group on selected demographic variables. These analyses identified that participants were proportionately more likely to be male (men: clinic 120 (54.0%); census 147355 (44.3%); $\chi^2 = 8.6$; d.f.=1; $p < 0.005$) and younger than the general population aged 50 years and over (Table 3.4.2.).

Table 3.4.2. The age distribution of participants compared with census data⁹

| Age | Men | | | | Women ¹⁰ | | | |
|--------------|----------------|-------------|------------|-------------|---------------------|-------------|------------|-------------|
| | Census | | Sample | | Census | | Sample | |
| | (n) | (%) | (n) | (%) | (n) | (%) | (n) | (%) |
| 50-54 | 26,451 | 17.9% | 58 | 48.3% | 26,632 | 14.6% | 54 | 54.0% |
| 55-59 | 25,090 | 17.0% | 22 | 18.3% | 25,837 | 14.2% | 21 | 21.0% |
| 60-64 | 25,195 | 17.1% | 22 | 18.3% | 27,182 | 14.9% | 12 | 12.0% |
| 65-69 | 25,037 | 17.0% | 9 | 7.5% | 28,422 | 15.6% | 9 | 9.0% |
| 70+ | 45,582 | 30.9% | 9 | 7.6% | 77,326 | 42.5% | 4 | 4.0% |
| TOTAL | 147,355 | 100% | 120 | 100% | 185,399 | 100% | 100 | 100% |

men: ($\chi^2 = 89.5$; d.f.=4; $p < 0.001$); women: ($\chi^2 = 149.9$; d.f.=4; $p < 0.001$).

There was no difference in marital status between the clinic sample

⁹ Gender for two participants was unknown.

¹⁰ Ages of two women were unknown (although it was known that they were over 50).

population and the general population within this age band for women, but male clinic attenders were significantly more likely to be unmarried (Table 3.4.3.).

Table 3.4.3. Marital status of respondents compared to census data¹¹

| Marital status | Men | | | | Women | | | |
|----------------|--------|---------|---------|---------|--------|---------|---------|---------|
| | Sample | | Census | | Sample | | Census | |
| | n | (%) | n | (%) | n | (%) | n | (%) |
| Married | 49 | (43.0%) | 109,155 | (74.1%) | 55 | (56.7%) | 97,755 | (52.7%) |
| Un-Married | 65 | (57.0%) | 38,200 | (25.9%) | 42 | (43.3%) | 87,644 | (47.3%) |
| TOTAL | 114 | (100%) | 147,355 | (100%) | 97 | (100%) | 185,399 | (100%) |

men:($\chi^2=57.3$; d.f.=1; $p<0.001$); women:($\chi^2=0.61$; d.f.=1; $p=0.4$).

Ethnicity

As previously stated, numbers were too small to permit statistical testing, but proportions of ethnic minorities were similar between clinics and clinic catchment areas.

¹¹ Marital status was unknown for five women and six men; gender was unknown for two participants.

3.5. Main Results

Introduction

Although issues have been raised in the previous section relating to participation bias and sample quality, analyses did not indicate significant bias. Therefore issues relating to sample bias will be discussed in the next chapter when the main results are considered.

Results will be structured according to the primary research questions guiding this study (see page 112). To reiterate, all variables will be presented at a univariate level together with bivariate/multivariate analyses addressing each primary research question. For logistic regression models, the odds ratio and confidence intervals for variables which significantly predict the outcome variable of interest will be presented.

Independent variables added to each model (unless they were the dependent variable) comprised:

- Age
- Gender
- Marital status
- Previous GUM attendance
- Previous STD diagnosis
- Amount of information received about STDs
- Amount of information received about HIV
- Desire for more information about STDs
- Desire for more information about HIV
- Centre
- Attendance with suspected STD
- Acute STD diagnosis
- Referred to the clinic
- Previous HIV test

Research Question 1) Do older people attend GUM clinics with suspected STD infection, or for non-STD related conditions, e.g. prostate problems?

Primary reason for attendance

The majority of participants (66.5%; n=149) cited their primary reason for attending the clinic on this occasion as having an infection/condition requiring treatment or a check up. Twelve percent of individuals (n=27) stated that they had already been diagnosed with an infection/condition in this clinic and were attending for treatment or a check up and 6.7% (n=15) that they had been diagnosed with an infection/condition elsewhere (primarily by their GP) and were here for treatment or a check up. A variety of other reasons were given for clinic attendance by the remaining participants, including HIV testing (4.9%; n=11), partner being unfaithful (1.8%; n=4) and having a hepatitis B injection (1.3%; n=3).

Proportion of individuals attending with suspected STD infection

Approximately two-thirds of participants (n=145; 64.7%) indicated that they were attending the clinic because they thought they may have a sexually-acquired infection or condition, or had already been diagnosed with a sexually-acquired infection or condition. This was unknown for 10.3% of respondents (n=23).

Of these individuals, 83.4% (n=121) were symptomatic. Symptoms experienced¹² included abnormal itching (n=65), pain (n=38), genital/anal warts (n=30), ulcers/sores (n=12) and urinary problems (n=10).

¹² Individuals have been recorded twice if they stated that they had experienced more than one symptom.

Research question 2) What factors predict attendance at a GUM clinic by older people with a suspected sexually acquired infection?

Logistic regression model to identify factors predicting attending with suspected STD infection: dependent variable - 'attendance with a suspected STD'

This analysis identified two factors significantly and independently related to attending the clinic with a suspected sexually-acquired infection or condition (Table 3.5.1.). These were not having received a lot of information about HIV (OR=0.34, 95% CI=0.15 - 0.75, P<0.01) and having self-referred to the clinic (OR=0.21, 95% CI=0.09 - 0.45, p<0.005).

Table 3.5.1. Logistic regression estimation for likelihood of attending with a suspected STD

| Predictor Variables | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|---|-----------------|-------------------------------|---------|
| Received a lot of information about HIV? 0=no 1=yes | 0.34 | 0.15 - 0.75 | p<0.01 |
| Referred to the clinic? 0=no 1=yes | 0.21 | 0.09 - 0.45 | p<0.005 |

Research question 3) Are older GUM attenders aware of whether infections/conditions are sexually acquired or not?

Confusion regarding cause of infection

Potential confusion regarding the underlying cause of infection was identified by comparing respondents' stated reason for attendance, namely whether or not they were attending with a suspected sexually-acquired infection or condition, with their final diagnosis. Six individuals who indicated that they did not believe that they had a sexually-acquired condition or infection were diagnosed with an acute STD, indicating that this infection or condition had been recently transmitted.

A further 49 individuals who indicated that they thought they did have a suspected sexually-acquired infection were diagnosed with "other episodes requiring treatment in GUM" (n=22), "other episodes not requiring treatment" (n=26) and "urinary tract infection" (n=1).

Research question 4) What is the relationship between older GUM attenders and the individuals from whom their STD infection was contracted (if applicable)?

Individuals cited the suspected source of their infection as follows: 'past sexual partner' (14.5%; n=21), 'no-one in particular' (13.8%; n=20), 'long-term sexual partner' (11.7%; n=17), 'new sexual partner' (11.0%; n=16) and spouse (7.6%; n=11). However, 33.1% (n=48) stated that they did not know from whom they had contracted the infection or condition. This item was not answered by

8.3% of individuals who had previously indicated that they thought they had a sexually-acquired infection or condition (n=12).

Research question 5a) What is the average latency period between symptom recognition and clinic attendance

Extent of delay-behaviour

To reiterate, delay-behaviour was defined as waiting over two weeks between symptom recognition and clinic attendance for symptomatic participants attending with a suspected sexually-acquired infection or condition. Individuals whose delay was the result of seeking other sources of medical treatment were not considered to exhibit delay-behaviours.

According to this definition, delay-behaviour was reported by 43.8% (n=53) of symptomatic participants with suspected STD. Of these, 9.9% (n=12) reported waiting over two months between symptom recognition and clinic attendance. This item was not answered by 12 (9.9%) individuals who indicated that they were attending the clinic with suspected STD.

Research Question 5b) What are the reasons given for this 'delay behaviour'?

Reasons given for delay by individuals known to have waited over two weeks between symptom recognition and clinic attendance (n=53) included wanting to 'wait and see' (18.9%; n=10), being embarrassed or afraid to attend

(13.2%; n=7), thinking symptoms were 'normal' (9.4%; n=5) and attempting self-treatment (3.8%; n=2). A variety of other reasons were cited by the remainder of individuals reporting delay-behaviour, including concern about HIV, finding out where to go for treatment and consulting medical textbooks. Reason for delay was unknown for 16 individuals (30.2%).

Research question 5c) What factors predict this 'delay behaviour'?

*Logistic regression model to identify factors predicting delay behaviour:
dependent variable - 'delay of >2 weeks between symptom recognition and clinic attendance'*

This analysis identified one factor significantly and independently related to exhibiting delay-behaviour (Table 3.5.2.). This factor was having had an HIV test, with individuals exhibiting delay-behaviour significantly more likely to have either had an HIV test or to state that they intended to have an HIV test during this attendance (OR=5.18, 95% CI=1.68 - 16.01, p<0.005).

Table 3.5.2. Logistic regression estimation for likelihood of having delayed more than 2 weeks between symptom recognition and clinic attendance

| Predictor Variable | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|----------------------------|-----------------|-------------------------------|---------|
| HIV test: 0=no 1=yes | 5.18 | 1.68 - 16.01 | p<0.005 |

Research question 6) What factors predict older GUM attenders being diagnosed with an 'acute' STD infection?

Factors predicting acute STD diagnosis

The criteria for defining an acute STD diagnosis were given above. To reiterate, this refers to conditions or infections which indicate recent sexual transmission. Of the conditions above, 44 diagnoses relating to 43 participants can be termed 'acute STD diagnoses'. A further nine non-participants were also diagnosed with acute STD infection.

This analysis identified one factor significantly and independently related to receiving an acute STD diagnosis, namely not having received a lot of information about STDs (OR=2.61, 95% CI=1.04 - 6.56).

Research question 7a) What proportion of older GUM attenders are tested for HIV?

Of total participants who completed this item, 15.2% (n=34) had been tested for the HIV virus before this visit, and 12.9% (n=29) intended to be tested during this visit (but had been tested previously). In addition, 7.1% (n=16) had not been tested for HIV but had considered it, and 50.4% (n=113) had not been tested for HIV and had never considered it. History of HIV testing was unknown for 32 individuals (14.3%).

Research question 7b) What factors predict older attenders having an HIV test?

Logistic regression model to identify factors predicting HIV testing: dependent variable - 'previous HIV testing, or intention to be tested at current visit'

This analysis identified two factors significantly and independently related to either having had an HIV test or stating the intention to have an HIV test during this attendance (Table 3.5.3.). These were being male (OR=2.54, 95% CI=1.18 - 5.44, $p<0.05$) and not having been referred to the clinic (OR=0.16, 95% CI=0.58 - 0.44, $p<0.005$).

Table 3.5.3. Logistic regression estimation for likelihood of having had an HIV test

| Predictor Variables | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|---|-----------------|-------------------------------|-----------|
| Gender: 0=female 1=male | 2.54 | 1.18 - 5.44 | $p<0.05$ |
| Referred to the clinic?: 0=no 1=yes | 0.16 | 0.58 - 0.44 | $p<0.005$ |

Research question 8a) Are older people attending a GUM clinic for the first time in later life?

Proportion of first time attenders

Regarding history of GUM attendance, 42.0% of participants (n=94) had attended a GUM clinic on a previous occasion, and 53.1% (n=119) were first-time clinic attenders. Previous GUM attendance was unknown for 11 individuals (4.9%).

Research question 8b) What factors predict attending a GUM clinic for the first time in later life?

Logistic regression model to identify factors predicting history of GUM attendance: dependent variable - 'previous GUM attendance'

This analysis identified three factors significantly and independently related to having previously attended a GUM clinic (Table 3.5.4.). These were having had a previous STD diagnosis (OR=10.76, 95% CI=4.00 - 28.98, $p<0.001$) having received a lot of information about STDs (OR=3.07, 95% CI=1.37 - 6.87, $p<0.005$) and not having been referred to the clinic (OR=0.08, 95% CI=0.03 - 0.23, $p<0.001$).

Table 3.5.4. Logistic regression estimation for likelihood of previous GUM attendance

| Predictor Variables | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|--|-----------------|-------------------------------|---------|
| Previous STD diagnosis: 0=no 1=yes | 10.76 | 4.00 - 28.98 | p<0.001 |
| Amount of information received about STDs: 0=not very much/hardly anything 1=quite a lot/a lot | 3.07 | 1.37 - 6.87 | p<0.005 |
| Referred to the clinic?: 0=no 1=yes | 0.08 | 0.03 - 0.23 | p<0.001 |

Research question 9a) What proportion of older GUM attenders have a previous STD diagnosis?

Proportion of attenders with a past STD diagnosis

Regarding history of STD diagnosis, 18.7% (n=42) of participants stated that they had previously been diagnosed with an STD infection, 61.2% (n=137) that they had not been diagnosed with an STD infection, and 1.3% (n=3) were unsure whether they had received such a diagnosis or not. This item was unanswered by 19 individuals (8.5%). A variety of conditions were cited, including wart virus (n=15; 35.7%), NSU (n=8; 19.0%), thrush (n=7; 16.7%), gonorrhoea (n=6; 14.3%) and herpes (n=3; 7.1%). The dates given for past

diagnoses ranged from 1938-1998, although the majority of individuals (80.9%; n=34) stated that they had been diagnosed with an STD after 1990.

However, it can be seen above that there was some inconsistency between history of an STD as reported on the questionnaire and as reported in patient notes (kappa=0.51). Indeed, from patient notes 28.6% (n=64) of respondents were recorded as having had a previous STD diagnosis. Diagnoses included syphilis (n=7; 10.9%), gonorrhoea (n=8; 12.5%), NSU (n=7; 10.9%), herpes (n=3; 4.7%) and genital warts (n=27; 42.2%).

On this evidence, more accurate histories of past diagnoses were likely to be reported in the patient notes than in the questionnaire. Therefore, past STD diagnosis was based upon patient note information.

Research question 9b) What factors predict older attenders having a previous STD diagnosis?

Logistic regression model to identify factors predicting history of STD diagnosis: dependent variable: past STD diagnosis

This analysis identified one factor significantly and independently related to having a past STD diagnosis, namely having previously attended a GUM clinic (OR=10.76, 95% CI= 3.52 - 17.02, p<0.005).

Research question 10) What is the sexual orientation of older GUM attenders?

Sexuality

Another variable identified from patient note data was the respondents' sexuality. During their consultation, 84.8% (n=190) of respondents stated that they were heterosexual, 8.5% (n=19) that they were homosexual and 2.7% (n=6) that they were bisexual. Sexuality was unknown for 4.0% of participants (n=9). Unfortunately, as discussed above, numbers were insufficient to explore the relationship between sexuality and other variables.

Research question 11a) How much information about STDs and HIV have older GUM attenders received?

Amount of information received about STDs and HIV

There was an association between perceived amount of information received about STDs when compared with that for HIV (Spearman's: $r=0.67$; $p<0.001$). Indeed, the majority of respondents felt that they had received 'hardly any' or 'not very much' information about both STDs and HIV (Table 3.5.5.). The amount of information received about STDs and HIV was unknown for 23 individuals (10.3%).

Table 3.5.5. Spearman's rank test for association between amount of information received for HIV compared with STDs (n=201)

| Amount of information received | STDs | | HIV | |
|--------------------------------|------|---------|-----|---------|
| | n | (%) | n | (%) |
| 'A lot' | 33 | (13.6%) | 26 | (14.0%) |
| 'Quite a lot' | 58 | (20.7%) | 62 | (21.5%) |
| 'Not very much' | 64 | (26.9%) | 50 | (26.0%) |
| 'Hardly anything' | 46 | (38.8%) | 63 | (38.6%) |

(Spearman's: $r=0.67$; $p<0.001$)

Research question 11b) What factors predict older GUM attenders having received a lot/quite a lot of information about STDs and HIV?

Logistic regression model to identify factors predicting amount of information received about STDs and HIV: dependent variables- amount of information received about STDs/ amount of information received about HIV

This analysis revealed that there were two factors significantly and independently related to having received a lot/quite a lot of information about STDs (Table 3.5.6.). These were not having an acute STD diagnosis (OR=0.37, 95% CI=0.14 - 0.96, p<0.05) and having previously attended a GUM clinic (OR=3.41, 95% CI=1.75 - 6.64, p<0.005).

Table 3.5.6. Logistic regression estimation for likelihood of having received a lot/quite a lot of information about STDs : Forward Stepwise LR

| Predictor Variables | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|--|-----------------|-------------------------------|---------|
| Acute STD diagnosis 0=no 1=yes | 0.37 | 0.14 - 0.96 | p<0.05 |
| Previous GUM attendance 0=no 1=yes | 3.41 | 1.75 - 6.64 | p<0.005 |

Logistic regression analysis also revealed that there was one factor significantly and independently related to having received a lot/quite a lot of information about HIV, namely having previously attended a GUM clinic (OR=2.69 95% CI=1.42 - 5.11, p<0.005).

Research question 11c) What are the primary information sources regarding STDs and HIV for older GUM attenders?

Information sources for STDs and HIV

The most frequently cited source of information about STDs and HIV was the media, although a higher proportion of individuals stated that magazines and television were their primary source of information about HIV (67.3%, n=130) when compared to STDs (42.0%, n=82; Table 3.5.7.). In addition, an increased percentage of respondents stated that their primary source of information about STDs was their GUM clinic.

Table 3.5.7. The primary sources of information received about HIV and STDs

| Information source | STDs | | HIV | |
|--------------------|------|---------|-----|---------|
| | n | (%) | n | (%) |
| GP | 8 | (4.1%) | 5 | (2.6%) |
| GUM clinic | 44 | (22.6%) | 21 | (10.9%) |
| Magazines/TV | 82 | (42.0%) | 130 | (67.3%) |
| Friends/Family | 35 | (17.9%) | 18 | (9.3%) |
| Work | 5 | (2.6%) | 10 | (5.2%) |
| Other | 21 | (10.8%) | 9 | (4.7%) |

There was a statistical association between primary sources of information about HIV and other STDs ($\chi^2=49.9$; d.f.=4; $p<0.001$; Table 3.5.8.). Primary

information source for STDs was unknown for 29 individuals (12.9%), and for HIV for 31 individuals (13.8%).

Table 3.5.8. Chi square test for association between primary sources of information received about HIV and STDs

| Primary source of information about STDs | Primary source of information about HIV | | | |
|--|---|------------------|------------------|-------------------|
| | HCPs | Media. | Other | |
| | <i>n (col %)</i> | <i>n (col %)</i> | <i>n (col %)</i> | <i>Row totals</i> |
| HCPs | 19 (73.1%) | 25 (20.0%) | 5 (14.7%) | 49 |
| Media | 5 (19.2%) | 66 (52.8%) | 8 (23.5%) | 79 |
| Other | 2 (7.7%) | 34 (27.2%) | 21 (61.8%) | 57 |
| <i>Column totals</i> | 26 | 125 | 34 | |

($\chi^2=49.9$; d.f.=4; $p<0.001$)

Research question 11d) Do older GUM attenders want more information about STDs and HIV?

Perceived need for more information about STDs and HIV

There was an association between perceived need for more information about STDs and HIV ($\chi^2=46.2$; d.f.=1; $p<0.001$: see Table 3.5.9.). Indeed, 47.6% (n=100) of participants who responded to this item wanted more information about STDs and 49.8% (n=100) wanted more information about HIV. This item was not completed by 14 individuals for STDs (6.2%), and 23

individuals for HIV (10.3%).

Table 3.5.9. Chi square test for association between perceived need for more information about STDs and HIV

| Do you feel you know enough about HIV? | Do you feel you know enough about STDs? | | |
|--|---|---------------|---------------------------|
| | Yes (n; col %) | No (n; col %) | |
| | | | <i>Row totals (col %)</i> |
| Yes | 77 (77%) | 29 (29%) | 106 (53.0%) |
| No | 23 (23%) | 71 (71%) | 94 (47.0%) |
| <i>Column total</i> | 100 (50.0%) | 100 (50.0%) | 200 (100%) |

($\chi^2=46.2$; d.f.=1; $p<0.001$)

Research question 11e) What factors predict older GUM attenders wanting additional information about STDs and HIV?

Logistic regression model to identify factors predicting stated need for additional information about STDs and HIV: dependent variables - stated need for more information about STDs/ stated need for more information about HIV

These analyses revealed that there was one factor significantly and independently related to having received sufficient information concerning STDs and HIV, namely not having a suspected sexually-acquired infection (STDs: OR=0.48, 95% CI=0.24 - 0.95, $p<0.05$; HIV: OR=0.47, 95% CI=0.23 - 0.94; $p<0.05$ Table 3.5.10.).

Table 3.5.10. Logistic regression estimation for likelihood of having received sufficient information about STDs and HIV

| Predictor Variables | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|--|-----------------|-------------------------------|---------|
| Attending with a suspected STD infection? 0=no 1=yes | STD 0.48 | 0.24 – 0.95 | p<0.05 |
| | HIV 0.47 | 0.23 – 0.94 | p<0.05 |

Research question 11f) What are the preferred additional sources of information for older GUM attenders who want more information about STDs and HIV?

The most popular sources of additional information about both STDs and HIV were health care professionals (see Table 3.5.11).

Table 3.5.11. Preferred additional sources of information about STDs and HIV

| Information Source | STDs | | HIV | |
|--------------------|--------|---------|--------|---------|
| | Number | (%) | Number | (%) |
| GP | 31 | (33.0%) | 21 | (22.1%) |
| GUM clinic | 41 | (43.6%) | 48 | (50.5%) |
| Magazines/TV | 18 | (19.1%) | 17 | (17.9%) |
| Other | 4 | (4.2%) | 9 | (9.5%) |

Again, there was a significant association between preferred information sources

for HIV and STDs ($\chi^2=90.6$; d.f.=4; $p<0.001$: Table 3.5.12.).

Table 3.5.12. Chi square test for association between preferred additional sources of information about STDs and HIV

| Preferred additional source of information about HIV | Preferred additional source of information about STDs | | |
|--|---|------------------|--------------|
| | HCPs | Media | Other |
| | <i>n (col %)</i> | <i>n (col %)</i> | <i>n (%)</i> |
| HCPs | 44 (65.7%) | 3 (18.8%) | 21 (19.1%) |
| Media | 3 (4.5%) | 9 (56.3%) | 5 (4.5%) |
| Other | 20 (29.9%) | 4 (25.0%) | 84 (76.4%) |
| Column totals | 67 | 16 | 110 |

($\chi^2=90.6$; d.f.=4; $p<0.001$)

Chapter 4

GUM Clinic Study: Discussion

Introduction

This chapter will present conclusions drawn from the results of the GUM clinic study. These will be divided into three main sections:

- Section 4.1 will discuss sample characteristics;
- Section 4.2 will explore findings pertaining to the primary research questions; and
- Section 4.3 will address the limitations of the study, as well as highlighting future research directions.

4.1. Discussion of Sample Characteristics

Response rates

The clinic independent response rate of 81.8% of all potential participants completing a questionnaire is high, although not atypical of response rates

reported from self-administered questionnaire studies undertaken with younger samples of GUM clinic attenders (for example, Hope and McArthur, 1996: 82.5%; Hawkes, Hart, Bletsoe, Shergold and Johnson, 1995: 83%). However, as this is the first questionnaire-based GUM study known to be conducted solely with older clinic attenders, it does testify to the fact that high response rates can be achieved independent of the age of the sample group. This indicates that the perceived difficulties of researching sexual health issues among older populations may have been exaggerated (e.g. Pointon, 1997; Rybash, Roodin and Santrock, 1991), at least for GUM clinic attenders.

Participation bias

Although the high response rate in the study does limit the impact of any participation bias (Oppenheim, 1992), a significant difference was identified between respondents and non-respondents. It was seen that respondents were more likely to be male than non-respondents, and, further, were more likely to have self-referred to the clinic.

Regarding the latter finding, it could be hypothesised that individuals who have self-referred to the clinic are more likely to be comfortable within a GUM setting and thus more receptive to study participation (especially given that a relationship was identified between self-referral and previous GUM attendance: see below). However, this variable does not appear to have been examined previously with relation to participation bias, so therefore support for this assertion cannot be drawn from the literature.

It is unclear why men were more likely to participate in the study than

women. As this finding has not been reported in younger samples (Hope and McArthur, 1996) it may be peculiar to this age group, or this study.

The implications of these identified biases in participation will be discussed in Section 4.2, when a more detailed assessment of the relationship between participant characteristics and the variables of interest can be made.

Inter-clinic variability

Only one difference in participant characteristics by clinic was observed, namely age distribution. Indeed, clinic attenders recruited from the Sheffield clinic were younger than those recruited from the Nottingham and Leicester clinics. Reasons for this are unclear. However, given the fact that this difference was only slight and no other differences in participant characteristics emerged (see below), it was considered appropriate to analyse data from all clinics together.

Reliability

The kappa statistics reported in the previous chapter provide indicators of the agreement between information given by respondents in the questionnaire, and that elicited by clinicians during consultation. Acceptable levels of agreement were found for demographic variables (gender, age, and marital status), but kappa values of below 0.7 indicate that there was not a high level of consistency between patient records and questionnaire data for mode of referral to the clinic or previous STD diagnosis, although values of around 0.5 do

indicate that a substantially higher level of agreement was found than would have arisen by chance alone. Such inconsistencies were not because of mistakes on the part of the individual recording this information from the patient notes, as they were asked to double check all notes where discrepancies were identified, and this process was audited.

However, kappa values did not give any indication that questionnaire items were inherently unreliable as logical explanations can be offered as to why there was not perfect consistency for recorded variables (i.e. with a kappa value of 1.0). Firstly, the values for marital status (although acceptable) are not exactly constant as may have been expected. This can be explained by the ambiguity inherent in defining marital status, especially among a group of individuals who have been seen to exhibit a wide variety of relationship patterns. Thus, the fact that an individual can be divorced and cohabiting, for example, or separated and single can result in different marital status definitions being adopted at different times. Furthermore, it is likely that the most accurate definition of perceived marital status is provided by self-report, as reported marital status is likely to be further interpreted on the part of the health care professional gathering patient note information.

The inconsistency identified for mode of referral relates to the fact that more individuals reported being referred to the clinic on the questionnaire than in patient notes. There could be a number of reasons for this. Firstly, the information extracted from patient notes related to the attendance when the individual completed the questionnaire. However, despite the fact that the questionnaire asked if the individual was referred to the clinic by anyone *today*, it is possible that some individuals related their answer back to their very first

clinic attendance (if this was not their first attendance). Another explanation supported by these data is that some individuals may have consulted their GP regarding their concerns and been advised to attend a GUM clinic, but not been formally referred to the clinic. It was decided that the mode of referral self-reported by participants in the questionnaire would be used for subsequent analyses. This is because it seems probable that individuals who indicate referral from another source do not consider the GUM clinic as their first point of contact with health care professionals, and it was this initial contact which was of interest in the current context.

The observed inconsistency in recording past history of STDs in patient notes and on the questionnaire was as follows: 22 individuals who stated that they did not have a prior STD diagnosis were recorded as having such a diagnosis in their patient notes and 11 individuals who were not recorded as having such a diagnosis within patient notes reported having a previous STD diagnosis in the questionnaire. Several explanations for this finding can be offered. Firstly, the issue of increased reporting of past STD diagnoses in patient notes relative to questionnaires can be related to reporting biases. These include a lack of comprehension as to what conditions or infections are sexually transmitted (Benton, Mintzes, Kendrick and Solomon, 1993), self-disclosure biases which have been identified in studies examining self-reports of sensitive sexual health information (Catania, Gibson, Chitwood and Coates, 1990) and recall bias. Indeed, given that it has been noted that individuals have difficulty in recalling the frequency of reporting of specific sexual practices (Catania, Gibson, Chitwood and Coates, 1990) it would also be expected that difficulties with recall would increase in relation to the age of the individual respondent. A

further reason for mis-representing a history of STD diagnosis may be social desirability bias, which is known to exert a significant influence over responses to sexual behaviour questions. Brody (1995), for example, confirms that people misrepresent sexual risk behaviours for HIV, apparently because they do not want to disclose 'negative' information about themselves. However, it would be expected that the anonymity of the methodology utilised would limit this bias (Catania, Gibson, Chitwood and Coates, 1990).

All of the above biases would be expected to be minimised during consultation, where any confusion surrounding mode of transmission and recall of information could be clarified by the health care professional. Furthermore, if the individual had been diagnosed with an STD at that clinic before, this would have been documented in his/her notes. Thus, it would be expected that patient note data would provide the most accurate record of past STD diagnosis.

However, not all of the identified inconsistencies in reporting past STD diagnoses can be attributed to under-reporting in the questionnaire. Indeed, several individuals stated in the questionnaire that they had been previously diagnosed with a range of STDs, including wart virus, NSU, chlamydia and gonorrhoea, but this was not recorded in their patient notes. This could be due to one of two factors. Either they could have been mistaken about their prior diagnosis, or they could have misrepresented this information during their consultation. This latter explanation has significant implications for practice within GUM clinics, especially given the importance of sexual histories in assessing the risk of exposure to STD infection.

Overall, then, it is likely that many of the above factors will have impacted upon the reported findings. However, it is difficult to draw upon past research to

confirm this as, although the utilisation of self-reports of past STD diagnoses are reported in the literature (e.g. Blythe, Katz, Orr, Caine and Jones, 1988), and, indeed, the accuracy of this information questioned (e.g. Plichta and Abraham, 1996), its reliability compared to another data source does not appear to have been systematically assessed before. On the basis of these findings, though, using multiple information sources from which to elicit such information must be recommended where possible.

Item non-response

Item response within the questionnaires was largely complete, with under 5% of individuals not responding to individual questions. However, certain items elicited a non-response of approximately 10%, including those relating to HIV testing, past STD diagnosis and information issues. The first two items are likely not to have been completed by all respondents because of their sensitivity. Indeed, a similar pattern of response has been documented in a sexual health SAQ study with item non-response reaching 20% for the most sensitive items (Johnson and Delameter, 1976).

Factors identified as being associated with non-completion of the 'sensitive' item eliciting one of the highest non-response, namely history of HIV testing, were explored for variables where numbers were sufficient to allow statistical testing to be undertaken (these included gender, age, marital status, acute STD diagnosis, previous STD diagnosis, previous GUM attendance, centre, and mode of referral to the clinic). However, significant associations between not completing the question relating to HIV testing were only identified for age and

marital status, with individuals over 60 and married individuals less likely to complete this item. Reasons for this are unclear, but may include uncertainty regarding past HIV testing, unwillingness to disclose this information, or the perception that this item was not related to their particular experiences.

Another area of significant non-response concerned information issues, although in this instance non-response is unlikely to have been motivated by worries regarding disclosure. Indeed, it is more likely that individuals who did not answer these questions considered either that they had no relevance to their particular experiences, or had received no information about STDs and HIV and therefore felt unable to complete these items. Non-completion was again associated with age (for the amount of information received about HIV) which, given the relationship identified between being older and not having received very much information about HIV (see below), supports the second hypothesis. It is, however, uncertain what underlying factors motivated non-completion of these items; more methodological research with older populations is needed to explore such issues in more detail. The implications of non-completion of these items will be discussed when the limitations of the study are explored (see Section 4.4).

Socio-demographic characteristics of the sample compared to relevant census data

When sample characteristics were compared with the general population of the same age banding several associations were identified. Study participants were more likely to be male and at the younger end of the age grouping than individuals of their age group, and men were significantly more likely to be unmarried.

This finding confirms the conclusions of Chapter 2 that older GUM clinic attenders represent a discrete demographic group within the general population aged 50 years and over. Indeed, these distinctive socio-demographic characteristics have been found to be consistent for all participating GUM clinics for 1995, Sheffield and Nottingham GUM clinics for 1996 and the questionnaire data collection period. Therefore, it is reasonable to assume that they are typical of older GUM clinic attenders in general, at least in the Trent Region. Given that no inter-clinic differences emerged in data analysis, (as presented below), it is possible that the findings from this study could be generalised beyond these clinic settings.

4.2. Conclusions Relating to Primary Research Questions

Research Question 1) Do older people attend GUM clinics with suspected STD infection, or for non-STD related conditions, e.g. prostate problems?

The majority of respondents were attending the clinic with a suspected sexually-acquired infection or condition. This resolves issues surrounding motivation for clinic attendance identified during the exploratory data collection exercise (see Chapter 2). It further supports and extends conclusions that older GUM clinic attenders have significant STD-related concerns (Rogstad and Bignell, 1991).

In addition, the fact that over four-fifths of individuals attending with a suspected STD infection were symptomatic appears to correspond to previous assertions that experiencing symptoms is the primary determinant of GUM clinic attendance (Fitzgerald, Goldsmith, Belfield and Hayton, 1994). Indeed, this finding indicates that a relatively small proportion of respondents were attending the clinic for routine screening in the absence of symptoms. There is further evidence that the percentage of asymptomatic attenders with STD-related concerns may be lower among attenders of this age group than amongst younger attenders. A multi-centre US-based study of all-age STD clinic attenders, for example, reported that only 63% (n=1,621) of participants with STD-related concerns had experienced symptoms prior to clinic attendance (Hook *et al*, 1997). However, UK data detailing prevalence of symptoms among all GUM clinic attenders could not be identified, and therefore definitive conclusions cannot be drawn.

Nevertheless, it is important to recognise the implications of possible under-attendance of older individuals at GUM clinics for routine screening when compared with younger attenders. Firstly, it is possible that an unknown proportion of asymptomatic STDs which can only be picked up by routine screening will not be identified by health care professionals, with consequences both for the infected individuals, and for the spread of infection to their sexual partners. Furthermore, this finding indicates a potential need to educate older individuals engaging in 'risky' sexual behaviours about the importance of regular screening, considered fundamental to maintaining good sexual health (Waugh, 1991).

Amongst the primary reasons motivating clinic attendance it must be recognised that, although the majority of participants had a suspected STD, a significant proportion were also attending the clinic for conditions/infections that they did not believe to be sexually-acquired. This finding contradicts previous assertions that GUM clinic attendance can be used as a proxy measure for STD diagnosis (Wellings, Field, Johnson and Wadsworth, 1994), at least for this age group, supporting the claim that GUM clinics serve as generic sexual health centres (de Ruiter and Bingham, 1994).

Research Question 2) What factors predict clinic attendance with a suspected sexually acquired infection?

The finding that having self-referred to the clinic predicted attendance with a suspected STD is encouraging insofar as it indicates that older people with STD-related concerns know where to seek treatment and/or advice, even if they

have not attended a GUM clinic before (although there was a relationship between self-referral and previous attendance as explored below). However, it may also reflect the fact that, for this age group, GUM clinics are still very much synonymous with 'STD clinics', and that individuals with more generic sexual health concerns would not self-refer to the clinic. Given that a recently commissioned study exploring many aspects of GUM clinics concluded that the role of the clinic should extend beyond controlling the spread of STD infection to address the goal of 'maintaining sexual health' (Allen and Hogg, 1993), it may be these broader objectives need to be conveyed to the general public. Such education may indeed further reduce the stigma attached to attending GUM clinics (Wardropper and Woolley, 1991), thus reducing potential barriers to clinic attendance.

The relationship identified between not having received very much information about HIV and attendance with a suspected sexually-acquired infection is interesting and supports the conclusion that HIV is a significant consideration for older GUM clinic attenders with suspected STD infection (Rogstad and Bignell, 1991). It further indicates that GUM clinic personnel need to be aware of the HIV-related information needs of their older patients (discussed in more detail below).

Research Question 3) Are older GUM attenders aware of whether infections/conditions are sexually acquired or not?

That there appeared to be some confusion regarding the underlying route of transmission of an infection or condition for certain individuals is consistent

with previous research, which has found that many individuals have serious misconceptions concerning the transmission dynamics and symptoms of STDs (Benton, Mintzes, Kendrick and Solomon, 1993). Within the context of the current study, this was especially notable for the six individuals who indicated that they did not believe they had a sexually-acquired condition or infection, but were diagnosed with an acute STD. It is possible that this reflects a reluctance to disclose motivation for clinic attendance or reluctance to complete these questionnaire items, or it may be indicative of a significant knowledge deficit concerning STDs in general.

A further 49 individuals who indicated that they thought they had an STD were diagnosed with other episodes which were definitely not sexually-acquired. It is more difficult to draw conclusions concerning these individuals, as they may have engaged in risky behaviour, but not been exposed to STD infection. However, it is also possible that they incorrectly assessed their risk of infection. This latter conclusion is supported by the finding that two individuals from the Sheffield clinic attending with a suspected sexually-acquired infection (for whom additional data were available) were recorded as having had no sexual partners during the previous 12 months. Although they may have contracted an infection or condition before this, it is possible that they experienced unjustified anxiety concerning STD infection, previously acknowledged to influence clinic attendance for a small minority of older GUM clinic attenders (Kohiyar, 1983; Rogstad, 1996, personal communication).

Research Question 4) What is the relationship between older GUM attenders and the individuals from whom their STD infection was contracted (if applicable)?

The most frequent response to the item concerning suspected source of STD infection was 'don't know', implying that these participants had had more than one sexual partner recently. Given that 11 attenders who responded in this way were diagnosed with an acute STD, such a finding has significant implications for contact tracing, which is well established as fundamental to attempts to prevent and control the spread of STDs in the general population (Cowan, French and Johnson, 1996).

Another important source of infection was 'no-one in particular', indicating suspected infection by a casual sexual partner. This further challenges the assumption that older individuals involved only in mutually monogamous married relationships (as discussed in Chapter 1), and that 'one night stands' are the exclusive preserve of the young.

The fact that a significant proportion of respondents cited a 'new sexual partner' as their suspected source of STD infection lends support to the assertion that older people engaging in new sexual partnerships in later-life are at risk of contracting STD infections (as discussed in Chapter 1). Furthermore, approximately half of these individuals appear to be engaging in concurrent sexual partnerships as they state that they are married (although it is unknown whether they are having a sexual relationship with their spouse). This has significant implications for prevention as it indicates that they may be placing their spouse at risk of infection as well.

This assertion is confirmed by the fact that approximately one-fifth of

individuals citing a potential source of infection reported this to be a long-term sexual partner or spouse. As the proportion of women reporting this source was greater than the proportion of men, this finding supports conclusions that extra-marital relationships are a feature of later-life, especially for men (Brecher, 1984). This was also discussed by the authors of the NSSAL, who noted that 3.4% of married men and 1.1% of married women aged 45-59 reported an extra-marital relationship during the five years prior to the study (Wellings, Field, Johnson and Wadsworth, 1994). However, as has already been noted, more research is needed to explore STD-related issues within married relationships for all age groups (Waugh, 1991), and it is important in the light of these findings that relationships in later-life are not overlooked.

Research Question 5a) What is the average latency period between symptom recognition and clinic attendance (for symptomatic attenders)?

The level of delay-behaviour exhibited by respondents appears to be high, with a significant proportion reporting a substantial latency period between initial symptom recognition and health care presentation. That delay-behaviour is a feature of seeking treatment for STDs is supported by research undertaken with all-age STD clinic attenders in Holland (Leenaars, Rombouts and Kok, 1993), where 27% of a symptomatic sample of attenders reported waiting over four weeks between initial symptom recognition and seeking care. Similar findings have also been recorded by the authors of two US-based studies. In a sample of American adolescents with suspected STD infection 27% of men and 34% of women delayed over seven days between initial 'problem' recognition (not all of

the sample were symptomatic) and presenting to health care professionals (Fortenberry, 1997). In addition, Hook *et al* (1997) reported that approximately 35% of an all-age sample of symptomatic STD clinic attenders waited seven days between symptom recognition and clinic attendance, with approximately 10% delaying more than 30 days.

However, given that these studies reported lower levels of delay-behaviour than those recorded in the previous chapter for the older sample group, in which 43.8% of respondents waited over two weeks between symptom recognition and health care presentation, it appears that delay-behaviour amongst individuals with suspected STD may be age-related, with longer latency periods experienced by older individuals. This implies that barriers to care-seeking may be greater for older individuals with STD-related concerns, a finding which could have important implications for health promotion in this area, as discussed in more detail below.

Research Question 5b) What are the reasons for this 'delay-behaviour'?

These barriers were explored by asking respondents to self-report reasons for any stated delay between symptom recognition and clinic attendance. Reasons given included wanting to 'wait and see' whether symptoms improved or got worse, a variable which is established as influencing response to 'illness in general' (Suchmann, 1965), and which has previously been stated as having an important impact upon seeking medical care when possible symptoms of STD are experienced (Hook *et al*, 1997; Leenaars, Rombouts and Kok, 1993). A further factor determining delay-behaviour was embarrassment, supporting the

conclusions of Leenaars, Rombouts and Kok (1993), and reiterating the fact that stigma is attached to GUM clinic attendance and STDs (Fitzgerald, Goldsmith, Belfield and Hayton, 1994).

Another variable influencing delay-behaviour was identified as 'thinking symptoms were normal', indicating that a cue to seeking treatment must have arisen for this group of respondents. This cue could have been provided by a number of factors, such as the advice of a sexual partner or friend, or acquiring additional information concerning symptoms or risk behaviours. However, this remains unknown. The final barrier to care-seeking, namely attempting self-medication, has been recognised in past studies as a factor influencing delay-behaviour (Fortenberry, 1997) and is indeed known to be common amongst symptomatic female GUM clinic attenders (Russell, Barton and Lawrence, 1990).

That inter-study comparisons indicate that these barriers to seeking treatment appear to be of greater importance to the behaviour of older individuals with STD-attributed symptoms when compared with younger symptomatic individuals has significant implications for prevention strategies. The fact that nearly one-half of symptomatic respondents with suspected STD infection reported waiting over four weeks between initial symptom recognition and health care presentation is worrying, given that the importance of seeking prompt care for STDs has been highlighted by many authors (e.g. Hook *et al*, 1997; Aral and Wasserheit, in press). Delays in presentation not only increase the risk of transmitting infection to others, but also increase the likelihood of the infected individual developing complicating sequelae (Aral and Wasserheit, in press). That prompt care-seeking may be able to be encouraged by education is explored

below.

Research Question 5c) What factors predict this 'delay-behaviour'?

It is unclear why history of HIV testing predicted exhibiting delay-behaviour among this sample group, although a number of explanations can be offered. One hypothesis supported by previous research in this area is that this relationship may reflect a greater level of concern about STDs among individuals exhibiting delay-behaviour than those who seek prompt health care. A study undertaken with adolescents attending a US STD clinic, for example, identified that delay of over one week between 'problem recognition' (not all participants were symptomatic) and clinic attendance was associated with higher a perceived seriousness of STDs (Fortenberry, 1997).

More specific research is needed, focusing upon illness behaviour in older populations with STD-related concerns. Focus needs to be placed not only upon individuals who present at health care facilities, but also on those who do not. Indeed, it seems likely, in light of these findings, that an unknown number of older people with sexual health concerns may perceive barriers to clinic attendance to be so insurmountable as to completely prevent health care presentation.

Research Question 6) What factors predict older GUM attenders being diagnosed with an 'acute' STD infection?

The use of the term 'acute STD diagnosis' was explained in the previous

chapter. Basically, it refers to diagnoses which indicate recent sexual transmission and, although it does not include all infections and conditions which can be sexually transmitted, it is a very useful indicator of 'risky' sexual activity (Catchpole *et al*, 1997).

The proportion of individuals diagnosed with an acute STD (15.7%) was noticeably lower than that reported by Catchpole *et al* (1997) for all Sheffield clinic attenders during an 18-month period (27%). Indeed, the afore-mentioned authors confirm this relationship, reporting that a logistic regression analysis identified that younger age predicted diagnosis with an acute STD. This conclusion is also supported by the findings of the exploratory data collection exercise (see Chapter 2), where older attenders were seen to be significantly more likely to be diagnosed with non-sexually acquired infections and conditions than younger attenders.

There may be several reasons for this observed pattern of diagnoses. Firstly, it has been seen that approximately one quarter of individuals attending the clinic did not think they had a sexually acquired infection, and were attending for other reasons. Indeed, the diagnostic profile reported in the previous chapter indicates that a number of conditions diagnosed (e.g. erectile difficulties, menopausal problems) are related to being older. Thus, the actual proportion of younger individuals attending with suspected STD infection may be higher than for older attenders.

This finding may also be indicative of undue anxiety on the part of the older attender concerning his/her risk of acquiring a sexually-acquired infection. Support for this conclusion was also provided above, when potential confusions surrounding the mode of acquisition of an infection or condition were explored.

Unnecessary anxiety may result from inadequate information provision, which may have misled the individual concerning their risk of infection. This obviously has implications for prevention, which will be discussed below.

A final explanation for this relationship may relate to the fact that rates of most STDs are reported to be highest in individuals aged 16 - 24 (Simms, Hughes, Swan, Rogers and Catchpole, 1998). Therefore, older individuals may be less likely to be exposed to an infected individual per act of unprotected sexual intercourse. However, this would obviously only hold if there was little sexual mixing between older and younger populations and this is unknown.

The only variable associated with receiving an acute STD diagnosis was perceiving that 'not very much' or 'hardly any' information had been received about STDs. This indicates that information provision may be related to risk-taking behaviour in older populations, a relationship implied, but not tested, by past authors stating that education is needed to prevent such behaviours within this age group (Rogstad and Bignell, 1991; Kaufmann, 1995). However, it is recognised that a more complex relationship exists between information provision and actual behaviour than such statements would imply; this relationship will be explored in more detail below when information issues in general are explored.

It is interesting that no demographic characteristics predicted receiving an acute STD diagnosis. Indeed, the fact that half of those with such diagnoses were married supports conclusions made above concerning the prevalence of extra-marital partnerships amongst older married clinic attenders. Furthermore, that there was similarly no significant relationship with gender indicates that the apparent higher risk perception experienced by male clinic attenders concerning

exposure to infection, specifically HIV (see below), may be unfounded.

Research Question 7a) What proportion of older GUM attenders are tested for HIV?

That the majority of attenders had never considered having an HIV test appears to reflect low levels of risk perception concerning the likelihood of contracting HIV/AIDS (Fitchner, Wolitski, Johnson, Rabins and Fishbein, 1996). This does not however appear to be age specific, as similar levels of testing have been reported for all-age clinic samples. Sherr and Strong (1992), for example, identified that 25% of a cross-sectional sample of female GUM clinic attenders had been tested for HIV, while Evans, Bond and McRae (1997) recorded that 50% of male attenders with non-regular partners and 27% of those with regular partners were tested for the virus.

Given the relatively low prevalence of HIV infection in the Trent area (PHLS, 1998), low levels of HIV testing may be justified for this older sample group. However, as it is known that there is a relationship between receiving an acute STD diagnosis and the likelihood of contracting HIV, testing of individuals who have received such a diagnosis must be recommended. Nevertheless, 19 individuals who stated that they had never considered having an HIV test were diagnosed with an acute STD; although five were recorded as having subsequently had an HIV test, the remainder did not.

Research Question 7b) What factors predict older attenders having an HIV test?

The apparent gender difference in rates of HIV testing identified above in relation to younger GUM clinic attenders (Sherr and Strong, 1992; Evans, Bond and McRae, 1997) was also identified for this older sample group. In fact, men were over twice as likely as women to report HIV testing; several reasons can be postulated as to why this gender difference was observed. Firstly, there was a very high prevalence of HIV testing among gay male respondents, with 15 of the 18 gay male participants reporting either past testing, or the intention to be tested on the current visit. This is an encouraging finding in the light of the increased incidence and prevalence of infection within this group (PHLS, 1998). A further contributory factor may have been that men of all ages have been recorded as having more sexual partners than women (Brecher, 1984; Wellings, Field, Johnson, and Wadsworth, 1994). This is likely to result in higher perception of the risk of HIV infection, although it has been seen that there was no actual association between gender and acute STD diagnosis as might have been expected in the light of these findings.

The fact that self-referral was also associated with HIV testing is logical in the light of the relationship identified between this variable and attending with a suspected STD infection. It further supports the conclusion that older attenders who self-refer to a GUM clinic are likely to perceive that they have engaged in 'risky' sexual behaviours.

Research Question 8a) Are older people attending a GUM clinic for the first time in later life?

That the majority of respondents were first time clinic attenders is a significant finding and resolves issues relating to the history of clinic use discussed previously in the thesis (see Chapter 2). First time attendance among this older sample group could reflect a number of factors, including changing relationship patterns in later-life resulting in actual or perceived exposure to STD for the first time, the fact that individuals had always exposed themselves to risk, but had never before contracted an infection, or the onset of a non-sexually related condition that can be appropriately managed within a GUM setting (e.g. prostate and menopausal symptoms).

That changing relationship patterns in later-life may result in new exposure to infection by individuals who are not 'lifetime risk-takers' has been hypothesised earlier in this thesis, specifically with regards to the finding of the exploratory data collection exercise that unmarried individuals were over-represented within the clinic setting relative to married individuals (see Chapter 2). Furthermore, evidence presented above concerning the suspected source of STD infection indicates that it is not only relationships with new sexual partners formed after becoming single that can result in exposure to STD infection, but that extra-marital relationships can expose both the individuals involved in this relationship, as well as their spouse, to such infection.

A potential additional factor exposing post-menopausal couples to STD is their lower propensity to use condoms when compared to younger individuals (Catania *et al*, 1989). Not only are condoms not needed as a contraceptive device, but also individuals involved in long-term relationships may find it very

difficult to initiate condom use when they have not been used before (Maxwell and Boyle, 1995). This has significant implications if monogamy cannot be guaranteed as, indeed, appears to be the case for a proportion of study participants.

That individuals may have exposed themselves to STD infection throughout their life, but never before attended a GUM clinic may result from a number of factors, including chance. Firstly, it is known that age-related physiological changes can render individuals more susceptible to contracting STDs (Fletcher 1995), notably HIV (DeHertogh, 1994) when exposed to such infection. Furthermore, it is possible that recently acquired information about HIV has prompted individuals who have always engaged in risk behaviours to attend clinic for screening, or to be more aware of potential symptoms of infection. This latter hypothesis is supported by the fact that clinic attendance rates are known to be related to media health promotion campaigns (Griffith *et al*, 1995).

Whatever the primary reasons behind this observed pattern are, the fact that the majority of attenders had not previously been to a GUM clinic has significant implications for clinic workload, especially within the context of an ageing population. Indeed, numbers of older first-time attenders are likely to increase not only in line with the population structure, but also as a result of the increasing flexibility of relationship patterns in later-life, as exemplified by rising divorce rates amongst this age group (Cain, 1988). Furthermore, changing sexual mores, coupled with the ageing of the 'sixties generation' who are considered to hold more liberal attitudes towards sexual relationships than earlier generations (Binson, Pollack and Catania, 1997; Wellings, Field, Johnson and

Wadsworth, 1994), are also likely to increase the number of older individuals engaging in risky behaviours.

Research Question 8b) What factors predict attending a GUM clinic for the first time in later life?

It is logical that previous GUM attendance would be predicted by a history of STD diagnosis, as it is known that the vast majority of STD diagnoses are made within a GUM clinic (Waugh, 1991). However, this is not to say that the two variables are synonymous. Indeed, it has been noted above that using past GUM attendance as a proxy measure for past STD diagnosis (Wellings, Field, Johnson and Wadsworth, 1994) is flawed, at least for older individuals. This is because, although the two variables are indeed related, many individuals attending the clinic are not diagnosed with an STD infection, and have indeed cited other reasons for clinic attendance.

The second identified relationship, that between past GUM attendance and having received a lot of information about STDs, is difficult to interpret. It may indicate that clinics are fulfilling their role as information providers (Hope and McArthur, 1996), or it could reflect the fact that informed individuals may be more likely to recognise the importance of attending for regular screening, or seeking treatment for suspected symptoms of STD. However, more research is needed to explore both the issue of older patient satisfaction with GUM attendance, and the association between information provision and the adoption of STD-related behaviours in this age group (as discussed in more detail below).

That self-referral was associated with previous clinic attendance is likely

to reflect the fact that having attended the clinic once, even if referred by another agency on that occasion, it would be likely that an individual would present directly to the clinic rather than to another health care professional. This finding may further be indicative of satisfaction on the part of older clinic attenders in respect of past consultations, reflected in their increased propensity to seek advice or treatment within this setting again. Indeed, a recent study of all-age clinic attenders found that between 89% and 98% of participants were either satisfied or very satisfied with their clinic visit (Monteiro, 1995). However, little is known regarding satisfaction with clinic attendance amongst this older age group.

Research Question 9a) What proportion of older GUM attenders have a previous STD diagnosis?

The fact that only a minority of clinic attenders had a past STD diagnosis supports previous findings. Opaneye (1991), for example, identified that, of a sample of 87 men aged 60 years or older, only 16 (18.4%) had had a previous STD diagnosis. Furthermore, it was recorded in the previous chapter that the majority of participants citing past STD diagnoses stated that these had been contracted since 1990. This finding adds weight to the hypothesis explored above concerning the low proportion of 'lifetime' risk-takers within this sample group and the resultant implications for clinic workloads.

The proportion of individuals with a reported history of STD infection (from patient notes) was similar to that recorded by Catchpole *et al* (1997) for all age clinic attenders at the Sheffield GUM during an eighteen month period (33%

for all-age sample; 28% for older sample). However, it would be expected that, if the histories of STD diagnosis were similar for all ages, older individuals would have more diagnoses as they have had a longer period of time over which to accumulate infection. Thus, it is further apparent that, for most study participants, clinic attendance was related to recent risk-taking behaviour.

Research Question 9b) What factors predict older attenders having a previous STD diagnosis?

The association between history of STD diagnosis and past GUM attendance has been discussed above. That no other variables were predictive of past STD diagnosis, even when past GUM attendance was removed from the model, is interesting. It might have been expected, for example, that a relationship would be identified between this variable and a history of HIV testing, especially given that certain STDs are known to increase the risk of contracting HIV (Sparling and Aral, 1991). Furthermore, it is also of note that past STD diagnosis was not related to gender, as past research in this area has concluded that men of all ages are more likely to engage in risky behaviours than women (Brecher, 1984; Wellings, Field, Johnson and Wadsworth, 1994). Indeed, for some older individuals this finding may reflect the high proportion of married men identified as exposing both themselves and their spouse to the risk of infection by having extra-marital sexual partners. However, more research is needed before definitive conclusions can be drawn.

Research Question 10) What is the sexual orientation of older GUM attenders?

Another variable which was identified from patient note data was the respondents' sexuality. During their consultation, 84.8% (n=190) of respondents stated that they were heterosexual, 8.5% (n=19) that they were homosexual and 2.7% (n=6) that they were bisexual. Sexuality was unknown for 4.0% of participants (n=9). Unfortunately, as discussed above, numbers were insufficient to explore the relationship between sexuality and other variables.

Research Question 11a) How much information about STDs and HIV have older GUM attenders received?

The finding that most individuals stated they had not received a lot of information about STDs or HIV provides empirical support for previous reports that older people may have been marginalised from sexual health campaigns (House and Walker, 1993; Levy and Albrecht, 1989). This is likely to be a function of the presumption that older people do not want sexual health information, or are not 'worth' educating. Indeed, a Canadian study confirmed that Public Health Units consistently rated the oldest of six age groups (10-14; 15-19; 20-24; 25-29; 30-39; 40+) as their least important priority as a target for receiving education about 'healthy sexual behaviours' (Sahai and Demeyere, 1996).

However, the marginalisation of older people from sexual health campaigns cannot be justified in the light of these findings, especially given the relationship identified above between inadequate information provision and

receiving an acute STD diagnosis. Although it is unclear what additional dynamics affect the relationship between risk-taking and education, given that information provision is considered key to STD prevention (House and Walker, 1993) it is reasonable to assume that this is not age-related.

Research Question 11b) What factors predict older GUM attenders having received a lot/quite a lot of information about STDs and HIV?

That previous GUM attendance predicted having received a lot of information about STDs and HIV has been discussed above and, to reiterate, does provide evidence that GUM clinics are fulfilling their role as centres of health promotion (Hope and McArthur, 1996). However, this finding could also reflect the fact that individuals who have received more information about both conditions may be more likely to be aware of the importance of regular screening at GUM clinics if engaging in risk-taking behaviours.

The relationship identified between not having received a lot of information about STDs and receiving an acute STD diagnosis was explored above and, to reiterate, lends support to the conclusion that information has an important role to play in educating older people about risky sexual behaviours.

Research Question 11c) What are the primary information sources regarding STDs and HIV for older GUM attenders?

Although the media was given as the primary source of information about both STDs and HIV, respondents were proportionately more likely to state that

this was their primary source of information about HIV. Conversely, health care professionals (specifically the GUM clinics) were more frequently cited as the primary information source about STDs. This may reflect the fact that the media represents the dominant communication channel for HIV (Kroger, 1991; Abraham, Sheeran, Abrams, Spears and Marks, 1991), or that GUM clinics are not providing as much information specific to HIV as to STDs. This latter assertion is supported by Hope and McArthur (1996), who identified that 33.9% of an all-age sample of GUM clinic attenders had not received information concerning HIV or safer sex.

Research Question 11d) Do older GUM attenders want more information about STDs and HIV?

Approximately half the respondents wanted more information about both STDs and HIV, indicating a significant information need amongst older GUM clinic attenders. Although the questionnaire was completed prior to consultation and, therefore, such information may have been provided to the respondent during consultation, means of providing such additional information must also be explored. This is because it is known that people often have difficulty in absorbing information from health care professionals. Indeed, a study undertaken with 60 STD clinic attenders in America identified that only 43% of patients recalled information given to them during consultation (Roter, Knowles, Somerfield and Baldwin, 1990). Thus, written information may be needed to supplement aural information from health care professionals.

Research Question 11e) What factors predict older GUM attenders wanting additional information about STDs and HIV?

That attending the GUM clinic with a suspected STD infection predicted wanting more information about STDs and HIV is logical, as the participants' diagnosis was unknown to them at this point. Furthermore, given that the majority of the sample had not attended a GUM clinic before, and an even greater proportion had never before been diagnosed with an STD, it is to be expected that they would have a significant unmet information need.

Research Question 11f) What are the preferred additional sources of information for older GUM attenders who want more information about STDs and HIV?

When preferred sources of information were examined for individuals with identified information needs a substantial difference was observed between these preferred sources and the reported primary information sources concerning these issues. Indeed, the preferred sources of information about both STDs and HIV were exactly inverse to the most frequently used sources of information, being the GUM clinic, followed by the GP and then the media.

This finding supports the conclusion that health care professionals are seen as the most credible source of sexual health information. Similar conclusions have been made by Abraham, Sheeran, Abrams, Spears and Marks (1991) after studying HIV information provision and knowledge amongst 1,008 Scottish teenagers. The authors found that respondents stated they would pay more attention to information received from their GP than that received from

media sources. Similarly, Price, Desmond and Kukulka (1985) and McDermott, Hawkins, Moore and Cittadino (1987) reported that American students received more information concerning HIV from the mass media, but rated that received from health care professionals more highly.

Although it is unclear whether similar results would be elicited from a community sample of older individuals, this finding may have significant implications for the provision of sexual health information in general to this age group. It indicates that health care professionals must be aware that their older patients may want information concerning sexual health issues and, indeed, that such information has been identified as a potential influence upon sexual risk practices, as well as illness behaviours amongst individuals with suspected STD infection. However, more research is needed to establish the dynamics of this relationship, both for older GUM clinic attenders as well as for older individuals in the community at large.

4.3. Limitations and Recommendations

Study limitations

Although this study has been seen to provide important information in a neglected subject area, limitations can be identified.

Firstly, a participation bias was detected for two of the variables under examination, with study participants more likely than non-participants to be female and to have self-referred to the clinic. Although the impact of this bias

was recognised to be minimised by the high response rate achieved (Oppenheim, 1992), it is possible that certain results may be skewed. These may include an over-estimation of three specific variables: the proportion of individuals attending with suspected STD infection (as this was related to self-referral), the proportion of individuals who had attended a GUM clinic before (which was again related to self-referral), and the level of HIV testing (which was related to being male). However, given the response rate and the large sample size, it is unlikely that such participation bias introduced significant error into the study findings.

A further limitation which was explored in the previous chapter was the lack of consistency between kappa scores for questionnaire and patient note data. However, plausible explanations were offered for all observed associations, and it was concluded that there was no indication that questionnaire items were inherently unreliable.

An additional limitation to the study relates to the wide 95% confidence intervals around the odds ratios derived for some of the predictor variables during the logistic regression analyses. The odds ratio for previous STD diagnosis, for example, identified as a predictor of past GUM attendance, was 10.76, and the 95% confidence interval from 4.00 to 28.98. Thus, although the odds ratio is large, the wide confidence intervals mean that it is necessary to be cautious when interpreting this finding.

Another study limitation was that not all older attenders visiting the clinic during the study period were offered a questionnaire to complete. This was because receptionists either forgot to distribute them, or were too busy to do so. Although no selection was exhibited on the part of the receptionists distributing

the questionnaires (as clarified by the researcher), given that additional data on these individuals was not available, exact bias cannot be assessed. However, it is very unlikely that this significantly impacted upon the findings of the study.

The final study limitation identified was the fact that the questionnaire was not developed with the older respondents themselves and, furthermore, that the researcher was not on hand to help explain any difficulties the individual may have experienced in completing the questionnaire. However, both of these limitations were inherent in the nature of the research setting as, given the importance of preserving anonymity within a GUM setting, it was felt by the clinicians that the researcher should not have personal contact with patients. Nevertheless, these limitations were largely overcome during the study preparation phase by discussing questionnaire design with all clinic staff, including receptionists, research nurses and consultants and making appropriate changes in the light of their recommendations. Furthermore, presentations were made to receptionists involved in the study and interviews conducted with head receptionists or clinic managers to ensure that they understood the purpose of the study and could advise participants if they did not understand specific questions.

Summary of key findings

To reiterate, the key findings from this questionnaire-based study of 224 older GUM attenders were as follows:

- The primary reason for clinic attendance among study participants was having a suspected STD.
- There was evidence that a minority of study participants were confused as to whether the infection or condition they were attending the clinic with was sexually acquired.
- Suspected sources of STD infection (where applicable) were given as follows: 'don't know', 'no-one in particular', 'new sexual partner', 'long-term sexual partner' or 'spouse'.
- Factors predicting clinic attendance with a suspected STD were having self-referred to the clinic and not having received very much information about HIV.
- Nearly one-half of participants with suspected STD reported waiting over two weeks between symptom recognition and clinic attendance.
- Delay-behaviour was predicted by history of HIV testing.
- Receiving an acute STD diagnosis was predicted by not having received very much information about STDs.
- The majority of participants had never considered having an HIV test.
- Men were over twice as likely as women to report HIV testing; HIV testing was also associated with having self-referred to the clinic.
- The majority of participants were first time GUM clinic attenders. There was evidence that first time attendance was associated with the adoption of 'risky' sexual behaviours in later-life.

- Only a minority of participants reported a past STD diagnosis and the majority of these STDs had been diagnosed since 1990.
- Participants were found to have not received a lot of information about STDs and HIV, with approximately half wanting more information on these subjects.

Recommendation arising from this study

It has been noted throughout the discussion that areas in need of further investigation have been identified by this study: this would of course be expected, given the fact that little similar research has been undertaken within this subject field before. Initially, it was recognised that additional research is needed concerning methodological issues associated with conducting research with older GUM populations. These include:

- Why are women and individuals who self-refer to the clinic more likely to participate in an SAQ study than men and individuals referred to the clinic?
- What factors motivate individuals to disclose information concerning past STD infection to health care professionals and not on an SAQ, and vice-versa?
- Is this finding unique to older populations?
- What variables influence respondents' decisions not to complete questionnaire items relating to 'sensitive' topics and information items?

Although it was felt that all primary research questions were adequately addressed during the course of the study, important additional research areas were identified pertaining to these questions. These included:

- The confusion amongst older GUM clinic attenders over whether a condition or infection was sexually transmitted or not.
- The dynamics of extra-marital relationships amongst older GUM clinic attenders and subsequent exposure to infection for both partners.
- The relationship between information provision, delay-behaviour and risk-taking.
- The most effective means of educating those older GUM clinic attenders with identified information needs within their preferred setting (i.e. a GUM clinic).
- Levels of satisfaction reported by older GUM clinic attenders with their experiences within the clinic after consultation.
- The relationship between gender and perceived exposure to STD risk.

A final potential research area to emerge from this study relates to older individuals in the community at large. This group is considered an important sample to investigate because, having identified that older people experience significant sexual health concerns, it is likely that not all individuals with such concerns will present to health care professionals, especially given the identified barriers to GUM clinic attendance. Thus, fundamental to any assessment of the sexual health needs of older people in general would be an examination of this

group, focusing upon the following primary research question:

- Are the sexual health needs of older people living in the community currently being met?

Thus, overall, a substantial amount of research is needed in this neglected subject area. Unfortunately, it was obviously beyond the scope of this thesis to address all issues emerging from this study. It was therefore decided that the most profitable research area would be that relating to the sexual health needs of older people within the community at large. As a result, the primary research question identified above was extended, a process which will be explored fully in Chapter 5.

SECTION 4: POPULATION SURVEY

Chapter 5

General Population Study

Biases in reporting procedures often result in statistics of sex-related health problems based on populations who utilise health care facilities. (Wyatt, 1994, p. 749)

5.1. Overview

The previous chapter identified that a significant number of older people utilise GUM clinic services and that clinic attenders in this age group experience high levels of concern regarding STD. In the light of these findings, as well as of the barriers identified to clinic attendance amongst a significant number of participants exhibiting delay-behaviour, it was concluded that there is likely to be an unknown proportion of individuals in later-life who experience anxiety regarding STDs, but do not present to health care services. Therefore, in order to generate a complete picture of the sexual health needs of older people, it was considered essential to explore these issues with a sample of individuals recruited from outside a health care setting.

This chapter will therefore address the collection and analysis of data on this topic from a community-based sample of older people. Initially, gaps in

current knowledge and understanding will be identified, followed by the presentation of the primary and secondary research questions informing the study. Methodological issues relevant to undertaking research in this subject area will be explored and recruitment strategies described. Pilot studies will be presented, followed by the main study design and findings. Study findings will be structured according to the research questions.

Background

Older people and unmet need for health services

Unmet need is a significant issue when studying health service usage by older people. It can be defined within this context as non-presentation at available health services for treatment, advice or support by individuals with health problems and/or concerns.

Recent studies have highlighted unmet need for a variety of services, including dementia services (Philp *et al*, 1995), long-term care facilities amongst disabled elders (Tennstedt, McKinlay and Kasten, 1994), treatment for benign prostatic hyperplasia amongst middle-aged and elderly men (Garraway *et al*, 1993), dental care (Gordon, 1989), post hospital-discharge assistance (Mistiaen, Duijnhouwer, Wijkkel, de-Bont and Veeger, 1997) and GP consultations (Jacomb *et al*, 1997).

One factor determining unmet need is a lack of knowledge concerning existing services. Indeed, it is widely recognised that older individuals are often

less knowledgeable about health services available than younger people. A literature review by Tinker, McCreddie and Salvage (1990), for example, concluded that elderly people are generally not well-informed about the services available to them, and that they have a significant unmet need for health- and health care-related information.

However, an analysis of relevant literature has already identified that, because of a dearth of research in this area, it is unknown whether older people living in the community at large have unmet sexual health needs (see Chapter 1). Not enough, therefore, is currently known for firm conclusions to be drawn regarding the barriers to seeking health treatment for sexually-related problems amongst older people.

Unmet need and sexual health services

With regards to sexual health services, there are a number of factors that may impede service presentation by those with STD-related concerns. Firstly, the stigma attached to STD may lead individuals to feel embarrassed and consequently reluctant to seek health care; a factor that was seen to delay symptom presentation among older GUM clinic attenders (see Chapter 3). In addition, it has been hypothesised that older people may feel particularly uncomfortable discussing issues pertaining to sex with health care professionals, further inhibiting service attendance by individuals in this age cohort (Ehrhardt and Wasserheit, 1991).

Secondly, given the lack of sexual health education targeted at this age group older individuals may be particularly ill-informed about the services available to them (House and Walker, 1993). Indeed, older clinic attenders

reported feeling that they had received little information about STDs and HIV, with a substantial proportion indicating an unmet information need (see Chapter 3). This lack of knowledge concerning sexual health issues may also render older individuals less aware of the benefits of regular STD screening if they are engaging in sexual risk-taking behaviours. However, given that some STDs can be asymptomatic or only mildly symptomatic (e.g. chlamydia, HIV infection), such screening is considered fundamental to STD prevention (Padian, Shiboski and Hitchcock, 1991).

A further age-specific barrier to non-utilisation of available health services is the tendency for older individuals to attribute symptoms to 'normal ageing' and thus not consider treatment to be appropriate. In a recent study of urinary problems in men aged 40-79 (Cunningham-Burley, Allbutt, Garraway, Lee and Russell, 1996), for example, 200 men were interviewed about the relationship between urinary symptoms and seeking medical attention. It was seen that the majority of men over the age of 50 attributed urinary symptoms to ageing, and did not therefore feel that they warranted medical care. Given the mild and ambiguous nature of some STD-related symptoms it is possible that this is a factor influencing health care-seeking with sexual health concerns in later-life.

Having conceptualised potential barriers to health service presentation, particular sub-groups of the older population considered to have sexual health needs can be identified. These include:

1. Individuals with STD infection.
2. Individuals engaging in sexual behaviours that place them at risk of

- contracting STDs.
3. Individuals whose long term partner is engaging in risk-taking behaviours and thus may be placing them at risk of infection.
 4. Individuals who are not engaging in risk-taking behaviours, but perceive that they are.
 5. Individuals who may or may not be engaging in risk-taking behaviours and want additional information about STDs and/or HIV.

In order to quantify unmet need, data are therefore required concerning a number of factors. Initially it is important to gather information concerning sexual behaviour amongst older people, specifically focusing upon risk-taking practices. Secondly, it would be helpful to have data concerning current knowledge of accessing sexual health services and past experiences (if any) of utilising such services. Thirdly, the information needs of older people concerning both services and practices deserves investigation.

Study aims

The aim of this study was to identify unmet need for sexual health services by addressing the issues identified above. The following primary research questions were therefore identified.

Primary research questions

1. To what extent do older people have unmet sexual health needs?
2. What are the dominant characteristics of those with unmet sexual health needs within the general population?

These primary research questions were then expanded to include the secondary research questions which derived from an analysis of the literature and findings to date.

Secondary research questions

- 1
 - a) What proportion of older people are currently sexually active?
 - b) What factors predict being sexually active in later life?
- 2
 - a) What is the average number of sexual partners in the last five years for individuals in this age cohort?
 - b) What factors predict number of sexual partners in the last five years?
 - c) What is the average number of lifetime sexual partners for individuals in this age cohort?
 - d) What factors predict lifetime number of sexual partners?
- 3
 - a) What proportion of older individuals experience sexual health

concerns?

b) What factors predict having sexual health concerns in later life?

c) What proportion of older individuals experience health problems that interfere with their sexual relationship(s)?

d) What factors predict experiencing health problems in later life that interfere with sexual relationship(s)?

e) What factors predict older people making contact with health care professionals when experiencing sexual health concerns and/or health problems that interfere with their sexual relationship(s)?

4 a) To what extent do older people with sexual health concerns consult their GP about these concerns? How satisfied are older people if they do consult their GP with sexual health concerns?

b) To what extent do older people with sexual health concerns attend a GUM clinic about these concerns? How satisfied are older people if they do attend a GUM clinic with sexual health concerns?

5 a) How much information have older people received about STDs and HIV?

b) What factors predict amount of information received about STDs and HIV?

c) What are the primary information sources re. STDs and HIV for older people?

d) Do older people want more information about STDs and HIV?

e) What factors predict older people wanting more information about

STDs and HIV?

- f) What are the preferred information sources for older people who want to receive more information about STDs and HIV?
-
- 6
 - a) What proportion of older people have been diagnosed with an STD?
 - b) What factors predict older people who have been diagnosed with an STD?
-
- 7
 - a) What proportion of older people have had an HIV test?
 - b) What factors predict older people having had an HIV test?
-
- 8. What is the prevalence of condom use among older people?
-
- 9
 - a) To what extent do older people place themselves at risk of contracting STDs?
 - b) What factors predict risk-taking in later life?

Methodological issues

As discussed previously (see Chapters 1 and 3), the dearth of research in this subject area has resulted not only in a significant gap in current knowledge and understanding of later-life sexual health issues, but also in a concomitant lack of appropriate methodologies to generate such data. An exploratory approach to study design development must therefore be adopted when researching in this area in order to identify the design most appropriate to meet the research aims.

Potential study designs

In order to recruit a large enough sample and guarantee confidentiality, an SAQ-based study was considered appropriate as it would allow for large numbers of participants to be recruited within the time and resources available. Further advantages of using SAQs in sexual health studies are outlined in Chapter 3.

Optimising the reliability and validity of a sexual health SAQ

It has already been seen that anonymity, obtained through the use of an SAQ increases the validity of data generated (Bradburn and Sudman, 1979). Participants in the GUM clinic study (see Chapter 3) were further considered to have provided, for the most part, reliable and valid data using a SAQ. Further steps can also be made to ensure that data quality is maximised.

Checks can be made for consistency in questionnaire responses. This can either be done by repeating items, or by including questions that have to be answered in a certain way to make sense. Therefore, data reliability would be questioned if, for example, a subject answered both that he/she was not currently in a sexual relationship, and that a condom was always used with his/her current partner.

Furthermore, multivariate statistical testing can be used to establish the relationship between variables of interest. A series of 'logical' relationships would lend support to the hypothesis that the data generated were valid. Thus, although the lack of a methodological guide, as well as the nature of the study, hinders the use of stringent data quality checks, it was thought that valid and reliable data could be generated if these measures were adopted.

Recruitment procedures

As there was no prior research available to guide this aspect of study design, an exploratory approach to participant recruitment would be adopted. Current literature was therefore reviewed and the following options for participant recruitment identified.

Option 1. Advertising as a recruitment strategy

Advertising for subject volunteers is a common strategy in health research. It is a quick and easy means of generating a self-selected sample, and has been used successfully to identify individuals with a fear of flying (Wilhelm and Roth, 1997), kleptomaniacs (Sarasalo, Bergman and Toth, 1996), individuals from specific racial groups (Pullicino, Copperstone, Luzi, McNeill and Elia, 1996), abused women (Bowker and Maurer, 1987) and sex 'addicts' (Kafta and Prentky, 1992). In recent years, it has proved a popular recruitment technique within AIDS research (Marsh and Loxley, 1992; Peterson *et al*, 1992; Goodkin, Fuchs, Feaster, Leeka and Rishel, 1992; Kippax, Crawford, Davis, Rodden and Dowsett, 1993; Dubois-Arber, Masur, Hausser, Zimmermann and Paccaud, 1993). Furthermore, as has already been noted, a large scale US study of sexual behaviours in later-life recruited participants through advertising in a popular magazine (Brecher, 1984).

Advertising was considered appropriate within the current context as it has the advantage of being non-intrusive and not upsetting people who may find being approached to participate in a study on such issues offensive or distressing. It also allows exploratory research to be carried out in areas where very little is currently known, as exemplified by Peterson *et al*'s (1992) study of the sexual

risk behaviours of gay and bisexual Afro-Caribbean men. Although this sampling strategy obviously introduces significant bias (see below) it can provide a good indication of subject areas most in need of study. Furthermore, if an advertisement is placed in a communal area, or in a publication which has space for requests of this type, this strategy could be free.

However, such a recruitment strategy does have obvious disadvantages. Firstly, advertisements have to be targeted at particular sub-groups of the older population, for example the readership of particular magazines or newspapers or members of specific organisations. This introduced bias is compounded by the fact that the sample is further self-selected and is therefore unlikely to be representative of the general population. Indeed, as already discussed in the previous chapter, individuals volunteering for participation in a sexuality study are likely to differ from non-volunteers in a number of ways. Kaats and Davis (1971), for example, explored the sexual behaviours and attitudes of student volunteers and non-volunteers in a research project of this nature, concluding that volunteers were more likely to hold liberal sexual views, and have had more sexual experience, than non-volunteers. Similar findings have also been reported elsewhere (Catania, McDermott and Pollack, 1986). The implication of such introduced bias in participant characteristics would be that survey results could not be extrapolated to the general population; in this particular case, for example, although need for sexual health services could be identified, level of need could not be quantified.

A further problem would result if free advertising space could not be identified. Advertising in most publications, especially those with a high or national circulation, can be very costly. However, within the context of an

exploratory study advertising was considered to be an appropriate recruitment strategy. Two advertising mediums were therefore selected: 1) magazines and 2) newspapers.

Option 2. Recruitment via existing data sets

Although it has been seen that there are no accessible lists to enable identification of individuals' names and addresses by age, certain pre-existing sampling frames could be used as a basis for identifying eligible participants. The two most widely used frames within health research are GP patient records and the electoral register. The advantages and disadvantages of using each to recruit a sample of older individuals are noted below.

Recruiting from GP notes

Recruiting from GP notes is often employed as a recruitment strategy within gerontological research as the majority of older people are registered with a GP (see, for example, Neadley, Kendrick, and Brown, 1995; Little, Aylward, Gregson, Wormald and Courtney, 1993; Renwick and Connelly, 1996). However, it was felt that GP involvement would incur ethical and confidentiality problems given the personal nature of this research topic. Furthermore, the refusal of individual GP practices to participate in the study would have jeopardised the completeness of geographical coverage and thus hindered the extent to which research findings could be generalised beyond the specific research context. It was therefore considered preferable to contact eligible participants directly, having secured Ethics Committee approval.

Recruiting from the electoral register

A two-phase recruitment strategy based on the electoral register has been extensively used with an older population by Cartwright and Smith (1987). Phase 1 involves sending brief self-completed questionnaires on postcards to individuals identified from the electoral register; and Phase 2 involves constructing a sampling frame from the returned postcards to identify individuals aged >50 years in that household.

This methodology has the advantage of being able to generate a random sample for an area where population statistics are already known from census data. Therefore, a ward could be selected on the basis of its key demographic variables and statements could be made concerning the extent to which study findings could be generalised beyond the research setting. Furthermore, the study by Kaats and Davis (1971) mentioned above showed no difference in the sexual attitudes and experiences of individuals who completed a questionnaire on sexuality issues and those who did not.

Potential disadvantages can however be identified. Firstly, low response rates would be expected as a result of the sensitive nature of the subject under investigation, and the fact that postal questionnaires typically yield a low proportion of responses anyway (Oppenheim, 1992). Secondly, a two-phase postal study would have significant financial implications as postage to potential participants would have to be paid, as would return postage, given that this has been identified as substantially increasing response rates in postal surveys (Oppenheim, 1992). Furthermore, it was also recognised that unsolicited mail is often not welcomed.

A further disadvantage of using the electoral register as a sampling frame is highlighted by Morgan and Dallosso (1989). Not only may the electoral

register omit a 'substantial minority' of eligible candidates (2% of those over 50 in 1981: Todd and Butcher, 1982), but the actual process of completing and returning a registration form can discriminate against those with mild to severe cognitive impairment. However, the implications of such discrimination within the context of a postal questionnaire study is minimal, as it is unlikely that individuals who do not return an electoral registration form would be capable, or willing to, complete and return a postal questionnaire.

In respect of the more serious issue of individuals missed from the electoral register for a variety of reasons, Lindesay (1989) stresses that bias can just as easily be introduced from GP records as from the electoral register and that study-specific factors should determine which data source is utilised. Given the desire to not include the GP in the participant recruitment process, a two-phase recruitment strategy using the electoral register to construct a sampling frame was identified as the most appropriate means of generating a random sample of older individuals for participation in a sexual health postal questionnaire survey.

Recruitment procedures: summary

As the literature did not provide sufficient evidence as to the single most appropriate recruitment strategy to use within the current context, it was considered essential to pilot all potentially suitable strategies. These were identified as follows:

1. Advertising: a) in magazines; b) in newspapers;

2. A two-phase sample construction methodology consisting of a postal screen based upon the electoral register to identify eligible study participants (Cartwright and Smith, 1987).

5.2. Pilot Studies

Introduction

Each recruitment strategy will be outlined below in terms of the methodology used and response rates obtained. Further findings from these pilot studies will then be summarised briefly (for full details of results, see Appendix M).

Pilot Studies: Methods

Option 1: Magazine advertising

Publications approached included two targeted specifically at an older audience, namely *Choices* and *Yours*. Popular women's magazines were also selected on the basis of circulation figures (Church, 1997). Three magazines with the highest figures were chosen: *Woman*, *Woman's Own* and *Bella*. Further approaches were also made to a publication specifically targeted at men, *Men's Health*, as well as to the gay publications *The Gay Times* and *The Pink Paper*. It was hoped that recruiting from a variety of sources would yield a diverse sample.

The editors were approached by telephone and letter, and invited to participate in the study. It was outlined that subject recruitment would be achieved either through placing a request for participants in the magazines letters page, or by including this in a published article about the subject area of the study.

Option 2: Advertising in newspapers

Advertising in local newspapers

The second recruitment strategy to be pursued was that of advertising in newspapers. Two newspapers were selected for this purpose, the local newspaper with the highest circulation figures (*Sheffield Star* - average circulation figures: 100,000) and a national newspaper (*The Sunday Mirror* newspaper – average circulation figures: 2,020,000). Adverts were placed in the ‘personal section’ of the newspapers as they would be read by people seeking new partners, a population hypothesised to participate in ‘risky’ sexual behaviours.

The advertisement was constructed on the basis of brevity, as it was thought that short advertisements would be more likely to be read. Furthermore, this would minimise expenditure as advertisement space is costed per word. The following advertisement was placed in *The Sunday Mirror* and a Saturday edition of the *Sheffield Star*.

Are you over 50? Sheffield University is researching sexual health in later-life. We need people to fill in an anonymous questionnaire on these issues. If you can help us write to: CARS, Community Sciences Centre, Northern General Hospital, Sheffield S5 7AU for a questionnaire.

Option 3: Identifying a sample of older people from the electoral register

Phase 1: postal screen

The first data collection phase utilising this study design involved generating a sampling frame by means of a postal screen. This necessitated the identification of electoral wards to be sampled. Wards were selected on the grounds of their similarity to the socio-demographic characteristics of England and Wales on selected variables, namely age/gender composition, ethnicity, social class, and percentage of pensioners living alone. Two wards were selected for this pilot study phase: Intake (Ward 1) and Stocksbridge (Ward 2). 200 individuals were selected at random from each electoral ward allowing the whole area of the ward to be covered, thereby ensuring that every resident had an equal chance of being approached for study participation. It was decided that contacting 400 individuals would provide a good guide as to the effectiveness of this recruitment strategy.

However, it was recognised that more than one eligible individual might live in each household contacted so, having decided that addressing people by name was likely to be seen as compromising the anonymity of the study, a decision had to be made as to who within the household of the requisite age was to be invited to participate. Given that it was thought that letters addressed to 'the occupier' would be likely to be opened by the perceived head of the household (typically male), it was considered important that all eligible household members were given the chance to complete a questionnaire. The disadvantage of this recruitment strategy is that individuals who live alone are less likely to be selected for study participation than those who live in a household with another individual aged 50 or over; this issue will be discussed in

more detail below.

The address of all randomly selected individuals was noted and each was sent a covering letter introducing the study and a stamped postcard addressed to the research centre. They were asked in the letter to indicate, by ticking the appropriate box on the postcard, the number of people over the age of 50 living in their household, and then to return it. As indicated above, all correspondence to households were addressed to 'the occupier'.

At the pilot stage, a methodological experiment was introduced to assess the impact of the inclusion of the word 'sexual' in response rates to the initial postal screen. A slightly different covering letter was sent to individuals in the two wards. The first letter stated that the purpose of the study was to explore the 'health needs of older people' and was dispatched to 200 residents of Intake (Ward 1). The second letter stated that the purpose was to explore the 'sexual health needs of older people' and this was sent out to 200 residents of Stocksbridge (Ward 2). In every other respect the two letters were identical (see Appendices H and I). The letters and postcards were then distributed to the two wards.

Ethics Committee approval was granted for the study by the North Sheffield Ethics Committee (see Appendix L).

Phase 2: questionnaire study

Of 400 postcards distributed in the two wards, 198 (49.5%) were returned and 180 individuals were identified as eligible for study participation (see below for further details of response rates). All potential participants were sent a pack containing a questionnaire with participant information sheet (see Appendices G

and H), an introductory letter (see Appendix I) sealed into an envelope, and a freepost envelope addressed to the research centre. The number of questionnaires and envelopes included matched the number of older people indicated as living in the household on the returned postcard. The questionnaire was sealed in an envelope in order to avoid offence to anyone not wishing to complete a questionnaire on this subject.

The introductory letter was addressed to the occupier, and asked at the top for the pack to be passed on to the member(s) of the household over the age of 50 (if that was not just the occupier). It stressed that the researcher did not wish to cause offence to anyone not comfortable completing a questionnaire on this subject, and that the questionnaire had therefore been placed in a sealed envelope. The recipient was asked to return the questionnaire even if he/she did not wish to complete it. The letter was signed by the researcher.

Pilot studies: materials

Questionnaire design

Specific issues to be addressed during questionnaire design included item ordering, language used, the adoption of internal consistency checks and concerns about causing offence. It has been suggested that the order of questionnaire items may influence the completeness of answering. Indeed, Bradburn and Sudman (1979) recommend that sensitive items be placed at the end of the questionnaire, as participants are thought to become progressively desensitised to personal items throughout the course of questionnaire completion.

Therefore, it was decided to include socio-demographic variables at the beginning of the questionnaire, and the potentially most intimate items (thought to be those that address history of STD) at the end.

The decision as to the nature of language to use was difficult in that 'there is no adequately understood or accepted language' (Wadsworth, Field, Johnson, Bradshaw and Wellings, 1993, p. 407) detailing sexual behaviours. However, it has been recognised that self-administered questionnaires constructed to collect information in this area

must rely most heavily on careful and unambiguous questionnaire wording and sensitive treatment of personal topics. (Wadsworth *et al*, 1993, p. 411)

Furthermore, given the potential resistance to study participation by older individuals (see Chapter 1), the language used must not appear overly intrusive. Therefore, for example, the frequency of sexual intercourse was identified by asking about how often participants 'had sex'. Although it is possible that the wording of this item may lead respondents to believe behaviours other than sexual intercourse were being examined, it was considered unlikely. It was thought that any slight ambiguity in questionnaire responses would be compensated for by increased questionnaire completion rates.

Internal consistency checks to establish data quality were developed for the following variables: having a regular sexual partner (items 8 and 9), number of sexual partners during given time scales (items 12 and 13), extra-relationship partnerships (items 10 and 17) and GP attendance (items 32 and 33). Although it was acknowledged that consistency in answering may just reflect proximity of questionnaire items, more stringent internal consistency checks through item repetition were not appropriate given the need to maximise response through

having as short a questionnaire as practicable.

A further issue to be considered when constructing the questionnaire was the time periods for which participants would be asked to record their number of sexual partners. A five year and lifetime frame of reference were utilised, with the reporting of multiple partnerships and inconsistent condom use during the past five years forming the basis of the definition of a sexual risk-taker. A five year reference period was chosen because: i) this was utilised in the reporting of the NSSAL, thus facilitating inter-study comparisons; ii) symptoms of some STDs, e.g. AIDS can take five years or longer to develop; and iii) a large-scale American study of the sexual behaviour of an all-age sample also recorded number of sexual partners over this time period (Leigh, Temple and Trocki, 1993).

The disadvantage of utilising this time frame is that study participants now in their early 50s may be reporting behaviours they engaged in before they were 50. However, this is unavoidable given the need to define both the age of participants, and the time period over which they were to record behaviours.

As one aim of this study was to allow comparison with the clinic sample on selected variables, items utilised in the clinic questionnaire were also included in the general population questionnaire. These included: all socio-demographic items (1 - 5), all information items (items 23 - 30) and items concerning past history of STD and HIV testing (39 - 44). See Appendix G for a copy of the questionnaire.

Readability score

The use of readability scores in questionnaire design was explored in

Chapter 3. The same two scales were used to assess the questionnaire's readability, the Flesch reading ease scale and the Flesch-Kincaid Grade Level. The questionnaire scored 68.6 on the first scale (standard reading average is given as between 60 and 70, i.e. 60 to 70% of the population would be able to understand the document easily) and 5.4 on the second (Ley and Florio (1996) recommend aiming for a score between Grades 4 and 5, i.e. people with a reading age of 9 – 10 years would be able to understand it).

Unfortunately it was impossible, given the need to protect participant anonymity (as discussed above) to gather the opinions of older individuals who were illiterate, or who did not read/write English.

Estimated completion time

The questionnaire was completed by several different individuals known to the researcher in order to estimate approximate completion time. Completion time for the finished questionnaire averaged ten minutes. It was hoped that a relatively short completion time would maximise response rates.

Participant information sheet

A participant information sheet was attached to the front of the questionnaire (see Appendix H). This explained the purpose of the study, and what would be involved if the individual decided to participate. The anonymity of the questionnaire was stressed, as was the utility of the resultant data. The fact that the study was supported by a known research unit (the University of Sheffield) was also stressed as this has been identified as increasing response rates (Oppenheim, 1992).

Pilot studies: recruitment rates

Option 1: Magazine advertising

No response was received from the editor of *Choices*. The editor of *Yours* declined to be involved in the study on the grounds that the subject matter was 'not of relevance' to his readership. Replies were received from three of the publications approached, namely *Woman*, *Womans Own* and *Bella*. Unfortunately all of these replies were negative. The editor of each magazine stated that it was not policy to be involved in academic research, or to publish uncommissioned articles of this nature. No reply was received from *Men's Health* magazine or from either of the gay publications.

Option 2: Advertising in newspapers

The response to the adverts was low. The *Sheffield Star* advert resulted in nine people contacting the researcher requesting questionnaires and seven returned completed questionnaires. The *Sunday Mirror* advert prompted 16 questionnaires to be requested, of which 15 were returned completed.

However, although the response rate was low, the questionnaires that were returned indicated a high prevalence of sexual health concerns (see below for brief summary of findings and Appendix M for full results).

Option 3: Identifying a sample of older people from the electoral register

Phase 1: postal screen

Of 400 postcards distributed in the two wards, 198 (49.5%) were

returned. The figures for the two wards were 108/200 (54%) for Intake (Ward 1: sent a 'health' recruitment letter: Appendix J), and 90/200 (45%) for Stocksbridge (Ward 2: sent a 'sexual health' recruitment letter: Appendix K). There was no statistically significant association between ward and number of postcards returned ($\chi^2=1.1$; d.f.=1; $p=0.29$). As the age/gender composition of the two wards was already known from 1991 census data analysis, the percentage of replies from households with members over the age of 50 could be estimated, providing an indicator of the response rate from the target population.

The percentage of people over the age of 50 living in Intake (Ward 1) was 37.3% (OPCS, 1991). Therefore, if the response rate had been 100% it would be expected that individuals in this age group would represent 37.3% of total respondents i.e. 75/200. The actual number of respondents indicating that there was a household member over the age of 50 was 67 (although *total* numbers of identified residents over the age of 50 was obviously higher). Therefore, it was estimated that 89.3% (67/75) of the sample who were over the age of 50 responded to the initial postal screen.

The percentage of people over the age of 50 living in Stocksbridge (Ward 2) was 31.2% (OPCS, 1991). In this instance, a response rate on 100% would be expected to yield 62 older respondents. Therefore, the 47 replies from people in this age group represent a response rate of approximately 75.8%. There was a statistical association between ward and estimated proportion of returns from individuals over the age of 50, with older residents in Intake (Ward 1: 'health') more likely to respond ($\chi^2=4.4$; d.f.=1; $p<0.05$).

As the majority of households had more than one resident over 50 years of age, the returned postcards generated a sample of 180 individuals over the age

of 50 and therefore eligible to participate in the study.

Phase 2: questionnaire study

The completion rate of mailed questionnaires was again low. Although 51.7% (n=93) of questionnaires were returned to the research centre, only 9.4% (n=17) were actually completed.

Response rates obtained by the different recruitment strategies are summarised in Table 5.2.1.

Table 5.2.1. Response rates obtained through different recruitment strategies

| Design | Number Mailed Out | Number Returned | Number Completed | Response Rate | Completion Rate |
|----------------------------------|--------------------------|------------------------|-------------------------|----------------------|------------------------|
| Advert: <i>Sheffield Star</i> | 9 | 9 | 7 | n/a | 77.7% |
| Advert: <i>Sunday Mirror</i> | 16 | 15 | 14 | n/a | 87.5% |
| 1st Postal Screen | 180 | 93 | 16 | 51.7% | 8.9% |

Pilot studies: summary of findings

Given the low number of individuals recruited during these first three recruitment strategies, the full results of these pilot studies have been relegated to appendices. However, it must be noted that some interesting findings were identified. These included an identified need for information about STDs and HIV, a relatively high proportion of multiple partnerships and generally low rates of condom use. Although the overall proportion of people who could be identified as taking sexual risks was quite low (9.6%), these individuals were also placing both their regular sexual partners, and all other people with whom they had sex, at risk of infection.

Situations where individuals (or their partners) were engaging in multiple partnerships, as well as identifying the formation of new partnerships in later-life, were also identified. This underlines the fact that older people do not only have sex within the context of mutually monogamous relationships, but also with commercial sex workers and non-permanent partners of the same and/or the opposite sex.

Obviously the small sample size recruited to this point does not allow generalisations to be made as to the extent to which these findings apply to the general population. Indeed, as discussed previously, it is likely that individuals who respond to advertising strategies differ from the general population in terms of their experiences and attitudes. This is illustrated to some extent by the difference in the proportion of individuals with a regular sexual partner, and indeed with multiple sexual partners, between those recruited in the postal screen and advertising strategies.

Pilot studies: discussion

Options 1 and 2: Magazine and newspaper advertising

Overall, it can be concluded that advertising is not a successful means of recruiting older people to participate in a sexual health survey. The time and effort involved in responding to the advertisement and then completing the questionnaire seems to deter everyone except those with serious sexual health concerns.

Option 3: Identifying a sample from the electoral register

The response to the postal screen was very encouraging (46% - 55%), approximately the same as that for the only previous documented comparable study utilising this methodology with an older sample (Cartwright and Smith, 1987; 50%). Furthermore, estimated response rates from individuals over the age of 50 were especially high (73.5% - 89.8%). The fact that there was no association between describing the study as a 'sexual health' rather than a 'health' study in overall response rates, although there was for respondents aged 50 years and over is interesting. It had been hypothesised that the depressed response rates to the postal screen for Ward 2 ('sexual health') would be compensated for by higher questionnaire completion rates for this ward as the true nature of the study had been stated in the postal screen. Unfortunately not enough questionnaires were completed to test this hypothesis. Indeed, the overall completion rate was unacceptably low.

However, given the acceptable return rate of 51.7%, it was felt that people were responding to the study, but were unwilling to complete the

questionnaire for some reason. The study design was therefore re-evaluated. Changes made to the study design as a result of this re-evaluation will be described below.

5.3. Modifying the Postal Study Design

Introduction

The difficulties of collecting data from the population of interest on issues relating to sexual health, have been illustrated above. Attempts to advertise met with little success, as did the pilot postal questionnaire study.

It was decided, however, that a postal questionnaire had the potential to yield a higher response rate if the study design were altered. As people were returning the questionnaire, albeit for the most part uncompleted, it was deduced that there must be obstacles to completion. It was therefore decided that these obstacles should be anticipated and the study design altered as a result. The electoral register would again be used to construct a sampling frame.

Obstacles to completion

Potential obstacles to questionnaire completion were identified by the researcher in conjunction with a panel of experts in the field of questionnaire design. The panel comprised gerontologists with experience and expertise in delphi surveys, telephone interviewing, interviewer-administered questionnaire

studies and postal surveys. The use of expert panels is recognised as a successful means of identifying problems of questionnaire design (Catania, Binson, van der Straten and Stone, 1995). Presser and Blair (1994), for example, found that an expert panel identified a larger number of potential sources of measurement error than conventional pre-tests, behaviour coding and cognitive interviews. Within the current context, the expert panel identified the following obstacles to questionnaire completion:

1. The length of the questionnaire
2. The placement of the questionnaire in a sealed envelope
3. The contents of the covering letter
4. The use of a freepost envelope as opposed to a stamped addressed envelope
5. The impersonal presentation of the whole package.

Cutting the length of the questionnaire

The length of the questionnaire (i.e. 44 questions covering 15 sides of A4 paper) may have deterred individuals from completing it. Therefore, the questionnaire was reduced in length and items that might have appeared overly intrusive, and those that replicated information recorded in previous questions, were removed.

Changing the question order

The ordering of the questions within the questionnaire was also re-evaluated. Although items relating to past STD diagnosis had already been

placed at the end of the questionnaire to encourage questionnaire completion, *all* questions considered to be potentially personal and intrusive (i.e. relating to sexual partnerships and condom usage) were moved to the end of the questionnaire. Therefore, those relating to service issues were placed at the beginning of the questionnaire (see Appendix N).

The revised covering letter stressed the importance of completing as much of the questionnaire as the individuals felt able before returning it. It was felt that this would be facilitated by the new question ordering.

The readability score of the modified questionnaire

The readability score of the modified questionnaire was measured with the two same scales utilised previously and scored 56 on the Flesch reading ease scale and 7.1 on the Flesch-Kincaid Grade Level.

The reliability and validity of the modified questionnaire

It was felt that shortening the questionnaire did not affect the use of the measures identified above as the most appropriate data quality checks to use within the current context. Although some of the questions identified as suitable for checking consistency in questionnaire were removed, it was still thought that remaining items could indicate the accuracy of participant responses.

The information sheet

The contents of the information sheet placed on the front of the questionnaire were also modified slightly (see Appendix O). The need for the information sought to help with developing services was stressed. The term

'sexual relationship' was also replaced with 'personal relationship'; although both terms accurately indicate the nature of the study, it was felt that older people would be more comfortable with the latter phrase.

Using a sealed envelope

In the pilot study, the questionnaire was placed in a sealed envelope *within* the envelope addressed to the recipient so as not to offend people who did not wish to participate in the study. However, only 5% of the questionnaires returned uncompleted had been removed from this envelope, indicating that it was a major impediment to questionnaire completion. Following discussions with the Ethics Committee, approval was granted to place the questionnaire in a single envelope (Appendix Q).

The contents of the covering letter

It was felt that messages conveyed to the individuals within the covering letter may have impeded questionnaire completion. It was apparent that people participating in the pilot study based their decision about whether or not to complete the questionnaire on information contained in the covering letter. Therefore, specific attention was paid to the messages conveyed to the individuals concerning the content of the questionnaire (see Appendix P).

The reply envelope

In the pilot study freepost labels addressed to the research centre were attached to all envelopes. However, research has shown that using stamps instead of freepost labels can significantly increase response rates (Oppenheim,

1992). Therefore, stamps were substituted for freepost labels.

5.4. The Main Study: Results

Overview

This section will present findings from the general population study in three main sections. The first section will describe the survey design employed, detailing both the initial postal screen and subsequent questionnaire phase. A discussion of response rates to both phases will be included and methodological implications highlighted. The second section will outline preliminary questionnaire findings relating to sample representitiveness and the quality of the questionnaire data gathered. The main results pertaining to the questionnaire data will be presented in Section 5.5.

Introduction

As outlined above, changes were made to the study design utilised during the pilot study in an attempt to maximise response rates. As no research has been carried out in this area before, it was unclear what impact these changes would have on response rates. Indeed, the only guide to a target response rate was provided by Barker and Cooper (1996), who recorded an age-independent response rate of 51% to the first mailing of a postal questionnaire which, although focusing on general health issues, did include one item concerning

contraception use.

Postal screen to recruit study participants

Identifying a sample

As the recruitment strategy employed during the pilot study had proved very successful, this was repeated to identify another sample of older people. The only methodological change made was the use of freepost labels instead of stamps on return postcards. This was for financial reasons, as return postage only had to be paid for if individuals actually responded by returning their postcard.

The methodological experiment of dividing the sample in two and sending one-half covering letters stating that the purpose of the research was to study 'health issues', and the other half covering letters stating that the purpose of the study was to study 'sexual health issues' was also repeated (see Appendices G and H). This was because, although results of the pilot postal screen indicated that the latter description depressed response rates, it was still not known what effect this had on overall questionnaire completion rates. Indeed, it had been hypothesised that completion rates might be similar for the two wards, as such rates would be likely to be higher in the wards where individuals knew the exact nature of the research.

Sample size estimation

As indicated in Chapter 1, no definitive data were available to guide

sample size estimation. Moreover, a wide range of factors were under investigation, any one of which could be selected as a tracer variable.

Prevalence of risk-taking was selected as a benchmark variable as this was a key variable under examination. Stall and Catania, (1994), report a prevalence of risk taking of 5.5% in a US study of older adults (see page 46 for study details). Taking this as a tracer variable, and assuming alpha at 5% and beta at 80% a sample size of 320 would be necessary generate a valid population estimate of risk-taking, with the estimated prevalence falling between 3% and 8%.

Six hundred individuals over the age of 50 were therefore contacted in the postal screen, as it was estimated that this would yield between 300 and 350 completed questionnaires (although, as indicated above, target response rates were not available). As approximately 35% of the population of England and Wales is over 50 years of age, approximately 1,800 individuals would have to be contacted in order to identify 600 individuals of this age. Although it was recognised that some households would have more than one resident of this age, given the lack of available information concerning response rates, it was therefore decided to set the target for the postal screen at 1800 households.

The sample was drawn from four electoral wards in order to maximise diversity. The wards were selected on the basis of their similarity to the population of England and Wales in terms of four key socio-demographic variables: age/gender structure, ethnic composition, proportion of pensioners living alone and marital status of residents over the age of 50. Four hundred and fifty individuals from each of the wards selected (Beauchief, Hillsborough, South Wortley and Owlerton) were chosen at random from the electoral register and

each household where that individual resided was sent a covering letter and postcard (indicating number of householders aged 50 or over) to return.

Response rates to postal screen

Of the 1,800 postcards sent out, 732 postcards were returned, representing a response rate of 40.7%. This rate was significantly lower than for the pilot study (n=198; 49.5%) ($\chi^2=10.5$; d.f.=1; $p<0.001$).

There was also a significant association between ward and response rate. The response rate for the first two wards (Beauchief and Hillsborough: sent a 'sexual health' recruitment letter), was 32.9% (n=296), and for the second two (Owlerton and South Wortley: sent a 'health' recruitment letter) 48% (n=436) ($\chi^2=45.1$; d.f.=1; $p<0.001$).

The estimated proportion of older people replying to the postal screen was again calculated. The proportion of individuals 50 years or older within Wards 1 and 2 is 32.2%. It could therefore be expected that, of the 900 postcards dispatched, 290 (i.e. 32.2% of 900) would be sent to households where one or more household member was over the age of 50. As 134 postcards were returned from individuals aged 50 years or more, this represented a response from approximately 46% of the potential respondents (134/290). Overall, 202 individuals suitable for inclusion in the study were identified.

The proportion of individuals over the age of 50 living in Wards 3 and 4 is 35.8%. Thus, it could be expected that, of the 900 postcards dispatched, 322 (i.e. 35.8% of 900) would be sent to households where at least one household member was over the age of 50. As 302 postcards were returned from households where one or more household member was over 50, this represented

an estimated response rate of 94% (302/322) from the target respondents. The difference in estimated response rates from individuals over the age of 50 by ward was again estimated and a statistical association found ($\chi^2=143.8$; d.f.=1; $p<0.001$).

Overall, from the four wards, postcards were returned by 436 households where one or more household member was aged 50 years or older. This yielded a final sample of 668 individuals of this age and thus suitable for participation in the study - an improvement on the target of 600.

Questionnaire study

Methods

An envelope containing a modified questionnaire (see Appendix N), a modified participant information sheet (see Appendix O), a modified covering letter (Appendix P) and a stamped envelope addressed to the research centre were sent to each household indicated as having at least one household member over the age of 50. Where more than one household member was over 50, the occupier, to whom the envelope was addressed, was asked to forward the enclosed package to the relevant individuals. Although disadvantages were identified in this methodology, notably the possible bias introduced by couples completing the questionnaire together, it was paramount that all householders over 50 completed the questionnaire, and not just the main occupier of this age.

5.5. Strategies for Data Analysis

Introduction

The strategies for data analysis adopted were the same as outlined in Chapter 3 and so will only be summarised briefly here.

Statistical Analyses

Data were entered into an SPSS (Windows, Version 7.1) database and checked for accuracy. Individual variables were initially explored at a univariate level and bivariate relationships between all variables established using Chi Square tests (where numbers were sufficient). However, Spearman's rank correlation was used where variables of interest were ordinal. Forward stepwise logistic regression modelling was then used to identify more complex relationships between variables (the rationale for choosing this test has previously been explained in Chapter 3). The selection of dependent variables was guided by the primary research questions (reiterated below).

Given that no prior data were available to guide variable selection, all variables were included in the model, unless numbers were insufficient. Variables were only not included in the model if less than 10% of responses were recorded in any one category, and merging categories was not an option. Variables excluded included sexuality, ethnicity and suspected STD on a previous occasion. The coding of each variable is given in Appendix R. The forward stepwise mode of logistic regression identifies which of the independent

variables (if any) best predict the dependent variable of interest. These 'best predictors' will therefore be presented for each logistic regression model undertaken, along with the level at which the variable was significant.

Continuous and ordered variables in comparisons of three or more groups were tested using the Kruskal Wallis test, a more general form of the non-parametric Mann-Whitney test (Altman, 1991). Log-linear analyses were employed where associations needed to be identified in complex contingency tables in which individuals were classified with respect to several categorical variables.

Presentation of results

All data will be described at a univariate level. However, although bivariate relationships were established for all variables by undertaking chi-squared tests as outlined above, most have not been included in the main body of the text as they were not considered to provide useful additional information to that provided by the presentation of multivariate modelling. All bivariate tests can be seen in Appendix S except where numbers were insufficient to undertake multivariate modelling, in which case bivariate relationships have been presented in the text.

5.6. Preliminary Data Analyses

Response rates and final sample size

Four hundred and thirty five questionnaires were returned to the research centre, representing a return rate of 65.1%. Of these, 335 were completed, representing a completion rate of 50.1%. 16 questionnaires had to be excluded from subsequent analyses because of inconsistent or incomplete answering¹³. This represents a final completion rate of 47.7%. The final sample size (n=319) was therefore very similar to the target sample size of 320 (see above). There was no association between final completion rate and ward (completion rate: Wards 1 & 2 47.0% (n=95); Wards 3 & 4 48.1% (n=224); $\chi^2=0.06$; d.f.=1; p=0.80).

Comparing the characteristics of respondents by ward

The known characteristics of study participants were analysed by ward as it was hypothesised that there may be differences in the characteristics of respondents to a 'sexual health' study recruitment strategy as opposed to a 'health' study recruitment strategy. In order to identify whether a difference did indeed exist, variables were combined into a logistic regression model. Responding to a 'health' / 'sexual health' recruitment strategy was taken as the

¹³ The internal consistency of questionnaire answers was checked, and where irreconcilable inconsistencies were identified, questionnaires were excluded from analyses (n=5). These included instances where individuals reported that they had never attended a GUM clinic and/or consulted their GP with sexual health concerns or health problems that interfered with their sexual relationships, but rated the quality of the treatment they received (n=3). A further two were excluded as each appeared to have been filled in by two people, and it was impossible to separate out individual responses.

dependent variable. Independent variables comprised age, gender, relationship length, marital status, ever had sexual health concerns, know location of local GUM clinic, amount of information received about STDs, amount of information received about HIV and received sufficient information about HIV.

Logistic regression analyses identified that there was only one factor that differentiated respondents from Wards 1 and 2 ('sexual health') to respondents from Wards 3 and 4 ('health'), and that was amount of information received about STDs (Table 5.6.1.). Indeed, individuals who responded to the 'sexual health' recruitment strategy were almost three times as likely as those who responded to a 'health' recruitment strategy to consider that they had not received enough information about STDs (OR=2.89, CI=1.63 - 5.11, p<0.005).

Table 5.6.1. Logistic regression estimation of variables predicting completion of a sexual health questionnaire

| Predictor Variable | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|---|-----------------|-------------------------------|---------|
| Received sufficient information about STDs 1=no 0=yes | 2.89 | 1.63 - 5.11 | p<0.005 |

Respondents' characteristics compared with the general population

The socio-demographic characteristics of the sample group will now be defined. These data will then be compared against census statistics for the

relevant wards and conclusions made as to the representitiveness of respondents on key socio-demographic items.

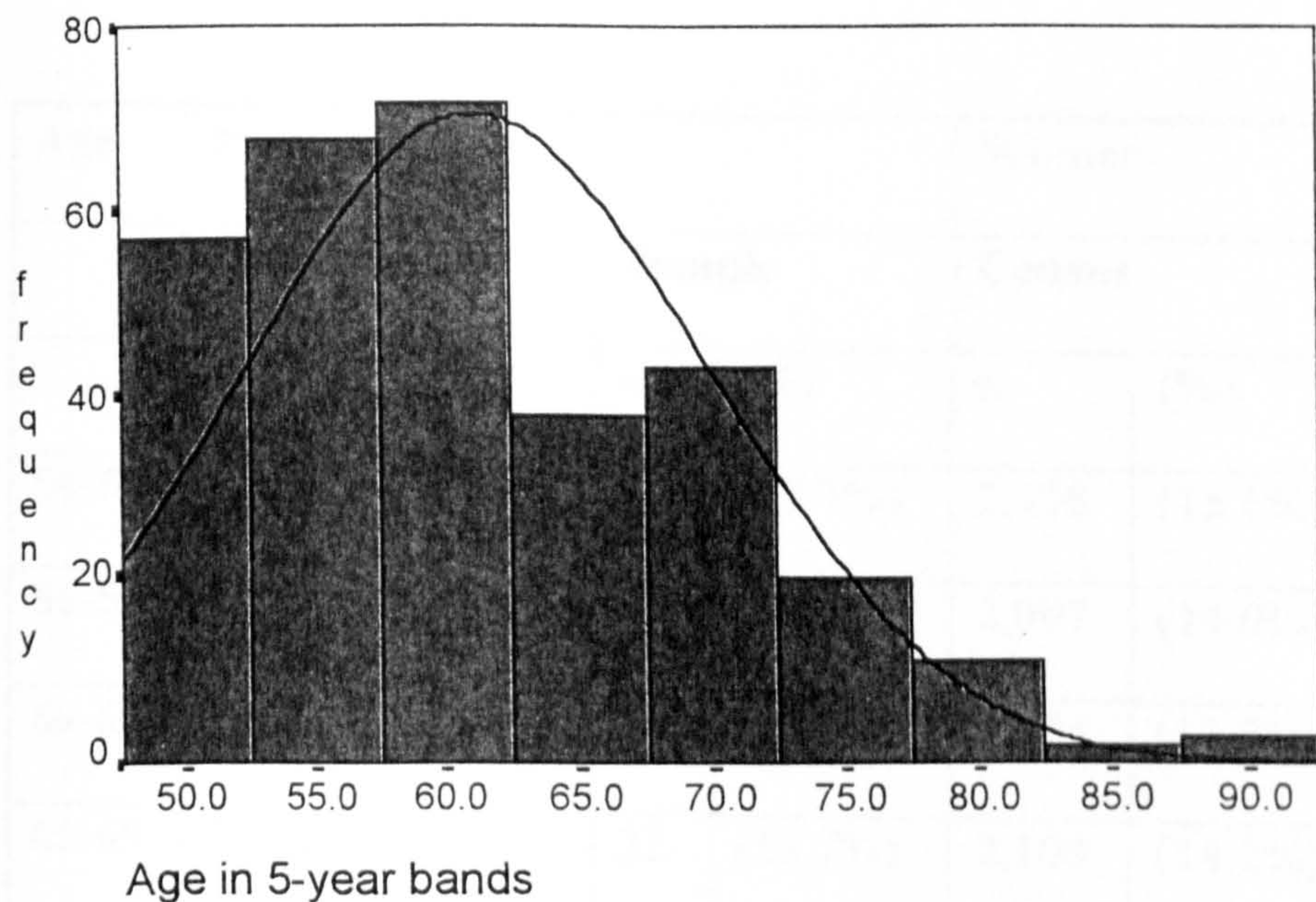
Gender

Approximately half of respondents were female (49.5%; n=158), and half were male (50.5%; n=161). When this gender ratio was compared with census data for the four wards, the proportion of male respondents was seen to be greater than within the general population (43.8%; n=11,704). This association was statistically significant ($\chi^2=5.4$; d.f.=1; $p<0.05$).

Age

Respondents ranged in age from 50 - 90 years. The median age of respondents was 59 years with an inter-quartile range of 53 - 68 years. Age was unknown for 2.5% of men (n=4) and 0.6% of women (n=1), although it was known that these participants were over 50, as they had indicated this when replying to the postal screen.

Figure 5.6.1 The age of study participants



When the age distribution of respondents was compared with relevant census data a significant difference was identified for both men and women. All participants were significantly more likely to be younger than the general population aged 50 years and older (women: $\chi^2=65.7$; d.f.=4; $p<0.001$; men: $\chi^2=10.6$; d.f.=4; $p<0.05$; Table 5.6.2.).

Table 5.6.2. Chi square test for association between age distribution of participants and census data

| Age | Men | | | | Women | | | |
|-------|--------|---------|--------|---------|--------|---------|--------|---------|
| | Census | | Sample | | Census | | Sample | |
| | n | (%) | n | (%) | n | (%) | n | (%) |
| 50-54 | 2,349 | (20.1%) | 45 | (27.9%) | 2,338 | (15.6%) | 54 | (34.2%) |
| 55-59 | 2,097 | (17.9%) | 30 | (18.6%) | 2,097 | (14.0%) | 35 | (22.1%) |
| 60-64 | 1,871 | (16.0%) | 26 | (16.1%) | 1,974 | (13.2%) | 23 | (14.5%) |
| 65-69 | 1,706 | (14.6%) | 22 | (13.7%) | 2,108 | (14.1%) | 16 | (10.1%) |
| 70+ | 3,681 | (31.4%) | 34 | (23.6%) | 6,418 | (43.0%) | 29 | (19.0%) |

men: ($\chi^2=10.6$; d.f.=4; $p<0.05$); women: ($\chi^2=65.7$; d.f.=4; $p<0.001$).

Ethnicity

Regarding ethnicity, 95.9% (n=306) of respondents defined their ethnicity as White European. Only 0.9% (n=3) defined their ethnicity differently. For 3.1% (n=10) of respondents ethnicity was unknown. This low proportion of ethnic minority groups corresponds with census data for the four wards (1.08%). Numbers of ethnic minorities were too small to allow for statistical testing.

Marital Status

Regarding marital status, 82.1% (n=262) of respondents were married, 10.0% were widowed (n=32), 3.4% were divorced (n=11), 2.2% (n=7) were single, 1.9% were cohabiting (n=6), and 0.3% were separated (n=1).

When marital status was compared with census data, further differences were identified for both men and women. Indeed, respondents of both sexes were more likely to be married than the population from which this sample was drawn (Table 5.6.3.).

Table 5.6.3. Chi square test for association between marital status of respondents and census data

| Marital Status | Men | | | | Women | | | |
|-----------------------|--------|---------|--------|---------|--------|---------|--------|---------|
| | Sample | | Census | | Sample | | Census | |
| | n | (%) | n | (%) | n | (%) | n | (%) |
| Married ¹⁴ | 141 | (87.6%) | 9299 | (79.4%) | 122 | (77.2%) | 8335 | (55.4%) |
| Unmarried | 20 | (12.4%) | 2405 | (20.5%) | 36 | (22.8%) | 6705 | (44.6%) |

men: ($\chi^2=6.5$; d.f.=1; $p<0.05$); women: ($\chi^2=30.1$; d.f.=1; $p<0.001$)

Predictors of questionnaire item non-completion

For the 319 questionnaires deemed to be of a suitable quality for analysis, item non-response was identified. Item non-response was below 5% for the majority of items. However, non-response of above 10% was identified for some information items, with source of information about STDs unknown for 41 participants (12.8%), and about HIV for 45 participants (14.1%).

The characteristics of participants who did not complete this latter item were assessed using χ^2 testing to test the association between not completing this

¹⁴ Includes one man whose marital status was given as 'separated'.

item and other known participant characteristics (where numbers were sufficient).

An association was identified for age, with participants over the age of 70 significantly less likely to complete this item (completed information item: 50-59 years 152 (92.7%); 60-69 years 75 (86.2%); 70 years and over 43 (68.2%); $\chi^2=22.5$; d.f.=2; $p<0.001$). In addition, individuals who did not answer the item relating to source of information about HIV were proportionately less likely to be defined as a 'risk-taker' compared with those who did. Indeed, this held for non-response to all information questions.

Second highest item non-response was for sexual health questions, where very personal data was requested; 20 individuals (6.3%) did not specify whether they had ever used condoms, 16 (5.0%) did not answer the question on number of partners in the last five years, 11 (3.4%) did not indicate whether they had been tested for HIV or not and nine (2.8%) did not state whether they had been previously diagnosed with an STD. To focus on the question least answered in this 'personal' section, i.e. "Do you use condoms with your regular partner?", it was identified that non-respondents had specific characteristics, including the fact that approximately half were over the age of 70 (50%; n=10).

Demographic data was largely complete, with the only notable non-response being to the question on the length of current relationship, where 18 individuals (5.6%) did not give this information.

5.7. Main Findings

Introduction

Although issues have been raised in the previous section relating to participation bias and sample quality, analyses did not indicate significant bias. Therefore, issues relating to sample bias will be discussed in the next chapter when the main results are considered.

The main findings from questionnaire analysis will now be outlined. The research questions identified in Chapter 5 determined the nature of the analyses undertaken. Broader issues, including current sexual activity, sexual health concerns and contact with health care professionals will be discussed first. The discussion will then focus in on specific issues relating only to a sub-section of the sample group, including risk-taking behaviour and history of STD diagnoses.

To reiterate, all variables will be presented at a univariate level. Although bivariate relationships were explored between all variables where numbers were sufficient, for reasons of space most have not been included in the main body of the text, but can be seen in Appendix S. A regression model will be presented to address research questions where numbers are sufficient as explained above. For logistic regression models, the odds ratio and confidence intervals for variables which significantly predict the outcome variable of interest will be presented.

Independent variables added to each model (unless they were the dependent variable) comprised:

- Age
- Gender
- Marital status
- Relationship length
- Know location of nearest GUM clinic
- Ever having used a condom
- More than one lifetime partner
- Amount of information received about HIV
- Amount of information received about STDs
- Having received sufficient information about HIV
- Having received sufficient information about STDs
- Ever had sexual health concerns
- Currently sexually active

Additional sample characteristics

Relationship length

Relationship length ranged from 0 years to 61 years. The median relationship length was 38 years with an inter-quartile range of 31 years to 48 years.

Relationships between socio-demographic variables

Log-linear model analysis was used to establish the relationship between the age, sex and marital status of participants. The best model of fit was hierarchical and had a sex-marital and marital-age association (likelihood ratio $\chi^2=9.94$; d.f.=4; $p=0.046$). Indeed, 86.9% of men were married (n=140), compared with 77.2% of women (n=122). Furthermore, 88.4% of respondents aged 50-59 years were married (n=145), compared with 87.3% aged 60-69 years (n=76) and 61.9% aged 70 years and over (n=39). The standardised residuals for each cell were between +/-2.

Research Question 1a) What proportion of older people are currently sexually active?

Two hundred and sixty individuals, representing 81.5% of respondents, were currently involved in one or more sexual relationships. Of the 54 individuals (16.9%) not currently involved in a sexual relationship two, or 0.6% of the respondents, had never been involved in a sexual relationship, and 18 (5.6%) had not been involved in a sexual relationship for the last five years.

Research Question 1b) What factors predict being sexually active in later life?

Logistic regression model to identify factors predicting being currently sexually active: dependent variable – ‘currently sexually active’

This analysis identified two factors significantly and independently related to being currently sexually active (Table 5.7.1.) being married (OR=0.04, 95% CI=0.02 - 0.10, $p<0.001$) and having had more than one lifetime partner (OR=3.22, 95% CI=1.30 - 7.98, $p<0.01$).

Table 5.7.1. Logistic regression estimation for likelihood of being currently sexually active

| Predictor Variables | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|--|-----------------|-------------------------------|---------|
| Marital Status 0=married 1=unmarried | 0.04 | 0.02 - 0.10 | p<0.001 |
| More than 1 lifetime partner? 0=no 1=yes | 3.22 | 1.30 - 7.98 | p<0.01 |

Research question 2a) What is the average number of sexual partners for individuals in this age cohort to have had in the last five years?

Of total participants who completed this item, 81.2% of individuals had had one sexual partner in the last five years (n=259). In the vast majority of cases (90%; n=233), this was their spouse. For individuals where this was not their spouse (n=26), 61.5% (n=16) were widowed, and the remainder were single (n=3; 11.5%), cohabiting (n=4; 15.4%), divorced (n=2; 7.7%) or separated (n=1; 3.8%).

Research question 2b) What factors predict number of sexual partners in the last five years for individuals in this age cohort?

Unmarried individuals were proportionately more likely to have had either no sexual partners, or two or more partners during the past five years when compared to married individuals (Table 5.7.2.). Although numbers were insufficient to test this association fully, a χ^2 test did confirm that unmarried

participants were more likely than married participants to have had two or more sexual partners in the last five years ($\chi^2=5.07$; d.f.=1; Fisher's Exact Test: $p<0.05$).

Table 5.7.2. Marital status and number of sexual partners in the last five years¹⁵

| Marital Status | None | | One | | Two or more | |
|----------------|------|---------|-----|---------|-------------|---------|
| | n | (row %) | n | (row %) | N | (row %) |
| Married | 3 | (1.2%) | 233 | (92.5%) | 16 | (6.3%) |
| Unmarried | 17 | (33.3%) | 26 | (51.0%) | 8 | (15.7%) |

There was also an association between gender and number of sexual partners in the last five years with men significantly more likely to have had two or more partners during this time period (Table 5.7.3.).

¹⁵ Number of partners in the last five years was unknown for six unmarried participants and ten married participants.

Table 5.7.3. Chi square test for association between gender and number of sexual partners in the last five years¹⁶

| Number of partners in the last five years | Male | | Female | |
|---|------|---------|--------|--------|
| | n | (%) | N | (%) |
| None | 7 | (4.5%) | 13 | (8.8%) |
| One | 131 | (84.0%) | 128 | (87.1) |
| Two or more | 27 | (11.5%) | 6 | (4.1%) |

($\chi^2=14.2$; d.f.=2; $p<0.001$).

Research question 2c) What is the average number of lifetime sexual partners for individuals in this age cohort?

The majority of participants (n=184; 57.7%) had only had one sexual partner during their lifetime. However, 0.6% (n=2) had had no sexual partners, 27.9% of the respondents had had between two and five partners (n=89); 3.8% between six and nine partners (n=12), and 5.6% over 10 partners (n=18). For 14.4% of the respondents (n=14) lifetime number of partners was unknown. Furthermore, 3% of individuals (n=10) stated that some or all of these partners had been of the same gender.

¹⁶ Data for five men and 11 women had to be excluded from analysis as number of partners in the last five years was unknown.

Research question 2d) What factors predict lifetime number of sexual partners?

Logistic regression model to identify factors predicting lifetime number of partners: dependent variable – ‘more than one lifetime partner’

This analysis identified four factors significantly and independently related to having had more than one lifetime partner (Table 5.7.4.). These comprised being male (OR=2.08, 95% CI=1.17 - 3.69, $p<0.05$), not being married (OR=43.98, CI=6.77 - 285.90, $p<0.001$) and having used condoms (OR=2.77, 95% CI=1.33 - 5.78, $p<0.01$). The final predictive variable, length of current relationship, indicated that for every increase of one year in the length of current relationship (relationship length ranged from 0 - 61 years) there was a 6% decreased likelihood of having had more than one lifetime partner (CI=0.92 - 0.97, $p<0.001$).

Table 5.7.4. Logistic regression estimation for likelihood of having had more than one lifetime sexual partner

| Predictor Variables | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|--|-----------------|-------------------------------|---------|
| Ever used a condom 0=no 1=yes | 2.77 | 1.33 - 5.78 | p<0.01 |
| Marital Status 0=married 1=unmarried | 43.98 | 6.76 - 285.90 | p<0.001 |
| Length of current relationship | 0.94 | 0.92 - 0.97 | p<0.001 |
| Gender 0=female 1=male | 2.08 | 1.17 - 3.69 | p<0.05 |

Research Question 3a) What proportion of older individuals experience sexual health concerns?

Of participants who completed this item, 8.5% (n=27) currently had concerns about their sexual health; the majority of these were male (92.6%; n=25). In addition, 16.9% of participants (n=54) had a history of sexual health concerns.

Research Question 3b) What factors predict having sexual health concerns in later life?

Logistic regression model to identify factors predicting sexual health concerns: dependent variable – ‘reporting previous sexual health concerns’

This analysis identified two factors significantly and independently related to having had sexual health concerns (Table 5.7.5.). These were being male (OR=2.21, 95% CI=1.08 - 4.52, p<0.05) and knowing the location of the nearest GUM clinic (OR=2.41, CI=1.20 - 4.88, p<0.05).

Table 5.7.5. Logistic regression estimation for likelihood of having had sexual health concerns

| Predictor Variables | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|--|-----------------|-------------------------------|---------|
| Gender 0=female 1=male | 2.21 | 1.08 - 4.52 | p<0.05 |
| Do you know where your nearest GUM clinic is? 0=no 1=yes | 2.41 | 1.20 - 4.84 | p<0.05 |

Research Question 3c) What proportion of older individuals experience health problems that interfere with their sexual relationship(s)?

Of participants who completed this item, 12.2% (n=39) stated that they had a health problem that interfered with their sexual relationship(s). A further 2.2% (n=7) also had health problems that would interfere with their sexual relationship(s), but did not have a regular sexual partner.

There was considerable variety in the nature of health problems cited. The most common were heart problems/hypertension (17.4%; n=8), impotence (15.2%; n=7), emotional problems (10.9%; n=5), 'age' (8.7%; n=4), menopausal symptoms (6.5%; n=3) and arthritis (6.5%; n=3).

Research question 3d) What factors predict experiencing health problems in later life that interfere with sexual relationship(s)?

A χ^2 analysis revealed that men were significantly more likely to cite having health problems than women (health problems; men 35 (76.1%), women 11 (23.9%): $\chi^2=14.3$; d.f.=1; $p<0.001$), and married participants than unmarried participants (health problems; married 43 (93.5%), unmarried 3 (6.5%): $\chi^2=4.7$; d.f.=1; $p<0.05$).

Age was not associated with having health problems (health problems; 50-59: 23 (14.1%); 60-69 12 (13.9%); 70+ 9 (17.6%): $\chi^2=0.04$; d.f.=2; $p=0.98$).

Research Question 3e) What factors predict older people making contact with health care professionals when experiencing sexual health concerns and/or health problems that interfere with their sexual relationship(s)?

Seventy five participants (23.5%) were identified as either having sexual health concerns and/or having health problems that interfered with their sexual relationships. Of these, 45 (60.0%) had made contact with health care professionals concerning these specific concerns or problems.

Logistic regression model to identify factors predicting making contact with health care professionals with sexual health concerns and/or health problems that interfered with sexual relationships: dependent variable – ‘contact with health care professionals’

This analysis identified two factors significantly and independently related to contacting health care professionals if an individual had sexual health concerns and/or health problems that interfered with their sexual relationships (Table 5.7.6.). These were older age (OR=0.91, 95% CI=0.82 - 1.00, $p=0.058^{17}$) and knowing where the nearest GUM clinic is (OR= 12.56, CI=3.08 - 51.15, $p<0.005$).

¹⁷ Although $p>0.05$, the normal cut-off used as a measure of significance, the advice of Altman (1991) is being followed, who advocates including key variables if the level of significance is only marginally greater than the 5% level.

Table 5.7.6. Logistic regression estimation for likelihood of having contacted health care professionals if there is a history of sexual health concerns or health problems that interfere with sexual relationships

| Predictor Variables | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|---|-----------------|-------------------------------|-----------------------|
| Age | 0.91 | 0.82 - 1.00 | p=0.058 ¹⁸ |
| Know the location of the local GUM clinic? 0=no 1=yes | 12.56 | 3.08 - 51.15 | p<0.005 |

Research Question 4a) To what extent do older people with sexual health concerns consult their GP about these concerns?

Of individuals with sexual health concerns, 40% (n=30) had consulted their GP about these specific concerns, 14.7% (n=11) 'recently'. However, 12% of respondents (n=9) had never discussed this problem/concern with their GP, but would have liked to, and 52% (n=39) had never consulted their GP with their concerns, and had never wanted to.

¹⁸ Although $p > 0.05$, the normal cut-off used as a measure of significance, the advice of Altman (1991) is being followed, who advocates including key variables if the level of significance is only marginally greater than the 5% level.

Research Question 4b) How satisfied are older people if they do consult their GP with sexual health concerns?

The majority of individuals consulting their GP had been 'quite satisfied' (n=14; 46.7%) or 'very satisfied' (n=9; 30.0%) with the way their GP had dealt with their concerns. Of the remainder, six (20.0%) were 'not very satisfied', and three (10.0%) were 'very dissatisfied'.

Research Question 4c) What factors predict previous GP attendance with sexual health concerns?

Although numbers were too small to allow more detailed analysis to be undertaken, it is worth noting that 57.1% (n=4) of individuals aged over 60 years were dissatisfied with their consultation, compared to 28.6% (n=6) of those aged 50-59.

Research Question 4d) To what extent do older people with sexual health concerns attend a GUM clinic about these concerns?

Regarding history of GUM clinic attendance, 6.3% of respondents (n=20) had attended a GUM clinic at some point in their lives. Of these, 30% had attended within the last five years (n=6), and 60% earlier than this (n=10). For the remainder, year of attendance was unknown.

Research Question 4e) How satisfied are older people if they do attend a GUM clinic with sexual health concerns?

The majority of past clinic attenders were 'very satisfied' (n=8) or 'satisfied' (n=7) with their consultation.

Research Question 4f) What factors predict previous GUM attendance with sexual health concerns?

Numbers were insufficient to test for associations between clinic attendance and previous STD diagnosis, but three out of nine individuals with previous STD diagnoses had attended a GUM clinic. There was also a significant association between GUM clinic attendance and having health problems that interfere with sexual relationship(s) (GUM attendance: health problems 9 (45.3%), no health problems 8 (2.5%): $\chi^2=21.3$; d.f.=1; $p<0.001$).

However, there are no associations between clinic attendance and lifetime number of sexual partners (GUM attendance: one lifetime partner 10 (5.4%), more than one lifetime partner 6 (5.0%): $\chi^2=0.2$; d.f.=1; $p=0.88$) or gender (GUM attendance: men 14 (8.8%), women 6 (3.9%): $\chi^2=3.2$; d.f.=1; $p=0.07$), or age and GUM clinic attendance (GUM attendance: 50-59 9 (5.5%), 60+ 9 (6.2%): $\chi^2=0.07$; d.f.=1; $p=0.79$).

Research Question 5a) How much information have older people received about STDs and HIV?

The majority of individuals felt they had received 'not very much' or

'hardly any' information about either STDs or HIV. There was an association between amount of information received about STDs when compared to HIV ($\chi^2=484.2$; d.f.=9; $p<0.001$).

Table 5.7.7. Chi square test for association between amount of information received about HIV and STDs

| Amount of information | STDs | | HIV | |
|-----------------------|------|--------|-----|--------|
| | n | (%) | n | (%) |
| 'A lot' | 40 | (13.6) | 41 | (14.0) |
| 'Quite a lot' | 61 | (20.7) | 63 | (21.5) |
| 'Not very much' | 79 | (26.9) | 76 | (26.0) |
| 'Hardly anything' | 114 | (38.8) | 113 | (38.6) |

($\chi^2=484.2$; d.f.=9; $p<0.001$).

Research Question 5b) What factors predict amount of information received about STDs and HIV?

Logistic regression model to identify factors predicting amount of information received about STD: dependent variable – 'amount of information received about STDs'

These analysis identified two factors were significantly and independently related to having received a lot of information about STDs, namely knowing where the nearest GUM clinic is and ever having used a condom (Table 5.7.8.).

Table 5.7.8. Logistic regression estimation for likelihood of having received a lot/quite a lot of information about STDs

| Predictor Variables | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|--|-----------------|-------------------------------|---------|
| Know location of nearest GUM clinic 0=no 1=yes | 2.00 | 1.15 - 3.45 | p<0.05 |
| Ever used a condom? 0=no 1=yes | 2.62 | 1.30 - 5.28 | p<0.01 |

Logistic regression model to identify factors predicting amount of information received about HIV : dependent variable – ‘amount of information received about HIV’

Logistic regression analyses further identified that there were two factors significantly and independently related to having received a lot of information about HIV, namely younger age and having attended a GUM clinic before (Table 5.7.9.).

Table 5.7.9. Logistic regression estimation for likelihood of having received a lot/quite a lot of information about HIV

| Predictor Variables | Odds Ratio (OR) | 95% Confidence Intervals (CI) | p value |
|--|-----------------|-------------------------------|---------|
| Know location of nearest GUM clinic 0=no 1=yes | 2.00 | 1.49 - 4.41 | p<0.001 |
| Age | 0.97 | 0.93 - 0.99 | p<0.05 |

Research Question 5c) What are the primary information sources for older people about STDs and HIV?

Media sources (magazines and television) were by far the most popular information source for both STDs and HIV (Table 5.7.10.). Although numbers were insufficient to test the association between source of information about HIV when compared to STDs, the percentage of participants citing each source were very similar.

Table 5.7.10. Primary sources of information about STDs and HIV

| Information sources | STDs | | HIV | |
|---------------------|------|---------|-----|---------|
| | n | (%) | n | (%) |
| GP/GUM clinic | 8 | (3.0%) | 9 | (3.1%) |
| Magazines/TV | 197 | (74.3%) | 212 | (73.9%) |
| Friends/Family | 20 | (7.5%) | 13 | (4.5%) |
| Work | 23 | (8.7%) | 21 | (7.3%) |
| Other | 17 | (6.4%) | 32 | (11.1%) |

A wide variety of sources were cited in the 'other' category, including the internet and the Terence Higgins Trust. Interestingly, 17 individuals cited the army or navy as their primary source of information about STDs.

Research Question 5d) Do older people want more information about STDs and HIV?

Of total participants who completed this item, 26.3% (n=84) reported wanting additional information about STDs and 27.3% (n=87) wanting additional information about HIV.

Research Question 5e) What factors predict older people wanting more information about STDs and HIV?

Logistic regression models to identify factors predicting perceived need for more information about STDs and HIV: dependent variables – 'wanting more information about STDs' and 'wanting more information about HIV'

These analyses identified that no one factor was identified as predictive of wanting more information about STDs and HIV.

Research Question 5f) What are the preferred information sources for older people who want to receive more information about STDs and HIV?

Although numbers were insufficient to allow for statistical testing, there

was little apparent difference in preferred information sources for HIV when compared to STDs (Table 5.7.11.).

Table 5.7.11. Preferred additional sources of information about STDs and HIV

| Information Source | STDs | | HIV | |
|---|------|---------|-----|---------|
| | n | (%) | n | (%) |
| GP | 28 | (33.7%) | 30 | (33.0%) |
| GUM clinic | 5 | (6.0%) | 5 | (5.5%) |
| Magazines/TV | 36 | (43.4%) | 36 | (39.6%) |
| Friends/Family | 1 | (1.2%) | 1 | (1.1%) |
| Work | 5 | (9.6%) | 1 | (1.1%) |
| Other (including books, specialist leaflets and the government) | 8 | (9.6%) | 9 | (9.9%) |

Research Question 6a) What proportion of older people have been diagnosed with an STD?

Regarding history of STD diagnosis, 2.8% of individuals (n=9) stated that they had previously been diagnosed with a sexually-acquired infection or condition, 0.9% (n=3) 'didn't know' if they had been diagnosed with an infection or condition, and for 3.7% (n=12) this was unknown. A variety of conditions and infections were cited, including gonorrhoea, NSU, warts, syphilis and thrush. The years of diagnosis ranged from 1960 to 1988, with 44.5% (n=4) having had

an STD diagnosis in the last twenty years.

Research Question 6b) What factors predict older people having been diagnosed with an STD?

Unfortunately numbers were too small to allow testing for the association between STD diagnosis and lifetime number of partners, as well as number of partners in the last five years. However, of the nine individuals with an STD diagnosis, 33.3% (n=3) had had between two and five lifetime partners, and 55.6% (n=5) had had over six lifetime partners. These figures are substantially higher than for individuals without an STD diagnosis, of whom 28.9% (n=84) had had between two and five lifetime partners, and 8.5% (n=25) had had more than six lifetime partners.

Numbers were insufficient to perform χ^2 tests on demographic variables predicting STD diagnosis. However, 89% (n=8) of all STD diagnoses had been in individuals under the age of 60 and 78% of diagnoses (n=7) had been for men.

Research Question 7a) What proportion of older people have had an HIV test?

Of total respondents who completed this item, 3.1% (n=10) recorded that they had had an HIV test. A further 2.5% (n=8) had not had an HIV test, but had considered having one. The remainder (n=288; 90.3%) had never considered having an HIV test. Previous HIV testing was unknown for 4.1% of respondents (n=13).

Research Question 7b) What factors predict older people having had an HIV test?

Of the 10 individuals who had had an HIV test, 90% (n=9) were below 60 years of age, 90% were married (n=9) and 50% were male (n=5). There was a significant association between having had an HIV test and having a history of sexual health concerns ($\chi^2=6.3$; d.f.=1; $p<0.01$).

There was no association between having had or considered having an HIV testing and condom use (had or considered having an HIV test: condom use: 12 (5.3%); no condom use 6 (8.2%); $\chi^2=0.8$; d.f.=1; $p>0.05$), or any information items (see below). Individuals who had had more than two partners in the last five years were significantly more likely to have been tested for HIV, although only a minority had been tested (had or considered having an HIV test: 1 partner 12 (4.7%); 2+ partners 6 (26.1%); $\chi^2=15.9$; d.f.=1; $p<0.001$).

Looking at lifetime number of partners, a similar pattern emerges, with one-half of the individuals who had had an HIV test and one-third of those who had considered having an HIV test (n=8) having had more than six lifetime partners. However, it is worth noting that three individuals with only one lifetime partner had been tested for HIV, and a further three had considered being tested for HIV.

Research Question 8) What is the prevalence of condom use among older people?

Lifetime condom use

Although 71.2% of individuals stated that they had used condoms at some point in their lives (n=227), of those with a current sexual partner (n=265), only 6.4% (n=17) always used a condom with their regular partner. A further 24.1% of respondents (n=77) stated that they had never used a condom. Condom use was unknown for a further 15 individuals (4.7%). It is also worth noting that of the 18 individuals who had had more than 10 partners during their lifetime, one third (n=6) had never used condoms during their lifetime.

Condom use with extra-relationship partners

Of individuals with one or more concurrent sexual partners at the time of questioning (n=9), the majority (n=7) never used condoms with this partner. Furthermore, among individuals with more than one partner in the last five years (n=23), six individuals had never used condoms. Unfortunately, condom use was not recorded for individuals who had had more than one partner in the last five years, but did not currently have more than one partner (n=10). However, it is likely condom use amongst this group would be low, reflecting very low levels of condom use overall.

Research Question 9a) To what extent do older people place themselves at risk of contracting STDs?

Defining risk-taking behaviour

If the concept of risk-taking is approached at the most fundamental level, it could be argued that all individuals who are sexually active, but do not always use a condom, are at risk of contracting an STD infection, including HIV. This holds even if this individual has only had one sexual partner in the last five years, or even in their lifetime, as it is not known what sexual risks their regular partner may be taking. However, given that only 17 individuals stated that they 'always' use a condom with their regular partner, a more specific definition of risk had to be adopted.

A 'risk-taker' was therefore defined as someone who had had more than one sexual partner in the last five years, and who could not be identified as consistently using a condom with those partners.

Prevalence of risk-taking behaviour

Of the 24 individuals (7.5%) who had had more than two partners in the last five years, only three could be identified as always using a condom with their extra-relationship partner. A further 12 individuals are known to have never, or not always, used condoms with their extra-relationship partner (3.8%).

Condom use with this partner was unknown for a further nine individuals (2.8%) who had had between two and five partners in the last five years, but did not currently have more than one partner.

Thus, 3.8% of the respondents (n=12) can be identified as definite risk-

takers, i.e. individuals with more than one partner during the last five years who did not always use a condom. However, given the low rates of current condom use within the respondents as a whole, it is likely that the majority of the nine individuals for whom condom use is unknown did not always use condoms with their extra-relationship partner.

Therefore, risk-takers were defined as individuals who had more than one sexual partner in the last five years, but could not be identified as always using condoms with these partners (n=21; 6.6%).

Research Question 9b) What factors predict risk-taking in later life?

Numbers of individuals engaging in risk-taking behaviour were too small to allow for statistical testing for predictors of such behaviour. However, given the importance of identifying similarities (if any) in characteristics and behaviours of risk-takers, these individuals will be examined in more detail.

Of individuals defined as risk-takers, 76.2% (n=16) were men and 80.9% (n=17) were below the age of 60. 65% (n=15) were married, and all were currently involved in a relationship (relationship length ranged from 2 to 45 years). In addition, 33.3% (n=7) of individuals had sexual health concerns, and 23.8% (n=5) had health problems that they considered to interfere with their sexual relationships. Only 9.5% (n=2) had actually attended a GUM clinic, although 33.3% (n=7) knew where their nearest GUM clinic was.

Interestingly, 90.5% (n=19) felt that they had not received very much information about HIV or STDs. However, only 38.1% (n=8) of individuals felt that they had not received enough information concerning these issues, of whom

half stated that their preferred source of additional information was health care professionals (n=4). Of risk-takers, 28.6% (n=6) stated that they had already modified their behaviour in some way as a result of information received about STDs and HIV.

Chapter 6

The General Population Study: Conclusions

Introduction

Conclusions to the study described in Chapter 5 will now be presented in three main sections. The first section will consider the implications of preliminary data analyses for sample quality and will be followed by a discussion structured around the key research questions, reiterated below. Section 6.3. will constitute a synopsis of all key findings and their primary implications for research and practice. The limitations of the study will be discussed in Section 6.4.

6.1. Discussion of preliminary findings

Item non-completion

A brief synopsis of the implications of the preliminary findings will now be presented, before the main results are discussed. To focus first upon item completion, it can be seen that this was generally high. Indeed, answering was more complete than in a comparable sexual health study undertaken with a

student sample (Johnson and Delameter, 1976).

Relatively high non-response to information items was also identified amongst the clinic sample (see Chapter 3), where it was hypothesised that non-completion of these items was likely to be determined by participants feeling that these questions had no relevance to their particular experience, or had received no information about HIV or STDs. This explanation can also be proffered in the context of the general population study, as it is unlikely that fear of disclosure prompted non-completion, given noticeably higher rates of completion for sexual health items. That a relationship between older age and non-completion was identified for both clinic and general population samples lends weight to the hypothesis that older people are generally less informed about sexual health issues than younger people.

Completion of sexual health items was surprisingly high, especially given claims that older people are less willing than younger people to be involved in sexual health studies (Wellings, Field, Wadsworth and Johnson, 1994). Again, non-response appears to be associated with a belief that items are not relevant to an individual's experiences, as all risk-takers completed sexual health questions. This finding supports the conclusions of the NSSAL where it was considered likely that 'unwillingness to disclose sensitive information' (Wadsworth, Field, Johnson, Bradshaw and Wellings, 1993, p. 412) does not determine item non-completion of sexual health questionnaires.

Non-completion of the relationship length item may have been determined by feelings that such specific information may compromise anonymity or allow an individual's questionnaire to be matched with his/her partner's.

Response to 'health'/'sexual health' recruitment strategies

The fact that individuals responding to a sexual health recruitment strategy were more likely to feel that they had not received sufficient information regarding STDs may be indicative of the fact that they may have felt they had something to learn from completing this questionnaire, or were generally just more interested in these issues. However, given that this was the only association identified, it is important to note that the different wording used in the recruitment strategies did not notably affect the characteristics of respondents.

Socio-demographic characteristics of sample compared to relevant census data

Finally, looking at the representativeness of the sample, it will be seen that a possible participation bias can be identified. Firstly, respondents were more likely to be male than the general population of their age group. Secondly, both male and female respondents were more likely to be younger and married than the general population of their age group. Although there were insufficient data to perform χ^2 tests for ethnicity, the small proportion of ethnic minority individuals was consistent between respondents and the general population.

As previous research highlights that the majority of issues under investigation (such as being currently sexually active, having sexual health concerns and engaging in risk-taking behaviour) are most often associated with being male, married, and younger (see Chapter 1), this identified participation bias supports the conclusion that individuals who participate in sexual health

surveys are more likely than those who do not to be sexually active and have sexual health concerns. This finding further indicates that this survey is unlikely to under-estimate the extent of sexual health needs. Indeed, it is more likely that the opposite will occur, and levels of need be over-estimated. This possible bias will be taken into consideration when study limitations are discussed in Section 6.4.

6.2. Conclusions specific to individual research questions

Research question 1a) What proportion of older people are currently sexually active?

As discussed in Chapters 5, an explicit item asking about ‘sexual intercourse’ was not included in the questionnaire because it was felt that this would depress response rates. However, whether or not a participant was sexually active or not was established in question 8:

Do you have any health problems that interfere with your sexual relationship(s)?
(Please tick all relevant boxes)

No

I am not currently involved in a sexual relationship

Yes

(please specify.....
.....
.....
.....)

and double-checked with reference to questions 20 (number of sexual partners in last five years), 24 (condom use with regular partner) and 25 (condom use with other sexual partners; see Appendix N). No inconsistencies in questionnaires analysed were identified between these variables. Furthermore, inter-study comparisons supported the notion that participants accurately reported their current levels of sexual activity (see below).

Indeed, the fact that the majority of study participants (81.5%) were identified as being currently sexually active counteracts the dominant stereotype of the 'asexual older person' (George and Weiler, 1981, p. 919) and lends unequivocal support to the conclusion that sexual activity is a feature of later-life. Moreover, although an analysis of relevant literature (see Chapter 1) established that many researchers believe this to be the case, this belief has rarely been supported with empirical data, especially within a UK context. It has already been noted that no UK data could be found detailing either rates or correlates of sexual activity for this age group.

More specific conclusions have been made concerning these variables by US researchers although, as discussed in Chapter 1, inter-study comparisons are hindered by the existence of cross-cultural differences in sexual behaviour (Johnson, Michael, Wadsworth, Feinleib and Laumann, 1997). There is also a lack of consistency in study design, including age grouping of sample, representativeness of sample, time period questioned about and definitions of sexual activity.

However, similar rates of sexual activity have been reported in two of the largest US studies. Starr and Weiner (1981), for example, questioned 800 individuals over 60 years of age on key aspects of their sexual behaviour and identified that 92.7% of men and 70.4% of women involved in the study were currently sexually active (defined as engaging in sexual intercourse). However, as Gibson (1992) points out, these activity levels are probably an overestimation because of the relatively high (12.1%) non-response to this item of the questionnaire.

Similar activity levels have been reported by Brecher (1984) for a sample aged 50 years and over, termed the 'largest sample ever assembled for a geriatric sexuality study' (Brecher, 1984; Table 6.2.1.). The slightly higher reported levels of sexual activity probably reflect the fact that Brecher's sample consisted of volunteers, a group believed to have different characteristics to the general population as a whole (Kaats and Davis, 1971; see Chapter 5).

Table 6.2.1. Comparison between proportion of individuals reporting being sexually active in population study and by Brecher (1984)

| % sexually active-age: | 50s | | 60s | | 70s | |
|------------------------------|-----|-------|-----|-------|-----|-------|
| | men | women | men | women | men | women |
| Brecher (1984) ¹⁹ | 98% | 93% | 91% | 81% | 79% | 65% |
| Population study | 96% | 88% | 83% | 74% | 78% | 54% |

Research question 1b) What factors predict being sexually active in later life?

The finding that marital status predicts being currently sexually active provides strong support for the conclusion that partner availability has an overriding influence upon later-life sexual activity. For unmarried women in particular, the demographic composition of the older population limits the potential number of male partners available.

The fact that having more than one lifetime sexual partner also predicted being currently sexually active is logical, as it would be expected that individuals with a higher number of sexual partners throughout their life would have a greater interest in sex and therefore a greater likelihood of being currently sexually active. This supposition finds support elsewhere in the literature. Martin's (1981) interview-based study of sexual function amongst 60-79 year old married men, for example, concluded that the consistent patterns of sexual interest and activity reported by these individuals throughout their life-course reflected differences in motivation, rather than 'patterns of sexual inhibition' (p.

417).

One relationship that was not identified in logistic regression analysis as being predictive of being currently sexually active, but may have been expected given previous findings in this area, is that between gender and sexual behaviour. A number of studies (Verwoerd, Pfeiffer and Wang, 1969; Pfeiffer, Verwoerd and Davis, 1972; Bretschneider and McCoy, 1988; Diokono, Brown and Herzog, 1990; Matthias, Lubben, Atchison and Schweitzer, 1997) have identified that men are significantly more likely to be sexually active than women in later-life.

Indeed, although it was reported in Chapter 5 that gender did not predict overall levels of sexual activity, a proportionately higher number of male than female respondents were currently sexually active (men: 87.9%; women: 77.6%). However, as more men than women were married, the logistic regression model was identifying that marital status predicted current sexual activity more accurately than gender.

That is not to say that there is any consensus within the literature as to what variables best predict being sexually active in later-life (Matthias, Lubben, Atchison and Schweitzer, 1997). Indeed, factors not measured in the context of this study could also play an important role in explaining this relationship (Thienhaus, Conter and Bosmann, 1986). Socio-economic class, for example, was not recorded as it was felt that such specific information might compromise anonymity or, at the least, appear to compromise anonymity and therefore depress response rates. Furthermore, numbers of individuals from ethnic groups were insufficient to test for any relationships between ethnicity and sexual activity.

¹⁹ Brecher (1984), p. 313.

One finding that is very important, however, is that age was not a significant predictor of being currently sexually active. This supports the view expressed by many that ageing *per se* does not bring about an automatic cessation of sexual activity (Comfort and Dial, 1991), at least not in a 'young elderly' sample. Rather, there are a number of socio-demographic and cultural factors which mediate this relationship, the most important of which appears to be marital status.

Research question 2a) What is the average number of sexual partners for individuals in this age cohort to have had in the last five years?

The finding that most participants (81.2%) reported having had only one sexual partner during the last five years would be expected given that the majority recorded being in a long-term married relationship. However, the widespread social perception that this represents the norm for all older people, except those who are unmarried and therefore would not be considered to engage in any form of sexual relationship (as discussed in Chapter 1), is not supported by these data. Indeed, the fact that 3.8% of women and 11.1% of men reported having had more than one sexual partner during this time period suggests that alternative patterns of sexual behaviour may be adopted by a significant minority of older individuals.

Although it is unclear whether multiple partnerships within the last five years were concurrent or sequential, as this was not explicitly asked (again for fear of depressing response rates), there is evidence that both relationship patterns were exhibited by study participants. Indeed, of participants reporting

two or more sexual partners during the past five years, four were currently not in a relationship, five were involved in a relationship of under five years' duration, and 14 were involved in a relationship of over five years' duration.

When comparisons were made between the oldest age group surveyed in the NSSAL (aged 45-59 years) and study participants aged 50-59 years, a high degree of consistency was identified. Indeed, 13.7% of men and 6.8% of women in the NSSAL reported two or more heterosexual partners during the past five years, compared with 17.3% of men and 5.9% of women in the population study (see Chapter 7). Reasons for the slightly higher proportion of men reporting multiple sexual partnerships in the general population study may result from the different methodologies used in the two studies, as explored in more detail below.

Research question 2b) What factors predict number of sexual partners in the last five years for individuals in this age cohort?

The gender difference observed in the proportion of multiple partnerships reported during the last five years probably reflects the demography of this age group, as well as prevailing societal attitudes. Indeed, the propensity for men to be more likely to report multiple sexual partnerships than women, irrespective of marital status, was also observed by the authors of the NSSAL for all age groups (Wellings, Field, Johnson and Wadsworth, 1994). They attribute this to a gendered 'double standard' in sexual behaviour.

Further evidence can also be found for continued gender differences in 'acceptable' patterns of sexual behaviour in later-life within marriage because, as

documented in Chapter 7, the majority of those reporting more than one sexual partner during the last five years were married men. This conclusion is supported to some extent by Brecher (1984), who again talks of a 'double standard', this time in relation to the pattern of adulterous husbands and faithful wives which he concluded remains a feature of some marriages. Furthermore, findings from the NSSAL similarly indicate that gender differences in marital monogamy exist, with 3.4% of married men, but only 1.1% of married women, aged 45-59 stating that they had had more than one sexual partner during the last year.

However, the proportion of men reporting multiple partnerships whilst married was notably higher in the present study at 10.9%. This may reflect the fact that the methodology employed by the NSSAL, where individuals were recruited by an interviewer coming to their home, may have inhibited men living with their wives from revealing extra-marital relationships.

Research question 2c) What is the average number of lifetime sexual partners for individuals in this age cohort?

It is unclear whether the numbers of partners reported by study participants are typical of this age group as no comparable data exist. However, it is evident from these findings that a significant proportion of older people have had more than one sexual partner during their lifetime.

Research question 2d) What factors predict lifetime number of sexual partners?

These data provide further evidence that gender differences can be observed in many aspects of sexual behaviour patterns in later-life. Indeed, the fact that this conclusion was also reached by the authors of the NSSAL lends weight to the assertion that this pattern is typical of all groups.

Another variable which can again be seen to exert an important influence upon sexual behaviour is marital status. In this instance, it is a key variable predicting number of lifetime sexual partners, reflecting the fact that unmarried individuals (50.9%) were significantly more likely to have had more than one lifetime partner than married individuals (36.5%). The fact that this group was found previously to have had fewer partners in the last five years than married individuals (notably for men) is not as contradictory as might at first appear. Indeed, the one partnership reported by unmarried individuals during this period is likely to be a new partnership initiated after widowhood or divorce. This difference in behaviour according to marital status has implications for health education, as will be discussed later.

That divorced individuals were more likely than those who had been widowed to report having had more than one lifetime partner is consistent with the findings of the NSSAL. Furthermore, the identified relationship between having had more than one lifetime partner and having used a condom would be expected whether condoms were being used for contraceptive purposes or protection against STDs. Condom use will be explored in more detail below.

The fact that being in a long-term relationship was associated with having only had one partner is logical in the light of the association between marital

status and lifetime number of partners. It is also important to note that the association between relationship and lifetime number of partners confounds that between age and lifetime number of partners. Thus, although a greater proportion of participants aged 50-59 years had had more than one lifetime partner compared to those aged over 70, age was not predictive of lifetime number of partners in the logistic regression model as relationship length was a better predictive variable. This finding supports the assertion that:

..it is not age per se that is the dominant influence on frequency of partner change, but that the influence of a stable relationship is strong, regardless of the individual's age.

(Wellings, Field, Johnson and Wadworth, 1994, pp. 104-5)

Research question 3a) What proportion of older individuals experience sexual health concerns?

The fact that 16.9% of respondents recorded ever having had sexual health concerns, and 8.5% a current sexual health concern, supports the assertion that sexuality is an important issue within later-life and can indeed be a source of anxiety. The exact nature of this concern cannot be elicited from this study as the generic terms used covers a number of different factors, and, indeed, previous studies have reported that older people experience concerns regarding health problems such as impotence (Masters and Johnson, 1970), concern about STDs (Rogstad and Bignell, 1991), as well as more general concerns relating to sexual performance anxiety and relationship concerns (Kellett, 1989a).

However, given the need to make the questionnaire as concise as possible, and considering that a further item was included concerning the prevalence of health problems, it was not the aim of this question to delve into this highly complex issue. Rather, it was designed to provide an indication of the

proportion of individuals with any form of sexual health concern which they defined as important to them.

Research question 3b) What factors predict having sexual health concerns in later life?

The fact that being male predicted having sexual health concerns can be attributed to several factors. The first is that men are known to experience higher levels of sexual dysfunction than women (Gibson, 1992). This has been shown in studies of older married couples where the primary reason for cessation of sexual activity has been attributed by both parties to the husband (Pfeiffer, Verwoerd and Davis, 1972).

Furthermore, men are more likely to be sexually active in later-life than women (as discussed above) and therefore more likely to experience sexual health concerns. Additionally, men have been seen to be more likely than women to have multiple sexual partnerships, potentially resulting in increased anxiety regarding exposure to STDs.

It is similarly a logical finding that knowing where the nearest GUM clinic is associated with having a history of sexual health concerns. Firstly, these individuals are more likely to have attended a GUM clinic and thus to know where it is. In addition, they may be considering seeking treatment from a GUM clinic, or merely be more aware of any information they receive concerning sexual health issues.

Research question 3c) What proportion of older individuals experience health problems that interfere with their sexual relationship(s)?

Health problems which interfered with sexual relationships (14.4%) were experienced by a significant proportion of study participants. Looking further at the nature of the health problems cited, it can be seen that the majority of these diseases and conditions become increasingly prevalent in later-life (e.g. heart disease, hypertension, menopausal symptoms and arthritis). Indeed, four individuals actually stated that 'age' interfered with their sexual relationships.

This indicates that it is likely that sexual dysfunction increases with age in line with increases in chronic disease. However, interestingly, age *per se* did not predict having health problems that interfered with sexual function.

Research question 3d) What factors predict experiencing health problems in later life that interfere with sexual relationship(s)?

There were significant associations between having health problems that caused sexual dysfunction and gender, lending support to the conclusion that men are more prone to such dysfunction than women. This finding is, in fact, repeated many times in the literature; Gibson (1992) reviews this area, concluding that 'the decline in (sexual) capacity is less for females' (p. 9).

The reason why a relationship emerged between being married and having health problems that interfere with your sexual relationships is unclear. As little is known about the relationship between sexual dysfunction and marital status, this would have to be investigated further before firm conclusions could be reached.

Research Question 3e What factors predict older people making contact with health care professionals when experiencing sexual health concerns and/or health problems that interfere with their sexual relationship(s)?

Of individuals with health and/or sexual health concerns, 60% had contacted health care professionals about these concerns. This is encouraging, as it indicates that the majority of individuals with concerns or problems would contact their GP and/or GUM clinic. Furthermore, of those who did contact health care professionals, the majority rated their experiences highly (although rates of dissatisfaction increased with age).

That 40% of individuals with sexual health concerns did not contact health care professionals is, however, rather worrying. One must conclude that barriers exist which inhibit older individuals with sexual concerns from seeking health advice and/or treatment. These barriers are likely to include discomfort experienced by the older person discussing sexual health concerns with health care professionals. Indeed, this was considered to be a factor impeding health care presentation by the clinic sample (see Chapter 3).

A further barrier to discussing sexual health concerns during consultation may be the attitude of the health care professionals themselves. Indeed, Kligman (1991) writes that doctors often avoid mentioning sexuality because of the widespread belief that it is not important in later-life. That this presents a barrier to discussing the sexual health needs of older patients is exemplified by the fact that older patients are in general less likely to have received pre-operative counselling regarding the impact of surgery on sexual function than younger patients (Lawton and Hacker, 1989).

Thus, it is important that medical professionals are aware that older

people have sexual health concerns and react accordingly. Although it may be difficult to alter the behaviours of older people by encouraging them to discuss sexual health concerns with health care professionals, it should be easier to influence the attitudes of some health care professionals to make them more aware of the sexual health needs of this patient group.

As Kellett (1989b) stresses, this may involve the topic being introduced into consultations by the professionals themselves, as embarrassment may otherwise prevent the subject being mentioned at all by the patient. This behaviour in consultation might have encouraged the nine individuals in the study who had not discussed their sexual health concerns with their GP, but would have liked to, to talk about their needs.

This issue becomes even more pertinent if the factors predicting making contact with health care professionals to discuss sexual health concerns are considered. The fact that the increasing age of participants was associated with not making contact lends support to the conclusion that being older discourages consulting health care professionals when experiencing sexual health concerns. This may be because some of the barriers mentioned above become increasingly strongly felt in older age.

Furthermore, it is probable that some symptoms are attributed to 'normal ageing' and are thus not considered to be alleviated by medical treatment. This conclusion is supported by Masters and Johnson (1970) in relation to men over the age of 50 experiencing age-related changes in sexual function. This phenomenon may also have influenced the finding that age did not impact upon reported prevalence of health problems resulting in sexual dysfunction; dysfunction attributed to 'ageing' may not be considered to be a 'problem', but

rather 'the norm'.

This supports past assertions (see Chapter 5) that older individuals may not present at health care centres with a wide range of concerns or conditions that could be appropriately managed by health care professionals. Indeed, it highlights that there is likely to be a substantial level of unmet need for sexual health services within older age groups.

Research question 4a) To what extent do older people with sexual health concerns consult their GP about their concerns? How satisfied are older people if they do consult their GP with sexual health concerns?

Data indicate that the GP is an important point of contact for older people with sexual health concerns and/or health problems that interfere with sexual relationships. In addition, of those that did consult their GP regarding these issues, most rated their consultation highly, indicating that such concerns can be appropriately managed within this primary care setting.

However, it is important to recognise that participants over 60 (57.1%) were proportionately more likely to be dissatisfied with their GP consultation compared to those under 60 (28.6%). This indicates that more research is needed with a larger sample group to identify exact reasons for patient dissatisfaction amongst those over 60 and ways in which this can be alleviated.

Research question 4b) To what extent do older people with sexual health concerns attend a GUM clinic about these concerns? How satisfied are older people if they do attend a GUM clinic with sexual health concerns?

Reported rates of GUM clinic attendance indicate that a significant minority of older individuals have attended GUM clinics at some point in their life, although only approximately 2% have done so in the last five years. The primary reason for clinic attendance is unknown, but relationships identified in Chapter 7 between GUM clinic attendance, history of sexual health concerns, sexual dysfunction and STD diagnosis indicate that a wide variety of factors are likely to have influenced GUM contact.

It is interesting that there was no relationship between GUM attendance and gender, as the findings of Chapters 2 and 3 indicate that in this age group men are more likely to attend a clinic than women. However, that this association was not identified in the present sample is likely to reflect the under-representation of women in the sample group when compared to the general population of the same age group, as well as the fact that lifetime GUM clinic attendance was the variable under examination. Indeed, as the majority of participants who had attended a clinic had done so over five years ago, this finding is indicative of the fact that there are no gender differences in GUM clinic attendance amongst individuals under 50 (see Chapter 2).

Research question 5a) How much information have older people received about STDs and HIV?

It was noted in Chapter 5 that the majority of respondents had received

'not very much' or 'hardly any' information about STDs and HIV/AIDS. This finding supports the conclusions drawn in Chapter 4, namely that older people do not consider themselves to have received a lot of sexual health information, indicating that such information has been proffered on a largely age-specific basis. Thus, even when sexual health education campaigns have focused upon specific risk behaviours (e.g. sex without condoms, sex with commercial sex workers etc.) as opposed to risk groups (e.g. gay men, drug users etc.), messages have still been targeted at the young. This assertion is supported by Kaufmann (1995), who acknowledges that ageist conceptions of sexual risk-takers have resulted in the information needs of older people being marginalised.

A further finding which should be discussed at this point relates to the fact that there was no difference in the reported amount of information received about STDs when compared to HIV. This may have been influenced by the questionnaire format, or by individuals considering that HIV/AIDS is primarily sexually transmitted and thus treating both replies in the same way. However, it is still interesting that no difference was identified, given that the AIDS epidemic did not take hold until the mid-1980s, when the majority of respondents were already of an age which was not really targeted during education campaigns (although it could also bear witness to an earlier lack of available information concerning STDs).

Research question 5b) What factors predict amount of information received about STDs and HIV?

The complex relationship which exists between information acquisition

and behaviour change has already been discussed in Chapter 4; it must be stressed that no simple causal relationship between the two variables would be expected to emerge. However, the fact that information has the potential to translate into actual behaviour change may be reflected in the fact that ever having used condoms was associated with having received a lot/quite a lot of information about STDs. Yet only 7.9% of respondents actually explicitly acknowledged the existence of a relationship between sexual health information and behaviour change, highlighting the complexity of this issue.

A further variable predicting the amount of information received about both STDs and HIV, namely knowing the location of the nearest GUM clinic, can also be related to health education. Although knowing the location of the GUM clinic is obviously determined by many different factors, it would be likely that individuals who had received a lot of information about these conditions would be more aware of available health services. This finding thus reinforces the supposition that information provision is an important component of education.

It is interesting that amount of information received about HIV, but not STDs, was predicted by age. Indeed, that being older predicted not having received a lot of information about HIV confirms the assertions made above, namely that older people have been marginalised from HIV campaigns.

Research question 5c) What are the primary information sources re. STDs and HIV for older people?

The vast majority of individuals stated that they had received information

concerning both STDs and HIV from the television and/or magazines. This finding reinforces the fact that the media is a very powerful source of information provision and has the potential to play an important role in educating the general public.

It could however be argued that the media may not always convey the most appropriate information. Indeed, this may not always be based upon proven facts or scientific opinion, but rather distorted for the purposes of sensationalisation. In this specific instance, the lack of positive images of sexually active older people from media sources may serve to reinforce the stereotype that sexual health is not a later-life issue. Indeed, this assertion can be supported by drawing upon the attempts to involve publications aimed at older age groups as documented in Chapter 6. That none would participate on the grounds that such issues 'are not suitable' for their intended readership obviously serves to reinforce this stereotype.

Indeed, a more accurate and individual source of information concerning STDs and HIV may be provided by health care professionals. However, the fact that very few individuals (n=8 (STDs) /n=9 (HIV)) stated that they had received sexual health information from their GP or GUM clinic may confirm research showing that this type of information is largely proffered on an age-specific basis. That this occurs is concluded by Murphree and DeHaven (1995), who monitored advice concerning condom use given to women attending for routine pap smears. They discovered that 45% of women under the age of 45 were counselled about condom usage, but none over this age.

The need for health care professionals to be aware of their role as educator, regardless of the age of their patient, is reiterated below when preferred

information sources are discussed.

Research question 5d) Do older people want more information about STDs and HIV?

The findings reported in Chapter 5 support the hypothesis that older people want information about both HIV and other STDs, with approximately one quarter reporting this information need. This information need was also identified among older GUM clinic attenders (see Chapter 3), and has been noted by previous researchers. A study by Gerbert and Maguire (1989), for example gauged the responses of elderly people to a booklet about HIV; 69% of their sample read 'all or most' of the booklet, 87% did not find it offensive and 76% were glad to receive it.

Research question 5e) What factors predict older people wanting more information about STDs and HIV?

Furthermore, it is important to recognise that there was not a straightforward relationship between information need and engaging in 'risky' behaviours. This adds support to the conclusion that the targeting of sexual health information at any 'risk groups', regardless of age, may result in a proportionately large group of people who want information being missed.

This reported need for information amongst individuals who do not report engaging in sexual risk practices is likely to reflect a number of factors. Information may be important for individuals considering new sexual

partnerships. Indeed, this may be especially marked amongst individuals newly single in later-life or those who are considering extra-marital relationships (Kaufmann, 1995). Another determinant of information needs in later-life may relate to older people assuming the role of educators themselves. Indeed, both parents and grandparents may wish to collect such information so they can disseminate it to their children/grandchildren (Marr, 1994a).

Overall, however, no factors could be identified as predictive of wanting more information about STDs and HIV. This indicates that more research is needed in this area to explore the complex issue of sexual health information needs in later-life.

Research question 5f) What are the preferred information sources for older people who want to receive more information about STDs and HIV?

When looking at sources of additional information for individuals with self-defined information needs, the proportion of respondents citing the media as their preferred source declines rapidly when compared to the proportion citing it as their prime source of information. However, the importance of health care professionals rises, with approximately half of this group of individuals specifying their GP or GUM clinic as their preferred source of additional information. This supports the conclusions drawn in Chapter 4, namely that the media is typically the prime source of sexual health information, but that health care professionals are seen as the most credible source of information. Thus, again, the importance of the potential educating role of these health care professionals is highlighted. Indeed, this role will be discussed in more detail

with reference when the information needs of this sample group are compared to those of the clinic sample (see Chapter 7).

Research question 6a) What proportion of older people have been diagnosed with an STD?

Although 2.8% of participants reported an STD during their lifetime, only 1.2% had received such a diagnosis during the past 20 years. Therefore, it is very difficult to draw conclusions about the characteristics of older people diagnosed with STD with reference to this sample group. In addition, it is important to remember that it was concluded that GUM clinic study participants under-reported history of STD diagnosis (see Chapter 3) and there is no means of validating history of STD as recorded by individuals recruited from the general population.

Research question 6b) What factors predict older people having been diagnosed with an STD?

The fact that individuals with an STD diagnosis were more likely to be male supports conclusions made above concerning gender differences in sexual behaviour at all ages.

Research question 7a) What proportion of older people have had an HIV test?

Focusing upon HIV testing, it can be seen that only a small proportion of individuals had been tested for HIV (3.1%), indicating that HIV testing is not common in later-life. This conclusion has also been reached by other researchers in this area (Marr, 1994b) and appears to reflect low risk-perception which, in many cases, is well justified.

Research question 7b) What factors predict older people having had an HIV test?

However, although there was an association between number of partners in the last five years and HIV testing, the majority of those engaging in multiple partnerships had not considered being tested for HIV. This will be considered in greater detail below.

Research question 8) What is the prevalence of condom use among older people?

The very low rates of condom use identified in this study lend support to the conclusion that condom use is highly uncommon amongst individuals past reproductive age. This probably results from the fact that contraception is no longer a consideration in later-life (Nocera, 1997).

Furthermore, the majority of individuals of this age are involved in mutually monogamous relationships and therefore condom use is not necessary

as a means of preventing STDs. However, as has been seen above, even individuals engaging in multiple partnerships rarely use condoms. This probably results from a low perception of risk and may reflect the fact that HIV was not an issue when these individuals became sexually active. A further consideration for individuals involved in long-term relationships may be the difficulties of initiating condom use, as this would obviously indicate either that the partner initiating this had been having unprotected sex with other people, or that they suspected that this was what their partner was doing.

Maxwell and Boyle (1995) reached similar conclusions after exploring the difficulties of continuing condom use in the context of a long-term relationship. They conducted focus group interviews with a sample of heterosexual women over the age of 30 (defined by the authors as 'older'), identifying that virtually none of the women in long-term relationships practised safe sex, even if these relationships were not monogamous.

Evidence of low risk perception among older individuals who engage in risk-taking behaviour can be found elsewhere in the literature. Stall and Catania (1994), for example, analysed the US National AIDS Behavioural Study, reporting that of individuals with one or more risk factors for HIV infection, those over the age of 50 were six times less likely to use condoms than younger risk-takers.

Research question 9a) To what extent do older people place themselves at risk of contracting STDs?

The fact that approximately 7% of respondents described in the previous

chapter could be defined as risk-takers (prevalence rate 6.6%; 95% C.I. = 3.9% - 9.3%) lends support to the conclusion that older people engage in behaviours that place them at risk of contracting STDs, including HIV. This has been reported by many authors (as noted in Chapter 1), but never before on the evidence of a UK-based, large-scale survey. However, the prevalence of risk-taking is similar to the bench mark prevalence of risk-taking of 5.5% identified by Stall and Catania in a US sample of older individuals (1994).

Research Question 9b) What factors predict risk-taking in later life?

It was striking that this group of risk-takers displayed a remarkable demographic homogeneity; the majority being male, married and aged 50-59 years. The fact that they were male supports conclusions made above concerning gender differences in sexual behaviour patterns. Furthermore, the age distribution of risk-takers also indicates that those aged 50 to 59 are more likely to engage in risky sexual practices than those aged over 60, a conclusion supported by evidence from the exploratory data collection exercise and the clinic study concerning the age distribution of GUM clinic attenders.

However, this is not to draw attention away from the fact that individuals over 60 years have been identified as risk-takers. More specific conclusions will be reached concerning the relationship between ageing and risky sexual behaviour when the results from this study are compared with those from the clinic study. However, overall, it is possible to assert on the basis of these findings that sexual risk-taking is a feature of later-life.

Regarding the marital status of these individuals, it can be seen that the

fact that the majority are married does not appear to concur with findings reported earlier in this thesis regarding the demographic characteristics of GUM clinic attenders and, notably, the over-representation of unmarried individuals within this patient group. However, reasons causing this apparent discrepancy may relate to perception of risk in relation to partner status, but cannot be discussed more fully until the results of this study are compared more specifically with those of the clinic study.

One additional point should be made, however, in relation to the marital status of risk-takers identified in this study. This relates to the risk of infection for their wives, especially given the inconsistent use of condoms which has been almost universally established.

6.3. Overall Synopsis

Summary

To summarise the key findings, from 319 returned questionnaires from respondents aged 50 – 90 years, were:

- Approximately 80% of study participants were currently involved in one or more sexual relationships.
- Being sexually active was related to being married and having had more than one lifetime partner.
- Approximately 8% of participants reported having had more than one

sexual partner during the last five years and having had more than one partner during this time period was associated with being male and unmarried.

- Just under one-half of participants reported having had more than one partner during their lifetime; having had more than one lifetime partner was associated with being male, being unmarried, having used condoms and being in a relationship of shorter duration.
- 8.5% of participants currently had concerns about their sexual health and 17% had a history of such concerns. Having a history of sexual health concerns was associated with being male and knowing the location of the nearest GUM clinic.
- Approximately 15% of participants reported health problems that interfered with their sexual relationships. Reporting such problems was associated with being male and being unmarried.
- 60% of participants with sexual health concerns and/or problems that interfered with their sexual relationship(s) reported contacting health care professionals about these concerns/problems. Making contact with health care professionals was associated with being younger and knowing the location of the nearest GUM clinic.
- The majority of participants who had contacted health care professionals were satisfied with this contact.
- Most participants reported receiving not very much information about STDs and HIV and approximately one quarter wanted additional information on these subjects.
- Currently condom use was very low (under 10%) with both regular and

non-regular partners.

- Approximately 7% of participants were considered to be at risk of contracting an STD and engaging in risk-behaviours was associated with being male and being married.
- Approximately 3% of participants reported a past STD diagnosis.

The conclusions reached above will now be drawn together in an overall synopsis of the findings of the general population study. These will be presented in relation to the primary research question that informed this whole study, namely 'to what extent do older people have unmet sexual health needs?'

To what extent do older people have unmet sexual health needs?

These findings support the hypothesis that older people have a range of sexual health needs. A significant proportion of respondents indicated that they had sexual health concerns, suffered from sexual dysfunction or engaged in behaviours that placed them at risk of contracting an STD, including HIV/AIDS. Furthermore, approximately one-third of individuals wanted more information about STDs and HIV.

The extent to which these health needs are being met can be evaluated by considering the proportion of individuals with sexual health concerns and/or sexual dysfunction who have presented to health care professionals. It has been seen that, according to these criteria, approximately 9.4% of respondents (i.e. those who had concerns, but did not present at health care facilities) had unmet sexual health needs. Furthermore, those who were dissatisfied with their

consultation (n=9, 2.8%) can also be included in this group, giving a final total of 12.2%.

However, it is recognised that the majority of individuals who had not sought advice or treatment for their problems and concerns stated explicitly that they did not want to discuss these issues with their GP. Potential reasons for this reluctance to present have been discussed above, and include embarrassment, fear, ignorance on the part of some health care professionals that sexual health problems are present in later-life, and the attribution of many symptoms to 'normal ageing'.

These barriers are not, however, insurmountable. Individuals who are too embarrassed to discuss issues pertaining to sexuality with their GP may instead feel more comfortable seeking consultation in the anonymous setting of a GUM clinic. Indeed, this may be particularly desirable for older people, who may have had the same GP for many years, and thus have developed a personal relationship with him/her. These individuals may therefore welcome additional information concerning the role and means of accessing the GUM clinic. For individuals to acquire this information, it may have to be targeted specifically at the older age cohort.

A further means of alleviating embarrassment could be the GP initiating a discussion of sexual health issues when taking a routine history. This has been advocated by Kellet (1989b), as discussed above. This would be especially important if trying to ascertain a patient's risk of STD; something which is rarely assessed for older patients (Briggs, Patnaude, Scavron, Wheland and Etkind, 1995).

The role of the GP has also been seen to be crucial in another area,

namely STD/HIV-related information provision. The fact that a large proportion of individuals with information needs stated that their preferred source of additional information was their GP indicates that GPs need to be aware that their older patients have information needs, and that they should not distribute information solely on an age-specific basis.

One final point that needs reiterating is that being older acted as a barrier to health care presentation. This indicates that the prevalence of unmet sexual health needs increases with age, something which is vital to recognise if these needs are to be adequately met.

What are the dominant characteristics of those with unmet sexual health needs within the general population?

In order to aid health care professionals and educators in meeting the sexual health needs of older people, it is important to ascertain whether such individuals have common socio-demographic characteristics.

The most striking characteristic of both risk-takers, individuals with sexual health concerns, and individuals with sexual dysfunction is the fact that individuals from all of these three groups were predominantly male. Although this has been explained as fully as possible with regards sexual dysfunction and, to some extent, sexual health concerns, not enough is currently known about sexual risk-taking to postulate why such a striking gender divide has been identified.

This divide was also recognised in the clinic study, and has been noted by other authors (Brecher, 1984), as well as the NSSAL. The national survey

further indicates that members of this may be a cohort effect resulting from the prevailing sexual norms at the time when this age group were younger. Such conclusions cannot, however, be drawn from a study with a cross-sectional design.

Although this striking gender divide has been identified, it is important that the needs of older women are not marginalised. Indeed, the fact that the majority of male risk-takers were married indicates that their wives may also be at risk of contracting an STD due to inconsistent condom use. Furthermore, women may also have concerns regarding their partners' sexual dysfunction, if not their own, and this still needs to be recognised.

There is no obvious pattern between age and suffering from sexual dysfunction and/or having sexual health concerns. As it is known that sexual dysfunction increases with age (Gibson, 1992), this may result from the attribution of symptoms to normal ageing. However, the fact that individuals at the top end of the age spectrum were reporting both sexual health concerns and sexual dysfunction underlines the point earlier, that ageing does not result in a cessation of sexual activity or interest, and may indeed be a source of concern in very old age.

A clearer profile of risk behaviours by age could be established, as the majority of risk-takers were aged under 60. However, risk-takers over this age were identified (as reported in Chapter 5), with significant implications for the way in which risk-taking is defined as relating only to youthful populations. Indeed, as the population ages, the number of later-life risk-takers seems set to rise quite dramatically (see Chapter 8).

Final conclusions

This study has identified that older people in the community at large have unmet sexual health needs, the majority of which could probably be appropriately managed within either a primary care or a GUM setting. To ensure that this happens education needs to be targeted both at older individuals themselves, as well as at health care professionals. Furthermore, society at large, and researchers in particular, need to become aware that issues relating to sexual health can be a major source of anxiety to people in later-life. Stereotypes of the sexless older person can only serve to ensure that the sexual health needs of older people remain unmet. This can result in not only a relatively high prevalence of concern amongst this age cohort, but could even prove fatal if older risk-takers are not educated about the dangers of STD infection, notably HIV/AIDS.

6.4. Study Limitations

Although this study has provided new and valuable data concerning sexual behaviours in later-life, several limitations to the study can be identified. First is the problem that there are no means of externally validating these results. Although several measures were adopted to maximise reliability and validity (as described in Chapters 5), there is no means of establishing just how accurate these findings are. However, the fact that the results described above are logical and support findings from previous research must lend support to the supposition that they are both valid and reliable.

Further limitations include the fact that the questionnaire was not developed with the input of the views and experiences of older people

themselves. This was firstly for reasons of practicality, as it was felt that individuals would not feel comfortable discussing such issues with a researcher and, more fundamentally, that those individuals who would talk to a researcher, would be likely to differ from a random sample of older individuals in terms of their experiences and opinions. This supposition is supported by the differences identified between individuals responding to the general population study as outlined above, and people who responded to advertisements or to the pilot study (see Chapter 7).

An additional limitation relates to the representativeness of the sample group. It has been seen that a participation bias can be identified, with older, unmarried individuals under-represented, especially women. However, it is unlikely that this bias will lead to an under-estimation of unmet sexual health needs if findings are generalised to the population at large. Indeed, given the fact that older unmarried women, in particular, reported very low levels of sexual health concerns and no risk-taking behaviour, this may mean that estimates are rather too high.

Furthermore, although the socio-demographic characteristics of the sample have been compared to those of the general population in the wards sampled, it is obviously impossible to ascertain how representative it is on variables such as current levels of sexual activity, prevalence of sexual health concerns and so on. However the fact that certain findings support study results recorded in the literature is an indicator that the sample is representative on certain variables.

Moreover, the differences between this sample group and advertisement recruited volunteers (see Chapter 7) also suggest that the sample may be

relatively representative. Indeed, a substantial effort was made to ensure that the covering letter sent to potential participants stressed the need for individuals with a wide variety of experiences to complete the questionnaire, even if they felt that it did not directly relate to their experiences and concerns.

However, the fact that a slightly higher than expected prevalence of behaviours, notably risk-taking amongst married men, was identified indicates that individuals who were more interested in the topic of the study, or felt that it was relevant to their own experiences, may have been more likely to participate. More research would be needed to ascertain whether this was the case or not, but in the meantime the data derived are the only figures available on the majority of variables under examination.

Finally, issues of precision were discussed in Chapter 3 (see page 189) and similarly apply to the results of the general population study. Given that some of the 95% confidence intervals for predictor variables identified during the logistic regression analyses are quite wide, caution must be taken when interpreting these associations.

Chapter 7

Cross Study Comparisons

Introduction

In order to maximise information gained from the surveys undertaken a final series of analyses were conducted in order to address the following questions:

- 1) Are there significant differences between the characteristics of individuals recruited from the general population who were considered to overcome considerable barriers to study participation and those who were recruited into a postal questionnaire survey with an adequate response rate (see Chapter 5) on the following key items:
 - Information needs?
 - Sexual behaviour (specifically focusing upon risk-taking)?
 - Incidence of HIV testing?
 - Prevalence of sexual health concerns?

- 2) Are there significant differences between participants in a sexual health postal questionnaire survey of the general population (see Chapter 5), and individuals recruited on attendance at a GUM clinic

(see Chapter 3) on the following key variables:

- Information needs?
- Previous attendance at GUM clinic?
- Past STD diagnosis?
- Incidence of HIV testing?

Individuals who responded to advertisements and those who participated in the pilot postal questionnaire were collapsed into one group because both recruitment strategies were considered to have involved overcoming significant barriers to study participation (see Chapter 5 and Appendix M). This group will be referred to as Sample 1, participants in the main postal survey will be referred to as Sample 2 and participants in the clinic study will be referred to as Sample 3.

7.1. Comparison Between Samples 1 and 3

Introduction

Comparisons were made between the results obtained from the general population study and the clinic-based study for certain variables as stated above. It was hypothesised that there were likely to be significant differences between the characteristics of the two sample groups as GUM attendance was seen to be associated with high levels of concern regarding exposure to STD.

Sexual health history

Participants in the clinic study were significantly more likely to have a history of both GUM attendance (previous GUM attendance: clinic sample 98 (37.7%); general population 20 (6.4%); $\chi^2=85.4$; d.f.=1; $p<0.001$) and STD diagnosis (Table 7.1.1.) when compared to the general population sample. They were also more likely to have had an HIV test (Had HIV test: clinic sample 65 (27.0%); general population sample 18 (5.9%); $\chi^2=46.6$; d.f.=1; $p<0.001$)

Table 7.1.1. Past STD diagnosis by study type

| Past STD diagnosis | Clinic study | | General population study | |
|--------------------|--------------|---------|--------------------------|---------|
| | n | (%) | n | (%) |
| Yes | 46 | (18.3%) | 9 | (2.9%) |
| No | 178 | (70.9%) | 296 | (96.1%) |
| 'Don't know' | 27 | (10.7%) | 3 | (1.0%) |

($\chi^2=68.4$; d.f.=2; $p<0.001$)

Information issues

Information about STDs

There was a significant association between sample and amount of information received about STDs, with individuals from the clinic sample more likely to report having received either 'a lot' or 'quite a lot' of information on this topic (Table 7.1.2.). They were also significantly more likely to state that their primary source of information was a GUM clinic (Table 7.1.3.).

However, participants in the general population study were significantly more likely to state that they had received enough information about STDs (enough information about STDs: GUM sample 135 (52.5%); clinic sample 214 (71.8%); $\chi^2=22.0$; d.f.=1; $p<0.001$)

Table 7.1.2. Amount of information received about STDs by study type

| Amount of information | Clinic study | | General population study | |
|-----------------------|--------------|---------|--------------------------|---------|
| | n | (%) | n | (%) |
| A lot | 45 | (18.3%) | 40 | (13.6%) |
| Quite a lot | 64 | (26.0%) | 61 | (20.7%) |
| Not very much | 76 | (30.9%) | 79 | (26.9%) |
| Hardly anything * | 61 | (24.8%) | 114 | (38.8%) |

($\chi^2=12.4$; d.f.=3; $p<0.01$)

Table 7.1.3. Source of information received about STDs by study type

| Information source | Clinic study | | General population study | |
|--------------------|--------------|---------|--------------------------|---------|
| | n | (%) | n | (%) |
| GP | 9 | (3.8%) | 7 | (2.5%) |
| GUM clinic | 44 | (18.4%) | 1 | (0.3%) |
| Friends/Family | 36 | (15.1%) | 20 | (7.2%) |
| Magazines/TV | 114 | (47.7%) | 197 | (70.9%) |
| Other | 36 | (15.1%) | 53 | (19.1%) |

($\chi^2=68.7$; d.f.=4; $p<0.01$)

Information about HIV

There was no difference in the amount of information received about HIV by study ($\chi^2=3.5$; d.f.=3; $p=0.32$). However, clinic study participants were significantly more likely to state that the source of this information was either a

GUM clinic, or their GP (Table 7.1.4.), and were significantly less likely to state that they had received enough information about HIV (enough information about HIV: GUM sample 124 (50.2%); general population sample 209 (70.6%); $\chi^2=23.6$; d.f.=1; $p<0.001$).

Table 7.1.4. Source of information received about HIV by study type

| Information source | Clinic study | | General population study | |
|--------------------|--------------|---------|--------------------------|---------|
| | n | (%) | n | (%) |
| GP | 6 | (2.5%) | 7 | (2.5%) |
| GUM clinic | 21 | (8.9%) | 2 | (0.7%) |
| Friends/Family | 18 | (7.6%) | 13 | (4.7%) |
| Magazines/TV | 164 | (69.8%) | 212 | (77.4%) |
| Other | 26 | (11.1%) | 40 | (14.6%) |

($\chi^2=22.8$; d.f.=4; $p<0.005$)

In addition, the clinic sample were also more likely to state the GUM clinic as their preferred source of additional information (if applicable) (preferred source of additional information- GUM clinic: GUM sample 46 (40.0%); general population sample 5 (6.3%); $\chi^2=30.9$; d.f.=3; $p<0.001$).

Discussion

Significant differences were identified between individuals recruited from the GUM clinic when compared to those who participated in the main postal screen. Notably, older clinic attenders were found to have higher frequencies of past GUM attendance and history of STD, a logical finding in the light of the fact that a proportion of this sample group were attending the clinic following recurrence of a previous infection, or for a check up. An interesting relationship was identified between the two sample groups for information items, with GUM clinic attenders more likely to state that they had not received a lot of information about STDs/HIV, but concomitantly to want more information on this topic. This supports the conclusion that GUM clinic attenders have higher levels of concern about STDs (as, indeed, would be expected) and greater related information needs.

Given higher levels of prior GUM attendance amongst the clinic recruited sample, it is logical that this information source would be of greater importance to clinic subjects. The GUM clinic was also more likely to be cited as a preferred information source amongst clinic attenders with additional information needs.

7.2. Comparisons Between Samples 2 and 3

Introduction

It is interesting to note that significant differences can be identified in the characteristics of individuals who responded to the adverts in the Star and the Mirror, as well as those recruited during the pilot study (sample 1), when compared to participants in the main postal survey (sample 2). These were confirmed statistically with χ^2 testing where numbers permitted.

Demographic variables

Individuals from sample 1 were significantly more likely to be unmarried when compared to participants from sample 2 (Table 7.2.1.), although no associations were identified for age or gender.

Table 7.2.1. Marital status of sample 1 compared with sample 2

| Sample | Married | | Unmarried | |
|----------|---------|---------|-----------|---------|
| | n | (%) | n | (%) |
| Sample 1 | 57 | (17.9%) | 262 | (82.1%) |
| Sample 2 | 17 | (41.5%) | 24 | (58.5%) |

($\chi^2=12.4$; d.f.=1; $p<0.005$)

Sexual health history

Individuals from sample 1 were significantly more likely to report a history of sexual health concerns (sexual health concerns: sample 1 13 (%); sample 2 54 (%): $\chi^2=5.6$; d.f.=1; $p<0.05$) and to having attended a GUM clinic (Table 7.2.2.). There was no association, however, between sample and reporting current sexual health concerns.

Table 7.2.2. GUM clinic attendance by sample

| Sample | Attended a GUM clinic | | Has not attended a GUM clinic | |
|----------|-----------------------|---------|-------------------------------|---------|
| | n | (%) | n | (%) |
| Sample 1 | 20 | (6.4%) | 294 | (93.6%) |
| Sample 2 | 6 | (18.7%) | 26 | (81.2%) |

($\chi^2=6.44$; d.f.=1; $p<0.05$)

Sexual behaviour

Individuals from sample 1 were more likely to report having had more than two partners both within the last five years (Table 7.2.3.), and within their lifetime (more than 1 lifetime partner: sample 1 29 (%); sample 2 119 (%)) $\chi^2 = 14.8$, d.f.=1, $p<0.005$).

Table 7.2.3. Number of sexual partners in last five years by sample

| Sample | One | | Two or more | |
|----------|-----|---------|-------------|---------|
| | n | (%) | n | (%) |
| Sample 1 | 28 | (68.3%) | 13 | (31.7%) |
| Sample 2 | 259 | (85.5%) | 44 | (14.5%) |

($\chi^2=7.7$; d.f.=1; $p<0.01$)

Information issues

There was no association between perceived amount of information received about HIV and STDs and sample, although individuals from sample 1 were significantly more likely to state that their primary information source about both STDs and HIV was their GP or GUM clinic (Table 7.2.4.).

Table 7.2.4. Primary information source about STDs and HIV by sample

| Sample | GP/GUM | Magazines/TV | Other |
|----------|------------|--------------|------------|
| Sample 1 | | | |
| STDs: | 6 (15.4%) | 22 (56.4) | 11 (28.2%) |
| HIV: | 15 (36.6%) | 3 (7.3%) | 23 (56.1%) |
| Sample 2 | | | |
| STD: | 8 (2.9%) | 197 (70.9%) | 73 (26.2%) |
| HIV: | 9 (3.3%) | 212 (77.4%) | 53 (19.3%) |

STDs ($\chi^2=13.2$; d.f.=2 $p<0.005$); HIV ($\chi^2=97.5$; d.f.=2; $p<0.001$)

Individuals from sample 1 were significantly more likely to feel that they would

like to received more information about both STDs and HIV (Table 7.2.5.).

Table 7.2.5. Received enough information about STDs and HIV by sample

| Sample | Yes | No |
|-----------------|-------------|------------|
| <i>Sample 1</i> | | |
| STDs: | 22 (53.6%) | 19 (46.3%) |
| HIV: | 19 (46.3%) | 22 (53.6%) |
| <i>Sample 2</i> | | |
| STD: | 214 (71.8%) | 84 (28.2%) |
| HIV: | 209 (70.6%) | 87 (29.4%) |

STDs ($\chi^2=5.6$; d.f.=1; $p<0.05$); HIV ($\chi^2=0.7$; d.f.=1; $p<0.005$)

Discussion

These findings indicate that individuals who overcome considerable barriers to study participation exhibit higher levels of sexual risk-taking behaviours and are more interested in sexual health issues generally, than people who respond to a postal survey with an acceptable response rate. This confirms the conclusions of previous research undertaken in this area. As discussed in Chapter 5, individuals who volunteer to participate in face-to-face interview studies have been found to be more sexually experienced and hold more liberal sexual views than those who do not (Catania, McDermott and Pollack, 1986).

SECTION 5:
FINAL DISCUSSION

Chapter 8

Final Conclusions and Implications

Introduction

The findings of each component of this programme of research have been discussed individually in each chapter and are summarised in the thesis abstract.

This chapter considers overall findings in relation to two further areas:

1. Implications for policy in the areas of:

- resource allocation;
- national health priorities;
- services and clinical practice.

2. Implications for research in the following subject fields:

- epidemiology
- behavioural sciences
- clinical issues

8.1. Implications for Policy

The status of age within current sexual health policy will be examined. This will allow such recommendations to be contextualised through an exploration of current attention to older people within the following policy relevant sources:

1. National sexual health surveys;
2. General health policy as reflected in government White Papers;
3. Priorities within the speciality of genitourinary medicine.

National sexual health surveys

National surveys, such as the National Survey of Sexual Attitudes and Lifestyles (NSSAL), play a fundamental role in determining policy formulation in the area of sexual health (Johnson, 1997). Data from the NSSAL have been used to formulate projections of incidence and prevalence of HIV/AIDS within the UK, helped in the planning of sexual health services and been cited in debates concerning sex education in schools and the age of consent among gay men. The need to continue monitoring sexual behaviours within the UK population for such purposes is obvious and, following a recommendation from the government Working Party responsible for this area, the NSSAL is indeed to be repeated (Johnson, 1997). The pilot for this second phase of the survey is currently underway and will:

..provide data for estimates of HIV prevalence, it will try and see whether changes in sexual behaviour have occurred since the last survey, and it will attempt to assess the prevalence and patterns of sexually transmitted infections in the population.

(Johnson, 1997, p,24)

These data will be instrumental in the planning of future provision of sexual health services, as well as providing a basis for the development of health promotion strategies.

A decision has been made to impose a sample cut-off age of 44 years due to a desire to monitor change 'largely amongst the younger sectors of the population' (Johnson, 1998, personal communication). This contrasts with the earlier age cut-off imposed (59 years) and clearly indicates an *increasing* focus on younger people and a further exclusion of older people.

General health policy as reflected in government White Papers

The most recent White Paper detailing sexual health policy is the 1992 *Health of the Nation*. This document designated sexual health as a key area for general health improvement and presented the policy of the then government towards improving the overall health of the English population. This White Paper stressed that

Good personal and sexual relationships can actively promote health and well-being. (p. 92)

but that STDs, specifically HIV/AIDS, were a significant cause of morbidity.

Specific objectives derived from this were as follows:

- To reduce the incidence of HIV infection.
- To reduce the incidence of other sexually transmitted diseases.
- To develop further and strengthen monitoring and surveillance.
- To provide effective services for diagnosis and treatment of HIV and other STDs.
- To reduce the number of unwanted pregnancies.
- To ensure the provision of effective family planning services for those people who want them.

(p. 94)

Again, a focus upon younger adults to the exclusion of older adults is clearly demonstrated, conveying the impression that the sexual health needs of older people are an irrelevant policy and clinical consideration.

Priorities within the speciality of genitourinary medicine.

Current opinion within genitourinary medicine appears to be that this speciality is concerned with meeting the sexual health needs of *younger* people and that total demand for sexual health services is from this age group. This opinion is reflected both in research conducted within this field and day to day clinical practice.

Waugh (1991), for example explicitly conceptualises STDs and HIV as conditions which solely affect younger age groups and considers 'these young citizens' to be synonymous with 'our patients' (i.e. GUM clinic attenders). Furthermore, not only does he explicitly state that 'STDs concern the young' (p. 331), but also makes the following comments regarding sexual behaviour research:

It would seem to optimize campaigns against STDs especially chlamydial and genital papillomavirus infection (GPVI) that there should be sexual behavioral research of the group for whom such campaigns are required namely the young, whether heterosexual, homosexual or bisexual. (p. 330)

These views are further reinforced by Adler (1997):

Effective health education needs a two pronged approach, aimed in a general way at all young people, and also at those identified at particularly "high risk". Young people have a right to sound, unbiased information that allows them to make informed choices before they have sexual intercourse. (p. 1746)

In addition, anecdotal evidence gathered from GUM staff involved in the programme of research reported in this thesis indicates that overall awareness of attendance of use of GUM services by older people is low. Indeed, all consultant medical staff were, without exception, surprised at the number of older people

who attended their clinic when presented with the findings from Chapter 2.

Summary of UK sexual health policy

- Sexual health policy within the UK tends to focus narrowly upon younger age groups.
- This youth focus has been to the exclusion of older age groups.
- Current evidence suggests that there is a trend to intensify the current youth focus by concentrating attention on even younger age cohorts.

Implications of research for policy

The overall conclusions to be drawn from the survey would strongly suggest that although attention to younger people is not inappropriate, the exclusion of older people from surveys that inform national policy formulation is misguided for the following reasons.

Firstly, as indicated by data gathered during this programme of research, a stable minority of older people utilise GUM services and a slightly higher proportion engage in behaviours that place them at risk of contracting STDs. The study reported in Chapter 2 exploring levels of GUM attendance in three urban GUM clinics indicated that if levels of attendance were similar throughout the UK, approximately 16,000 individuals over the age of 50 currently attend GUM clinics each year nationally. Furthermore, older attenders exhibit unique demographic and clinical attributes as identified in the GUM questionnaire survey (Chapter 3) and thus warrant attention. That older people engage in risky sexual behaviours was further confirmed in the findings of the general population

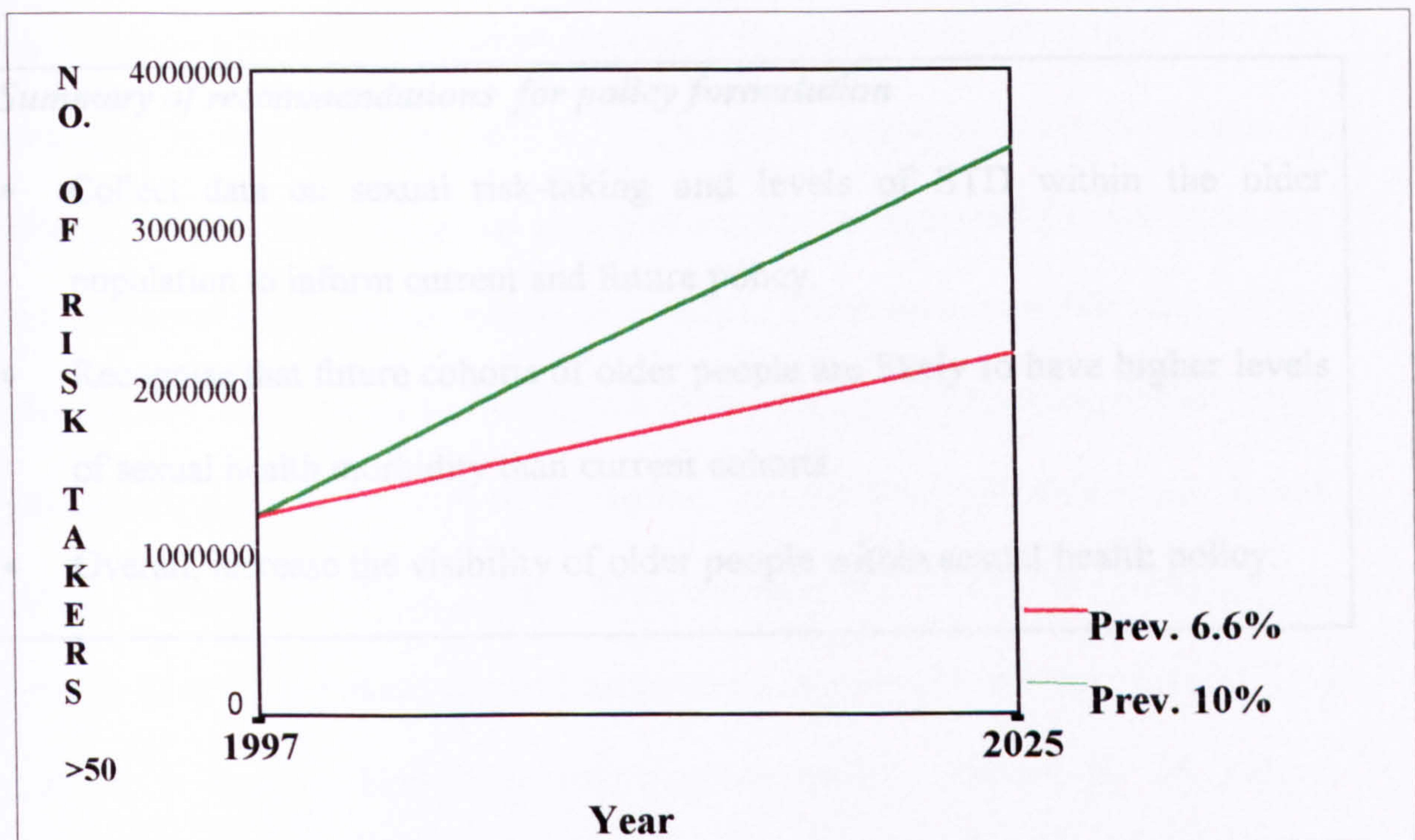
study (Chapter 5) which indicated that, if levels of risk-taking are similar throughout the country, over one million people in this age group ($n = 1,234,266$; 95% CI = 617,133 – 1,739,193; based on 1997 population estimations, OPCS, 1998) are at risk of contracting STDs in the UK. Thus, although older people represent only a small proportion of total risk takers, the absolute number of individuals in this age cohort at risk of contracting STDs is not insignificant.

Moreover, to exclude older people from sexual health national policy reflects a demographically static view of health risk and clinical need for two reasons. First, demographic change will continue to increase the absolute number of 50 year olds in the population, necessitating greater attention to this age group and second, not only will the ageing of the UK population result in a higher absolute number of older risk takers, but in addition it is highly unlikely that the prevalence of risk-taking within the older population will remain static over the coming decades given significant changes in sexual mores over the last 40 – 50 years. Future cohorts of older people will have grown up in an era where multiple sexual partnerships became, for many, 'the norm' and, with the advent of the contraceptive pill, the proportion of sexually active individuals using condoms for contraceptive purposes, declined (at least prior to the AIDS epidemic). Furthermore, the gay liberation movement also came of age during this period and having gay relationships became more societally acceptable. All these factors indicate that future cohorts of older people will exhibit higher levels of risk-taking behaviour and, concomitantly, experience a higher prevalence of STDs.

Indeed, overall, total numbers of older risk takers can only rise in the future. Population projections, for example, indicate that if levels of sexual risk-

taking remain constant over coming decades, underlying demographic changes will result in the absolute number of older risk takers increasing to 2,316,500 by 2025. Moreover, if the prevalence of risk-taking increases was to increase by just 3.4% from 6.6% to 10%, then absolute numbers of older risk takers in 2025 will equal 3,509,848. However, unless data are collected at the present time, rates of infection within the older population cannot be monitored and there will be no benchmark against which to measure future change and inform future policy.

Figure 8.1. Projected increase in older risk-takers between 1997 and 2025 based on stable prevalence rates (6.6%) and increased prevalence rates (10%)



care professionals experience significant unease in discussing sexual health issues with patients of this age (see below for further discussion). In addition, the introduction of 'viagra', the new clinically effective oral medication for erectile dysfunction was further highlighted as a potential factor increasing levels of sexual activity, as well as STDs within the older population.

However, despite drawing attention to important research and clinical implications of STD in the older population, this editorial did reflect some of the stereotyping which may contribute to a lack of research in the sexual health of older people. The authors state that:

the older generation may have grown up with a belief that sex was something improper or unmentionable (p.314)

despite the fact that this has increasingly less validity when it is realised that young adults from the 1950s and 1960s (hardly eras of sexual prudery) are now in their 60s and 70s (Gott, 1999).

Summary of recommendations for policy formulation

- Collect data on sexual risk-taking and levels of STD within the older population to inform current and future policy.
- Recognise that future cohorts of older people are likely to have higher levels of sexual health morbidity than current cohorts.
- Overall, increase the visibility of older people within sexual health policy.

Recommendations for service provision

Collectively, findings from this body of research do not indicate that current services utilised by older people with sexual health concerns need to be reconfigured. However, despite a lack of evidence that older people are receiving inadequate or inappropriate care from either primary or secondary sexual health care providers (where it was provided), the following recommendations can be made as to how current service provision can be improved and the predicted increase in demand for sexual health services among this age group met.

At a general level, it has been seen that sexual health policy equates with sexual health policy for younger adults. Although it has been stressed that younger people do warrant particular attention, the argument has also been made that older people do not warrant exclusion. Indeed, all components of this thesis

have identified that older people: 1) are sexually active; 2) engage in risky sexual behaviours; and 3) contract STDs.

At a more specific level, it has been seen that there was little expectation of older peoples' need for sexual health services among health care professionals, a conclusion supported by previous authors (Cranston and Thin, 1998; etc). It could be hypothesised that such a low level of expectation could impact on clinical practice, for example, by giving rise to the opinion that it is not necessary to take sexual health histories from older adults (Murphree and DeHaven, 1995). The 'unease' experienced by health care professionals in discussing sexual health issues with older adults is likely to further impede discussions of sexual health issues (Cranston and Thin, 1998). This indicates that health care professionals need to be informed about sexual health needs in later life and may benefit from training in how to meet these needs satisfactorily. Indeed, in the general population survey (Chapter 6), it was seen that increased age predicted lower levels of satisfaction with contact with GPs about sexual health issues.

Summary of implications of research for service provision

- Current sexual health services utilised by older people do not need to be reconfigured.
- Include individuals over 45 in national surveys of sexual health.
- Health care professionals may need training in how to meet the sexual health needs of older people satisfactorily.

8.2. Implications for Future Research

Introduction

As discussed in Chapter 2, very little prior research has been conducted concerning the sexual health of older people. The findings presented in this thesis have facilitated future research by: 1) clarifying the level of sexual health need in the older population; and 2) developing suitable methodologies for data collection in this area. Indeed, the SAQ study undertaken within a GUM setting elicited a very high response rate (83%), confirming that older people attending GUM clinics are willing to be involved in research of this nature. Furthermore, a study design capable of generating acceptable response rates in a study of sexual health issues with an older population was developed. This involved two main phases: 1) the identification of eligible participants through a postal screen based on the electoral register and inviting participation in a 'health' survey; and 2) a postal questionnaire study addressing sexual health issues. These

methodologies have been disseminated via publication (Gott et al 1998; Gott 1999) and can provide a framework for future research in this field.

Given the inter-disciplinary nature of research in this field, specific recommendations for future research have been made in the following areas: 1) epidemiology; 2) behavioural sciences; 3) clinical sciences; and 4) gerontology.

Epidemiology

Epidemiologists have the potential to contribute to future research in this field in the following ways:

1. By monitoring trends in the incidence and prevalence of STIs amongst the over 50s and identifying real changes in rates of infection over time;
2. By analysing routinely collected GUM activity data and exploring issues of stability in trends identified in this study (Chapter 2) over time;
3. By examining the presence of cohort effects in sexual risk-taking behaviour among the general population so as to aid in the development of projections of levels of STI in the older population over the coming decades.

However, for these goals to be adequately addressed, there need to be changes in the ways in which data on STDs is currently collated. As noted in Chapter 1, such information is currently recorded in discrete age bandings, the oldest of which being 45 years and over. In order to monitor real changes in incidence and prevalence of STD in the older population data for those over 45 need to be aggregated in more sensitive age bandings.

Behavioural sciences

Specific areas of future research which could be approached from a behavioural sciences perspective were identified throughout the thesis and include:

1. The determinants of sexual risk-taking in later life, specifically focusing upon gender differences in risk-taking;
2. The dynamics of extra-marital relationships amongst older people;
3. Condom use with non-regular sexual partners when beyond reproductive age;
4. Illness behaviour in older populations with STI related concerns;
5. The extent of sexual mixing between older and younger people;
6. The link between the provision of sexual health information and behaviour change;
7. Barriers to health care presentation among older people with sexual health concerns;
8. The most effective means of educating health care professionals regarding the need to attend to the sexual health concerns of older people.

Clinical

A need for the following research of a clinical nature was identified:

1. The optimum treatment for STIs in older people who may be experiencing high levels of co-morbidity;
2. The appropriateness of drug treatments developed through RCTs of younger populations given it is known that physiological age-related changes influence the impact of many types of drugs;

3. The potential interactions between drugs prescribed for sexual health related problems and other medications typically prescribed to older people.

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Glossary of Abbreviations

| | |
|---------------------|--|
| AIDS | Acquired Immunodeficiency Syndrome |
| CDC | US Center for Disease Control |
| CDSC | Communicable Diseases Surveillance Centre |
| GP | General Practitioner |
| GUM (Clinic) | Genitourinary Medicine (Clinic) |
| HCP | Health Care Professional |
| HIV | Human Immunodeficiency Virus |
| LR | Logistic Regression |
| NSSAL | National Survey of Sexual Attitudes and Lifestyles |
| OPCS | Office of Population Censuses and Surveys |
| PHLS | Public Health Laboratory Service |
| SAQ | Self-administered Questionnaire |
| SPSS | Statistical Package for the Social Sciences |
| STD | Sexually Transmitted Disease |
| STI | Sexually Transmitted Infection |

Glossary of Common Sexually Transmitted Diseases

| Infection/Condition | Cases diagnosed in 1996 in UK GUM clinics | Notable features and prognosis |
|----------------------------|--|---|
| AIDS | Men: 4,884 Women: 756 | The onset of AIDS is marked by the development of one of a number of opportunistic infections. Currently there is no cure for AIDS. |
| Anogenital Herpes | First attack: Men: 5,641 Women: 9,349 | Currently no cure and can recur without reinfection. |
| Anogenital Warts | First attack: Men: 26,636 Women: 27,101 | Typically 50% of women infected with the human papilloma virus (HPV) which causes anogenital warts are asymptomatic. Currently no effective antiviral therapy exists for the treatment of genital warts, so it is only the manifestations of the virus that can be treated, not the underlying cause. |

| Infection/Condition | Cases diagnosed in 1996 in UK GUM clinics | Notable features and prognosis |
|------------------------------|---|--|
| Chlamydia trachomatis | Uncomplicated chlamydial infection: Men: 13,694 Women: 18,163 | A genital infection responsible for various syndromes in both males and females. Asymptomatic in 80% of women and 10-20% of men, it is often unidentified and, if left untreated, can lead to significant health problems. If treated early, further complications can be prevented. |
| Gonorrhoea | Uncomplicated gonorrhoea: Men: 7,749 Women: 3,902 | Treatment is complex, but usually successful. |
| HIV | Men: 13,086 Women: 2,857 | The causative agent of AIDS. A retrovirus, which attacks the body's immune system, it can be present in the body for a number of years before the onset of symptoms. |
| Molluscum Contagiosum | Men: 3,238 Women: 1,815 | Can, but need not be sexually transmitted. Most people affected do not develop symptoms unless there is a concurrent infection. |

| Infection/Condition | Cases diagnosed in 1996 in UK GUM clinics | Notable features and prognosis |
|--------------------------------------|--|--|
| Non-specific Urethritis (NSU) | Men: 45,868 | One of the most common STDs affecting men in the UK. Caused by a variety of agents, including chlamydia, trichomoniasis, herpes simplex, urinary tract infections, trauma and allergies. |
| Scabies/Pediculosis Pubis | Men: 4,257 Women: 1,351 | Caused by infestation mites or louse. |
| Syphilis | All syphilis: Men: 854 Women: 459 | Can be treated successfully with penicillin, but if left untreated can be chronic, or even fatal. |
| Trichomoniasis | Men: 231 Women: 5,302 | Non-viral STD typically asymptomatic in most men and 10-50% of women. Treatment is straightforward. |

(Source: Information in this glossary has been taken from Alder, 1995).