Men, Masculinities, and Loneliness: a mixed-methods study of men's perspectives in a wider context

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Abstract

Background

Loneliness is an increasing concern that has been linked to negative physical and mental health. Sex and gender have been theorised as an important influence on loneliness in men, yet empirical research is limited.

Aims

Investigate the influence of sex and gender on men's constructions and/or experiences of loneliness.

Method

A mixed-methods approach was taken. A critical review of the literature synthesised existing evidence, informing a cross-sectional quantitative study interrogating hypotheses derived from the review. An interpretive qualitative study, using semi-structured interviews with a diverse sample of men, considered men's perspectives on loneliness. A triangulation protocol and thematic syntheses systematically contrasted the findings of each study.

Findings

In the quantitative study, men showed lower odds than women of stating they are lonely in response to a direct survey item even when controlling for an indirect scale measuring loneliness. Men also showed evidence of more alcohol consumption when lonely, less loneliness in response to severe isolation, and a greater association between partner status and loneliness. In the qualitative study, socially negotiated self-worth and positive mental occupation represented none-loneliness. Social connections were frequently vital to both. Masculine notions of a reluctance to admit loneliness, of loneliness as associated with failure, of avoiding displaying vulnerability, and of masculine-appropriate behaviours, interests, abilities, and roles, impacted whether and how none-loneliness was achieved. The mixed-methods analysis concluded that masculine ideals of invulnerability, nuclear family, and social comparison were the most consistent influence on men's self-worth and positive occupation, and thus loneliness.

Conclusions

A novel conceptualisation of loneliness in men suggests facilitating socially negotiated self-worth and providing opportunities for positive occupation are vital. Masculinities often negatively impacted loneliness, yet could provide a cultural framework for social connections and self-worth, thus require deconstructing. Gender-sensitive policy and practice, including a greater focus on primary prevention, is recommended to address loneliness in men.

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This thesis is dedicated to my Grandma, Muriel Freeman, who I only wish I got to spend more time with at the end.

Author’s declaration

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged as References. The following publications and preprints use data from the thesis. An article using the quantitative data, and another article based on the qualitative data, will be submitted to journals following the submission of this thesis.

Ratcliffe, J., Kanaan, M. and Galdas, P. (2022) Men and loneliness in the Covid-19 pandemic: Insights from an interview study with UK-based men. *Health & Social Care in the Community*. doi: 10.1111/hsc.13746

Ratcliffe, J., Galdas, P. and Kanaan, M. (2020) Men and loneliness in the ‘west’: A critical interpretive synthesis. Preprint. doi: 10.21203/rs.3.rs-17584/v1

Chapter 1. Introduction

Prior to the Covid-19 pandemic, loneliness had already begun to be highlighted as a concern to public health and wellbeing (Aiden 2016; Kantar Public 2017; Jo Cox commission on loneliness 2017; Age UK 2018; Campaign to End Loneliness 2018; Hammond 2018; MIND 2019). During it, and the introductions of 'lockdowns' and 'social distancing', concern amongst the public grew further (Killgore et al. 2020; Brodeur et al. 2021). Research into men's mental health has frequently highlighted the specific needs of men, and the intertwined importance of masculine cultures to men's experiences (Courtenay 2000; Addis and Hoffman 2017; WHO 2018). However, gendered examination of loneliness in men remains rare. To rectify this, and aid men's well-being, this thesis will investigate the influence of gender in men's constructions and experiences of loneliness. In Section 1.1, a preface will give a first person account of how and why this research came to be conducted, and specify the research questions that drove the study from the outset. To further frame the significance of the research, section 1.2 will discuss policy, third sector, and media discourse relevant to loneliness in men. As the study takes place in the United Kingdom (UK), this section focuses on the UK. Section 1.3 will conclude the introduction by stating how each Chapter will work towards answering to the questions identified in section 1.1.

1.1 Preface and research questions

I have had personal interest in mental health since my teenage years. In 2008, during my Undergraduate degree, I attended a module on men and masculinities. The ramifications of the theory and data I engaged with, though at this time less developed than they have become, had a marked influence on my perspectives on mental health. Fast forward to 2015, and having spent significant amounts of time volunteering in organisations promoting mental health, I decided to return to academia to study a master's in Social Research. During this, I was hired to produce a small report analysing the effectiveness of an Age UK programme aimed at reducing loneliness. Working on the report, I came to believe that the same depth of analysis afforded to men's mental health had not been applied to loneliness in older men. For my master's dissertation, then, I conducted qualitative research into older men's constructions and experiences of loneliness. This concluded that older men viewed loneliness as a stereotype of age, and a subordinate masculinity of a 'lonely old man'. Furthermore, the men's narratives did not sit comfortably with common definitions of loneliness that conceptualise it as a subjective perspective of a lack or loss of social relationships (Perlman and Peplau 1982; Cattan et al. 2005). Rather, their perspectives emphasised feeling valued and respected. Though an interesting study, that generated new insights (Ratcliffe et al. 2021), it left me with a number of follow up questions. If loneliness is a stereotype of age, what about younger men? If it is a subordinate masculinity, do men admit to being lonely? How do men perceive loneliness? If constructions of loneliness can be masculine, are there generalisable differences between men and women? What even is loneliness?! And what can we do about it?! To answer these, I applied to study a PhD. After being successful in this application, I had to reform these messy uncertainties into researchable questions. In doing so, I realised they amounted to a single overarching question, and two sub-questions:

What is the influence of sex or gender on men's constructions and/or experiences of loneliness?

1. How might different intersections of identity such as class, ethnicity, sexuality, age, and physical ability intersect with men's constructions and experiences?
2. What do the 'answers' to these questions mean for policy and practice related to tackling loneliness?

The main question was used to guide my doctoral research as it encapsulates all aspects of the questions loosely referred to above. It is a particularly broad question that will require investigating via multiple theoretical avenues. Throughout the thesis, and particularly following the literature review (Chapter 3), sub-questions were added to focus the thesis on topics relevant to answering the main question. Sub-question 1 was specified in advance to conceptualise the likely eventuality that men's constructions and experiences will not be universal. Sub-question 2 then introduces a specific focus on tackling loneliness as, ultimately, the goal is to improve men's mental health. In the next section, I will discuss public and policy perspectives to further frame why I concluded that men's constructions and experiences of loneliness required researching.

1.2 Loneliness and men: an overview of public and policy perspectives

In recent years, a number of UK organisations have highlighted loneliness as a problem. The British Red Cross and Co-op (Kantar Public 2017), for example, produced a report estimating over nine million adults were 'often' or 'always' lonely, and the BBC (British Broadcasting Company) found 33% of 55,000 survey respondents stated they 'often' or 'very often' feel lonely (BBC Radio 4 2018). Epidemiological data has found similarly significant numbers. Victor and Yang (2012) found 27% of people identified as 'sometimes' or 'often' lonely, and Groarke et al. (2020) estimate 27% of UK adults were lonely during the Covid-19 pandemic. Indeed, loneliness has been argued to be a growing problem both in the UK and worldwide (Cacioppo and Cacioppo 2018).

Loneliness is usually presented as a difficult emotion, unpleasant in its own right. It has been associated with depression both discursively (Barg et al. 2006) and statistically (Cacioppo et al. 2006; Schinka et al. 2012). It has been repeatedly linked to poor health, including being compared to smoking 15 cigarettes a day (Holt-Lunstad et al. 2010), evidenced as potentially increasing the risk of cardio-vascular disorder (Valtorta et al. 2016a), and even as increasing the risk of death (Shiovitz-Ezra and Ayalon 2010; Victor and Bowling 2012). It may also be costly. The Co-op (2017) estimate loneliness to cost employers £2.5bn a year through absences, reduced productivity, and staff turnover. Public Health England (2018) suggest every £1 of public investment in tackling loneliness in older people could save £1.26 over five years.

Before the onset of the Covid-19 pandemic, statistics such as these led Rachael Reeves MP, the co-chair of the 'Jo Cox commission on loneliness', to describe loneliness as a 'giant evil of our time' (Asthana 2017). In a report named 'combatting loneliness one conversation at a time', the Jo Cox commission (2017) made a number of policy recommendations: i) develop a UK wide government strategy (a strategy already existed in Scotland); ii) nominate a lead minister for loneliness; iii) incorporate a 'family and relationships test' into all new policy; iv) form a 'national indicator' to measure loneliness; v) collate the evidence on tackling loneliness; vi) set up a fund for promoting innovative community measures; and vii) include local councils, public sector leaders, business, community groups, and voluntary groups in policy and practice initiatives. In a response openly influenced by this report, the government constructed a government role for tackling loneliness (John 2018), and released a UK-wide strategy (HM Government 2018). In it, the government committed to 'tackling' loneliness by 'social prescribing' through General Practitioners (GP's), including loneliness as a consideration in broader policy, and using four standardised questions about loneliness in surveys.

This strategy marked a departure from previous Government strategy and policy in which 'loneliness' was largely considered in relation to older people (e.g., Thomas 2015). This was in line with a broader societal understanding that loneliness was a problem 'particularly associated with old age, growing older, and later life' (Victor and Yang 2012, p85). However, research has not consistently found that loneliness is concentrated in older people. A large BBC study (BBC Radio 4 2018; Hammond 2018) found that loneliness was most prevalent in ages 16-24. Victor and Yang

(2012) found a ‘U-shaped’ relationship where the youngest people were the loneliest, and the oldest people a close second. Studies in Northern Europe (Nolen-Hoeksema and Ahrens 2002) and Australia (Lauder et al. 2004) have suggested that people in middle-adulthood are the loneliest. For the British Red Cross, then, ‘perceptions of who experiences loneliness (are) out of sync with the reality, with…people mistakenly perceiving it as an issue faced either solely or predominately by older people’ (Kantar Public 2017, p10). In turn, the Jo Cox Commission recommended the government form a strategy ‘*for all ages*’ (2017, p3, emphasis added).

The UK public and policy picture prior to the Covid-19 pandemic, then, was framed by an assumption that loneliness was a particular concern among older people, but which had begun to recognise that it is not a problem solely attributable to ageing. The onset of Covid-19, though, sparked another cultural shift. Pieces in The Guardian (Laing 2021) and the BBC (Evans 2021) both suggested there was a large increase in loneliness since the pandemic began, and the term ‘loneliness epidemic’ became relatively commonplace (Manavis 2021; Bauer 2021). Epidemiological studies have not found consistent results on this, with some reporting an increase in loneliness during the pandemic (Bu et al. 2020; McQuaid et al. 2021), and some not (Luchetti et al. 2020; Folk et al. 2020). Either way, concern about loneliness became even more prominent in public and media discourse, yet associated with Covid-19 as much as with ageing or other issues.

Men ate often found to report better mental health than women (McManus et al. 2016), and some UK research into loneliness has found a higher incidence of loneliness in women (Victor and Yang 2012; Campaign to End Loneliness 2022). However, the male suicide rate remains higher than women’s (ONS 2021). As explored in Chapters 2 and 3 of this thesis, dominant constructions of masculinity have been cited to result in a reluctance to seek help for health issues (Courtenay 2000; Galdas et al. 2007; Robertson 2007). This is particularly widely evidenced in relation to mental health (Addis and Mahalik 2003; Vogel et al. 2011; Yousaf et al. 2015; Addis and Hoffman 2017). Rather than solely representing fewer mental health problems, then, men may be less likely to report them. It is for this reason that the ‘Campaign Against Living Miserably’ (CALM) funded a series of campaigns aimed at encouraging men to acknowledge and seek help for mental health issues (CALM 2014), and ‘Global Action on Men’s Health’ (GAMH 2019) produced a report discussing how policy and practice can facilitate greater ‘self-care’ among men. However, literature on men and masculinities has paid much less attention to loneliness. Indeed, in the 2018 government strategy (HM Government 2018), men are only specifically considered twice, and both instances relate to older men.

Some third sector investigations have considered and identified gendered experiences and needs, albeit mainly in older men. Ruxton (2007), in a study for Age Concern (now Age UK), reported three barriers to men's involvement in their services: 'cultural and social' factors emphasising 'independence and self-reliance'; 'individual' factors related to their life situations (such as loss of spouse or poverty); and services that are inappropriately 'feminised'. Beach and Bamford (2015), writing for 'Independent Age', argue that men's working lives and spouse facilitate much of their social interaction, thus conclude that rising numbers of single and retired men constitutes an 'emerging crisis' of loneliness. Milligan et al. (2015) and Reynolds et al. (2015) conducted evaluations of 'men in sheds', a service in which men meet to carry out DIY projects, and noted that their usefulness originates from their acknowledgement of men's gendered wants and needs. The influence of gender identified in older men in these studies, though, has not been considered in relation to wider populations of men, nor placed in a robust theoretical framework.

Overall, the current public and policy picture suggests that loneliness is prevalent, and problematic in that it represents a negative emotion associated with depression, health issues, and costs to the public purse. Despite this, there is uncertainty over what 'loneliness' actually represents, and how or why this may be gendered. It has been discursively associated with both ageing, and Covid-19 restrictions, yet neither of these are deterministic causes of loneliness. Indeed, the change from its association with ageing to Covid-19 suggests loneliness is a fluid concept, affected by perceptions, identities, and broader social changes. Men have been portrayed as reticent to seek help for health and emotional problems, a consideration which has framed recent policy and practice around men's mental health. However, men's needs and perspectives on loneliness are not clearly defined. In this thesis, a fuller, theoretically informed picture of men's constructions and experiences will be sought, able to facilitate better policy and practice. 'Constructions' *and* 'experiences' are specified to conceptualise both men's subjective perspectives (i.e., their constructions), and their actual circumstances, particularly how sex/gender impacts men's likeliness of loneliness (i.e., their experiences). The next section gives an overview of how each chapter carried out this objective.

1.3 Overview of the thesis

This thesis comprises seven chapters. In this first chapter, the rationale for the focus the thesis was discussed, and an overarching research question identified – *what is the impact of gender in men's constructions and experiences of loneliness?* In Chapter 2, a critical analysis of the theoretical underpinning/core concepts – loneliness, and men and masculinities – is presented. In section 1.1

(p15), it was noted that men may not conceptualise loneliness in a manner matching common definitions of the term. It is therefore vital to begin the thesis by considering different perspectives in how both loneliness, and men/masculinities, have been defined and understood. Chapter 2 ends by contrasting the two conceptualisations, and theoretically considering the implications of each.

Chapter 3 presents a comprehensive critical review of the empirical literature on the influence of sex or gender in men's constructions and experiences of loneliness. The review follows a critical interpretive synthesis methodology, adapted to incorporate a systematic search strategy. This summarised the existing evidence base, identified key research areas, and specified gaps and limitations to the evidence. Chapter 3 ends by constructing an additional 7 sub-questions to the main research question.

Chapter 4 details and discusses the study design and methodology used to investigate the research questions. It begins by specifying a mixed-methods approach, and discussing the rationale for this. The mixing of methods is conceptualised as an 'interface' methodology (Guest 2013), in which the timing of each study, and integration of the data, are clearly presented without a restrictive typology. This specified that the quantitative study was completed first, then the qualitative, followed a mixed-methods analysis. The chapter then presents the separate methodologies for the two original empirical studies. These sections both start by identifying which components of the research questions were investigated in each study. The quantitative study relays and justifies a cross-sectional hypothesis testing approach. The qualitative study designs an interview study incorporating both free-association (Hollway and Jefferson 2000; 2008) and theoretical thematic analysis (Braun and Clark 2006). The chapter ends by detailing how a mixed-methods analysis will draw together the two sets of findings. This specifies a triangulation protocol (O' Cathain et al. 2010) and thematic synthesis influenced by Mason's (2006) use of mixed-methods to place individual perspectives within a macro-scale.

Chapter 5 presents the quantitative study. It begins by detailing the dataset used, before turning to the methods. The analytical sample used is described first, followed by a detailed discussion of what variables were used and why. After this, a full statistical analysis plan is given. This details the regression models, and how they were used to interrogate the hypotheses. The chapter then turns to the study findings, presenting an analysis of the missing data, and descriptive statistics detailing univariate statistics and each variable disaggregated by sex. Following this, the main findings, comprising 17 regression models, are presented. These suggest that men are disinclined to acknowledge loneliness, particularly when severely isolated, and that they are more likely to rely on partners/spouses and/or alcohol to prevent and alleviate loneliness. A discussion places these findings alongside the literature, in particular that which is discussed in Chapters 2 and 3. The chapter ends by considering the strengths and limitations of the study.

Chapter 6 presents the qualitative study. Firstly, it describes how a study employing both free-association (Hollway and Jefferson 2000; 2008) and theoretical thematic analysis (Braun and Clark 2006) could be conducted. This will also describe and justify the approach to sampling, which consisted of a ‘pragmatic’ design (Braun and Clark 2020). It then describes the study’s approach to rigour, detailing how and why a first person account of the interviews, and three readings of the data (Mason 2002), can aid reflexivity. The next main body of the Chapter gives the findings. These consisted of two overarching ‘layers’, representing men’s core constructions of loneliness (layer one), and how maleness or masculinities can impact loneliness (layer two). Layer one comprised four themes, and 12 sub-themes, and layer two comprised five themes, and 13 sub-themes. A discussion draws on broader social and scientific theory to further understand how these sub-themes can make sense within a wider socio-structural framework. To end the chapter, a discussion of the study’s strengths and limitations reconsider its accuracy and usefulness.

Chapter 7 bookends the thesis by presenting the mixed-methods analysis and discussing its conclusions. The mixed-methods analysis details how the triangulation protocol and thematic synthesis were conducted. It presents the triangulation protocol in a tabular format, and the thematic findings in narrative form. These identify that the ‘layers’ constructed in the qualitative study provide a consistent theoretical context for the quantitative findings, allowing for the formation of four themes. The chapter then discusses where and how these findings add to the studies and discussions in Chapters 5 and 6, before considering the strengths and limitations of the mixed-methods approach. Following this, a discussion of the ramifications of these findings to policy and practice is the primary method of answering sub-question 2 (section 1.1, p15). A discussion of the implications of the study for future research is also presented. The thesis ends by specifying its novel contributions to our understanding of loneliness in men, and what the ramifications of this knowledge are.

Chapter 2. Theoretical foundations

This chapter discusses and conceptualises the main concepts in this thesis: loneliness; and men/masculinities. This will provide an ontological and epistemological framework for designing and interpreting the literature review and empirical studies that make up the remainder of the thesis. Section 2.1 will present the main theoretical perspectives on 'loneliness'. A relatively novel framework was built, acknowledging subjectivity and difference among those that experience it. Section 2.2 examines key perspectives on men and masculinities. This thesis constructs a definition in which men interact with and reconstruct pre-existing masculine norms and values. The chapter will end with a theoretical contrasting of these conceptualisations, noting that the importance of power to masculinities theoretically renders loneliness incompatible with masculinity.

2.1 Loneliness

In current academic literature, loneliness is predominantly defined as a negative emotion representing a feeling of a lack, or loss, of meaningful social relationships (Townsend 1957; Perlman and Peplau 1981; Weiss 1982; Cattan et al. 2005; Valtorta et al. 2016b). This is framed with 'social isolation' as its counterpoint – where loneliness is a subjective emotion, social isolation is an objective state related to the social interaction a person actually experiences. However, philosophical work, though less influential, has conceptualised loneliness differently for a long time. For authors of this tradition, loneliness is an inevitable feature of the human condition, and potentially a positive experience (Gotesky 1965; Mijuskovic 1979; Bekhet et al. 2008). Furthermore, some work has started to suggest that different perceptions and interpretations of loneliness may be critical to adequately understanding it, particularly across different intersections of identity such as age, ethnicity, and gender (Rokach 2018; Franklin et al. 2019; Ratcliffe et al. 2021). This undermines the extent to which a single definition of loneliness can be employed at all.

The following sub-sections will present and discuss work from these three perspectives. Section 2.1.1 will consider the conceptualisation of loneliness as a subjective feeling and social isolation as an objective state, henceforth called the 'loneliness-isolation distinction'. Section 2.1.2 will discuss philosophical perspectives that construct loneliness as inherent to humanity. Section 2.1.3 will then consider interpretivist approaches that emphasise interpretive frameworks for understanding and enacting loneliness. It will be concluded that while the loneliness-isolation distinction is a useful foundation for understanding loneliness, the other perspectives suggest it requires building on and adapting to acknowledge persistent notions of 'positive' loneliness and inconsistency in what 'loneliness' represents to actual people.

2.1.1 The loneliness-isolation distinction

The loneliness-isolation distinction is the dominant paradigm in research, and is often invoked in government and third sector literature (e.g., Kantar Public 2017; HM Government 2018). The two concepts are strongly associated with one another, both statistically and in linguistic terms (Cattan et al. 2005; Davidson and Rossall 2015). Nevertheless, the crux of this perspective is that they are distinct entities – a person can be isolated, without feeling lonely, and conversely, a person may be surrounded by people, yet feel lonely if their relationships are unfulfilling or negative in some way (such as in abusive relationships). Some researchers from this perspective have therefore criticised inconsistency in the use of these terms (Cattan et al. 2005; Valtorta et al. 2016b). This discussion will argue that the distinction provides a useful foundation for understanding psychological pathways, for understanding the importance of a longitudinal perspective, and even for identifying different types of loneliness.

Literature aiming to conceptualise psychological pathways aims to define the internal component of why an individual might feel lonely. Heylen (2010) identifies two major approaches to this. The first are 'deficit' approaches, which view loneliness as resulting from an objective social isolation. In this way, it is situational, and represents an unfulfilled need for meaningful social contact with others. The second are 'cognitive' approaches, which construct loneliness as a feeling that arises when a person's actual social relationships are less than that which they desire. Where loneliness resulting from a deficit of social interaction signifies a standardised human reaction, cognitive loneliness is relative to an individual's social expectations. Valtorta (2017) notes these, and adds two more approaches. The first of these are 'skills and personality deficit' approaches, and highlight a lack of social skills as a pathway to loneliness (Marangoni and Ickes 1989). This constitutes a third perspective as such loneliness can be situational *or* relative, but in either case results from an inability to form relationships. Finally, Valtorta (2017) notes 'evolutionary' approaches, common in the work of John and Stephanie Cacioppo (Cacioppo et al. 2003; Cacioppo and Patrick 2008; Cacioppo and Cacioppo 2018), which frame loneliness as a physiological reaction rooted in homo sapiens' need to work collectively. From this perspective, loneliness is experienced when social relationships do not provide the framework for surviving and flourishing as an individual and/or species.

Theorists operating within this paradigm have emphasised the importance of a longitudinal perspective. In examining the English Longitudinal Study of Ageing (ELSA), Valtorta (2017) found significant heterogeneity in peoples' responses to questions related to loneliness over time, thus concluding it is a potentially transient experience. Because of this, many have argued that a focus on persistent loneliness is paramount, as this denotes 'chronic' loneliness (Cacioppo et al. 2006; Valtorta 2017). Heylen (2010) utilises the loneliness-isolation distinction to show that this impermanence might also affect perceptions of 'isolation'. Heylen (2010) found that, rather than loneliness being associated with *high* expectations of social relationships, as 'cognitive' approaches suggest is likely, they were actually associated with *low* expectations. She therefore concludes that people may adapt their expectations according to their reality, and suggests longitudinal research is required to adequately understand pathways to loneliness.

The loneliness-isolation distinction has also provided a framework for conceptualising different 'types' of loneliness. The most influential work of this kind is Weiss's (1973) proposal of two types of loneliness, *social* and *emotional*. 'Social' loneliness is said to refer to the 'absence of an engaging social network', whereas 'emotional' loneliness is considered to be the 'absence of a close emotional attachment' (Weiss 1973, p18-19). Weiss's work suggests that loneliness is not a homogenous experience, as it conceptualises two separate frameworks for understanding an individual's experience. Nevertheless, it does not undermine the loneliness-isolation distinction's conceptualisation as, according to Weiss, both types of loneliness are a subjective emotion. Rather, it is only that loneliness may arise from a feeling of a lack, or loss, of two different kinds of social relationships. Moreover, this is only relevant because efforts to *alleviate* loneliness may require different interventions according whether it is 'social' or 'emotional' (Heylen 2010).

Valtorta et al.'s (2016b) attempt to clarify what is being measured in quantitative studies of loneliness and/or isolation maintain the loneliness-isolation distinction, whilst significantly expanding on it. They argue that statistics on loneliness and/or social isolation actually measure two dimensions. The first dimension is the *structure* and *function* of a person's social relationships. Here, *structure* mirrors 'social isolation', in that it denotes 'the number and type of people with whom a person interacts, the diversity, density and reciprocity of a person's social network, and frequency and duration of contact between individuals' (Valtorta et al. 2016b, p3). 'Function', however, represents the *benefits* of social interaction, such as ‘emotional help (eg, expressions of love and caring), tangible aid (eg, transport), information or companionship’ (Valtorta et al 2016, p3). In this way, though Valtorta et al. (2016b) do not explicitly argue this, ‘function’ represents an extension of Weiss’s (1973) work – where ‘social’ and ‘emotional’ loneliness encapsulate social networks and intimate relationships as alleviators of loneliness, the notion of ‘function’ can encapsulate both these *and more*.

Valtorta et al.*’s* (2016b) second dimension captures the subjective-objective aspect of loneliness-isolation, but in *four* ordinal categories: i) relatively objective measures of a person’s actual social relationships; ii) the perceived availability of relationships; iii) the perceived adequacy of these relationships; and, most subjectively, iv) their feelings about their relationships. By conceptualising *four* levels of subjectivity to survey questions purported to represent *two* things (social isolation and loneliness), they conceptualise and attempt to overcome epistemological issues in quantitative studies of loneliness. In other words, they are presenting difficulties in how research can ‘know’ about loneliness, and attempt to provide better tools for ‘knowing’. Indeed, across the two dimensions, they present something of a loneliness-isolation compass that provides an epistemological framework for (quantitatively) researching loneliness according to the loneliness-isolation distinction.

This discussion identifies five conceptual additions to the study of loneliness arising from the loneliness-isolation distinction. Firstly, and most centrally, it is a subjective emotion, distinct from an objective lack of relationships. Secondly, psychological pathways to loneliness may hold four dimensions: it can originate from a ‘deficit’ of social interaction; from a perception of social isolation (the ‘cognitive’ approach); be a result of poor social skills; or represent a lack of fulfilled evolutionary needs for social interactions. Thirdly, there can be different ‘types’ of loneliness, which can be understood as ‘social’ and ‘emotional’ loneliness, or, more completely, as resulting from a lack, or perceived lack, of *functions* provided by social relationships. Fourth, loneliness can be impermanent, rendering a focus on ‘chronic’ loneliness potentially vital. Finally, as Valtorta et al*.* (2016b) argue, the loneliness-isolation distinction may not be measurable as binary, but as a continuum of four levels.

2.1.2 Philosophical constructions of loneliness

Philosophical constructions of loneliness have long consisted of a markedly different conceptual character to the loneliness-isolation distinction. This section will trace the history and key tenets of this perspective. These have tended to define loneliness as an inherent feature of humanity, that can be a negative experience in the way the loneliness-isolation distinction constructs, but can also be a neutral or positive experience. The section will end by showing that, if a more consistent terminology is employed, philosophical perspectives can be amalgamated with the loneliness-isolation distinction's conceptual paradigm.

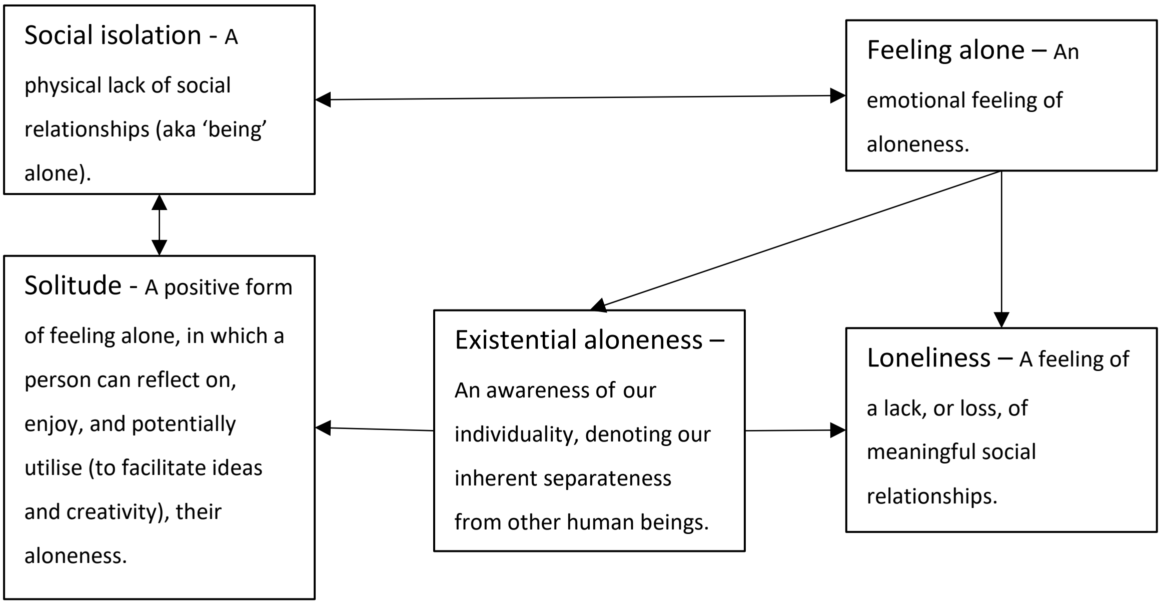
Gotesky (1965) suggested there were *four* types of loneliness: i) a physical distance between oneself and others; ii) the feeling of being excluded by others; iii) a more general sense of being an 'outsider'; and iv) a *desire* to be alone. From a modern perspective, some of this is better conceptualised according to the loneliness-isolation distinction. 'Physical distance' can be considered akin to 'social isolation', or loneliness that arises from a 'deficit' of social relationships. Both a feeling of exclusion, and a sense of being an outsider, suggest a 'cognitive' perception of inadequate social relationships. The notion of a *desire* for loneliness, though, constitutes a major departure – if loneliness is a feeling of a 'lack, or loss, of meaningful social relationships', it is negative by definition, and cannot be desired. Moreover, the potential for loneliness to be positive in some way has not completely dissipated with time. Nilsson et al. (2008) and Bekhet et al. (2008), for example, note positive connotations to the phrase 'solitude', and suggest this conceptualises a positive aspect of 'loneliness'. Indeed, a large BBC survey found that *41%* of 55,000 respondents stated that loneliness can be positive (BBC Radio 4 2018).

How, then, can loneliness be positive? In the work of Mijuskovic (1979), loneliness is inherent to human consciousness, and represents an existential awareness of our individuality. In other words, it is a 'universal human characteristic, inborn in all persons and *not related to object loss or lack of intimate relationships* (Bekhet et al. 2008, p208, emphasis added). As such, it is neither positive nor negative, it simply is. For Moustakas (1961; 2016), such notions mean there are *two* forms of loneliness. The first is 'loneliness anxiety', which is the alienation a person feels from others, and represents the pain of feeling separate from other people. The second is 'existential loneliness', and is the innate loneliness in human beings that may be painful, but is also key to intellectual growth and creativity. In this way, though philosophical perspectives construct loneliness as inherent to the human condition, Moustakas's work in particular allows for a separation of 'negative' loneliness from those which are potentially 'positive'.

For Perlman and Peplau (1981), this means that the definition of loneliness invoked in the loneliness-isolation distinction is actually what Moustakas termed 'loneliness anxiety'. This allows the two perspectives to be amalgamated far more so than initially appears. To do so requires the formation of a broader yet more consistent terminology. Figure 1 represents this diagrammatically. As this figure shows, there are different forms of loneliness, yet an overarching notion of ‘feeling alone’ encapsulates all of them. This remains distinct from ‘social isolation’ as it represents an emotional experience of *feeling* alone, and not an objective state of *being* alone. ‘Feeling alone’ then possesses two sub-categories: one that represents the negative experience encapsulated by the loneliness-isolation distinction, here titled ‘loneliness’; and another that represents the sense of separateness from others that is inherent to the human condition, titled ‘existential *aloneness’* to emphasise its difference from the feeling of a lack or loss of social relationships. As ‘existential aloneness’ can be emotionally neutral, positive, or negative, it is shown in figure 1 to potentially lead to ‘loneliness’ if an individual becomes anxious about it, but also to a further category of ‘solitude’, which, as Nilsson et al. (2008) and Bekhet et al. (2008) note, is a useful conceptualisation of ‘positive’ aloneness. Finally, ‘solitude’ is linked to ‘social isolation’ as it signifies a desire for isolation as a route to ‘solitude’.

The philosophical tradition emphasises two important aspects to the study of loneliness not captured by the loneliness-isolation distinction: that, as individuals, we experience life as inherently separate from other people (existential aloneness); and that, as this is the case, feeling alone can be negative (loneliness), but may also be a neutral or even positive experience (solitude). Nevertheless, this perspective provides no reason to conceptualise *all* these things as loneliness. As such, figure 1 provides a broader conceptual framework that, like the loneliness-isolation distinction, still defines ‘loneliness’ as a ‘feeling of a lack, or loss, of meaningful social relationships’. However, it also places loneliness in a framework acknowledging and conceptualising its relationship to ‘existential aloneness’ and ‘solitude’ as well as ‘social isolation’.

Figure 1. A flow chart representing how the loneliness-isolation distinction and philosophical perspectives on loneliness can be complementarily amalgamated.


Social isolation - A physical lack of social relationships (aka 'being' alone).
Feeling alone – An emotional feeling of aloneness.
Solitude - A positive form of feeling alone, in which a person can reflect on, enjoy, and potentially utilise (to facilitate ideas and creativity), their aloneness.
Existential aloneness – An awareness of our individuality, denoting our inherent separateness from other human beings.
Loneliness – A feeling of a lack, or loss, of meaningful social relationships.

2.1.3 Interpretivist perspectives

In the above approaches, theorists construct a specific and universal definition of 'loneliness', making an amalgamated definitional framework (figure 1) possible. An interpretivist perspective, however, highlights that actual people's definitions and understandings of loneliness may not be universal, but particular to individuals and cultures. This aspect of work on loneliness is in its infancy, and rarely explicitly utilised in empirical literature. Nonetheless, five aspects to study and debate in this academic field suggest its importance: i) the notion of loneliness as potentially 'positive'; ii) work that has discussed an association between loneliness and ageing; iii) cross-cultural work that has emphasised different interpretations of the feeling one lacks, or has lost, meaningful social relationships; iv) debates among quantitative researchers on whether the word 'loneliness' should be used in surveys; and v) work that has argued different constructions of loneliness are important for effective policy and practice. This section will conclude that acknowledging inconsistency in the meaning of 'loneliness', as well its relationship to other aspects of identity, is vital to both academic understanding and social policy.

Though the loneliness-isolation distinction and philosophical perspectives could be theoretically amalgamated, writers from each perspective utilised the phrase 'loneliness' to mean different things. As noted, the BBC's survey found 41% of people stated *loneliness* can be positive (BBC Radio 4 2018), not 'solitude'. Indeed, the same study found that 'happiness' was often defined as the opposite of loneliness (The anatomy of loneliness 2018), suggesting that even individuals may not hold a consistent definition of ‘loneliness’ (although the number of people who stated both this, and that loneliness can be positive, is not identifiable in the data released). This suggests that while figure 1 displays a rational definition of loneliness and its place in relation to isolation, aloneness, and solitude, *actual people may not share this definition*.

Work on ageing and loneliness provides some striking examples of how this may be important. Loneliness is not a problem solely experienced by older people, yet authors have noted a common cultural association between ageing and loneliness (Victor and Yang 2012; Ratcliffe et al. 2021). Indeed, work by the British Red Cross and Co-op conclude that this association distracts attention from the need to tackle loneliness in all age groups (Kantar Public 2017). Conversely, Ratcliffe et al. (2021) found older men perceived loneliness as a negative stereotype of a ‘lonely old man’. Pikhartova et al. (2016) even found that people who believed ageing led to loneliness were more likely to say they were lonely when they were older, thus conclude loneliness in later life may be a ‘self-fulfilling prophecy’. In these studies, loneliness is neither a ‘lack, or loss, of meaningful social relationships’, nor an existential experience, but something equated with ageing and later life.

Cross-cultural work has also provided examples suggesting the importance of interpretation. A number of studies have found that people report feeling lonelier in more collectivist cultures (Goodwin et al. 2001; Tilburg et al. 2004; Hansen and Slagsvold 2016; Rokach 2018). Most have referenced the ‘cognitive’ approach (Heylen 2010) to explain this – collectivist cultures are said to facilitate higher expectations of social relationships, thus people’s actual social relationships are more likely to fall short of these expectations. Rokach (2018), however, argues that this assumes psychiatric theorising to be universal, despite a wealth of evidence to the contrary. Research such as Anderson’s (1999), who found that Chinese people were more likely to blame themselves for feeling lonely, whereas Americans were more likely to blame other people, is important as it indicates a cultural difference *in the interpretation of feelings*, not in expectations of social relationships. Similarly, after surveying Croatian people in the aftermath of the Croatian war of independence, Rokach et al. (2001) concluded that Croatians were relatively unlikely to say they are lonely because they attributed their feelings to the war, and not to loneliness.

Debates centred on interpretations of the word ‘loneliness’ have even sparked significant discussion among quantitative researchers. Many quantitative studies measuring loneliness have utilised the UCLA scale or De Jong-Gierveld scale, neither of which employ the word ‘loneliness’, but a series of questions said to signify ‘loneliness’. However, others have ‘directly’ asked people whether they feel lonely, and work comparing the two methods has found that while they often correlate, differences can be found (Victor et al. 2005; Shiovitz-Ezra and Ayalon 2012; Nicolaisen and Thorsen 2014a; De Jong-Gierveld et al. 2018). A number of reasons for this have been proposed. For Victor et al. (2005), it may be due to stigma attached to the word ‘loneliness’. Others have cited that men show a greater disinclination than women to acknowledge loneliness in response to a direct question, and imply men perceive ‘loneliness’ differently (Nicolaisen and Thorsen 2014a; De Jong-Gierveld et al. 2018). Literature on the gendered aspect of this is examined in greater depth in Chapter 3 (section 3.5.3, p63). Most clearly signifying an interpretivist approach, Jylhä and Saarenheimo (2010) argue that an indirect scale forces respondents to answer according to the researcher’s definition of loneliness, whereas directly asking allows the respondent to answer according to their definition. These debates are unresolved, and choices of which survey to use (if any) currently depend on a researcher’s position in the debate. Nevertheless, they highlight that ‘loneliness’ cannot be assumed to ubiquitously represent a ‘feeling of a lack, or loss, of meaningful social relationships’, and nothing more.

Some work has emphasised that acknowledging different interpretations of loneliness may be crucial to policy and services. Vuokila-Oikkonen et al*.* (2002), in a study of co-operative team meetings in acute psychiatric care, found that a sense of shame was central to patients’ feelings of loneliness. Staff, though, did not construct loneliness in this way, facilitating a communicative barrier that greatly reduced the efficacy of the meetings. Similarly, in Ratcliffe et al.’s (2021) aforementioned study, the notion that ‘loneliness’ represented a subordinate role as a ‘lonely old man’ resulted in a conclusion that policy and practice must acknowledge, engage with, and deconstruct this definition of loneliness if it is to improve older men’s well-being. Such considerations also logically follow from other findings. Rokach et al.’s (2001) study, for instance, suggests that policy and practice in Croatia may be more effective if it appropriately encapsulates the manner in which people attribute their feelings to the war rather than ‘loneliness’ (although the passing years may have tempered the relevance of this conclusion).

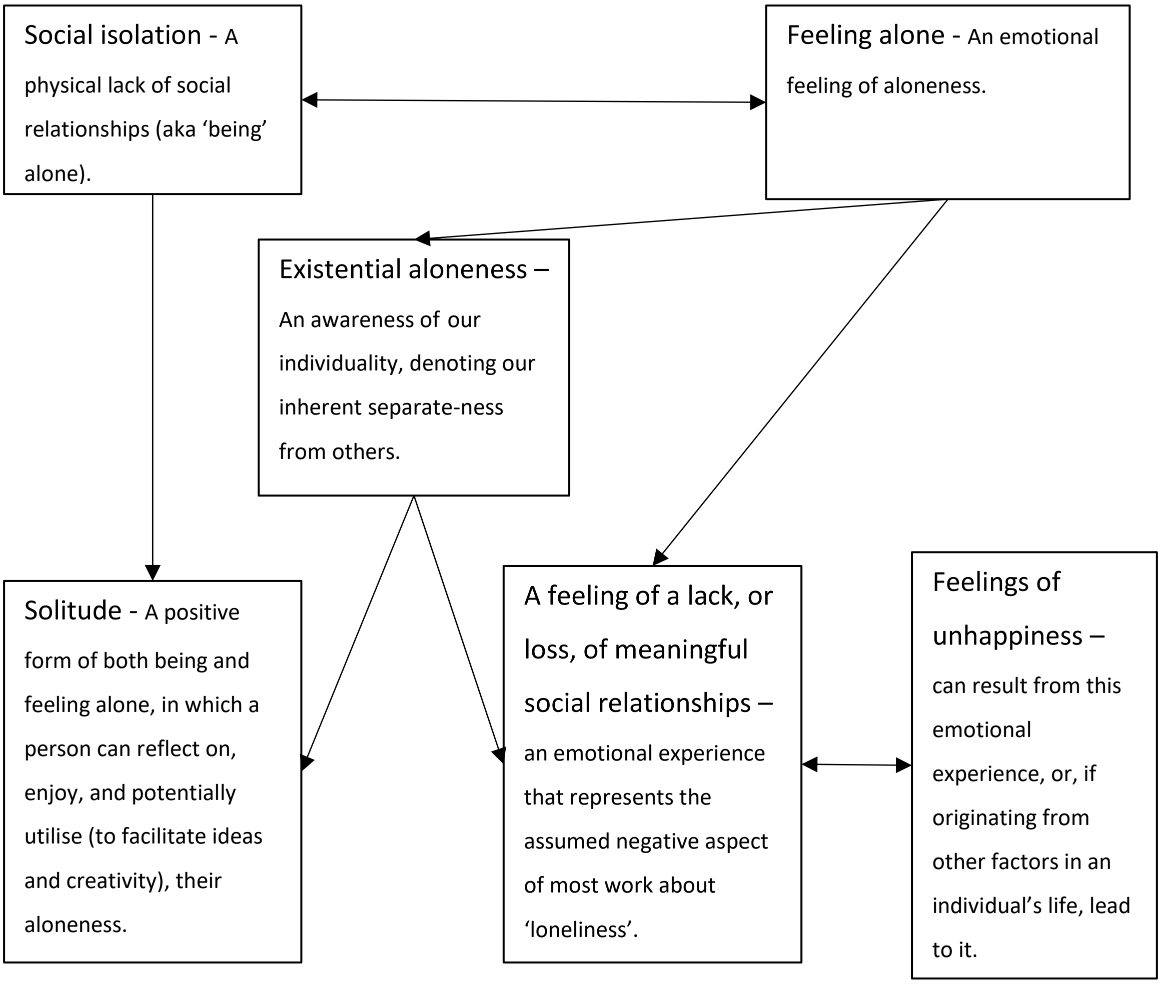
Though it has not been fully developed as a theoretical construct, utilising an interpretivist approach manifests three important and intertwined factors of relevance. Firstly, acknowledging variability and inconsistency in actual people’s constructions and definitions of loneliness is vital, as people’s experiences may not be adequately understood if a universal definition is imposed. Secondly, intersections of identity may be a key part of understanding people’s constructions and experiences of loneliness. Indeed, though age, culture, and gender are the only intersections identified in this chapter, any and all notions of culture and identity may be relevant. Finally, it may be important to consider people's varied constructions and experiences of loneliness in policy and practice, as these may create specific barriers or facilitators in tackling loneliness.

2.1.4 How this thesis will conceptualise loneliness

Citing several of the issues discussed above, Nilsson et al. (2006, p99) conclude that 'any briefly formulated definition…risks obstructing an understanding of the phenomenon, rather than opening to comprehension of so abstract a phenomenon as loneliness'. Nevertheless, by critically analysing the above approaches, a definitional framework consisting of three adaptations to the conceptualisation in figure 1 can be constructed. This will represent a novel definition of loneliness adopted in this thesis, presented below as 'figure 2'. The changes to figure 1 are: i) a deletion of the word 'loneliness' to represent 'a lack, or loss, of meaningful social relationships'; ii) the addition of a box labelled 'feelings of unhappiness'; and iii) a rewording of the title to emphasise that the flow chart only denotes individual emotions related to being and/or feeling alone, and not the social components of interpreting and enacting these emotions. Despite this, it is argued that the term 'loneliness' remains important because, despite inconsistency in what it signifies, it is a frequently utilised concept in regard to the emotions presented in figure 2.

To understand the proposed changes to figure 1 (the amalgamation of the loneliness-isolation distinction and philosophical perspectives), it is critical to note that even in studies emphasising the importance of interpretation, it is still assumed that the research exists in relation to a specific emotional experience. In Rokach et al.'s (2001) study, the Canadian and Croatian participants are said to *interpret* their emotions differently, rather than possess inherently different emotions. In Ratcliffe et al.'s (2021) the older men stated they could *feel* lonely, in which 'feeling lonely' appeared to be a specific emotion, without this denoting 'loneliness' as they defined it. This emotional experience appears to be definable as what the loneliness-isolation distinction calls 'loneliness', that is, a 'feeling of a lack, or loss, of meaningful social relationships'. Ontologically, then, there appears to be a deeper reality that loneliness researchers are aiming to understand, it is only that the phrase 'loneliness' does not always, fully, or solely represent this emotion in people's use of the term.

Figure 2. A flow chart for understanding the emotional components of ‘loneliness’.


Social isolation - A physical lack of social relationships (aka ‘being’ alone).
Feeling alone - An emotional feeling of aloneness.
Existential aloneness – An awareness of our individuality, denoting our inherent separate-ness from others.
Solitude - A positive form of both being and feeling alone, in which a person can reflect on, enjoy, and potentially utilise (to facilitate ideas and creativity), their aloneness.
A feeling of a lack, or loss, of meaningful social relationships – an emotional experience that represents the assumed negative aspect of most work about ‘loneliness’.
Feelings of unhappiness – can result from this emotional experience, or, if originating from other factors in an individual’s life, lead to it.

Work examining the relationship between mental health and loneliness can further clarify this perspective. Loneliness has ‘long been recognized as a strong correlate of depressive symptoms’ (Cacioppo et al. 2006, p140). For Cacioppo et al. (2006), they are fundamentally inter-related, in that feelings of loneliness, if left unresolved, result in depression. Other studies further emphasise this inter-relationship. According to Kawachi and Berkman (2001), a depressed person is more likely to isolate themselves, thus, theoretically at least, increase the likeliness of becoming lonely. Stek et al. (2005) found that the mortality rates in older people were only worsened by depression if the person *also* felt lonely. This is not an exhaustive list of work researching the link between loneliness and mental health. Rather, as these studies defined loneliness as a feeling one lacks, or has lost, meaningful social relationships, they emphasise a critical feature of this emotional experience – that it is an inherently negative one. In other words, it represents a reason an individual may feel, or be unable to stop feeling, unhappy.

In line with this, the novel representation in figure 2 attempts to portray the importance of this emotional experience, while acknowledging that the term ‘loneliness’ does not necessarily or consistently represent it. For this reason, its first difference from figure 1 is the deletion of the word ‘loneliness’. Secondly, the box titled ‘feelings of unhappiness’ emphasises the inherent negativity of this emotional experience, and how it can cause, or halt the alleviation of, unhappiness. Lastly, the new title emphasises that the flow chart only represents the emotions relevant to ‘loneliness’, but cannot encapsulate how an individual may interpret or enact these emotions, nor how their identity and social position may affect their interpretations and actions.

The conceptualisation constructed here does not suggest that inconsistency in the meaning and interpretation of ‘loneliness’ is a definitional inconvenience, to be deleted and ignored. Rather, it remains a critical component of loneliness studies. For instance, in Ratcliffe et al.’s (2021) article, the conclusion that ‘loneliness’ represented something different to ‘a feeling of a lack, or loss, of social relationships’ was paramount to their recommendations for policy and practice. Jylhä and Saarenheimo (2010), after arguing that direct questions about loneliness allow respondents to answer according to their constructions of it, go on to argue that this is *preferable* to indirect scales, in effect arguing that individual interpretations of loneliness are of *greater* importance than specific emotions. This argument is difficult to accept, as the negative emotional perception of a lack, or loss, of meaningful social relationships would appear to be the crux of much work on loneliness, in that policy and practice aims to tackle this, not ‘solitude’ (HM Government 2018, p18). Nevertheless, ‘loneliness’ is a commonly utilised concept, and deleting it may disguise the importance of how the term is used. ‘Loneliness’, then, may be best conceptualised as ‘discursive’, that is, as an interpersonal concept, signifying particular yet inconsistent meanings, negotiated within different social worlds. In this way, it is discursively *associated* with the emotions in figure 2. As such, it theoretically bridges the difference between actual human emotions, such as those in figure 2, and people’s socially defined interpretations and actions in regard to them.

2.1.5 Loneliness: a summarised perspective

Five conclusions on the conceptualisation of loneliness are identifiable from the preceding discussion. The first three mirror those that have been built on the loneliness-isolation distinction. Firstly, people’s emotional state and attitudes to social relationships are not fixed, thus are unlikely to remain consistent over time. Secondly, different psychological pathways can facilitate a feeling of a lack, or loss, of meaningful social relationships. A deficit of social interaction, a cognitive perception of a lack of social interaction, a lack of social skills, and an evolutionary need to work collectively as a species that is not being fulfilled, were identified in this discussion. Thirdly, a lack of 'functions' provided by social relationships can be said to frame the social aspect of these psychological pathways. Many of these can be conceptualised according to 'social' and 'emotional' loneliness.

Fourth, a conceptual framework acknowledging an individual's inherent separateness from other people, and the possibility that people may desire and enjoy being and/or feeling alone, is required. As such, the first amalgamated framework (figure 1, p27) constructed a conceptualisation of 'loneliness' in which it is distinct from 'existential aloneness' and 'solitude' as well as 'social isolation'. However, while the term loneliness *can* define a 'lack, or loss, of meaningful social relationships', as represented in figure 1, this disguises important variation in people's understanding and use of the term. It is therefore necessary to conceptually separate people's actual emotions from the interpretive paradigms and social constructions that exist in regard to them. To do so, this thesis separates the phrase 'loneliness' from this emotion, and emphasises that this emotion *is* inherently negative. This led to the construction of figure 2 (p31). Overall, the term 'loneliness' can be seen as a 'discourse', often used in relation to the emotional experiences described in figure 2, yet remains open to interpretation.

2.2 Men and masculinities

To investigate the impact of gender on men's constructions and experiences of loneliness, it is important to define what is meant by 'men' and 'gender'. The first sub-section (2.2.1) will consider the difference between these two terms, concluding that 'men' refers to actual people, whereas gender refers to 'masculinities', i.e., cultural practices associated with men. Following this, three perspectives on men and masculinities will be critically analysed: i) those that consider biology an important component of 'masculinity' (section 2.2.2); ii) post-modern theories that question the coherence of 'masculinity' as a meaningful concept, and emphasise the individual social actor as the arbiter of 'masculinity' (section 2.2.3); and iii) 'relational' theories, in which masculinity is viewed as part of gendered relations, and within which, for many theorists, 'hegemonic' masculinities reify gendered inequalities (section 2.2.4). Section 2.2.5 summarises the relatively agreed upon aspects of these debates, and critically considers where these perspectives substantively differ. Finally, section 2.2.6 summarises the key points arising from this discussion. This conceptualises 'masculinities' as discursive ideals of what ‘men’ are, or should be, which are intertwined with socio-structural and historical gender relations.

2.2.1 Sex and gender, men and masculinity

In social science, ‘sex’ is often defined as the anatomical and physiological differences between ‘men’ and ‘women’, whereas ‘gender’ denotes social constructions of ‘masculinity’ and ‘femininity’ (Giddens and Sutton 2013). From this perspective, ‘men’ are a biologically defined group of people, and ‘masculinity’ refers to cultural ideals associated with ‘men’. However, Kessler and McKenna (1985) emphasise that no binary definition of ‘men’ or ‘women’ is true ‘*always and without exception*’ (p1, emphasis in original), citing that even anatomical and physiological definitions relating to genitals, chromosomes, or hormones are never absolute. Their definition of ‘sex’ is not limited to biology, but by a process they term ‘social attribution’, that is, cultural ideals of ‘masculinity’ and ‘femininity’ facilitate the construction of an *identity* as a ‘man’ or a ‘woman’. ‘Sex’, then, is socially constructed. As such, people do not need to be consistently and absolutely defined within a binary categorisation, thus it can account for intersex, transgender, and non-binary people. Nevertheless, Kessler and McKenna considered biological signifiers to be a common aspect to the social attribution of ‘sex’.

Connell (2005), a proponent of this definitional construction, notes that ‘gender’ also frequently refers to the human body and its relative capacities. Nevertheless, while ‘sex’ and ‘gender’ are both viewed as socially constructed, they are not the same thing. ‘Gender’ provides the social schema by which a person is ‘socially attributed’ a sex, therefore ‘men’ and ‘women’ are actual people, socially defined as ‘men’ and ‘women’. ‘Masculinity’ and ‘femininity’, on the other hand, refer to cultural signifiers of ‘men’ and ‘women’. In this way, though traditional perspectives and Kessler and McKenna (1985) offer a different definition of ‘sex’, both suggest that ‘men’ and ‘women’ are actual people, and that ‘masculinity’ and ‘femininity’ are cultural ideals associated with ‘men’ and ‘women’. As this this is the case, it is from this point of separation in the terms sex (men-women) and gender (masculinities-femininities) that the following discussion aiming to understand men and masculinities is framed.

2.2.2 Biology and the sex-role paradigm

Socio-biological approaches to men and masculinity view masculinity as the 'outward expressions of being male' (Robertson 2007, p27). It constructs masculinity as 'essentialist', that is, an inevitable and unavoidable aspect of 'men'. According to this paradigm, gender differences and inequalities can be explained by human biology. Giddens and Sutton (2013, p624), for instance, notes how 'evolutionary psychology draws attention to the fact that, in almost all cultures, men rather than women take part in hunting and warfare'. In turn, it is assumed that such commonality must indicate a biological maleness, expressed through, in this case, forms of violence.

However, while some fairly universal commonalities can be identified in men and women, this approach has been widely criticised for failing to consider the significant variation in both men and what is culturally considered to be masculine (Connell 2005; Giddens and Sutton 2013). Indeed, as Giddens and Sutton (2013) suggest, even the seeming universality of a trait does not, in itself, prove that its universality is a biological imperative. Adherence to this philosophy within contemporary scholarship is rare (Connell 2005; Giddens and Sutton 2013). Nevertheless, Clare (2001) and Gough (2006) evidence that reference to a biological component of masculinity is common within popular culture, suggesting this theoretical notion is not dead. Moreover, the 'sex-role' paradigm, a more influential perspective in academic research, includes a significant biological component in its conceptions of 'masculinity'.

The sex-role paradigm originated with Parson's (1956) 'functionalist' theory that men and women had different roles in an effectively organised society. Broadly speaking, this consisted of the 'breadwinner' (male) and 'housewife' (female) roles. Despite being heavily criticised for normalising and defending patriarchal relations (Carrigan 1985), writers have built on the concept in ways that do not construct 'sex-roles' as inherently 'functional'. For Pleck (1981, p4), sex-roles are social constructions of gender that enable individuals to develop their 'pre-programmed' identity. Unlike Parson's, he also emphasised that some people may face difficulties in constructing their gender identity, calling this 'sex-role strain'. Nevertheless, masculinity and femininity originate from a biological base, and can be universally defined even though individuals may experience 'strain'. Brannon (1976) constructed four 'injunctions of manhood' that denoted a universal male sex-role: 'no sissy stuff' (do not show any perceivably effeminate or weak behaviour); be a 'big wheel' (be respected and admired); be a 'sturdy oak' (project an air of calm and confidence); and 'give 'em hell' (be a tough guy who takes risks and never gives up). As 'masculinity' and 'femininity' can be defined, ‘masculinity-femininity’ scales (M-F scales) that claim to measure a person’s gender identity can be formed, the most prominent of which are the ‘Bem Sex Role Inventory’ (BSRI) and the ‘Personality Attributes Questionnaire’ (PAQ) (Fernandez and Coello 2010).

Despite the departure from Parsons’s ideas, sex-role theories have continued to receive much criticism. Robertson (2007) summarises this criticism as consisting of three perspectives. Firstly, he draws on the work of Carrigan (1985), who contends that the paradigm tends to construct sex-roles as an external and unchanging force. As such, it cannot account for the variability in what constitutes masculinity across time and space, nor for human agency in constructing, resisting, and reconstructing gender. Secondly, Robertson presents work that criticises the paradigm for not exploring inequality as a key component of gender or masculinity (Segal 1996; Connell 2005), making it a limited framework, and unduly negative about the prospect of social change. Lastly, he notes that some work has considered the paradigm to insufficiently separate biology from gender – though it recognises that ‘masculinity’ is a social construction, it does not recognise that these constructions are not universally identical, which, for theorists of this persuasion, illustrates that ‘masculinity’ cannot signify biological imperative.

Connell (2005) offers further criticism of the sex-role paradigm by deconstructing it into ‘positivist’ or ‘normative’ approaches to masculinity. For Connell, ‘positivist’ sex-role approaches define masculinity as ‘what men actually are’ (2005, p69), and suggests that this forms the logical basis of M-F scales. From this, she constructs three criticisms. Firstly, as already noted, there is no universally accepted standard of masculinity, therefore a scale is only measuring particular forms of masculinity, when in fact there are many. Secondly, if one supports Kessler and McKenna’s (1985) notion that sex is ultimately defined by a process of ‘social attribution’, constructing masculinity as ‘what men are’ is problematic as it pre-supposes that all people are sorted into natural categories of ‘men’ and ‘women’. Thirdly, Connell criticises the ‘positivist’ approach for being unable to conceptualise the common process of calling ‘some actions or attitudes masculine or feminine regardless of who displays them’ (2005, p69). In other words, it fails to recognise that ‘masculinity’ and ‘femininity’ are not just traits of ‘men’ and ‘women’, but cultural notions of what is ‘male’ or ‘female’.

In ‘normative’ sex-role approaches, Connell (2005) suggests that rather than defining masculinity as what men empirically *are*, as in ‘positivist’ approaches, it defines it as what *men ought to be.* This allows theorists to recognise that men may not correspond to a model of masculinity. Brannon (1976), for instance, does not suggest that all men can fulfil the ‘injunctions of manhood’, only that men *attempt* to fulfil them. However, while this version of the sex-role paradigm separates ‘men’ from ‘masculinity’, Connell argues that it still does not recognise how few men will wholly correspond to any given model of masculinity, nor how many may resist it. In other words, as Connell (2005, p70) puts it, ‘what is ‘normative’ about a norm hardly anyone meets?’

The sex-role paradigm was influential in separating ‘sex’ from ‘gender’, as it positioned ‘gender’ as a social construction and one that may not match an individual’s ‘sex’. Moreover, by moving away from Parson’s ‘functional’ perspective, theorists were able to construct theories of sex and gender in which people’s roles may be difficult or ‘strained’. However, it viewed gender as inherently resulting from biology. It has therefore been criticised for failing to acknowledge the inconsistency of what ‘masculinity’ represents, the centrality of inequalities to its construction, that ‘sex’ is not wholly biological nor binary, that ‘masculinity’ does not have to be enacted by men (and vice versa), and that few men can wholly and absolutely enact an ideal of ‘masculinity’.

2.2.3 Post-structuralism and the end of ‘masculinity’

In response to the criticisms levelled at the sex-role paradigm above, post-structuralist accounts question the very concept of ‘masculinity’, placing it solely as a discourse (Robertson 2007). Coleman (1990), for instance, argues that sociologists should focus on ‘occasions of use’, that is, how social actors *use* masculinity within social interactions. Similarly, Haywood and Mac an Ghaill (2003, p146) emphasise that in a global arena characterised by ‘discontinuity, fragmentation and uncertainty…masculinity needs to remain conceptually open’. MacInnes (1998) goes further, arguing that ‘masculinity’ is a concept that should be abandoned, as it is discourse that only serves to ‘explain’ inequalities between men and women in a world formally claiming equality, and has no meaning or significance beyond this. Where the sex-role paradigm attempts to explain what masculinity *is*, then, post-structuralist accounts emphasise that ‘gender’ and ‘masculinity’ are a performance that is ‘done’ within everyday interactions (West and Zimmerman 1987).

As these accounts show, by placing masculinity as ‘discursive’, post-structuralism acknowledges the variation in both men and in what constitutes ‘masculinity’, and MacInnes’s work in particular deconstructs its relationship with inequalities. For Connell (2005), it also facilitated the construction of a ‘semiotic’ approach to gender. Rather constructing specific masculine traits, it defines ‘masculinity’ as ‘not-femininity’, allowing post-structural analyses to manifest the use of ‘masculinity’ as a discourse for justifying gendered inequalities. Indeed, the emphasis on subjectivity, identity, agency, instability, multiplicity, and contingency in post-structuralist accounts has been said to provide 'an extraordinary basis for interrogating the cultural scripts of normative masculinity' (Gutterman 2004, p224).

It is in its analysis of inequalities, though, that post-structural accounts have been subjected to criticism. Clatterbaugh (1998), for instance, commends the problematisation of the term 'masculinity', and how it is conceptually linked to inequality, yet considers the disregarding of 'structure' to result in literature that argues for social change without any commentary on what that social change should be. Robertson (2007, p31) goes further, and states that theorising masculinity as nothing other than 'fragmenting, incoherent, and shifting…can lead to a situation that fails to illuminate exactly that which then remains hidden; male privilege'. Connell (2005), despite her praise for the 'semiotic' facet of post-structuralist accounts, is equally sceptical of its ability to facilitate social change. She also considers it conceptually limited, arguing that understanding masculinity as only meaningful in terms of discourse fails to recognise its role in political history, modes of production, and institutions. While post-structuralist perspectives have been praised for effectively manifesting the discursive and incoherent dimensions of 'masculinity', then, critics have emphasised that it cannot adequately recognise the role of power, nor the existence of widespread and consistent gendered inequalities.

2.2.4 Gender as relational, masculinity as hegemonic

Relational models of gender build on the 'semiotic' notion of masculinity as relative to femininity, in that it views the two as inextricably linked. However, rather than viewing this as a solely discursive exercise, 'gender is seen as being about sets of relations between men and women, but also *between* men and *between* women (Robertson 2007, p32, emphasis in original). For Connell (2005), this means that 'gender' exists within a 'gender order', within which some men, and forms of masculinity, are exalted and/or privileged. Connell's ideas have been enormously influential (Giddens and Sutton 2013). This sub-section will present both the nature of the 'gender order' and her conceptualisations of 'masculinity', before summarising the criticisms of this perspective.

Connell's (2005) 'gender order' consists of three structural features. The first, 'power relations', is defined by the aggregate domination of men, which persists despite many exceptions and the resistance of feminism. The second, 'production relations', denotes the highly gendered division of labour that also persists, and again despite exceptions such as male 'housewives' or female ‘policemen’. The last, ‘cathexis’, relates to bodily desires, and the emotions an individual may invest in them, and is part of the ‘gender order’ as it denotes the social and cultural practices people draw upon to shape and realise these desires. ‘Cathexis’ has been noted to be the most complex, and least acknowledged, aspect of the gender order (Wedgewood 2009). Nonetheless, as Wedgewood also argues, it is a critical aspect of Connell’s analysis as it is paramount for understanding, among other things, the relationship between heterosexual marriage and patriarchy, or why women may be attracted to a man who treats them badly.

In line with these three constructs, ‘masculinity’ is three things at once: a place in the gender order; the practices through which people engage that place; and the effects of this on embodied experience, personality, and culture (Connell 2005). It does not consist of specific traits, but four dimensions, the most famous of which is ‘hegemony’. Hegemony is a Marxist concept that represents a historical process through which the social, political, and economic ideas of powerful people set an invisible and assumed framework for public discourse and debate (Callinicos 2007; Howson 2008). In regard to gender, then, hegemonic masculinities are an ‘answer to the problem of the legitimacy of patriarchy’ (Connell 2005, p77), that is, they are ideals of masculinity that reify unequal gender relations. As with the sex-role paradigm, hegemonic masculinity is a cultural ideal of maleness, yet like post-structural theories, these are not consistent, and few men will wholly correspond to hegemonic constructs. Indeed, a wide variety of hegemonic versions of masculinity can exist, some that are globally influential, others only locally, as their only unifying feature is the normalisation of established inequalities (Connell and Messerchmidt 2005).

Connell’s other three dimensions of masculinity largely exist in relation to hegemony. ‘Subordination’ represents men inherently unable to constitute hegemonic masculinity, and is best exemplified by homosexual men. Nevertheless, it can relate to any man inherently unable to present a hegemonic version of the self, and its relationship to the gender order is best illustrated by the common, and extensive, number of abusive terms that denote femininity and/or homosexuality as their defining feature (Connell 2001, p40). ‘Complicity’, on the other hand, notes that men rarely display ‘naked domination’ (Connell 2005, p79), nor wholly embody or enact hegemonic ideals, yet continue to benefit from what she describes as the ‘patriarchal dividend’. In other words, whenever a man is not challenging hegemonic masculinity, he is, in effect, reconstructing it, and benefiting from the ‘patriarchal dividend’. The final dimension, ‘marginalisation’, defines the interaction of masculinity with other aspects of identity. To emphasise this, she cites that, in the United States, fear of the ‘black male rapist’ is a key discourse among white supremacists. It is, therefore, part of what she calls the ‘authorisation’ of hegemonic masculinity, in this case by placing white masculinity as the morally superior, thus ‘hegemonic’, masculinity.

Criticism of Connell’s work can broadly be summarised according to four perspectives. The first is a post-structuralist perspective, which, as noted, is sceptical of the term ‘masculinity’. MacInnes (1998, p14-15) considers it critical that, when he asked his students to define masculinity, he found a number of common themes, but that students emphasised these are stereotypes that ‘do not correspond fully to any actually existing man they know’. For him, then, it is ludicrous to talk of a quasi-structural ‘hegemonic’ masculinity, rooted in politics and divisions of labour, if no clear and consistent culture of masculinity exists in people’s discourse. Rather, for post-structuralists, it is only a meaningful concept if studied in interpersonal contexts akin to Coleman’s (1990) ‘occasions of use’.

The second critique comes from a feminist perspective, and is most clearly identifiable in Robinson’s (2002, p154) worry that, in literature on hegemonic masculinities, a ‘figure of the white male victim’ can be constructed. Pease (2014) frames this in two ways. Firstly, by stating that few men wholly correspond to the hegemonic model, notions of ‘hegemony’ can begin to construct a ‘costs of being on top’ analysis, problematic as the dominance of men is subsumed into their ‘victimhood’ by hegemonic masculinity. Secondly, and again as a result of the notion that men are ‘victims’ of hegemonic masculinity, it risks lending support to men’s rights groups who have constructed similar notions of masculinity whilst opposing feminism. Though proponents of hegemonic masculinity theory do not oppose feminism, it is problematic because they discuss and frame the social world in relation to men and masculinity, thus undermine women’s emancipation by constructing a male perspective.

Thirdly, Anderson (2010), in his book describing a theory of ‘inclusive’ masculinity, purports that notions of hegemonic masculinity do not account for the fact that men increasingly *oppose* supposedly ‘hegemonic’ principles. Moreover, he emphasises that ‘homohysteria’, the amount anti-gay sentiment within a culture, has sharply decreased in recent decades. From this perspective, as Collier (1998) had argued years before Anderson, the concept of hegemonic masculinity is limited because it cannot adequately account for the positive behaviours of men. Anderson and McCormack (2018) have recently conceded that the notion of ‘inclusive’ masculinity may disguise continued heteronormativity (an assumption that heterosexuality is the ‘normal’ sexuality), and that less privileged men may face more barriers to the construction of ‘inclusive’ masculinities. Nevertheless, for ‘inclusive’ masculinity proponents, this evolving aspect of men’s behaviour renders Connell’s ideas ‘more an aspiration than an empirically validated theory’ (Anderson and McCormack 2018, p555).

Finally, theorists from different perspectives have criticised Connell’s relational model of gender for being focused solely on power. Hockey et al. (2007), who investigated ‘heterosexualities’, stated that people constructed heterosexuality in relation to perceived dichotomies of masculinity and femininity. However, they did so in a nuanced and varied fashion that encompassed gender relations as romantic, mundane, and other relational features not necessarily and always equating to ‘power’. As such, they conclude that while heterosexuality, and gender relations, *often* relate to power, they are primarily ‘relational’ in a broader sense. Anderson and McCormack (2018), operating from the ‘inclusive’ masculinity standpoint described above, go even further. In their article, they argue that gender relations are not always about power in a similar fashion to Hockey et al., then further suggest that gender is not solely ‘relational’ as this relies on a ‘binary categorisation’ and ‘oppositional’ view that that does not allow for the frequent overlap in what people construct as ‘masculine’ and ‘feminine’. In other words, for Anderson and McCormack, the semiotic notion of masculinity as ‘not femininity’ is fundamentally incorrect as the two exist independently.

Nevertheless, relational theories have added much to contemporary understanding of men and masculinity. By placing masculinity as cultural ideals of maleness existing within gender relations, their inconsistency is acknowledged not just in terms of discourse, but in relation to history and social structure. However, the focus and emphases of this work has been criticised for unduly focusing on the perspectives of men, and for presenting men as more invested in perpetuating inequalities than they actually are. It has been conceptually criticised for constructing structural theories that cannot be evidenced, and a ‘gender order’ that does not recognise the role of relations outside of power discourse, nor the potential for ‘masculinity’ and ‘femininity’ to overlap.

2.2.5 How this thesis will conceptualise men and masculinities

Despite the significant amount of disagreement and debate in this scholarly arena, four relatively widely agreed on aspects to modern conceptualisations of men and masculinity are identifiable in the above perspectives, which are critically considered here. Following this, the more vehemently debated facets to the perspectives will be critically contrasted. It will be argued that the criticisms of Connell’s theories do not necessarily undermine her theories as much as their proponents claim.

Rather, they only emphasise the need to properly pluralise 'masculinities', acknowledge their role in 'legitimising patriarchy', view them as 'historical' as well as relational, and construct 'relational' as something that can denote more than just power relations.

The first relatively uncontroversial aspect of current debate is that few theorists question the need to distinguish 'sex' from 'gender' (Giddens and Sutton 2013). Most work in the field of men and masculinities assumes that, as conceptualised in section 2.2.1, 'men' refers to actual people, and 'masculinity' to social constructions of norms and values associated with 'men', but which are not specific to, nor enacted by, all men. Some work even specifies as such (Gardiner 2002; Connell 2005). It is relatively unproblematic to state, then, that aggregate differences in the attitudes and actions of 'men' and 'women' can, and indeed probably do, originate from social constructions of gender, not just biological impulse. Many sex differences found in quantitative research, such as those found in the quantitative study of this thesis (Chapter 5), are therefore likely to represent cultural norms rather than biological differences.

Secondly, for most modern gender theorists, 'masculinity' cannot be defined as a single and universal set of traits (Connell and Messershmidt 2005; Robinson 2008; Giddens and Sutton 2013). To emphasise this, Robinson (2008) recommends researchers avoid using the singular 'masculinity', and instead talk of 'masculinities'. Nevertheless, some 21st century studies have continued to use M-F scales, which inherently assume specific definitions of 'masculinity' (e.g., Herman-Jeglińska et al. 2002; Meier-Pesti and Penz 2008; Carver et al. 2013). Furthermore, their use has been statistically validated by noting significant associations between sex identification and gender characteristics (Herman-Jeglińska *et al.* 2002; Özkan and Lajunen 2005), or by noting that factor analyses confirm expected 'masculine' and 'feminine' dimensions (Colley et al. 2009).

It is equally worth noting that empirical work has also shown their use to be problematic. In a striking example, Thompson (2006) traces how M-F scales led to 'gender-convergence theory', a theory posited in the work of Sinnott (1986), Gutmann (1987; 1994), and Silver (2003). In these works, surveys using M-F scales displayed a steep decline in 'masculinity' as men age, thus evidencing, for these authors, that older people live in what Silver (2003) calls a 'de-gendered' public sphere. Thompson (2006), however, who surveyed younger people about their perceptions of older people, found their perceptions of older people to be significantly gendered. As such, he concludes that older men appear 'less' masculine than younger men on M-F scales as they enact a *different* masculinity to younger men. Furthermore, since Thompson's 2006 study, a wealth of work using methods other than M-F scales has shown the gendered constructions and lives of older people (Barnes and Parry 2004; Elmslie et al. 2004; Milligan et al. 2015; Bartholomaeus and Tarrant 2016; Avital 2017; Ratcliffe et al. 2021). Thompson's (2006) conclusion that M-F scales cannot capture older men's masculinities as distinct from younger masculinities would therefore seem more plausible than the notion of 'gender-convergence'.

Empirical evidence against a universal 'masculinity' is not only related to age. Galdas et al. (2007), for example, evidence different constructs of masculinity in White-British men and UK based South-Asian men, Robertson (2007) provides evidence of gay and disabled masculinities, and Nixon (2009) an investigation that found a British working-class masculinity. How, then, to understand the continued use of M-F scales, and their statistical validation? Though Connell is critical of M-F scales, and emphasised that even notions of a 'gay masculinity' or 'black masculinity' are no more meaningful than a *single* universal masculinity (2005), her notion of 'hegemony' may offer some explanation. In her and Messershmidt's (2005) article defending the concept of hegemonic masculinity, they argue that, by virtue of being hegemonic, there can be traits that are *commonly attributed* as 'masculinity', particularly within a local cultural context. M-F scales, therefore, may in fact be measuring adherence to particular forms of 'hegemonic' masculinity. In Thompson's (2006) critique of M-F scales, then, younger men may appear more masculine as they conform to the *hegemonic* constructs of masculinity more so than older men.

The third area of relative uniformity in academic discourse on men and masculinities is that gendered inequalities are a vital component of the study. Even proponents of 'inclusive' masculinity consider inequality a reality to investigate, and that levels of 'homohysteria' and 'heteronormativity' are important for understanding relations between men (Anderson and McCormack 2018). Furthermore, this is despite the fourth and final area of common conceptual discourse - that men can construct and enact masculinities in ways that do not deliberately aim to perpetuate oppression and inequalities. As Connell (2005, p79) notes, men rarely display 'naked domination'. In the interpretation and explanation of these features, though, the perspectives, and criticisms of them, diverge significantly.

Nevertheless, theoretically, some areas of departure may not be as incompatible as they first appear, and some criticisms can be counteracted. This is best demonstrated by re-examining the criticisms of 'relational' theories, and of the notion of 'hegemonic' masculinities that are common to them. First and foremost, as noted, feminist critiques consider the focus of such theories to construct a male perspective that can repress women’s perspectives. Critically, though, they do not actually seek to suggest that the theory is fundamentally flawed. If relational theories are emphasised as bound to patriarchal power relations, and within other intersections of power and identity, these perspectives can be complementarily aligned without undermining the conceptual foundations of either approach.

The critique that considers theories of ‘hegemony’ to ill consider the ‘inclusive’ or ‘positive’ aspects of men and masculinities, however, is more clearly placed in opposition to theories of ‘hegemony’ (Anderson and McCormack 2018). Nevertheless, re-affirming the nature of ‘hegemony’ suggests the perspectives are not as conflicted as it is often suggested. As Gardiner (2002) highlights, hegemonic masculinities must be ‘historicised’, that is, understood as cultural ideals inherited in language, identity, and assumed norms and values. In this way, hegemony does not signify the negative actions of men, but an assumed framework for legitimising patriarchy. As Connell and Messershmidt (2005, p840-841) note, ‘it is difficult to see how the concept of hegemony would be relevant if the only characteristics of the dominant group were violence, aggression, and self-centeredness’. ‘Inclusive’ or ‘positive’ behaviour in men, then, is not incongruous with the notion of hegemonic masculinities. Rather, such behaviours may be acts or ideals that challenge hegemony, exist as ‘subordinate’ or ‘marginalised’ masculinities, or constitute an aspect of hegemony by constructing masculinities as ‘positive’.

McCormack and Anderson’s (2018) argument that masculinity and femininity are not ‘overlapping’, nor always ‘relational’, can also be counteracted. Semiotically, ‘masculinity’ refers to ideals of maleness, thus any given construction of ‘masculinity’ signifies something related to ‘men’, and ‘femininity’ something related to ‘women’. As masculinity and femininity are not consistent traits, though, they cannot exist as binary opposites. Rather, it is only that any given construction of masculinity *semiotically signifies* something specific to men, and therefore not women, and vice versa. In this way, relational theories of gender do not suggest that masculinity actually *is* ‘not-femininity’, *only that it is linguistically constructed as such*. Moreover, as the concept of ‘hegemony’ suggests, notions of ‘masculine’ and ‘feminine’ need not be consistent or well-defined, only implicitly influential within lay constructions of sex and gender.

Hockey et al.’s (2007) suggestion that gendered relationships can be ‘relational’ without always and absolutely relating to power cannot be theoretically overcome in this way. Indeed, in Connell’s analysis, she links emotional relations with power via ‘cathexis’, yet it is not clear why *all* aspects of bodily desire and emotional investment should be understood in such structural and political terms. The perspective to be taken by this thesis, then, is best summarised by referring to Robertson's (2007, p35) statement that masculinities are 'precursors to, and products of, intersubjective encounters'. This statement that does not negate the potential for gender relations to be about more than power, nor question that they *can* be about power. Masculinities, and gender, are therefore relational in that they are based on 'encounters', hegemonic in that they are 'pre-cursors' to encounters, subject to resistance and reconstruction by being 'products of' encounters, and multiple and inconsistent in that they are 'intersubjective'.

This also provides a theoretical foundation for acknowledging post-structural critiques. In these, multiplicity and the individual actor are emphasised, but have received significant criticism for negating the importance of power and inequalities. If masculinities are 'intersubjective products of encounters', though, the discourse of individuals and groups, the inconsistency of 'masculinity', and the notion that gender is a 'performance', can co-exist with 'pre-cursors' of masculinities that may be structural. While the conceptualisation of men and masculinities presented here constructs masculinities as 'discursive', then, it also constructs a 'relational' paradigm in which discourse is placed within a historicised power nexus.

2.2.6 Men and masculinities: a conceptual perspective

This discussion noted four relatively uncontested aspects to conceptualising men and masculinities: i) that 'men' and 'masculinities' are separate terms, in which 'men' are actual people, and 'masculinities' cultural ideals of maleness; ii) that 'masculinities' are not a universally identifiable set of traits; iii) that inequalities between men and women, and between men, are critical to conceptualising men and masculinities; and iv) that actual men will rarely display 'naked domination', and may often oppose inequalities. These will provide the foundation of the conceptualisation of men and masculinities utilised in this thesis. Beyond this, critical analysis facilitated the formation of six further conceptual features of men and masculinities that, whilst being more controvertible, will still be drawn on in this thesis.

Firstly, as Robinson (2008) recommends, the plural 'masculinities' is preferable to emphasise the multiplicity inherent to the study of men and masculinities. As Robinson also argues, this remains true even when talking of 'hegemonic' masculinities, which despite their structural component, may still vary across cultural contexts. Secondly, the multiplicity of masculinities renders M-F scales problematic, as, by necessity, they construct specific forms of masculinity and femininity. Moreover, this is still true despite their statistical validation, which it was argued may be a result of ‘hegemonic’ gender constructs. Nevertheless, as they can be viewed as representing ‘hegemonic’ ideals of masculinity and femininity, they can still be meaningfully interpreted, albeit to a limited degree. Thirdly, the study of men and masculinities should not side-line men’s aggregate dominance, but emphasise the importance of inequality to conceptualising masculinities. Fourth, behaviour and ideals in men that do not constitute direct oppression can be said to represent either an example of hegemony, a form of resistance to it, or subordinate and/or marginalised masculinities.

Fifth, gender, and by extension masculinities, is/are relational, that is, defined by relations between men and women, and among men and women. In this way, inequalities, and cultures relating to that inequality, are critical to conceptualising gender and masculinities. Nevertheless, to wholly view gender relations as power relations ignores the significance of mundane and romantic relations, even if such relations exist within a historical power nexus. Finally, a relational conceptualisation places gender and masculinities within intersubjective encounters, and simultaneously recognises both the social actor as a constructor and doer of gender within an ‘encounter’, and the historical and structural factors that frame ‘encounters’. Broadly, then, the conceptual approach to men and masculinities adopted in this thesis attempts to theoretically account for inequality, hegemony, multiplicity, mundanity, and romance as intertwined features of masculinities, that, critically, are likely to frame the ideals and behaviours of ‘men’.

2.3 Theoretically contrasting of these conceptualisations of men, masculinities, and loneliness

In section 2.1, ‘loneliness’ was defined as a discourse related to a negative emotional experience of feeling a ‘perceived lack, or loss, of social relationships’, yet distinct from this emotion as the phrase ‘loneliness’ itself can be used in a multitude of ways. It was also suggested that intersections of identity may impact both this emotional experience and/or interpretations of the phrase ‘loneliness’. Men, and ideals of masculinity, are such intersections, to wit a number of theoretical ramifications for the experience of ‘loneliness’, or it’s related emotion, can be induced.

Experiencing a sense of a lack or loss of social relationships is not logically conducive to the enactment of a dominant, powerful, ‘hegemonic’ masculine identity. This resonates with a common feature of 21st century research on men, masculinity, and health and wellbeing noted in the introduction – that men can be reluctant to seek, access, or acknowledge the need for help

(Courtenay 2000; Moller-Leimkuhler 2002; Addis and Mahalik 2003; Cusack et al. 2006; Robertson 2007; Galdas 2009; Hale et al 2010; Levant et al. 2011; Wenger 2011; McCusker and Galupo 2011; Vogel et al 2011; Yousaf et al. 2015; Addis and Hoffman 2017). For several authors, this disinclination is more readily identifiable for emotional issues than for other kinds of problems (Möller-Leimkühler 2002; Emslie et al. 2006; Robertson 2007; Yousaf et al. 2015). 'Loneliness', and particularly the negative emotional experience related to it, may therefore be something men are particularly unlikely to acknowledge or seek help for. This possibility even arose in the above conceptualisation of 'loneliness', both in men's potentially greater disinclination to state they are lonely in response to a direct question (Nicolaisen and Thorsen 2014a; De Jong-Gierveld et al. 2018), and that, to older men, 'loneliness' may represent a subordinate status (Ratcliffe et al. 2021).

For many of these authors, 'hegemonic' masculinities are central to understanding why men may be less likely to seek help – as Addis and Mahalik (2003, p12) put it, 'the socialization and the social construction of masculinity transact with the social psychology of giving and receiving help'. In this way, literature on men, masculinities, and health and wellbeing does not only suggest that men are relatively unlikely to seek help, it also suggests that this may originate from a perceived need to enact a dominant gendered identity. However, if this is so, it also poses some additional complexity to how maleness and loneliness may intersect.

If men rarely display 'naked domination', and hegemony is an implicit cultural assumption, men are unlikely to frame a disinclination to seek help as something *aimed* at enacting a dominant gendered identity. Rather, a man engaging with the idea of lacking, or losing, a sense of companionship must engage with his gendered sense of self, what masculinity he feels is expected of him, his interpretation of the emotion, and (potentially) his interpretation of the term 'loneliness'. Given this, actual men's discourse may not display a simple 'hegemonic masculinity equals not seeking help' kind of relationship, but all kinds of complex and potentially incoherent ideals. Though hegemonic masculinities, and gendered relations about 'power', are likely to be relevant to men's constructions and experiences of 'loneliness', romantic relations, and relationships with family, friends, acquaintances, and peers, are also likely to be important.

Neither men, nor masculinities, are homogenous. While some hegemonic forms of masculinity may discourage men from seeking help, others may not construct a hegemonic requirement of this kind. Galdas (2007) interviewed both White-British men and UK based South Asian men about seeking help for chest pain, and concluded that South-Asian masculinities did not seem to construct a need to avoid displaying a need for help. Robertson (2007) found that gay and disabled men could use their inherently non-hegemonic status to resist the requirement to not seek help. Intersections of identity, and the degree to which they interact with hegemonic masculinities, and whether this is in fulfilment or resistance, could be critical to understanding men's constructions and experiences of loneliness, and the likely differences among men in regard to it.

These conceptual foundations suggest men may be reticent to acknowledge or seek help for such an issue. As 'hegemony' is integral to this, and hegemony is, by nature, implicit and assumed, such a reticence is unlikely to be manifest. Furthermore, as gender is 'relational', men's constructions and experiences of loneliness, or its related emotion, are likely to be impacted by both structural, political, and material factors, as well as relations less distinctly possessing a 'power' dimension. However, heterogeneity among men and masculinities means that although gender differences in, and men's specific, constructions and experiences of loneliness are the focus of this study, these may differ vastly among men. Nevertheless, as also noted, if masculinities can be hegemonic, then experiences and attitudes common to 'men' can be too. It therefore remains possible to study broader trends in men's constructions and experiences of 'loneliness'.

2.4 Chapter summary

This chapter critically examined literature on loneliness and men/masculinities to provide a conceptual framework for the thesis. Loneliness was conceptualised as a discursive tool used primarily to represent a negative emotion, that of a subjective feeling of a lack, or loss, of meaningful social relationships. Nevertheless, acknowledging variation in how the term 'loneliness' is used, and what may cause, prevent, and alleviate it, is an important aspect of loneliness research. Men were defined as actual people who are labelled as such, and 'masculinities' as cultural practices associated with 'men'. These practices exist as social norms and values, are bound in patriarchal power relations, and are constructed and reconstructed via interpersonal relations. The conceptualisations of loneliness, men, and masculinities suggest that inequalities may impact men's constructions and experiences of loneliness, in particular their propensity to disclose loneliness. Though they are unlikely to be universal, 'hegemonic' masculinities may facilitate widespread differences between men and women, and between different groups of men. Chapter 3 will use this conceptual framework to conduct a literature review summarising and critically examining evidence on how and where gender has been found to impact men's constructions and experiences of loneliness.

3. Literature review

Chapter 1 introduced loneliness as a gendered policy and practice concern, then Chapter 2 constructed a theoretical foundation for understanding men, masculinities, and loneliness. This chapter summarises and critically examines the current empirical research on men, masculinities, and loneliness by conducting a systematic literature review. From this, more precise ‘sub’ questions related to how and where gender may impact men’s constructions and experiences can be identified, aiding the focus of the empirical research to come. The review methodology is guided by the principles of critical interpretive synthesis (CIS) (Dixon-Woods et al. 2006), using a ‘results based convergent design’ (Noyes et al. 2019).

Section 3.1 considers and states the review question and sub-questions. Section 3.2 relays the methodology, in particular how and why CIS guided the review. Section 3.3 relays how the literature was collated, and section 3.4 describes how the studies were analysed. Section 3.5 presents the findings of the review. Section 3.6 discusses the evidence, and identifies gaps and limitations to the evidence base. Section 3.7 considers literature published after the systematic searches, and section 3.8 discusses the strengths and limitations of this review. Section 3.9 summarises this chapter, then relays an updated set of research questions based on the findings.

3.1 Review question

The review questions are laid out below. The primary question is similar to the overarching thesis research question, adapted to emphasise that the goal of this chapter is to establish what is and is not known. Four sub-questions were also constructed. In Chapter 2, ‘hegemonic’ masculinities were identified as potentially able to facilitate widespread trends (section 2.2.5, p42), therefore the first sub-question focuses on sex differences in loneliness. Chapter 2 also conceptualised loneliness as a subjective perspective that may be inconsistently defined. The second sub-question therefore turns to men’s specific perspectives, and refers both to the word loneliness, and the emotion linked to it, to encapsulate this subjectivity. Differences of identity may impact constructions and experiences of both loneliness and masculinities, therefore the third sub-question aims to incorporate the likely lack of universality in men’s perspectives. The final sub-question then turns to the gaps in this knowledge, and will be used to frame the empirical research in this thesis undertakes. The first three sub-questions are focused on what the literature does say, therefore is primarily relayed in the results (section 3.5, 56). The final sub-question is focused on what they do not say, therefore receives greater focus in the discussion (section 3.6, p68).

Summarise and critically examine data relevant to the influence of sex or gender on men's constructions and/or experiences of loneliness.

- What sex differences have been found?
- What is known about men's specific constructions and/or experiences of loneliness/it's related emotion?
- What commonalities and differences exist within men's constructions and/or experiences of loneliness/it's related emotion? How might this be related to different intersections of identity?
- What gaps can be identified in this knowledge?

3.2 Methodology

The first sub-question aims to identify differences between men and women, implying a quantitative focus, whereas the second sub-question focusses on subjective perspectives, implying a qualitative focus (Bryman 2016). This review therefore required examining a diverse evidence base not attainable through statistics focused methods such as meta-analysis (Noyes et al. 2022), nor via qualitative focused methods less able to consider quantitative studies (Flemming et al. 2019). A methodology based on the principles of critical interpretive synthesis (Dixon-Woods et al. 2006) was taken, with two key adaptations. These were the employment of a more stringent search strategy, able to summarise the evidence base more succinctly than an iterative design, and the use of a 'results-based convergent synthesis design' to incorporate a systematic analysis of quantitative and qualitative studies.

Critical Interpretive Synthesis (CIS) aims to systematically identify perspectives and theoretical directions on a research topic by inductively and iteratively reviewing a wide array of literature (Dixon-Woods et al. 2006). Skewes-McFerran et al. (2016, p2) define its purpose as to 'integrate findings from potentially diverse studies and disciplines into a single, coherent framework'. This 'framework' takes the form of 'synthetic constructs', themes that summarise the overall nature and direction of the data found. This has been recognised as a useful approach for reviewing ‘challenging’ areas of health research, such as mental health, as its more interpretive nature has the potential to manifest that which the original studies may not have considered (Talseth and Gilje 2011). CIS, then, is particularly well equipped for critically examining diverse literature about loneliness.

Other mixed review methodologies, such as ‘realist’ (Pawson 2006) or ‘rapid realist’ (Saul et al. 2013) approaches, are primarily aimed at reviewing interventions, thus are not appropriate for this review, which does not focus on interventions. Thematic synthesis, a method that aims to display the main themes across an evidence base, has also been used in mixed-methods reviews (Harden and Thomas 2010). Dixon-Woods et al. (2006, p11) reference thematic synthesis as an influence on CIS, yet criticise it for sometimes ‘accepting that the accounts offered in the evidence-base (are) the only valid way of understanding the phenomenon’. In response to this, Thomas and Harden (2008) conceptualise two types of themes in thematic syntheses: ‘data-driven’ themes that arise directly from the evidence base; and 'theory-driven' themes that effectively mirror ‘synthetic constructs’. In this review, the focus on summarising existing data suggests an emphasis on building ‘data-driven’ themes. To form the synthetic constructs, though, it was necessary to critically interrogate the data. As a result, though the review aims to summarise existing data, it does so in a theoretically informed manner befitting the term ‘synthetic construct’.

Tailoring CIS to the review question has been recommended by some authors (Flemming 2010; Skewes McFerran et al. 2014). Two deviations from Dixon-Woods et al.’s (2006) construction of CIS were employed in this design. The first was the specifying of a ‘results-based convergent synthesis design’ (Noyes et al. 2019). Neither Dixon-Woods et al. (2006), nor other proponents of CIS (e.g., Talseth and Gilje 2011; Skewes McFerran et al. 2014; Bibb et al 2016), give a prescriptive approach for how different kinds of data should be considered. Noyes et al.’s (2019) ‘results-based convergent synthesis design’, which recommends analysing the quantitative and qualitative studies separately, before integrating them into a final set of findings, was considered a useful technique for actioning this aspect of CIS.

The second adaptation was an ‘a priori’ search strategy. Dixon-woods et al. (2006) considered an ‘iterative’ and ‘flexible’ strategy necessary for a truly ‘critical’ analysis. However, summarising the existing evidence was an important element of this review, thus a ‘pre-defined sequence’, as Dixon-Woods et al. (2006, p9) term it, was not considered problematic, but useful. Furthermore, Tong et al. (2012) recommend using the Preferred Reporting Items for Systematic reviews and Meta-Analysis

(PRISMA) flow chart to increase transparency in the study selection process, and a pre-defined strategy allowed this.

3.3 Methods

This section will detail how the review was conducted. Section 3.3.1 describes the searches, section 3.3.2 the inclusion criteria, and section 3.3.3 the process for determining whether they met this criteria. A protocol for this review was submitted to the International Prospective Register of Systematic Reviews (PROSPERO), which is available at: https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=138980.

3.3.1 Searches

All searches followed a base strategy of (1) ‘loneliness or social isolation’ AND (2) ‘gender or men or masculinities (and related terms)’, followed by (3) NOT ‘under 18 years old or neurological or biochemical or animal (and/or related terms)’. Only ‘loneliness’ and ‘social isolation’, and not related terms such as ‘social connectedness’, ‘social support’, and ‘solitude’, were employed. This was because pilot searches revealed excessive numbers of irrelevant studies when using additional terminology, and Chapter 2 (section 2.1.4, p32) suggested an investigation of how the term ‘loneliness’ is discursively used may be beneficial to the thesis. The searches were entered into MEDLINE (OVID), PsycINFO (OVID), Scopus, ASSIA (proquest), SScI (Web of Science), sociological abstracts (proquest), and social policy and practice (OVID). A combination of Medical Subject Headings (MeSH) terms, subject categories, and free text searches were used depending on the database. The exact search strings are detailed in appendix 1. This strategy was designed with assistance from David Brown, a librarian at the University of York.

3.3.2 Inclusion criteria

Nine points for inclusion were identified. Point nine was broken into several points as articles with different methods required different criteria. The country and language limitations were selected to allow for a manageable number of articles focused on contexts similar to the UK. The study utilised an interpretive method for identifying studies of ‘adults’ as identifying a specific age resulted in less meaningful inclusions/exclusions. The review aimed to provide a summary of perspectives on men, masculinities, and loneliness, therefore systematic no quality assessment was conducted (Grant and

Booth 2009). However, the quality of studies was considered iteratively during analysis (see section 3.4). Searches were conducted on 30th June 2019, with no historical cut-off date.

1. English language only.
2. Primary or secondary data studies (quantitative or qualitative), systematic reviews, or meta-analyses.
3. Published in a peer-reviewed journal.
4. Investigates loneliness or the emotional experience defined above as loneliness (hereafter described as 'loneliness')
5. Study is placed in the social world (i.e., is not study of sex differences in neurological or bio-chemical reactions to loneliness).
6. Sample consists of participants living in, Germany, UK, France, Italy, Spain, Netherlands, Belgium, Portugal, Sweden, Austria, Switzerland, Denmark, Finland, Norway, Ireland, Luxembourg, Malta, Iceland, Andorra, Liechtenstein, San Marino, The Vatican, USA, Canada, Australia, or New Zealand.
7. Is a study of adults. This was determined interpretively using the stated focus on the article. University students were considered adults.
8. For qualitative studies, the sample includes men. For quantitative studies, the sample includes both men and women, or has a substantive focus on gender and loneliness.

9a. Qualitative studies

has a substantive focus on, and/or reports substantive findings on, sex/gender differences in loneliness.

or

has a substantive focus on, and/or reports substantive findings on, men's specific constructions and/or experiences of loneliness.

9b. Quantitative studies

has a substantive focus on sex/gender and loneliness

or

compares different types of loneliness by sex/gender

or

includes a clearly tested comparison of sex/gender, loneliness, and a third variable that is not a demographic characteristic, physical health, or mental health concern (including variables related to drug/alcohol use, exercise, or nutrition).

3.3.3 Data extraction (selection and coding)

1. All results were uploaded to Endnote, duplications removed.
2. Title and abstract screening. Articles that did not include participants from specified nations, specified a focus on children or adolescents, only featured women, are neurological or bio-chemical studies, or which clearly did not investigate ‘loneliness’ and sex/gender in accordance with the inclusion criteria (including studies focusing on physical or mental health without a specified focus on gender and loneliness), were excluded at this stage. This stage was conducted by one reviewer, then two separate random samples of 2.5% were checked by a supervisor each. Disagreements were resolved through discussion, and the remaining 95% of articles re-assessed by the lead researcher.
3. Full text retrieval. Articles were included according to the nine-point criteria. This stage was conducted by one reviewer, then the final PRISMA chart, and Endnote files of included/excluded articles, were checked by 2 supervisors.

3.4 Analysis

In accordance with the ‘results-based convergent design’, the quantitative and qualitative results were initially analysed separately. Mixed-methods studies were analysed alongside the qualitative studies. The quantitative studies were placed in a table detailing the sample, measures, methods, and findings (appendix 2), and the qualitative and MMR studies in a table detailing the context of the study, sample, and findings (appendix 3). After completing this, two sets of synthetic constructs representing the quantitative and qualitative/MMR studies were created (appendices 4 and 5). This consisted of an inductive and iterative process of constructing themes to summarise the data. At this stage, the themes were largely ‘data-driven’ (Thomas and Harden 2008), although analyses on related topics could form part of a single theme. In line with CIS, and the expected heterogeneity of the data, the quantitative studies were not considered for meta-analysis. The two sets of synthetic constructs were then converged. This involved amalgamating similar results, adapting the constructs to better represent the two datasets, ensuring conflicting findings were properly represented, and dropping constructs that were insufficiently evidenced. Details on whether and how the quality of data impacted the synthetic constructs is given in either appendix 4 or 5, or section 3.5, depending at what stage it was noted in the formation of the synthetic constructs.

3.5 Results

79 studies were included in the analysis. Figure 3 shows a PRISMA diagram detailing how and when the initial 5,148 results were narrowed down to the 79 included for review. Initially, 141 articles were unavailable via the University of York or open access. As the review methodology did not require an exhaustive account of all data, only those that appeared likely to be included, or were easily requested online, were sought. After doing so, 121 articles remained unavailable. Appendix 6 details this process. Among the 79 included studies, 63 were quantitative, 14 qualitative, and 2 mixed-methods. Converging the data resulted in six synthetic constructs. Table 1 summarises these plus relevant sub-constructs. Sub-sections 3.5.1 – 3.5.6 present the evidence for and against the constructs and sub-constructs.

Figure 3. PRISMA flow-chart of included studies

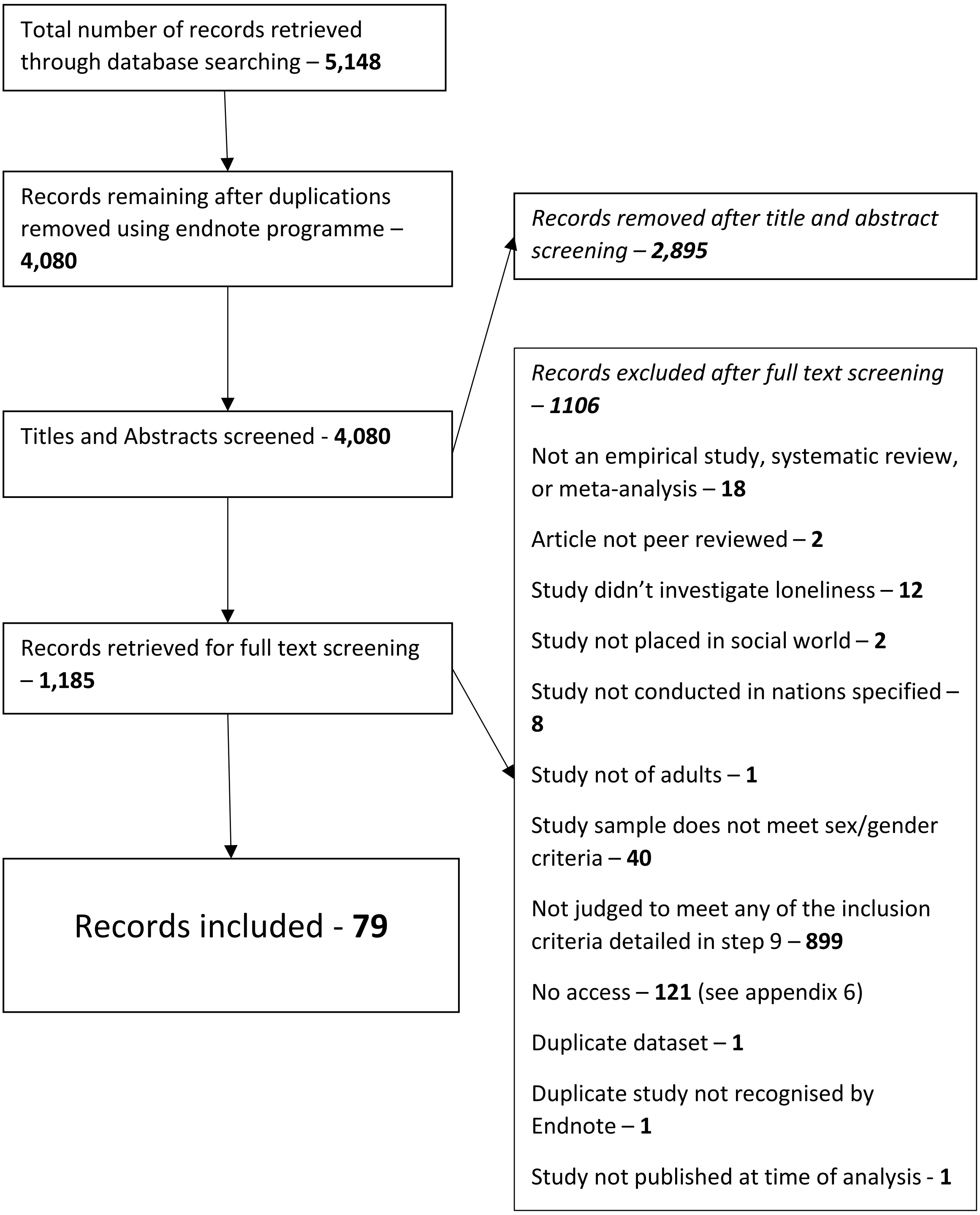

Total number of records retrieved through database searching – **5,148**
Records remaining after duplications removed using endnote programme – **4,080**
*Records removed after title and abstract screening – **2,895***
Titles and Abstracts screened - **4,080**
*Records excluded after full text screening – **1106***
Not an empirical study, systematic review, or meta-analysis – **18**
Article not peer reviewed – **2**
Study didn't investigate loneliness – **12**
Study not placed in social world – **2**
Study not conducted in nations specified – **8**
Records retrieved for full text screening – **1,185**
Study not of adults – **1**
Study sample does not meet sex/gender criteria – **40**
Records included - **79**
Not judged to meet any of the inclusion criteria detailed in step 9 – **899**
No access – **121** (see appendix 6)
Duplicate dataset – **1**
Duplicate study not recognised by Endnote – **1**
Study not published at time of analysis - **1**

Table 1. Final synthetic constructs and sub-constructs.

Synthetic construct	*Sub-constructs*
1. Men may be reluctant to discuss emotional issues.	- Men may be less inclined to discuss or seek help for loneliness. - This may also constitute a barrier to forming loneliness preventing relationships.
2. Romantic relationships may be more important for preventing loneliness in men.	- This could both/either signify that men attach particular importance to romantic relationships, or that women find them less protecting. - This may be a result of men's poorer perception of their social networks.
3. Different measurement tools provide different patterns in the prevalence of loneliness.	- in surveys that use the word 'loneliness' in the survey instrument, women are often significantly lonelier. - Studies using the University of California loneliness scale (UCLA) often found no significant sex difference. - Studies using the De Jong-Gierveld scale often found men were much socially lonelier, but women were emotionally lonelier, with men slightly lonelier overall.
4. Lonely men may be more likely to engage in risky/unhealthy behaviour.	- This has been constructed as related to men's reluctance to discuss loneliness.
5. Feeling or being labelled 'insufficiently masculine' can result in loneliness.	- Notions of being an 'outsider' were framed according to none-fulfilment of gendered norms and expectations. This was most clearly identified in LGBTQ+ men.
6. Men's loneliness appears to be more closely associated with a perception they possess poor quality social networks.	- Women's loneliness appeared more associated with emotional factors such as a sense of rejection.

3.5.1 Men may be reluctant to discuss emotional issues.

11 studies provided evidence for this synthetic construct (table 2). Six of these directly evidence a male reticence to discuss emotional issues (Wheeler et al. 1983; Wheeless et al. 1988; Blier and Blier-Wilson 1989; Davidson 2004; Nurmi et al. 2017; McKenzie et al. 2018). Blier and Blier-Wilson (1989) conducted a quantitative study and found men are less comfortable expressing many emotions, and Wheeler et al. (1983) and Wheeless et al. (1988) statistically associated 'femininity' with having emotionally 'open' social relationships. Davidson (2004), Nurmi et al. (2017), and McKenzie et al. (2018) present qualitative work in which a male reticence to discuss emotional issues was framed as a barrier to forming social relationships. As Davidson (2004, p39) put it, 'the

imperative of “separateness” allied to masculine self-identity appears to hamper the establishment of new relationships’.

Two further qualitative studies provided evidence that men may be reluctant to admit loneliness (Munoz-Laboy et al. 2009; Cela and Fokkema 2017). The following quote is from a Mexican labourer in the USA:

> *most of us are here alone, by ourselves. Nobody wants to talk about sad things (Munoz-Laboy et al. 2009, p805).*

By using the phrase ‘sad things’, rather than ‘loneliness’, he relates the reluctance to admit loneliness to the wider notion of a reluctance to discuss emotional issues. A reluctance to discuss emotional issues, then, may have two distinct ramifications: it may be a barrier to forming relationships; and a barrier to disclosing loneliness.

McKenzie et al. (2018) propose two dimensions to men’s motives for a reluctance to discuss emotional issues. On the one hand, some men constructed such conversation as feminine ‘blabber’, incompatible with masculinity. Other men, though, suggested they would like to be more emotionally open, yet emphasised negative experiences to doing so:

> *It felt like I invested, put myself out there on a limb and built up, had to really sort of build myself up to struggle to get the words out…but it didn’t really go anywhere (McKenzie et al. 2018, p1253).*

This is consistent with quantitative work suggesting lonely men are less likely to be socially ‘accepted’ than lonely women or not lonely men (Borys and Perlman 1985; Lau and Gruen 1992; Lau and Kong 1999), although Rotenberg and Kmill (1992) did not find any statistically significant differences in this. If being lonely is not socially acceptable, it is plausible that men would be reluctant to admit it. Moreover, the notion that it is not masculine to discuss emotional issues/admit loneliness provides a context for why it may not be socially acceptable.

Table 2. Studies with evidence related to men's reluctance to discuss emotions

Author/s	*Study type*	*Relevant findings*
Wheeler et al. (1983)	Quantitative	'Femininity', defined as 'expressive-affiliative traits', negatively associated with loneliness. Spending more time with women, and meaningful relationships with men, prevent loneliness (dyads involving at least one woman were more likely to be meaningful).
Borys and Perlman (1985)	Quantitative	People are least accepting of a lonely man compared to a lonely woman or not lonely man.
Wheeless et al. (1988)	Quantitative	'Femininity' predicts more 'disclosure' to others. Masculinity and sex not significant predictors of 'disclosure'.
Blier and Blier-Wilson (1989)	Quantitative	Women expressed more loneliness, and people were more confident talking to women about it, but neither statistically significant. Women significantly more comfortable expressing fear, sadness, and liking/love, men more comfortable expressing anger (but only to men).
Rotenberg and Kmill (1992)	Quantitative	Women attributed less psychosocial functioning to lonely people. No other sex differences.
Lau and Gruen (1992)	Quantitative	Lonely men perceived less 'adjusted', less sociable, weaker, less sincere, and less desirable as a friend.
Lau and Kong (1999)	Quantitative	Lonely men perceived less sociable, less 'adjusted' (by not lonely people only), less liked, less wanted as a friend, less sincere, as having lower 'self-concept'.
Davidson (2004)	Qualitative	Men emphasise 'self-sufficiency' (aka independent living). Author concludes this may hamper formation of new relationships.
Munoz-Laboy et al. (2009)	Mixed	Men said was difficult to talk to other men, no-one could say why. Not having anyone to talk to when missing family correlated with loneliness.
Cela and Fokkema (2017)	Qualitative	Men clearly, sometimes openly, hesitant to talk about being lonely. Both sexes don't want to worry others by saying they're lonely. Women said husbands don't talk about loneliness.
Nurmi et al. (2018)	Qualitative	Men tend to socialise through spouses.
McKenzie et al. (2018)	Qualitative	Talking about personal difficulties to women more acceptable. Some experienced 'difficulties in confiding' (either constructed it as not masculine, or had negative previous experiences).

3.5.2 Partner/spousal relationships may be more important for preventing loneliness in men.

26 studies contributed evidence for this construct (Table 3). Ten quantitative studies found a significantly larger difference in the prevalence of loneliness between single and married men than they did between single and married women (Wood 1978; Peters and Liefbroer 1997; Pinquart and Sörensen 2001; Dykstra and Gierveld 2004; Stevens and Westerhof 2006; Dykstra and Fokkema 2007; de Jong-Gierveld et al. 2009; Patulny and Wong 2013; Botterill et al. 2016; Nowland et al. 2018), albeit Peters and Liefbroer (1997) and Dykstra and de Jong-Gierveld (2004) used the same

dataset. Two quantitative studies also suggested that single men are lonelier than those in unmarried romantic relationships (Knox et al. 2007; Peters and Liefbroer 1997), and Rokach et al. (2007) found married men suffered less 'interpersonal isolation'. The findings from six qualitative studies further emphasised the particular importance of romantic relationships to men (Davidson 2004; Munoz-Laboy et al. 2009; Bergland et al. 2016; Collins 2018; McKenzie et al. 2018; Nurmi et al. 2018).

Two studies purporting to measure 'romantic' loneliness found men to be more romantically lonely than women (DiTommaso et al. 2005; Wang et al. 2008), though only one of these (DiTommaso et al. 2005) found this to be statistically significant, and two studies measuring this concept found no significant difference (Schmitt and Kurdek 1985; Pollet et al. 2018). Taken by itself, this would seem to add weight to the notion that men are more reliant on spouses/partners for preventing loneliness. However, the survey instruments in these studies included items that did not separate *having* a romantic partner with *desiring* one. For instance, 'I have a romantic partner with whom I share my most intimate thoughts and feelings' was an item in three (DiTommaso et al. 2005; Pollet et al. 2018; Wang et al. 2008). As such, these studies are not of sufficiently quality for identifying whether partner relationships are more important to men.

Six studies were less in line with this construct. In quantitative studies, Spahni et al. (2016) found widowhood affected men and women similarly, Woodward et al. (1981) found no significant sex differences in loneliness after divorce, and Tornstam (1992) that married women aged 20-49 were lonelier than married men aged 20-49. Dahlberg et al. (2015) found that long term widowhood (7+ years) only predicted loneliness in women. However, they also found that recent widowhood (<7 years) was a much stronger predictor of loneliness in men, and they did not record whether respondents entered a new relationship, rendering the data insufficient for providing evidence against this construct. In qualitative studies, Collins (2018) found that only two of seven male widowers interviewed expressed a desire for a new partner, albeit only one man specifically stated they did not desire a new partner, and Gerstel (1988) found separation from a partner simply meant 'time for other people' to men. As these studies are fewer, sometimes with a narrow focus (i.e., focused only on widowhood or divorce), and not always conclusively challenging the construct (Dahlberg et al. 2015; Collins 2018), these were considered more likely to represent outlying circumstances than evidence for dismantling the synthetic construct.

Two perspectives on why men may be more greatly affected by partner status were identified in the qualitative studies. Firstly, men seemed to consider a romantic partner the first, and primary, person for meaningful social interaction – as one man stated, 'we [men] do not talk like I'd talk with my wife' (McKenzie et al. 2018, p1252). Secondly, men's social networks were often suggested to be limited and dependent on their spouse (Collins 2018; Davidson 2004; Nurmi et al. 2018). Indeed, when discussing services aiming to alleviate loneliness, one man stated:

> *a group focused on men is self-perpetuating because then the people participating get more practice in being responsible for their own social network, their own social life, instead of that doing, that thing through the female spouse (Nurmi et al. 2018, p804).*

Table 3. Studies with evidence related to men, loneliness, and romantic relationships

Author/s	*Study type*	*Relevant findings*
Wood (1978)	Quantitative	Marital status and sex interact (single men lonelier than married, less difference in women).
Woodward et al. (1981)	Quantitative	No significant sex differences in loneliness (stratified by divorce status). Men lonelier at time decided to divorce, and when actually filed for it. Women lonelier when physically separating, and time of survey.
Schmitt and Kurdek (1985)	Quantitative	Men more 'family', 'large group' and 'friendship' loneliness, no sex difference in 'romantic/sexual' loneliness.
Gerstel (1988)	Mixed	Separation meant 'time for other people' to men. Men made casual and new relationships, women stuck with old friends and kin. Men with custody of children more similar to women though (i.e., stuck with kin and old relationships).
Tornstam (1992)	Quantitative	Married women aged 20-49 lonelier than married men aged 20-49 (no other sex difference within marital status and age groups).
Peters and Liefbroer (1997)[a]	Quantitative	Single men lonelier than single women or men in a relationship. Same for men not in a civil union of any kind.
Pinquart and Sorensen (2001)	Quantitative	Marital status larger predictor of loneliness in men than for women.
Davidson (2004)	Qualitative	Marriage provides social circles for older men. One man described this a 'sad reflection' on himself.
Dykstra and de Jong-Gierveld (2004) [a]	Quantitative	Emotional loneliness sex differences - Married men less lonely, never married and widowed men lonelier. Divorced no difference. Social loneliness sex differences – Married men (unless previously widowed), Never married men, and divorced men all lonelier.
DiTommaso et al. (2005)	Quantitative	Men more romantic loneliness.
Stevens and Westerhof (2006)	Quantitative	Widowers lonelier than widows.

Dykstra and Fokkema (2007)	Quantitative	Divorced men lonelier than divorced women. 'Support network size' helped explain social loneliness of divorced men, 'partner-centeredness' explained greater emotional loneliness of divorced men.
Knox et al. (2007)	Quantitative	Women more likely to have a romantic partner, men more likely to want one.
Rokach et al. (2007)	Quantitative	Married men less 'interpersonal isolation' than unmarried men, married and unmarried women no differences (all participants aged 50+).
Wang et al. (2008)	Quantitative	Romantic loneliness mean – men 4.21, women 3.28 (higher=lonelier, no significance test)
de Jong-Gierveld et al. (2009)	Quantitative	Men in 1st or 2nd marriage less emotionally lonely than other sex by partner status groups.
Munoz-Laboy et al. (2009)	Mixed-methods	Authors concluded missing family was a key cause of loneliness, and of risky sexual behaviour, in Mexican immigrant labourers in USA.
Palutney and Wong (2013)	Quantitative	Single men most 'socially disconnected' group after controlling for preferences, but women more disconnected overall.
Dahlberg et al. (2013)	Quantitative	Recently widowed men much lonelier than recently widowed women, but among people widowed 7+ years ago women were lonelier. Did not control for new partners.
Spahni et al. (2016)	Quantitative	Men were lonelier, and the widowed were lonelier, but there was no interaction between the two.
Botterill et al. (2016)	Quantitative	Loneliness and marital status interaction – unmarried men loneliest group, married men least lonely.
Bergland et al. (2016)	Qualitative	Theme (sub-themes): missing and longing for a shared life (missing the spouse, longing for someone new).
Nurmi et al. (2018)	Qualitative	Men tend to socialise through spouses.
Collins (2018)	Qualitative	Male carers were often lonely before the death of a spouse as caring was an isolating experience. They had limited social networks, and few expressed a desire for a new partner.
Pollet et al. (2018)	Quantitative	Romantic loneliness mean (higher = lonelier) – women 22.14, men 19.27, p=.06
Nowland et al. (2018)	Quantitative	Men lonelier when not in a relationship, women no significant difference.
[a] used same dataset		

3.5.3 Different measurements tools provide different patterns in the prevalence of loneliness when comparing sex

Four studies compared sex differences in the prevalence of loneliness using multiple tools (table 4). Three included both a direct question asking how often the respondent felt lonely, and a scale representing loneliness (Schultz and Moore 1986; Pinquart and Sörensen 2001; Nicolaisen and Thorsen 2014a). Men reported less loneliness in response to the direct question than on the indirect scale in all three. The final study found no overall sex difference according to the UCLA scale, but that men appeared much lonelier when using the 'loneliness deprivation scale', and slightly lonelier using the 'emotional/social loneliness inventory' (Oshagan and Allan 1992).

Table 4. Studies including the results of multiple measurements of loneliness.

Author/s	*Study type*	*Relevant findings*
Schultz and Moore (1986)	Quantitative	When using the UCLA scale, men were significantly lonelier. On a direct question, there was no significant sex difference. In a correlation of UCLA and direct question, men's scores were much more strongly correlated.
Oshagan and Allen (1992)	Quantitative	No significant sex difference on the UCLA scale, but men were significantly lonelier on loneliness deprivation scale. Using the emotional/social loneliness inventory, men were significantly lonelier, but the effect size was small.
Pinquart and Sorensen (2001)	Quantitative	Meta analysis. Studies using a direct question, or deemed 'low quality', showed women to be lonelier. 'High quality' indirect scales showed no significant difference.
Nicolaisen and Thorsen (2014a)	Quantitative	Using the De jong-Gierveld scale, men were significantly lonelier in people aged 18-49. No significant difference in people aged 50+. Using a direct question, women were significantly lonelier in all age groups.

To further investigate this synthetic construct, the results of who is lonelier (men or women) in all included studies where this was quantified were collated (table 5). Appendix 2 shows whether, and where, each study was placed in table 5, along with information on sample size, method, and precise values. Studies with populations mostly consisting of students appeared more likely to find men were lonelier, so these studies were also indicated in the table. Among twelve studies finding men to be lonelier, eight used student populations, and the other four used the De Jong-Gierveld scale, suggesting the De Jong-Gierveld scale may be most likely to find men are lonelier. When using the UCLA scale, over half of the studies found no significant sex difference, indicating this is least likely to find a sex difference. Six out of seven studies both investigating non-student samples and using a direct question found women to be lonelier, and no studies using a direct question found men to be lonelier, giving additional evidence that a direct question is most likely to find women are lonelier.

Table 5. Number of studies showing whether men or women were lonelier according to measurement tool

Scale used (literature detailing scale)	Number showing men lonelier (p=<.05 in study)		Number showing women lonelier (p=<.05 in study)		Studies where difference is p=.05 or over		Total
	All studies	*Studies of students*	*All studies*	*Studies of students*	*All studies*	*Studies of students*	
UCLA (Russell 1996)	4[a]	4[a]	3	0	12[a]	9[b]	19
Question/s using the word 'lonely'[b]	0	0	7[c]	1	3	2	10
De Jong-Gierveld (De Jong-Gierveld and Kamphuis 1985)	4[d]	0	0	0	1[e]	0	5
Social-emotional loneliness scale (DiTomasso and Spinner 1993)	1	1	0	0	1	0	2
Differential loneliness scale (Shmitt and Kurdek 1985)	1	1	0	0	0	0	1
Sisenwein loneliness scale (Wood 1976)	0	0	1	1	0	0	1
Clinton and Anderson scale (Clinton and Anderson 1999)	0	0	0	0	1	1	1
Loneliness deprivation scale (de Jong-Gierveld 1987)	1	1	0	0	0	0	1
Emotional/social loneliness inventory (Vincenzi and Grabosky 1989)	1	1	0	0	0	0	1
Total	12	8	11	2	18	12	41

[a] Stokes and Levin (1986) reported 3 separate samples (2 in which men were lonelier, 1 no difference), and Helm et al. (2018) reported 2 separate samples (1 men lonelier, 1 no difference).

[b] exact method of asking varied, but all specifically used the world 'lonely' or 'loneliness'.

[c] One of these studies was Pinquart and Sorensen's (2001) meta-analysis.

[d] Some studies didn't report the overall sex difference in loneliness, only in different types of loneliness. Those that clearly suggested the likely relationship were included in this table. Two were included as 'men lonelier' using the De Jong-Gierveld scale (Dykstra and Fokkema 2007; de Jong-Gierveld et al. 2009), and one as no differences using the social-emotional loneliness scale for adults (Pollet et al. 2018).

[e] Two studies (Dykstra and Gierveld 2004; Peters and Liefbroer 1997) used the same sample. Peters and Liefbroer's (1997) results were used for this table as Dykstra and de Jong-Gierveld (2004) did not include an overall comparison of loneliness.

3.5.4 Lonely men may be more likely to engage in risky/unhealthy behaviour

Four studies contributed evidence related to this construct (table 6). Three asked men how they cope with loneliness, in which the most consistent finding was a reference to risky/unhealthy behaviours such as drinking alcohol (Munoz-Laboy et al. 2009; Tornstam 1992), substance abuse (Junttila et al. 2015), visiting sex workers (Munoz-Laboy et al. 2009), and gambling (Junttila et al. 2015). However, Botterill et al. (2016) found that loneliness was equally likely to result in problem gambling among men and women (although significantly more men were problem gamblers regardless of loneliness). Munoz-Laboy et al. (2009) concluded that men enacted these behaviours in lieu of discussing emotional issues with people who were not a romantic partner.

Table 6. Studies with evidence related to risky/unhealthy behaviour

Author/s	*Study type*	*Relevant findings*
Tornstam (1992)	Quantitative	Among married people aged 20-49, men were significantly more likely to select survey items saying they cope with loneliness by ‘watching TV’, ‘exercising’, ‘working’, and ‘drinking alcohol’. Women were more likely to select ‘crying’ and ‘seeking contact with others’.
Munoz-Laboy et al. (2009)	Mixed-methods	Male Mexican migrant labourers said they coped with loneliness by drinking alcohol, hanging out with friends, church, and visiting sex workers. Visiting sex workers and drinking were constructed as a replacement of spousal relationships.
Junttila et al. (2015)	Quantitative	Items men were more likely to select are a consequence of loneliness – depression, lack of initiative, fear of future, isolating at home, social fears, divorce, unemployment, poverty, incurring debt, gambling, substance abuse. Women – comfort shopping, comfort eating, loss of appetite.
Botterill et al. (2016)	Quantitative	Loneliness is equally likely to result in problem gambling for men and women (though significantly more men are problem gamblers).

3.5.5 Feeling or being labelled ‘insufficiently masculine’ can result in loneliness

Three studies contributed evidence related to this construct (table 7). In McAndrew and Warne’s (2010) study, gay men identified a ‘loneliness of outsiderness’ in the heteronormative social spheres they inhabited, and one gay man identified something very similar in Rönkä et al. (2018). In Ronkainen and Ryba’s (2017) study of injured hockey players, the men felt an ‘outsider’ despite being present at team events because they felt ‘useless’ and as if they were ‘betraying’ the team. In these studies, masculinities provided the framework for why these men felt they were an outsider. To highlight this, the synthetic construct uses the phrase ‘insufficiently masculine’ rather than ‘outsider’.

Table 7. Studies with evidence related to feeling/being 'insufficiently masculine'

Author/s	*Study type*	*Relevant findings*
McAndrew and Warne (2010)	Qualitative	Author creates theme titled 'the loneliness of outsiderness'. Denotes the notion that a non-masculine (gay) identity resulted in ostracisation and loneliness.
Ronkainen and Ryba (2017)	Qualitative	Being injured felt lonely even when training with others as couldn't contribute. Strong advocation of enduring pain, avoiding seeking help, and suffering alone as masculine ideals.
Rönkä et al. (2018)	Qualitative	One man clearly suggested being unable to live up to masculine norms results in loneliness. Authors found same for not 'feminine' women.

3.5.6 Men's loneliness appears to be more closely associated with a perception they possess poor quality social networks.

The evidence for this construct was built from 16 studies (table 8). Four quantitative studies investigated sex, loneliness, and a measure related to social network. Stokes and Levin (1986) found social network size and type to be more strongly associated with loneliness in men, and Bell and Gonzalez (1988) found 'social integration' a predictor of loneliness in men but not women. Bell (1991), however, found no sex difference in the association between 'network density' and loneliness, and Dykstra and de Jong-Gierveld (2004) found that *women* showed a stronger association between social network size and loneliness.

Research investigating sex differences in people's *perceptions* of their social networks offered clearer support for this construct. Patulney and Wong (2013) found that, even after controlling for preferences, men considered themselves to be more 'socially disconnected' than women. Tornstam (1992) and Juntilla et al. (2015) recorded that men were more likely to attribute loneliness to factors such as 'being away from home' or having 'nobody to talk to'. In four studies using the Rokach causes of loneliness scale, three found men were more likely to state 'social marginality' a cause of loneliness (Rokach 1998; Rokach et al. 2002; Rokach 2003). Conversely, in Tornstam's study (1992), women were more likely to say loneliness was caused by being 'misunderstood' or feeling 'unnecessary', placing it as an emotion rather than a social situation. Men were often found to be 'socially' lonelier, whereas women were 'emotionally' lonelier (Clinton and Anderson 1999; Dykstra and de Jong-Gierveld 2004; Dykstra and Fokkema 2007; de Jong-Gierveld et al. 2009), although this was not significant in Clinton and Anderson (1999), and Junttila et al. (2015) found the reverse. Social loneliness refers to a perception that one does not possess adequate social networks, whereas emotional loneliness refers to a lack of intimacy, further placing men's loneliness as related to a poor perception of their social networks.

Table 8. Studies evidencing that men's loneliness appears to be more closely associated with a perception they possess poor quality social networks

Author/s	*Study type*	*Relevant findings*
Stokes and Levin (1986)	Quantitative	More social networks, especially dense, interconnected networks, are better predictors of low loneliness for men.
Bell and Gonzalez (1988)	Quantitative	'Social integration', 'guidance', and 'opportunities for nurturance' predict loneliness in men. 'Guidance' and 'attachment' predict loneliness in women.
Sundberg (1988)	Quantitative	Men significantly more likely to select survey items saying they felt i) lonely, ii) 'alone or alienated from positive persons, places, or things', and iii) 'self-pity, rejection, or lack of purpose'. No difference in 'isolation'.
Bell (1991)	Quantitative	No sex difference in association between network density and loneliness, whether bivariate or controlling for closeness of relationships.
Tornstam (1992)	Quantitative	Among married people aged 20-49, men were more likely to attribute loneliness to being far from home or travelling, whereas women were more likely attribute it to being misunderstood, not needed, or uninteresting.
Rokach and Brock (1995)	Quantitative	Women were more likely to consider 'social marginality' a cause of loneliness than men.
Rokach (1998)	Quantitative	Men selected 'social marginality' as a cause of loneliness more than women. Less important for West Indian men than North American and South Asian men.
Clinton and Anderson (1999)	Quantitative	Women both socially and emotionally lonelier according to univariate means of both, though difference is larger for emotional loneliness. Study states neither were statistically significant (no P value given).
Rokach et al. (2002)	Quantitative	Canadian men identified 'social marginality' as a greater cause of loneliness than Canadian women and Spanish men and women.
Rokach (2004)	Quantitative	Homeless men identified 'social marginality' more than homeless women and not homeless men. No significant difference between not homeless men and women. When including both groups, men displayed more 'social marginality'.
Dykstra and de Jong-Gierveld (2004)	Quantitative	Men were socially lonelier, but less emotionally lonely. Women less lonely if higher 'network size', 'instrumental support given', 'contact with children', 'no living children', and 'church attendance'.
Stevens and Westerhof (2006)	Quantitative	Men lonelier. Women's greater emotional support from friends mediated this difference.
Dykstra and Fokkema (2007)	Quantitative	Support network size helps explain social loneliness of divorced men, and 'partner-centeredness' the greater emotional loneliness of divorced men.
de Jong-Gierveld et al. (2009)	Quantitative	Men in 1st/2nd marriage were less emotionally lonely. In comparison to women, men were more socially lonely, and more affected by an unhealthy spouse.
Patulney and Wong (2013)	Quantitative	Single men were the most socially 'disconnected' group, followed by low income women. After controlling for what people consider

		important, men are more socially disconnected than would like, women would like more experiences such as 'nights out', 'weekly meals' and 'holidays'.
Junttila et al. (2015)	Quantitative	Men were more likely to select survey items stating - nobody to talk to, nobody understands me, find myself waiting for people to call or write, feel alone, unable to reach out, difficult to make friends. Men indicated they have less 'good friends' and 'satisfaction with personal relationships', but also less social loneliness. Women more likely to select they were 'starved for company', 'shut out' and 'excluded by others'. Women also showed less emotional loneliness.

3.6 Discussion

This review aimed to build 'synthetic constructs', thematic critical interpretations of a diverse evidence base (Dixon-Woods et al. 2006; Skewes McFerran et al. 2014). Six synthetic constructs were built, alongside eleven sub-constructs delving deeper into the nature of the main construct (table 1). This discussion will contrast the synthetic constructs with wider literature and each other, identifying where they may be theoretically intertwined, and highlighting gaps and limitations in the evidence. It will be concluded that while they represent a meaningful summary of academic discourse, each construct would benefit from further empirical research. Doing so in a single study able to identify where, how, and why they are intertwined would be particularly useful.

The notion that feelings of loneliness are particularly likely to result in risky/unhealthy behaviour among men (synthetic construct 4) is consistent with a large body of research. Courtenay (2000), for example, links men's disinclination to seek help for mental health issues with higher rates of alcohol and drug abuse. Lee and Hanson (2016) found loneliness to be a predictor of recidivism for sexual offences. Hubach et al. (2012) suggested that young men self-medicated loneliness with drugs and sex. Drinking alcohol (Tornstam 1992; Munoz-Laboy et al. 2009), substance abuse (Junttila et al. 2015), visiting sex workers (Munoz-Laboy et al. 2009), and gambling (Junttila et al. 2015) were all linked to male loneliness in this review. However, the studies from Tornstam (1992), Munoz-Laboy et al. (2009), and Junttila et al. (2015) only found that this is what people *believe* men do in response to loneliness - it is not clear if these gendered beliefs translate into aggregately different actions. More research is required to identify whether men actually do this.

A male reluctance to seek help, particularly for emotional issues, is widely recognised in literature on masculinities and men's health (Yousaf et al. 2015). The notion that men are hesitant to discuss emotional issues (synthetic construct 1) would appear a parallel concept. Some narrative literature has raised the possibility that men are less inclined to state they are lonely in response to a direct survey question (synthetic construct 3) *because* they are reluctant to discuss emotional issues (de Jong-Gierveld et al. 2018; Rokach 2018). However, no research specifically investigating this hypothesis was identified in the current review. Indeed, none of the included studies testing sex differences in responses to loneliness tools involved a significant focus on the topic, nor were any conducted in the UK. It is also unclear why men why should avoid disclosing loneliness on a confidential survey. Theory led research into sex differences in direct and indirect survey items is required.

The current review found evidence men are disinclined to state loneliness in response to a direct survey item (synthetic construct 3). Importantly, this does not necessarily indicate that an indirect scale is better than a direct question. An Age UK (2018) report found some people are lonelier using a *direct* question, suggesting the UCLA scale can also miss some people's loneliness. For Jylhä (2004), an indirect scale forces the respondent to answer according to the researcher's definition of loneliness, thus inherently lacks validity. The De jong-Gierveld scale often found *men* to be slightly lonelier than women (table 5, p64). This was largely a result of men's greater 'social' loneliness (de Jong-Gierveld et al. 2009; Dykstra and Fokkema 2007; Nicolaisen and Thorsen 2014). Oshagan and Allen (1992) proposed that the loneliness deprivation scale's focus on 'deeper, more existential feelings of sorrow and aloneness' may explain men's greater loneliness on this scale. Though the UCLA scale appeared least likely to find a sex difference in the prevalence of loneliness (table 5, p64), Junttila et al. (2015) found many of the individual items displayed statistically significant sex differences. Though the prevalence of loneliness in different groups of people was not the focus of this study, it was noted that male students appeared to be lonelier than female students. Conversely, Victor et al. (2005) found that older women were often lonelier than older men, ascribing this to a greater incidence of widowhood in older women. Sensitivity to how gender, and/or other factors, may impact the findings, may therefore be more appropriate than the pursuit of a 'best' tool.

Synthetic construct 6, that men's loneliness is more closely associated with a perception of poorer social networks, was constructed from studies linking loneliness in men to social network size and quality (Stokes and Levin 1986), social integration (Bell and Gonzalez 1988), social marginality (Rokach 1998; Rokach et al. 2002; Rokach 2003), 'social' loneliness (Clinton and Anderson 1999; Dykstra and de Jong-Gierveld 2004; Dykstra and Fokkema 2007; de Jong-Gierveld et al. 2009), and physical proximity to people (Tornstam 1992; Junttila et al. 2015). However, none of the studies specifically investigated whether a poor perception of their social network is a greater cause of loneliness in men, limiting the evidence base for this construct. Nevertheless, it is consistent with some theoretical perspectives. Franklin et al. (2019) defined loneliness as ‘belongingness’, and trace men’s belongingness as historically constructed through participation in public realms. Women, on the other hand, act/acted as ‘kin-keepers’, taking responsibility for family and friendship networks. From this perspective, men’s loneliness is logically more related to a perception of poor social networks as this represents better/poorer engagement with the public realm.

Synthetic construct 2, that relationship status was particularly important to men’s loneliness, was evidenced by many authors (Tornstam 1992; Peters and Liefbroer 1997; Dykstra and de Jong-Gierveld 2004; Davidson 2004; Stevens and Westerhof 2006; Dykstra and Fokkema 2007; Knox et al. 2007; Munoz-Laboy et al. 2009; de Jong Gierveld et al. 2009; Palutney and Wong 2013; Bergland et al. 2016; Nowland et al. 2018). Franklin et al.’s (2019) ideas may also explain men’s greater reliance on romantic relationships, as being a ‘kin-keeper’ may allow women additional time and space for building and maintaining wider social relationships. In the current review, some authors also suggested men’s greater reliance on partners/souses was related to their reluctance to discuss emotions (McKenzie et al. 2018), or their poorer social networks (Nurmi et al. 2018) – a reliance on a spouse/partner is in lieu of other social relationships. However, no included study interrogated this theoretical proposition. Additionally, some work has emphasised loss as having a worse psychological impact than having never experienced something (Aartsen and Jylha 2011; Hobfoll 2011). In line with this, Dykstra and Fokkema (2007) found divorce had a greater impact on men. It may be useful for research to further investigate whether men and women who have never married show different results to those who have lost partners.

The notion that being or feeling insufficiently masculine can result in loneliness (synthetic construct 5) was derived from just 3 small qualitative studies (McAndrew and Warne 2010; Ronkainen and Ryba 2017; Rönkä et al. 2018), therefore it is unclear whether this is a widespread occurrence. Nevertheless, Connell’s (1995; 2005) concept of ‘hegemonic’ masculinities, the theoretical notion that certain masculinities are privileged for their reification of unequal gender relations, offers a useful framework for understanding this construct. In particular, her list of insults denoting femininity and/or homosexuality (Connell 2001, p40) offers striking context for why gay men were particularly likely to identify this experience (McAndrew and Warne 2010; Rönkä et al. 2018). It may also offer insight on why lonely men are less ‘accepted’ (Borys and Perlman 1985; Lau and Green

1992; Lau and Kong 1999), and why they may not wish to discuss emotional issues (synthetic construct 1), given that doing so may undermine a powerful re. 'hegemonic' persona (Addis and Mahalik 2003; Addis and Hoffman 2017).

Studies included in the current review often focused on older men. Davidson (2004) argues that older men's lives, particularly in relation to loneliness, are seen through a 'feminine lens'. This meant they needed to emphasise they are 'alone, not lonely', an emphasis that did not arise in studies of younger people. This resonates with the notion of a stereotypical assumption that later life and loneliness are related (Kantar Public 2017; Ratcliffe et al. 2021). Nevertheless, both Davidson and others highlighted that age brought a greater likeliness of 'isolating events' such as widowhood, retirement, a loss of mobility, and moving into a care home (Milligan et al. 2015; Anstiss et al. 2018; Collins 2018; Reynolds et al. 2015; Ratcliffe et al. 2021). This suggests that research able to conceptualise both widespread trends, and differences among men, may aid research into men and loneliness.

The six synthetic constructs were largely identified in separate studies, yet aspects of them appeared inherently intertwined. A male reluctance to discuss emotional issues was theoretically placed as the cause of men's poorer quality social networks (McKenzie et al. 2018), their greater dependency on romantic relationships (Nurmi et al. 2018; McKenzie et al. 2018), their disinclination to state they are lonely (Munoz-Laboy et al. 2009; Nicolaisen & Thorsen 2014a; de Jong-Gierveld et al. 2018), *and* their increased propensity towards risky or unhealthy behaviours (Munoz-Laboy et al. 2009). Nurmi et al. (2018) and McKenzie et al. (2018) also suggest that this reluctance leads to poorer social networks, and in turn to dependency on romantic relationships. Further still, the notion that being/feeling insufficiently masculine can be a cause of loneliness suggests a complex situation in which both being emotionally candid, and not being emotionally candid, can result in loneliness. The potential inter-relatedness of the six constructs, though, was not widely discussed, and researched even less. Theory led research, incorporating a consideration of all six, is required to build a holistic evidence framework.

3.7 Literature published after the systematic searches

This section covers literature published after the review was originally conducted. It will not be searched or analysed systematically, but is considered to give up to date context on the synthetic constructs. The most obvious addition to literature after this date resulted from the onset of Covid-

19. However, while this had a major impact on loneliness discourse, and further research related to sex and loneliness has been produced, nothing drastically undermining or adding to the synthetic constructs was identified.

Following the introduction of Covid-19 restrictions in the Western Europe and North America, Brodeur et al. (2021) found a marked increase in google searches for ‘loneliness’ and related concerns, and the term ‘loneliness epidemic’ became relatively commonplace in mass media (Manavis 2021; Bauer 2021). Some scholars have suggested that the pandemic may have had a worse effect on women's loneliness (Jones et al. 2021; Wickens et al. 2021). Gillard et al. (2020) also suggest it may facilitate additional challenges for ethic minority groups, and people with existing mental health difficulties. Theoretically, men’s greater reliance on partners/spouses could be consistent with greater difficulties for women. The restrictions of social contact outside of the home would seem likely to have less impact on relationships with partners/spouses who are likely to live together. The specific experiences of men, though, have not yet been widely considered.

Some literature has added evidence to the synthetic constructs in section 3.5 (p55). Two studies evidenced the particular relevance of ‘being/feeling insufficiently masculine’ to loneliness in older LGBTQ+ men (synthetic construct 5, p65). Pereira et al. (2022) related how homophobia and ageism could facilitate a particularly isolated existence in older gay men, and Willis et al. (2020) conclude that heteronormativity can have a marginalising effect on older gay men. Willis et al. (2022) concluded that widowhood and living alone are important contributors to loneliness in older men, resonating with the reliance on partners/spouses constructed in synthetic construct 2 (p59). Cox et al. (2020) found that, in men, concealing distress was associated with not feeling understood, and not feeling understood was associated with loneliness. This adds to evidence to the notion that a male reluctance to discuss emotional issues can facilitate loneliness (synthetic construct 1, p57). Wéry et al. (2020) found that loneliness is associated with heavy use of pornography, and searching for online sexual contacts, suggesting risky/unhealthy sexual behaviours may be more common in lonely men (synthetic construct 4, p65).

Barreto et al. (2021) and Maes et al. (2019) offer some evidence less consistent with the synthetic constructs. Barreto et al. (2021) found a significant interaction between sex and individualist culture in predicting loneliness (such that that men were significantly lonelier in individualist cultures). This possibility was not identified in the current review. Maes et al. (2019) offer some contrary evidence to the notion that different measures of loneliness produce different gendered results (synthetic construct 3, p62). They conducted a meta-analysis of 575 studies to examine gender differences across the lifespan, including a consideration of whether ‘intimate’, ‘relational’, and ‘collective’ loneliness provided differently gendered results. However, they found no evidence of any gender difference in these. ‘Intimate’ loneliness refers to what in this thesis was defined as ‘emotional’ loneliness, ‘intimate’ to what was considered ‘romantic’ loneliness, and ‘relational loneliness’ parallels ‘social’ loneliness. As such, this study offers evidence against the notion that men are ‘socially’ lonelier, and women ‘emotionally’ lonelier. However, they do not consider a difference between using a direct question or an indirect scale, which was the most clearly identified difference in this review.

3.8 Strengths and limitations

Synthetic constructs are identified inductively by examining a broad array of data. Reviews focused on a single one of these constructs would provide more robust investigations of their accuracy, truthfulness, and generalisability. This, however, would require several entire reviews, is only possible after the identification of the constructs, and would be unable to present an overall summary of key concepts related to men and loneliness. The use of a pre-defined search strategy, by necessity of limited sensitivity, meant that this review may have missed relevant perspectives an iterative or more sensitive strategy would allow the inclusion of (Dixon-Woods et al. 2006). An iterative search strategy, though, would be unable to systematically summarise the evidence base. More sensitive search strategies, less likely to miss relevant data, resulted in unmanageable numbers of articles, and an exhaustive list of relevant data was not required to summarise the key perspectives. This methodology was therefore considered the best fit for addressing the aims of the review with the resources available.

Though the 121 articles that were not accessed were deemed unlikely to add important perspectives, it cannot be guaranteed. Methodological issues were present in some studies. Some studies measuring ‘romantic’ loneliness assumed people desired a romantic relationship (Schmitt & Kurdek, 1985; DiTommaso et al. 2005; Wang et al. 2008; Pollet et al. 2018). Others used masculinity-femininity scales, noted as inherently problematic (Connell 2005; Thompson 2006). Quantitative measures of loneliness may also be inherently problematic given the differences in prevalence found when comparing sex in different survey tools. However, it would seem more appropriate to acknowledge and consider the gendered implications of survey tools than to discount quantitative measurements of loneliness entirely.

Inclusion point 9b specified that the third variable in statistical studies not explicitly focused on sex and loneliness should *not* be related to health or mental health variables, including drug or alcohol abuse. The present review may therefore have missed important evidence related to lonely men's health behaviours (synthetic construct 4, p65). The possibility that men are more 'hurt' by loneliness (Zebhauser et al. 2014), identified in the earlier stages of analysis then dismissed due to a lack of evidence (appendix 4), may also have been better investigated without this stipulation. The decision to not systematically investigate quality may limit the confidence with which the constructs represent widespread trends.

Whilst there was evidence for the importance of age, sexuality, student status, and even involvement in sport, areas such as ethnicity and social class received little attention. Included studies that used the Rokach causes of loneliness scale found North American (Rokach 1998; Rokach et al. 2002; Rokach 2003) and South Asian (Rokach 1998) men were more likely to identify 'social marginality' a cause of loneliness than women, yet this was not the case in West Indian (Rokach 1998) or Spanish populations (Rokach et al. 2002). This suggests that the importance of social networks may differ across cultures, therefore the relevance of these findings to the UK is not easily identifiable. Galdas et al. (2007) found that British-Asian men were more comfortable seeking help for cardio-vascular problems that White-British men, thus it is possible these men may also be more comfortable being forthright about emotional issues. 37% of the included studies were published before the year 2000, and many were conducted with students or older populations, or in different countries that, at times, portrayed markedly different results. The searches were conducted in July 2019, meaning the impact of Covid-19 was not systematically included in this review. The focus on a small number of 'western' countries severely constrains the international relevance of the findings.

A systematic account of differences within and between men across the world was beyond the scope of this review. Indeed, the potential for differences among men does not negate that they may be relevant to significant numbers of men. All six synthetic constructs were argued to be able to benefit from further research, in particular research that considers all six in its study design. Nevertheless, appropriately interpreted as theoretical propositions that will not be equally and unchangeably true of all men, these constructs act as a meaningful summary of important perspectives in the field of men and loneliness. From these, a more detailed and theoretically informed evidence base related to the impact of gender in men's constructions and experiences of loneliness can be ascertained.

3.9 Chapter summary

This review summarised and critically examined evidence related to the influence of sex or gender on men's constructions and experiences of loneliness. This produced a meaningful summary of what is currently known, and identified a number of limitations to the existing evidence base:

- Studies have suggested that different survey instruments on loneliness do not produce matching differences in prevalence when comparing men and women. However, this has rarely been specifically tested, and no UK datasets examining this were found.
- Though evidence was found to suggest people *believe* men respond to loneliness with changes in their health-related behaviours, this was not empirically verified in the included studies.
- Critically synthesising the included studies led to the proposition that men may show a greater association between their perception of their social network and loneliness, but no study specifically investigated this proposition.
- Studies finding sex differences in marital status and loneliness were widespread, yet few conceptually differentiated between never married and previously married people, or investigated why marital status may impact men and women differently.
- Though some literature began to discuss how the identified synthetic constructs might be intertwined, no single study considered all six. It is therefore unclear whether they are independent phenomena or interconnected.

The remainder of this thesis will interrogate the overarching research questions identified in Chapter 1, plus seven new sub-questions built from the findings of this review (creating total of nine sub-questions). These largely reflect macro-scale sex differences, therefore the comparison group to men is 'women' (see Chapter 2, section 2.2.1, p34 for a conceptual discussion on what this signifies). Each new sub-question also asks 'why' to ensure the data is placed within a holistic perspective ultimately answering the primary research question.

What is the influence of sex or gender on men's constructions and/or experiences of loneliness?

1. Are men reluctant to discuss emotional issues? Why?
2. Are men more reliant on partners/spouses for preventing/alleviating loneliness? If so, is this equally true for never married and previously married men? Why?

3. How do different measurements of loneliness impact sex differences? In particular, are men less likely to respond they are lonely on a direct question than on an indirect scale? Why?
4. Are men more likely to turn to poor health behaviours when experiencing loneliness? Why?
5. Is feeling/being labelled insufficiently masculine a cause of loneliness? Why?
6. Is men’s loneliness more closely linked to perception of social network than women’s? Why?
7. Are these trends independent phenomena, or are they linked? If so, how and why are they linked?
8. How might different intersections of identity such as class, ethnicity, sexuality, age, and physical ability intersect with men’s constructions and/or experiences?
9. What do the ‘answers’ to these questions mean for policy and practice related to tackling loneliness?

4. Methodology

Following the literature review, one main research question, and nine sub-questions, were formed (section 3.9, above). This chapter details the methodology used to investigate these questions. A mixed-methods approach was adopted, comprising two empirical studies. The first study, relayed in full in Chapter 5, consisted of a quantitative cross-sectional study employing a hypothesis testing approach. This aimed to investigate sub-questions 1-7, although dataset limitations meant only 5 of these 7 questions could be investigated. The second study, relayed in full in Chapter 6, conducted qualitative interviews with men. This was guided by the literature review and quantitative findings, but ultimately focused on inductively analysing men's perspectives on loneliness. A third analysis, conducted in Chapter 7, will systematically identify whether, where, and how the findings can be integrated, in particular the 'why' of sub-questions 1-7. Section 4.1 will conceptualise the mixing of methods. Sections 4.2 and 4.3 will present the methodologies for the quantitative and qualitative studies, and the research questions they are able to investigate. Section 4.4 will discuss and present how they will be analysed as mixed-methods research (MMR) rather than as two separate studies. Section 4.5 will summarise this chapter.

4.1 Conceptualising the mixing of methods

The mixing of methods was ontologically justified according to Mason's (2006) notion that lived experience is situated within macro settings. An 'interface' approach to timing and integration was taken (Guest 2013). Creswell and Plano-Clark's (2018) typology of an 'explanatory-sequential' study was used as foundation for explaining the 'interface'. Like this typology, the qualitative study was completed last, and helped 'explain' the quantitative data. However, the qualitative data could also form inductive findings, and the literature review was more influential than a typical 'explanatory-sequential' design.

The primary research question aims to understand men's 'constructions and experiences', suggesting a micro-scale study of individual perspectives (Bryman 2016). However, sub-questions 1-7 (section 3.9, p75) imply aggregate sex differences between men and women, indicating a macro perspective is also important. Mason (2006, p12) argues that macro trends are 'lived, experienced and enacted simultaneously on macro and micro scales'. Studies solely employing qualitative techniques, then, can fail to encapsulate the wider context of lived reality, whereas solely quantitative inquiry can fail to capture how the macro is experienced by individuals. This thesis focuses on subjective emotional experiences that can differ according to historicised cultures and structures of gender (see section 2.3, p47). As in Mason's (2006) work, then, it aims to understand lived experience within macro history and structure. To encapsulate this, it investigates both men's 'constructions', i.e., their subjective perspectives, and 'experiences', that is, what is different about the causes and consequences of loneliness for men.

To investigate this, a quantitative study was conducted first, and a qualitative study after it was completed. The quantitative study aimed to provide a more generalisable picture of macro-scale sex differences in what is associated with loneliness. The qualitative study aimed to provide both micro-scale context on the findings of the quantitative study, and inductive knowledge on men's subjective perspectives. In this way, the quantitative study focuses on the 'what', i.e., 'what' sex differences can be found, and the qualitative study possesses more focus on the 'how' and 'why', i.e., 'how' do men perceive loneliness, and 'why' might it facilitate differences between men and women. This allowed the qualitative study to provide data on men's 'constructions' of loneliness (including their constructions of their experiences), and the quantitative study to focus on 'experiences' insofar as it examines what is differently associated with loneliness in men and women on a mass scale.

This method parallels Cresswell and Plano-Clark's (2018) 'explanatory sequential' MMR typology. It is 'sequential' as it places the qualitative research *after* the quantitative research, and 'explanatory' as the qualitative study attempts to 'explain' the results of the quantitative study. Morse (2003) characterises this using the notation in figure 4. 'QUAN' points to 'qual' as it precedes the qualitative study. Moreover, 'QUAN' is capitalised as by conducting the quantitative study first, then attempting to explain it, the quantitative work provides the main framework by which the study is interpretable.

Figure 4. Notation for an explanatory-sequential mixed-methods study design.

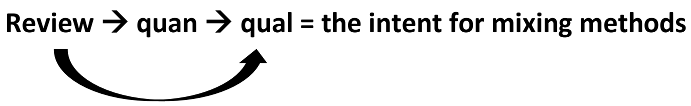
QUAN → qual = intent for mixing methods'.

The present thesis differs from this typology in three ways. Firstly, though the studies were conducted sequentially, the qualitative study was *not* employed solely to explain the quantitative study. It acknowledged and built on the results of the quantitative study, but constructed an analysis based on inductive interpretations. This was necessary as identifying men's constructions and experiences was the primary purpose of the study, and a purely explanatory-sequential approach would unduly limit the qualitative study's potential (Morse 2003). Secondly, the literature review also had a notable impact on the findings, as it was from this that sub-questions 1-7 were identified. Lastly, the majority of explanatory-sequential study designs interview respondents from the quantitative survey sample (Cresswell and Plano-Clark 2018). This ensures the qualitative study 'explains' the quantitative data. In this thesis, though, the qualitative sample was not taken from the quantitative study. The rationale for this is discussed further in section 4.2.2 (p80).

Guest (2013) is critical of the use of typologies such as 'explanatory-sequential' as they lack the necessary fluidity and flexibility for some mixed-methods work. An alternative conceptualisation may be an 'interactive' mixed-methods model (Maxwell 2012). In this, methods, goals, a conceptual framework, and issues of validity, are considered and used flexibly. Similarly, Guest (2013) recommends an 'interface' approach, in which the researcher should explain the timing of the research, its purpose, its theoretical orientation, the point of integration, and the relative importance of the quantitative and qualitative. In this study, conducting each study sequentially, with a clear view to contextualising the quantitative results (even if it is not the sole aim), means it does not possess the flexibility of Maxwell's (2012) approach. Moreover, retaining reference to Cresswell and Plano-Clark's (2018) typology, then describing the adaptations to it, was an effective method of explaining the 'timing' and 'interface' in the manner recommended by Guest (2013).

This also allowed Morse's (2003; Morse and Niehaus 2009) notation system to be adapted to succinctly place each component of the thesis (figure 5). In this, no differences in letter casing represents that each study was able to provide new knowledge for answering the research questions - they did not solely focus on 'explaining' the previous results. However, the directional arrows are retained as, by conducting the study in this order, the sequence may provide different results to a study conducted with a different timing and interface (Guest 2013). 'Review' is added as the literature review provided a framework for the quantitative study. An arrow from 'review' to 'qual' is also employed as some results of the literature review could not be investigated in the quantitative study (see section 4.2.2, p80). In the following sections, the methodology for the separate quantitative and qualitative studies will be described and discussed in reference to this MMR approach.

Figure 5. Notation describing the location of this study within the mixed methods thesis (adapted from Morse and Niehaus 2009).



4.2 Quantitative study methodology

The quantitative study employed a cross-sectional observational study design, incorporating a hypothesis testing approach. Research sub-questions 1-7 (section 3.9, p75) were identified as suitable for hypothesis testing. No existing dataset with variables able to investigate all seven questions could be found. After considering several options, the English Longitudinal Study of Ageing (ELSA) was selected for the study. This was able to investigate five hypotheses:

1. Men with equal scores of loneliness to women on an indirect scale will be less likely to state they are lonely according to the direct question on loneliness.
2. Loneliness will predict unhealthy behaviour more strongly in men than in women.
3. Single men will shower a greater increase in loneliness when compared to not single men than single women in comparison to not single women.
4. Men will show a greater increase in loneliness according to poorer perceptions of their social network than will women.
5. Men’s lower quality social networks will explain their greater reliance on partners for reducing the chances of loneliness.

Section 4.2.1 will describe and justify the study design. Section 4.2.2 will explain why ELSA was selected for the study, and how the above five hypotheses were defined. Section 4.2.3 summarises the quantitative study and its position within the mixed-methods thesis. A description of the methods is in Chapter 5 (section 5.2, p94).

4.2.1 Study design

The study applied a cross-sectional design using the most recent wave of ELSA available at the time the study commenced (wave 8). A hypothesis testing approach was employed as sub-questions 1-7 (section 3.9, p75) all represented hypothetical macro-scale sex differences in loneliness. These were reduced to the five hypotheses above as no existing dataset was able to investigate all seven questions (details on this process are in section 4.2.2). Regression models were used to control for other important variables linked to loneliness. Interaction terms were used in most models to investigate whether there was a statistically significant difference in the size and/or direction of men's and women's relationship between loneliness and a third variable (the third variable represented either health behaviour, partner status, or perception of social network). A description of the variables is in Chapter 5, section 5.2.2 (p95). The aim of the present thesis was to provide a detailed picture of current sex differences in loneliness. Data from past waves were therefore considered inherently less relevant than the current wave, and longitudinal trajectories were not considered an important dimension of the research. A full statistical analysis plan is in Chapter 5, section 5.3 (p103).

4.2.2 Selecting a dataset and forming the hypotheses

Following the literature review, seven research questions related to macro-scale sex differences in loneliness were identified:

1. Are men reluctant to discuss emotional issues? Why?
2. Are men more reliant on partners/spouses for preventing/alleviating loneliness? If so, is this equally true for never married and previously married men? Why?
3. How do different measurements of loneliness impact sex differences? In particular, are men less likely to respond they are lonely on a direct question than on an indirect scale? Why?
4. Are men more likely than women to turn to poor health behaviours when experiencing loneliness? Why?
5. Is feeling/being labelled insufficiently masculine a cause of loneliness? Why?
6. Is men's loneliness more closely linked to perception of social network than women's? Why?
7. Are these trends independent phenomena, or are they linked? If so, how and why are they linked?

No existing dataset was identified that could investigate of all of these, therefore a process of identifying a 'best fit' dataset was undertaken. This resulted in the selection of ELSA. A detailed description of ELSA is provided in Chapter 5, section 5.1 (p92). This section will detail the process for selecting ELSA, and the intertwined process of forming the five hypotheses above (p80).

Investigating all seven questions would require a single dataset with variables representing: i) perception of social network; ii) emotional openness; iii) partner status; iv) multiple measures of loneliness (ideally a single direct question and an indirect scale); v) health behaviours; vi) masculinity; and vii) sex. As noted, no such dataset could be identified. In selecting a 'best fit' dataset, the availability of the above variables, the quality of the variables, sample size, and location were considered. As measuring 'masculinity' in a survey is conceptually problematic (Connell 2005; Thompson 2006), the other variables were prioritised, in particular sex and loneliness (as these are required for all seven questions). The study focuses on 'what' sex differences exist, therefore the 'why' at the end of each question was disregarded (this will receive more attention in the qualitative study – see section 4.3, p84).

Four potential datasets were shortlisted: the English Longitudinal Study of Ageing (ELSA), wave 8 (Clemens et al. 2019); primary data collection (which would require writing and sampling); the Community Life survey 2017/18 (Department for Culture, Media and Sport 2019); and the Opinions and Lifestyle Survey 2016 (ONS 2017). The strengths and weaknesses of each are listed in table 9. The Opinions and Lifestyle Survey 2016 was dismissed first as, at the time this study commenced, it included no questions on loneliness (questions on loneliness have been added in subsequent waves). The Community Life survey 2017/18 included extensive details on social networks, and perceptions of them, as well as a question on loneliness. However, the version available when this study commenced only included a single direct question about loneliness, which may underestimate male loneliness (Rokach 2018). It also lacked any measures of health behaviour. It was therefore the second to be discounted.

ELSA includes variables related to partner status, health behaviour, perceptions of social relationships, and both a direct and indirect measure of loneliness. It also possesses the largest sample. However, it focuses on people aged 50 and above, yet the current thesis was not designed to be age limited. It also lacked questions representing 'masculinity' and 'emotional openness'. Designing and conducting an original survey was capable of constructing the best aligned question set without excluding people aged under 50. However, collecting primary data via one relatively inexperienced researcher would not provide a dataset anywhere near the quality and size of ELSA, which employs a dedicated team of researchers and statisticians. Wave 8 of ELSA was therefore considered the best dataset available at the time the study commenced (March 2020). As it does not include measures of 'masculinity' or 'emotional openness', sub-questions 1 and 5 could not be modelled. The quantitative component of this thesis therefore investigated the five hypotheses detailed above (p80).

Table 9. Strengths and weaknesses of shortlisted datasets

Dataset	*Advantages*	*Disadvantages*
ELSA 2017 (wave 8)	Large sample. Multiple measures of loneliness. Detailed partner status information. Variables representing unhealthy behaviour. Variables on people's social connections.	Respondents all aged 50+ No questions on emotional openness or masculinity.
Primary data collection	Can design perfectly aligned questions. Respondents of all ages.	Likely to produce a small sample. Limited resources may introduce bias. Limited expertise may introduce bias. Limited access to potential respondents. Extremely time-consuming.
Community Life survey 2017/18	Adequate sample size. Respondents of all ages. Extensive data on social networks and people's perceptions of them.	Only one measure of loneliness in this wave (direct question). No measures of unhealthy behaviours. No questions on emotional openness or masculinity.
Opinions and Lifestyle Survey 2016	Adequate sample size. Variables representing unhealthy behaviour. Detailed partner status information Variables on unhealthy behaviours. Some items related to social networks. Respondents of all ages.	No data on loneliness in this wave. No questions on emotional openness or masculinity.

4.2.3 Summary

This sub-section introduces the quantitative component of the thesis. Following the literature review, seven research questions suitable for quantitative inquiry were identified (section 3.9, p75). This study used ELSA (wave 8) to investigate five of these seven questions (p80). A cross-sectional hypothesis testing approach was employed, primarily using regression analysis with interaction terms. This component of the thesis adds to the bodies of work examining macro trends related to sex/gender and loneliness, and begins to quantify how they may be inter-related. In doing so, it provided a stronger framework for the qualitative study by providing detail of the wider social context in which men experience loneliness.

4.3 Qualitative study methodology

The qualitative study followed an interpretivist design using semi-structured interviews. In line with the mixed-methods framework relayed in section 4.1, it consisted of two dimensions:

1. Inductively identify the influence of sex/gender on men's constructions of loneliness, and their constructions of their experiences.
2. Contextualise the findings of the quantitative study and literature review.

To conduct a study able to incorporate both dimensions, a primary question and eight sub-questions were specified (below). The main question, and sub-questions 7 and 8, allow the study to inductively derive data (dimension 1 above). Sub-questions 1-6 focus on contextualising the quantitative and the literature review findings (dimension 2). In section 4.1 (p77), a mixed-methods design in which the qualitative study is not bound to explaining the findings of the quantitative study and literature review was specified. Sub-questions 1-6 were therefore viewed as a guide to what *may* be relevant, but it was not assumed that these will constitute an appropriate framework for the eventual findings. A third analysis, which included a more specific focus on sub-questions 1-6, was conducted after the qualitative analysis was complete (see section 4.4, p89 for details). This section will focus on the methodology for the qualitative study.

What is the influence of sex or gender on men's constructions of loneliness, and their constructions of their experiences of loneliness?

1. Why might men be more reliant on partners/spouses for preventing/alleviating loneliness?
2. Why might men be less likely to respond they are lonely on a direct question than on an indirect scale?
3. Why might men more likely than women to turn to poor health behaviours when experiencing loneliness?
4. Why might men's loneliness be more closely linked to perception of social network than women's?
5. Do men show a reluctance to discuss emotional issues? Why?
6. Can being or feeling 'insufficiently masculine' be constructed as relevant to experiences of loneliness?
7. How might different intersections of identity such as class, ethnicity, sexuality, age, and physical ability intersect with men's perspectives?
8. Are the findings linked? How and why?

Semi-structured interviews enabled the study to inductively analyse men’s perspectives, and probe both manifest and latent perspectives and emotions (Boyatzis 1998; Plummer 2001). Theoretical thematic analysis was used to analyse the data (Braun and Clark 2006). Section 4.3.1 further details the study design. Section 4.3.2 discusses why and how semi-structured interviews were used, and section 4.3.3 relays the methodology used for the analysis. Section 4.3.4 summarises the qualitative study and its position within the mixed-methods thesis. A detailed description of the methods is in Chapter 6 (section 6.1, p136).

4.3.1 Study design

The primary research question aims to understand men’s constructions and experiences. Aiming to understand ‘constructions’ indicates that this thesis operates from an interpretivist perspective, where the subjective interpretations of men are the arbiter for understanding the data (Braun and Clark 2006). Chapter 2 conceptualised masculinities as bound in socio-historical power nexuses, yet which may be assumed and invisibly produced and reproduced. Masculinities have been identified as key to understanding the impact of gender in men’s constructions and experiences of loneliness (Milligan et al. 2015; Anstiss et al. 2018; Collins 2018; Reynolds et al. 2015; Ratcliffe et al. 2021). In particular, ‘hegemonic’ masculinities, requiring an assumption of dominance and power, are theoretically incompatible with loneliness (de Jong-Gierveld et al. 2018; Rokach 2018). Boyatzis’s (1998) conceptualisation of ‘manifest’ and ‘latent’ meaning was therefore a useful methodological distinction. ‘Manifest’ meaning denotes the stated perspectives of people, whereas ‘latent’ meaning denotes that which is assumed and invisible, yet vital for logically interpreting phenomena. ‘Hegemonic’ masculinities are theoretically placed as implicit and assumed cultural ideals, therefore may not be ‘manifestly’ identifiable. Identifying latent meaning, unspoken yet intrinsically relevant to human constructions and experiences, is therefore vital to this study design.

The two dimensions to the qualitative component of the MMR meant it was framed by two methodological positions. The second dimension, to offer context on the findings of the quantitative study and literature review, is influenced by the principles of an ‘explanatory-sequential’ design (Creswell and Plano-Clark 2018). Sub-questions 1-6 are therefore highly specific, and will require a methodological approach more focused on ‘manifest’ meaning that directly answers sub-questions 1-6. As discussed in section 4.1 (p77), though, the MMR design did not aim to conduct a qualitative study solely focused on explaining the findings of the quantitative study and literature review.

Rather, an inductive approach, ultimately aiming to answer the primary question, was taken to facilitate a more holistic study (Morse 2003).

This implies a grounded approach, in which the findings are guided by the qualitative data rather than by pre-ordained areas of interest (Holloway and Wheeler 1996; Cresswell 2003). However, as the qualitative study took place after the literature review and quantitative study, it is unreasonable to imply that a wholly inductive approach was possible. Instead, the study aimed to acknowledge that the results of the literature review and quantitative study may denote important perspectives, without imposing them into the findings (Morse 2003; Uprichard and Dawney 2019). To do so, a reflexive approach to the impact of the literature review and quantitative findings was taken (Mason 2006). This used sub-questions 1-6 as a guide to what may be relevant, but did not require constructing conclusions specifically in regard to them. Rather, an induced set of findings, best able to represent men's constructions and their interpretations of their experiences, will constitute the results of the qualitative study.

4.3.2 Semi-structured interviews

In Chapter 2, loneliness was conceptualised as a subjective emotion, which may not be consistently defined. Interviews were chosen as a method of data collection as they are particularly effective for investigating moods, feelings, and emotions (Plummer 2001). Interviews have been criticised for not representing a 'naturalistic' circumstance, such as that which could be attained via ethnography or participant observation (Brewer 2000). However, this 'unnatural' arena was useful for this study as it allowed both participant and researcher the time and space to probe and reflect on subjective perspectives and emotions (Gough and Madill 2012). The overarching interview methodology is described as 'semi-structured' as the interviews will use a guide to frame the important questions, but sequencing and phrasing will not be fully standardised (Britten 1995). In line with the two methodological dimensions to the research questions (p84), two parts to the interviews were specified: a largely unstructured line of questioning; and a more structured topic guide ensuring discussion of the literature review and quantitative findings.

The unstructured question format was influenced by Hollway and Jefferson's (2000; 2008) technique of 'free association'. Hollway and Jefferson emphasise the importance of incoherent narratives as critical to our understanding of the social world. They place individual narratives within a notion of the 'defended-subject', a person who constructs their perspective in a manner that protects their emotional well-being. Unstructured lines of questioning, facilitating broader life-stories, can manifest that which is 'freely associated' with the subject matter, rather than forcefully attempt to find ‘rational’ ideals of cause and effect. In this way, it is particularly suitable for a study aiming to discover ‘latent’ meaning, such as that which can be represented as ‘hegemonic’ (Ratcliffe et al. 2021). Moreover, its focus on highly inductive data collection was conducive to identifying perspectives not captured by the quantitative study or literature review.

One key difference to Hollway and Jefferson’s (2000; 2008) approach was taken in the first part of the interviews. In their 2008 chapter, they recommend avoiding questions of ‘why’ because it can elicit ‘intellectualisation’, that is, a ‘sociological’ response, rather than personal one. In this study, though, personal views on sociological questions of ‘why’ are paramount to the research question. ‘Constructions’ of loneliness denote individual perspectives and beliefs. The concept of ‘hegemony’, and the identification of wider trends, implies there may be some consistency which is not immediately identifiable within the narrative. Asking men ‘why’, and inviting them to offer more ‘sociological’ responses, was therefore an effective method of encouraging a reflexive account, able to explore men’s constructions within a historical and socio-structural paradigm.

The second component of the interviews were more structured questions based on the results of the literature review and quantitative study. Two epistemological goals defined this tactic. Firstly, they investigated whether the literature review and quantitative findings were relevant to the men in the interviews. If so, they then aimed to ‘explain’ why this was the case. It is important to note that men’s individual accounts may not be consistent with quantitative findings, and that even if they are, a perfect ‘explanation’ was unlikely (Uprichard and Dawney 2019). Nevertheless, as macro-scale sex differences are vital to the thesis as a whole, understanding men’s lived experiences within such trends is a key dimension of the MMR design (Mason 2006). The second epistemological goal was to provoke a reflexive account within the men’s narratives. In the more ‘freely associated’ component of the interview, the men were largely allowed to discuss what they felt was relevant. By asking more structured and evidence based questions, it was hoped that men may question, clarify, and rethink their narratives, aiding the manifestation of latent influences (Boyatzis 1998; Ratcliffe et al. 2021).

4.3.3 Analysis

Braun and Clark’s (2006) ‘theoretical thematic analysis’ was the primary analysis technique, incorporating Mason’s (2002) recommendation of three readings of the data. Theoretical thematic analysis focuses on producing text-based themes, centred on a specific topic or topics, developed in conjunction with existing theory and data (Braun and Clark 2006). This renders it effective at identifying ‘latent’ themes (Boyatzis 1998) as it allows the analysis to iteratively consider theoretical propositions as a route to interpreting data which may otherwise remain hidden. It is also useful for reflexively considering the impact of the quantitative study and literature review. As specified above (section 4.3.2, p86), the second part of the interview asks more structured questions based on the results of the literature review and quantitative study. By considering these alongside theory and data, the analysis could consider these topics without incorporating a prescriptive ‘explanatory’ framework.

The influence of theory and pre-existing data emphasises the need for a ‘reflexive’ approach, able to critically consider their influence. To do so, Mason’s (2002) recommendation of a 'literal', ‘interpretive', and 'reflexive' reading was employed. Mason (2002) emphasises research as a co-construction of data, in which, ultimately, the researcher has the power to present the findings according to their own interpretive framework. The theoretical thematic analysis employed acknowledges this, and attempts to build a study incorporating theoretical perspectives and wider social trends into this process. Nevertheless, it remains important to place the findings within the manifest perspectives of the men interviewed. The ‘literal’ reading allows a clear manifestation of these perspectives by focusing on what men actually said. The ‘interpretive’ reading then turned more closely to ‘latent’ meaning - assumed cultural frameworks, that may be more easily conceptualised by building from theory. Finally, to avoid interpreting data in a manner no longer representing men’s manifest perspectives, a ‘reflexive’ reading will take place. In this, a specific focus will be placed on searching for data contradicting the themes. The details of how this was employed, including coding, are in Chapter 6, sections 6.1.3-6.1.4 (p140).

4.3.4 Summary

The qualitative study consisted of two dimensions: inductively identifying the influence of sex/gender on men’s constructions of loneliness/their constructions of their experiences; and contextualising the results of the quantitative study and literature review (as a route to identifying the influence of sex/gender on men’s constructions and/or experiences of loneliness - the primary aim of the whole thesis). An interview study, focusing on men’s subjective perspectives, was conducted. The interviews consisted of two components. The first utilised Hollway and Jefferson’s (2000; 2008) ‘free association’ method, and represented a broader, more inductive investigation. The second mirrored Creswell and Plano-Clark’s (2018) ‘explanatory-sequential’ mixed-methods study design, albeit constructed in relation to both the quantitative study and the literature review, and which aimed to be reflexive as well as explanatory. A theoretical thematic analysis (Braun and

Clark 2006) was conducted to utilise the strength and breadth of existing theory, as well as the literature review and quantitative study conducted prior to the qualitative study. Three readings of the data aimed to properly encapsulate both men's stated perspectives and latent meaning (Mason 2002).

4.4 Mixed-methods analysis

In Chapters 5 and 6, this thesis will focus on the quantitative and qualitative research as two relatively standalone studies. A third analysis, systematically investigating whether, where, and how the findings can be integrated, is in Chapter 7. This section will discuss the methodology informing this third analysis. The results of each study will be contrasted using O' Cathain et al.'s (2010) notion of a 'triangulation protocol', with reference to whether the findings are 'confirmatory', 'expansive', or 'discordant' (Fetters et al. 2013), or 'silent' (Farmer et al. 2006). To represent each findings holistically, a thematic representation of the three studies, including narrative discussion, was constructed after triangulation protocol. It is also argued that 'analytic density' is preferable term to 'integration' as the latter pre-supposes that each dataset will cohere (Fielding 2012; Uprichard and Dawney 2019).

Fielding (2012) argues that the goal of MMR is not to sum up datasets, but to use them to provide greater 'analytic density' than if they were standalone studies. This is often termed 'integration' (Fetters and Freshwater 2015). For Fetters et al. (2013), a key component of this is identifying whether the datasets are confirmatory, expansive, or discordant. 'Confirmation' is when two datasets agree, 'expansion' when the findings allow for greater insight than they could as two separate studies, and 'discordance' when they disagree. Farmer et al. (2006) employ a similar perspective, but also include the concept of 'silence'. This refers to important findings of one study that are missing in the other.

Starting with a similar perspective[1], O' Cathain et al. (2010) identify three tools for MMR analysis. A 'triangulation protocol' involves the production of a convergence coding matrix to display the findings of each study, which are then *theoretically* contrasted. It is carried out after the two studies have been analysed separately, and adds analytic density by constituting what Morgan (1998) describes as a 'third effort'. O' Cathain et al.'s (2010) second method, 'following a thread', consists of a more grounded design. In this, early results of note are continually investigated through an iterative process of analysis and data collection. O' Cathain et al.'s (2010) final method, a 'mixed-methods matrix', presents the quantitative and qualitative data on specific topics alongside one another, using systematic criteria for inclusion.

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[1] They use the terms 'convergence', 'complementarity', 'discrepancy/dissonance', and 'silence'.

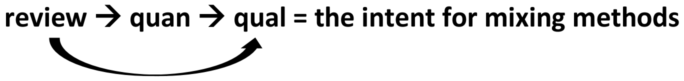
Qualitatively inclined mixed-methods approaches have been critical of such frameworks. Uprichard and Dawney (2019) suggest the term 'integration' assumes *a priori* that two studies can be integrated in a meaningful manner, thus insufficiently recognises the relationality, messiness, and incomplete nature of data. They recommend a 'diffractive' approach, in which MMR analysis presents a series of 'messy cuts' that represent different perspectives, but which cannot necessarily be integrated into a knowable whole. Mason (2006) also emphasises perspective and relationality. For her, 'the macro is known through the lens of the micro' (Mason 2006, p14), i.e., individuals experience socio-political power and processes as individuals. She therefore recommends a 'dialogic' and 'multi-nodal' approach. A 'multi-nodal' approach attempts to recognise the different dimensions of the human experience, such that data is considered and represented as a perspective on a particular issue, rather than an unproblematic whole. 'Dialogic', on the other hand, recognises and attempts to conceptualise the relationality, intersectionality, and social construction of those experiences by participant and researcher.

This thesis will contrast the two studies after they have been analysed separately, rendering O' Cathain et al.'s (2010) notion of a 'triangulation protocol' a useful tool. It will do so with reference to confirmatory, expansive, discordant, and silent aspects of the data, suggesting an ontological perspective more influenced by Fetters (Fetters et al. 2013; Fetters and Freshwater 2015) than by Mason (2006) or Uprichard and Dawney (2019). However, understanding how macro trends are constructed and experienced by individual men is key to the current thesis in precisely the way Mason (2006) argues. Considering confirmatory, expansive, discordant, or silent data, then, did not aim to construct a knowable whole. Rather, it aimed to constitute a reflexive analysis of the knowledge and perspectives it is constructing. It will not constitute the end goal of the MMR analysis, but a route to providing a theoretically logical interpretation of the results. In accordance with Uprichard and Dawney's (2019) critique, this will not be termed 'integration', but as an attempt to provide greater 'analytic density' (Fielding 2012). To do so, a thematic synthesis, incorporating a narrative discussion, was conducted presented after the triangulation protocol.

4.5 Chapter summary

MMR was conducted as the overarching research question necessitates investigation of subjective interpretations, lived experiences, *and* macro-trends. To summarise the conceptual approach taken, Morse's (2003; Morse and Niehaus 2009) notation system was adapted to emphasise the order of the studies, and the relatively equal weight of each, including the literature review:

Figure 5 (repeated). Notation describing the location of this study within the mixed methods thesis.



In the quantitative study, a cross-sectional study incorporating a hypothesis testing approach was formed. This aimed to test whether the potential trends identified in the literature review represent an accurate portrayal of modern UK. Despite some limitations, in particular the age of the sample, ELSA was considered the best dataset available. The qualitative study consisted of two intertwined purposes: to ask men about their constructions and experiences of loneliness; and to offer context and explanation for the results of the literature review and quantitative study. Semi-structured interviews were conducted. These were designed to begin in a broader, more open manner, before employing more targeted questions based on the findings of the literature review and quantitative study. Chapter 5 presents the quantitative study, and Chapter 6 the qualitative study. In these chapters, they are analysed and discussed as standalone studies. Chapter 7 then adds to the analytic density of the two studies by systematically contrasting the two studies, and forming a thematic summary indicating whether and how they can be integrated.

5. Quantitative study: investigating sex differences in what is associated with loneliness

This chapter presents the quantitative component of the mixed-methods thesis. A cross-sectional observational study utilised regression analyses to investigate five hypotheses:

1. Men with equal scores of loneliness to women on the indirect scale will be less likely to state they are lonely according to the direct question on loneliness.
2. Loneliness will predict unhealthy behaviour more strongly in men than in women.
3. Single men will show a greater increase in loneliness when compared to not single men than single women in comparison to not single women.
4. Men will show a greater increase in loneliness according to poorer perceptions of their social network in comparison to women.
5. Men's lower quality social networks will explain their greater reliance on partners for reducing the chances of loneliness.

Details on how and why these hypotheses were formed are in Chapter 4, section 4.2 (p80). The data was investigated in the English Longitudinal Study of Ageing (ELSA). 17 regression models were conducted, 16 of which utilised interaction terms. This enabled the study to focus on differences between men and women. Section 5.1 describes ELSA. Section 5.2 details the methods, including a detailed description of the available variables, and a statistical analysis plan. Section 5.3 gives the findings. Section 5.4 discusses the theoretical ramifications of the findings, and section 5.5 considers the strengths and limitations of the study. Section 5.6 summarises the study.

5.1 Description of ELSA

ELSA is a longitudinal study that began in 2002, after which data has been collected every two years. Its core sample consists of people aged 50+, and its full sample includes partners of the core participants (who may be any age). Eligible participants reside in England, and not in an 'institution', at the time they are invited to take part (Taylor et al. 2007). ELSA does not provide an exact definition of 'institution', but the wave 1 technical report refers to most being 'residential or nursing homes' (Taylor et al. 2007, p33). Participants who move elsewhere in the UK, or who enter institutions, after already taking part in a previous wave, can continue to be included. Its initial sample was drawn from households who responded to the Health Survey for England (HSE) either in 1998, 1999, or 2001 (Taylor et al. 2007). HSE participants were selected via a multi-stage stratified probability sampling design on the Postcode Address File (PAF). Postcode sectors, stratified by health authority and the amount of non-manual socio-economic groups, were selected according to their size, from which a fixed number of addresses were identified to provide the sampling frame (Valtorta et al. 2017). The first wave totalled 12,099 interviews, of which 11,391 were 'core members', and 708 were partners of core members. To continue to provide representative cross-sectional data, new members were added to the study at waves 2, 4, 6, and 7 (Breeden et al. 2018).

This study uses cross-sectional data from wave 8 of ELSA, which was, at the time this study commenced, the most recent wave. These data were collected between May 2016 and June 2017. It comprises of 8,445 responses, of which 7,223 are 'core' members. This study focuses on the core sample. 287 core members were 'proxy' interviews, in which a designated individual, such as a relative or advocate, responded on the members behalf. This was conducted if the respondent possessed a physical or cognitive impairment, were away in hospital or temporary care, or had refused a personal interview but were happy for a proxy to answer for them. 54% of proxy interviews were conducted with men and were most common in ages 60-64 or 85+, with respondents aged 70-74 least likely to utilise a proxy interview (Breeden et al. 2018).

5.1.1 Response rates

Responses rates, both in total and among different groups, are a key component of a surveys quality (Fincham 2008). Breeden et al. (2018) provide a chapter on this in the official ELSA Wave 8 documentation. In this, they specify 7223 (82.4%) of eligible core members provided a response. Table 10, a direct reproduction of their data, states the number of participants from each cohort refreshment, and the individual response rate for eligible participants. This shows lower retention rates in more recent samples, indicating that people responded to the first, third or fourth wave were more likely to keep responding than new additions to the sample. Of 1547 eligible core members who did not provide a response in wave 8, 109 did not contact the research team at all, 921 refused to take part, 144 could not be traced, and 373 did not take part for 'other' reasons. The most common 'other' reason was ill health/being in hospital. Table 11 is a reproduction of Breeden et al.'s (2018) table showing response rates by sex and age. This shows there was little evidence of sex differences in response rates, but higher dropout among people aged 75+. Additionally, although they do not publish details, they state that logistic regression predicting non-response in wave 8 (among people who responded to waves 1-7) found six statistically significant predictors: gender by age; region; index of multiple deprivation (IMD) quintile; urban/rural classification; highest educational qualification; and whether moved residence between waves 6 and 7. Access to non-response data was not accessible for further analysis.

Table 10. Individual response rates in ELSA wave 8, by cohort (core sample)

Cohort joined ELSA	Number of responses (denominator)	response rate (%)
Cohort 1	4219	83.6
Cohort 3	723	82.4
Cohort 4	1470	83.4
Cohort 6	582	73.8
Cohort 7	229	78.2
All cohorts	7223	82.4
Total no. of invited individuals	*8770*	-

*Table reproduced from Breeden et al. (2018)

Table 11. Percentage of eligible none-respondents in wave 8 who had provided responses for waves 1-7, by sex and age (core sample)

	50-59	*60-74*	*75+*	*Total*
Male non-respondents	6%	8%	18%	8%
Female non-respondents	7%	10%	18%	9%
Total non-respondents	6%	9%	18%	8%

* Table reproduced from Breeden et al. 2018. N not provided.

5.2 Methods

A cross-sectional study employed multivariate regression analyses to investigate five hypotheses. 17 regression models were built. Section 5.2.1 relays how an appropriate sample was taken from ELSA, and section 5.2.2 discusses and details the variables used. Section 5.2.3 gives a statistical analysis plan. This details how missing data was investigated and treated, what descriptive statistics were generated, and the how the 17 regression models were formed.

5.2.1 Selection of analytical sample

The study derived its sample from wave 8 of ELSA. Past waves were not used as the study aimed to provide a current analysis of sex differences in loneliness, without the need for investigating historical trajectories (see Chapter 4, section 4.2.1, p80). ELSA includes a core sample, plus some people who are cohabiting partners of core sample members. Partners of core members were not included in the analytical sample as the current thesis did not aim to investigate dyadic effects (Taylor et al. 2007), and their inclusion could bias the sample. The 287 'proxy' interviews, people who had someone answer on their behalf, were also excluded. This action was taken because the personal nature of loneliness was considered ill-suited to being answered by a person who is not the actual respondent, particularly for the hypothesis investigating people's propensity to admit loneliness. The analytical sample used in this study consisted of 6936 respondents (82% of the whole sample, and 96% of the 'core' sample).

5.2.2 Variables

This section defines and discusses the variables used in the study. All variables are unweighted responses given in wave 8 of ELSA. Section 5.2.2.1 describes and justifies the use of three different variables representing loneliness. Section 5.2.2.2 considers and provides four variables representing health behaviours: i) whether currently smokes; ii) fruit/vegetable consumption; iii) estimated alcohol consumption in the past year; and iv) units of alcohol consumed in the past week. Section 5.2.2.3 provides the details and rationale for how the variable representing partner status was formed. Section 5.2.2.4 describes and justifies the formation of four variables for measuring social networks/perceptions of social networks: i) a dichotomous measure of severe social isolation; ii) a scale variable indicating the total number of close relationships; iii) a dichotomised variable indicating whether the respondent has any close relationships; and iv) a score variable indicating the respondents view of their friendships. Section 5.2.2.5 relays how 'sex' was measured, and section 5.2.2.6 lists and justifies the control variables used throughout each model.

5.2.2.1 Loneliness

ELSA includes four items derived from the UCLA scale. Three constitute the short version of the scale formed and statistically validated by Hughes et al. (2004), and the other asks how 'in tune with others' the participants feel. For all four UCLA items, ELSA transformed the items into full questions. Thus, where Hughes et al.'s (2004) wording is 'I lack companionship', ELSA asks 'how often do you feel you lack companionship ('hardly ever/never', 'some of the time', or 'often'). Hughes et al. (2004) formed the-three item scale by taking the revised 20-item version formed and validated in Russell et al. (1980) and identifying three factors. 'I feel left out', 'I feel isolated', and 'I am unhappy being so withdrawn' showed the highest loadings within each factor, thus formed the basis of the scale (although the latter was replaced with 'I lack companionship' for its simpler wording). As including the fourth item ELSA provides could bias the results in favour of one factor, many studies have only used these three items (e.g., Hanratty et al. 2018). This study will do the same.

The three-item version of the scale gives a score between three and nine. Literature has often dichotomised the three-item UCLA scale into 'lonely/not lonely' by identifying a score of 6-9 as 'lonely, and 3-5 as 'not lonely' (Steptoe et al. 2013; Goodman et al. 2015). This has been criticised for being a somewhat arbitrary cut off – as Valtorta (2017) notes, a score of six can be reached by answering 'sometimes' to each of the three questions, whereas only five is reached by answering 'often' to one and 'hardly ever/never' to the others. Nevertheless, the dichotomised scale has also been argued to represent a meaningful perspective on whether the respondent is problematically lonely, which can also overcome validity issues associated with the small range and skew of the score data (Steptoe et al. 2013; Pikhartova et al. 2014). In line with this reasoning, the current study used the dichotomised version when linear models did not possess a normal distribution of standardised residuals, or uniform variance of predicted vs observed residuals (see appendix 7 for details).

ELSA also includes *two* 'direct' questions about loneliness: one asking how often the respondent feels lonely ('hardly ever/never', 'some of the time', or 'often'), and the other asking 'have you felt lonely much of the time *in the last week'* ('yes', 'no'). The former is specifically to measure loneliness, whilst the latter is part of the 20-item Centre for Epidemiologic Studies Depression Scale (CESD) (Radloff 1977). Past research has shown they significantly correlate (Hughes et al. 2004; Valtorta 2017). The specification of 'in the last week' in the CESD item renders it less useful, as this may not be a typical representation of the respondents emotions, and is less comparable to the UCLA items, which do not specify a time frame. This study will primarily use the three-item UCLA scale (dichotomised in models where it is the dependent variable), and the non-time-specified direct question is used for models investigating the difference between directly and indirectly asking about loneliness. The question on loneliness in the past week was used in one test to compare it against alcohol consumption in the past week, as the matching timeframes was considered useful for interpreting the results.

5.2.2.2 Measuring unhealthy behaviour

Four variables were used to represent health behaviour: i) whether the respondent currently smokes; ii) how many portions of fruit and vegetables they eat on an average day; iii) how often they tend to drink alcohol over the past year; and iv) how many units of alcohol they have consumed in the past week. ELSA includes a binary variable asking whether the respondent smokes ‘nowadays’, which was used in this study to represent ‘current smokers’ and ‘not current smokers’. Ex-smokers were included as ‘not current smokers’ as the study is focused on recent behaviour in relation to loneliness, rather than long term health implications of smoking. The second variable estimated how many portions of fruit and vegetables are eaten by a respondent on a typical day. This was formed by adding together a variable asking how many portions of fruit (of any kind) are eaten on an average day, and another asking how many vegetables (excluding potatoes) are eaten.

The third variable asked ‘how often have you had an alcoholic drink of any kind during the last 12 months?’ In ELSA, answers consisted of eight ordinal responses: almost every day; five or six days a week; three or four days a week; once or twice a week; once or twice a month; once every couple of months; once or twice a year; not at all. In this study, this was reduced to four categories: never - once every couple of months; once a month - twice a week; three - six days a week; almost every day or more. This variable was used as the dependent variable in a multinomial regression. Initially, a model using all eight categories was used, but the merged categories showed similar results. Reducing the number of categories therefore aided presentation and interpretation without meaningful impacting the results.

The final variable was ‘estimated units of alcohol consumed in the past week’. This was constructed from three variables: number of measures of spirit the respondent had consumed in the last seven days; number of glasses of wine (or similar drinks) the respondent had consumed in the last seven days; and number of pints of beer or cider the respondent had consumed in the last seven days. In the UK, one alcohol unit is measured as 10 ml of pure alcohol. Frischer et al. (2015) state that this typically equals one measure of spirit (ABV 40%), 1/3 of a pint of beer (ABV 5%), or half a standard (175 ml) glass of red wine (ABV 12%). Using these estimates, to better represent the actual amount of alcohol consumed, the number of pints were multiplied by 3, and the number of glasses of wine by 2, thus creating a total estimated number of units of alcohol consumed.

5.2.2.3 Measuring ‘partner status’

ELSA records marital status according to six categories: in a first marriage; in a second or later marriage; never married; separated; divorced; or widowed. Civil partnerships were recorded as ‘married’. This variable does not include other unmarried partnerships, but there is a separate item asking whether the respondent has a ‘husband, wife *or partner* with whom (they) live’. As studies such as Peters and Liefbroer (1997) and Knox et al. (2007) have suggested unmarried cohabiting partners may also be relevant, particularly for men, a variable combining this and ‘marital status’ was created. This initially resulted in 12 categories: first marriage and cohabiting with a partner; second marriage or later and cohabiting with a partner; separated but cohabiting with a partner; divorced but cohabiting with a partner; widowed but cohabiting with a partner; cohabiting but never married; first marriage but not cohabiting with a partner; second marriage or later but not cohabiting with a partner; separated and not cohabiting with a partner; divorced and not cohabiting with a partner; widowed and not cohabiting with a partner; never married and not cohabiting with a partner.

This was reduced to three categories as many represented small numbers of respondents, yet were logically similar, and provided similar results to models that were initially constructed using all 12 categories. The final categories were: cohabiting with a partner (first marriage and cohabiting with a partner; second marriage or later and cohabiting with a partner; separated but cohabiting with a partner; divorced but cohabiting with a partner; widowed but cohabiting with a partner; cohabiting but never married); never married and not cohabiting with a partner; and has experienced marriage but not cohabiting with a partner (first marriage but not cohabiting with a partner; second marriage or later but not cohabiting with a partner; separated and not cohabiting with a partner; divorced and not cohabiting with a partner; widowed and not cohabiting with a partner).

5.2.2.4 Sex

In ELSA sex is answerable as ‘male’ or ‘female’. This will provide the basis for the sex comparisons critical to this study. ELSA does not provide any further information.

5.2.2.5 Measuring the perceived quality of social networks

ELSA does not include any measures specifically set up to investigate this concept, nor does it include any validated scales of related concepts, such as the Berkman-Syme Social Network Index (Berkman and Breslow 1983), or the Lubben Social Network Scale (Lubben 1988). However, it does include a number of questions with relevance to the concept, and researchers have formulated scales from these (Shankar et al. 2011; Valtorta 2017). In this study, four measures were formulated: an ‘Indicator of Severe Isolation (ISI)’; an ‘Index of Close Relationships (ICR)’; an ‘Indicator of Any close Relationships (IAC)’; and a ‘Perception of Friendship Relationships (PFR)’ score.

5.2.2.5.1 Indicator of Severe Isolation (ISI)

The ISI is based on Shankar et al.'s (2011) index of social isolation, adapted to meet the needs of this study. Though not statistically validated, versions of Shankar et al.'s (2011) index have been used in subsequent studies (Steptoe et al. 2013; Valtorta et al. 2018). In this study, the ISI was a dichotomous variable representing 'severely isolated' or 'not severely isolated'. This was employed as it was considered more meaningful to investigate the difference between no regular social contacts and some regular social contact. Respondents received a score of 'very socially isolated' if they indicated all of the following:

- Less than monthly contact with children
- Less than monthly contact with friends.
- Less than monthly contact with other family (not spouses/partners or children)
- No participation in any organisations, religious groups, or committees.
- Not a member of a gym or sports club.

These responses all represent the least amount of contact it was possible to select. In this study, no item asks whether the respondent has a partner or spouse. This is because the study aims to investigate whether men's poorer networks cause them to be more reliant on partners, therefore this cannot be included in the measure of social isolation. In the analytical sample used in this study, 55 respondents were coded as 'no' for 'whether a member of any organisations, clubs, or societies', but were coded elsewhere in the dataset as being a member of an organisation, club, or society. These respondents were removed from the sample for tests employing the ISI as the correct answer could not be ascertained. Models including these respondents as a 'no' showed similar results to the models presented in Chapter 5, section 5.4.

5.2.2.5.2 Index of Close Relationships (ICR)

To incorporate a consideration of the 'quality' of social contact, Valtorta (2017) produced a 4-item scale titled the 'index of close relationships (ICR)'. The 'quality' of relationships is important as the literature review suggested that men's perceptions of their social networks may be the defining feature of their impact on loneliness, rather than their actual time spent with other people. Valtorta's (2017) scale asks: whether the respondent has a close relationship with a spouse or partner; the number of children with whom the respondent has a close relationship; the number of other family members with whom the respondent has a close relationship; and the number of friends someone has a close relationship with. The 'ICR' used in this study is identical except it will not include partner/spousal relationships. This is because the hypothesis is that this affects reliance on a partner, so it must be examined as a separate variable. Those who did not have any friends/family/children were coded as having ‘no close relationships’ (of that type).

5.2.2.5.3 Indicator of Any Close relationships (IAC)

The ‘IAC’ is also based on Valtorta’s (2017) ICR, but as well as removing the question on spouse/partner, the scale was dichotomised, thus represents whether an individual has a close relationship with anyone other than a spouse/partner (rather than the total number of close relationships). This was formed as the difference between no close relationships, and one close relationship or more, was considered something that may be more meaningful than a linear measurement where more relationships equal less loneliness.

5.2.2.5.4 Perception of Friend Relationships (PFR)

By asking about ‘close’ relationships, the ICR and IAC are closer to this study’s purported goal of measuring people’s *perceptions* of their social network than the ISI. However, men’s often greater ‘social’ loneliness, and women’s greater ‘emotional’ loneliness (Nicolaisen and Thorsen 2014a; Dykstra and de Jong-Gierveld 2004; Dykstra and Fokkema 2007; de Jong-Gierveld et al. 2009), formed part of the rationale for the hypothesis that perception of social network has a greater impact in men than women. Asking how many close relationships one has with children and family members, though, may be more related to an intimate ‘emotional’ loneliness than it is to a perception of poor social networks. As ‘friends’ denote people outside of family networks, this may be a closer approximation of ‘social network’. ELSA contains seven items asking people about people’s perceived relationships with their friends, each of which are answerable as ‘a lot’, ‘some’ ‘a little’ and ‘not at all’:

- How much do they really understand the way you feel about things?
- How much can you rely on them if you have a serious problem?
- How much can you open up to them if you need to talk about your worries?
- How much do they criticise you?
- How much do they let you down when you are counting on them?
- How much do they get on your nerves?
- How often do they make too many demands on you?

From these, a ‘Perception of friendship Relationships’ (PFR) score between 7 and 28 was constructed. 7 represents an extremely poor perception of friendships network, and 28 an extremely good perception. For the three positively worded items, ‘a lot’ was scored as 4, and ‘not at all’ as 1, and for the four negatively items, ‘a lot’ was scored as 1, and ‘not at all’ as 4. PFR score is only able to investigate people who state they have at least one friend, limiting and biasing the sample. It is also unfeasible to state that children and family relationships are wholly *unimportant* to a person’s perception of their social network. Conversely, the term ‘friends’ still suggests a level of intimacy that may be better captured as ‘emotional’ rather than ‘social’ loneliness. Overall, then, all four variables constructed to represent perception of their social network (ISI, ICR, IAC, PFR) are inherently limited. Nevertheless, they are the best approximations available in this dataset, and remain meaningful enough to provide useful data.

5.2.2.6 Covariate set

This subsection will detail the control variables used across all models. A relatively large number of covariates were employed as each one has been evidenced as potentially impacting the findings. Literature indicating the necessity of each covariate is also provided in the sub-sections below.

5.2.2.6.1 Ethnicity

Rokach’s work (Rokach 1998; Rokach et al. 2002; Rokach 2003) offered evidence there may be ethnic differences in how sex/gender and loneliness interact, and Galdas et al. (2007) found ethnic differences in men’s propensity to seek help for other health issues in the UK. The version of ELSA available for this study only states whether respondents are white or non-white, therefore this is the variable used in this study.

5.2.2.6.2 Age (at wave 8)

Much research has suggested people become lonelier as they become older (Victor and Yang 2012). The scale version of this will be used as a covariate, although ELSA measures all people 90+ as ‘90’ to protect anonymity.

5.2.2.6.3 Employment status

ELSA asks for a ‘best description of current situation’, for which the potential responses are employed, self-employed, unemployed, partly retired, retired, permanently sick or disabled, looking after home or family, or ‘other’. ‘Partly retired’, ‘unemployed’, and ‘other’ were amalgamated into a larger ‘other’ category due to a low number of responses in the categories ‘partly retired’ and ‘unemployed’.

5.2.2.6.4 Health status

Two variables were used to represent this. Firstly, a binary variable indicating whether a respondent has a 'limiting long-standing illness' was created. This involved combining the variables 'whether has self-reported long-standing illness' and 'whether long-standing illness is limiting', such that people with no long-standing illness, and people with a long-standing illness that is not limiting, were both coded as not having a limiting long-standing illness. Secondly, as mobility has been identified as an area of particular concern in the loneliness of older people (Reynolds et al. 2015; Collins 2018), the four-item variable 'whether difficult walking 1/4 mile unaided (none, some, much, or can't)' was included as a categorical covariate.

5.2.2.6.5 Financial variables

Studies such as Rijken and Groenewegen (2008) and Fry and Bloyce (2017) have linked finances to loneliness. Two variables related to this will be used, both of which are measured in Pound sterling. The first is a measure of total wealth, and incorporates all 'owned' wealth such as housing and savings, then subtracts debt, and the second incorporates all 'income', such as through pensions or employment (Banks et al. 2003). These were employed in scale form. The 'benefit-unit level' data was used in this study. This refers to data that has been attributed according to whether and how much the individual benefits from co-owned wealth such as homeownership (Banks et al. 2003). For a complete breakdown of how these variables were formed, see the ELSA 'wave 1-9 financial derived variables user guide', available on the ELSA website (2022).

5.2.2.6.6 Region

Breeden et al. (2018) identified that region affected response rates in ELSA. In ELSA, region is split into 14 categories: North-East; North-West; Yorkshire and the Humber; East-midlands; West-midlands; East-England; London; South-East; South-West; Channel Islands; Isle of Man; Northern Ireland; Scotland; and Wales. Some regions held extremely small numbers of people, and Breeden et al. (2018) did not release which regions were less likely to respond, therefore these were recoded into three responses derived according to commonly understood cultural-geographic areas: Southern (East England; London; South-East; South-West; Channel Islands); Midlands (East-midlands; West-midlands); and Northern/rest of UK (North-East; North-West; Yorkshire and the Humber; Northern Ireland; Scotland; Wales; Isle of Man). Scotland, Northern Ireland, Wales, and the Isle of Man were not afforded separate categories as people living outside of England are not eligible to take part in the study, but those who leave England yet stay within the UK can remain. These categories are therefore extremely small. They are coded as 'Northern' due to their geographical locations.

5.2.2.6.7 Education

Steptoe et al. (2013b) found education predicted non-response rates in past waves of ELSA. As this a covariate, the smallest categorisation ELSA provides was considered adequate. This consists of three categories: ‘less than GCSE or equivalent or foreign qualification’; ‘GCSE or A-level or equivalent’; and ‘higher than A-level’. ELSA does not provide an exact number of foreign qualifications (the greatest amount of detail states whether a respondent had a ‘foreign’ or ‘other’ type of qualification), and it does not provide any data on the level of education for foreign qualifications.

5.3 Statistical analysis plan

Multivariate regression analyses were used to investigate the hypotheses. Models investigating hypotheses 2-5 also incorporated interaction terms to examine sex differences in the size and direction of the relationships. Descriptive statistics were generated to examine the univariate differences, and provide a background for interpreting the data. Loneliness has been identified as a topic that may elicit under-response (Victor and Yang 2005; Rokach 2018), therefore a plan for missing data was formed and conducted prior to generating descriptive statistics and regression models. Section 5.3.1 states the plan for missing data. Section 5.3.2 details what descriptive statistics were generated and why. Section 5.3.3 details the regression models, and relays how these investigate the hypotheses.

5.3.1 Missing data plan

Valtorta (2017) found that neither loneliness nor social isolation in any given wave of ELSA predicted response rates in subsequent waves. This suggests that missing data, at least in regard to these variables, is either missing at random (MAR) or missing completely at random (MCAR). As there is no follow up data to non-respondents, no further information able to test whether the data is missing not at random (MNAR) is available (Glynn et al. 1993; Graham and Donaldson 1993). Little’s MCAR test was used to ascertain whether the data was MAR or MCAR (Little 1988). All variables considered for use across the analyses were entered into a single test. This included variables not included in the final models[2]. For this test, score based ordinal variables were entered as scale, and category based ordinal scales were entered as categorical. Imputation was conducted if Little’s test showed a significance of less than .05 (Little 1988), and there was a missingness rate of over 10% in any variable (Bennett 2001). These were examined in SPSS version 25 (IBM corp. 2017). In the event of imputing data, to maintain statistical power, and account for potentially MCAR variables, the study will refer to the imputed data first, and to the original data if it notably differs.

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[2] Models were initially constructed using a score representing the quality of partner/spousal relationships, and an item examining whether the respondent had an ‘institutional’ interview, but were discarded as they were insufficiently relevant and facilitated poorly fitting models.

5.3.1.1 Imputation

Multiple imputation with Chained Equations (MICE) was conducted in Stata version 16 (Statacorp 2019). The data was transferred to Stata for this section of the study as SPSS 25 was unable to perform MICE for nested data where some responses are correctly coded as missing (e.g., for the PFR, some responses were missing as the respondent had selected that they had no friends). All variables to be used across the analyses were entered into the model, including those that were left out of the final models. Predictive mean matching, with 10 nearest neighbours, was used for all the continuous and score variables (Morris et al. 2014). Augmentation was used on all categorical variables, and ordinal variables not consisting of a numerical score (White et al. 2010). Trace plots showing the mean imputed value for several different variables after each iteration of the imputation are displayed in appendix 8. It is recommended that a burnin value should be derived according to a visual examination of these plots, by identifying the approximate point at which no linear pattern is visible (Statacorp 2021). This method suggested a burnin of 20 was acceptable. 25 datasets were imputed, and the pooled means used for analysis (Spratt et al. 2010). A ‘do file’ for the imputation is in appendix 9.

5.3.2 Descriptive statistics

Means, standard error of the means, medians, and quartiles were generated for all continuous and score variables. The numerical total (N) and within category percentages (%) were generated for categorical variables. Both the overall data, and the data disaggregated by sex, will be displayed to garner a sense of how variables differed according to sex. Both the original and imputed data will be displayed to identify whether there are any notable differences. A crosstabulation of UCLA score and the direct question on loneliness, also disaggregated by sex, is presented to aid understanding of men’s propensity to state they are lonely on the direct question without controlling for other variables.

5.3.3 Regression models

Multivariate regression models were used to investigate the hypotheses. Table 12 presents the final models constructed. Each hypothesis required at least one model. Hypotheses investigating unhealthy behaviour, and perception of social network, constructed several models as multiple relevant measures were included in the dataset. In total, 17 models were constructed. The full covariate set, and ‘partner status’, were included in all models (models where ‘partner status’ was a key variable of interest used the same variable as models that employed it as a covariate). All models with UCLA score as the dependent variable were initially conducted as linear regression using the scale version of the variable. These failed to show a normal distribution of standardised residuals, or uniform variance of predicted vs observed residuals. They were changed to logistic regression utilising the dichotomised version of the UCLA score (Steptoe et al. 2013; Goodman et al. 2015). Details on diagnostic tests for all models are provided in appendix 7.

The first hypothesis assessed whether men are less inclined than women to acknowledge loneliness on a direct question even when they have the same UCLA score. Model 1 used the direct question on loneliness as the dependent variable, and both UCLA score (as a continuous variable) and sex as independent variables. The model employed ordinal regression, using proportional odds. Should sex display a significant negative relationship (where male=1), despite controlling for UCLA score and demographic covariates, this would suggest men in the same emotional state as women (according to UCLA score) are less likely to respond that they are ‘sometimes’ or ‘often’ lonely.

The second set of models hypothesised that men will show a greater association between unhealthy behaviours and loneliness than women. Four models were constructed. Models 2.1 – 2.3 all employed an interaction between sex and UCLA score (as a continuous variable) as the key independent variables. Model 2.1 employed logistic regression with ‘whether currently smokes’ as the dependent variable. Model 2.2 employed Poisson regression with ‘how many portions of fruit and vegetables eaten per day’ as the dependent variable. Model 2.3 initially attempted ordinal regression with the 8-category version of ‘how many days the respondent drunk alcohol in the past year’ as the dependent variable. The proportional odds for this model were not linear, therefore the 4-category version was employed as the dependent variable in a multinomial regression (Erkan and Yildiz 2014). The four-category version was preferred as the eight-category model displayed numerous highly similar estimates, which added little to the model, whereas utilising the four-category version aided clarity by reducing the extent of the output. Model 2.4 employed the total estimated units of alcohol consumed in the past week as the dependent variable, and an interaction between sex and ‘whether lonely much in the past week (yes/no)’ as the key independent variables. This initially employed Poisson regression, but was changed to Negative Binomial regression due to evidence of overdispersion (Payne et al. 2018).

Two different models investigating alcohol consumption, sex, and loneliness were employed as both measures models held strengths and weaknesses for investigating the hypothesis. The measure of alcohol consumption in the past year relates to a fairly long time-frame, thus is relatively unproblematic for comparing to the UCLA score, which does not have a specified time-frame. As the UCLA score is the preferred method of measuring loneliness throughout the models, this also allows it to be compared to the other data more easily. However, this measure of alcohol consumption does not differentiate according to how much alcohol was consumed on each day, and the longer timescale means that it is unclear whether any days drinking alcohol and any feelings of loneliness actually coincided. Measuring both loneliness and alcohol consumption in the past week, on the other hand, is more likely to suggest coinciding loneliness and alcohol consumption. Moreover, this model approximates the actual amount of alcohol consumed. Unlike model 2.3, though, the past week is less likely to be representative of the respondents’ life, and uses a direct question on loneliness, noted as potentially underestimating male loneliness (Pinquart and Sorensen 2001; Steed et al. 2007; Nicolaisen and Thorsen 2014a; De Jong-Gierveld 2018; Rokach 2018). As a definitively superior model cannot be identified, models 2.3 and 2.4 were both constructed, then theoretically considered in accordance with these strengths and weaknesses.

The third hypothesis is that perception of social network has a greater effect on loneliness in men than in women. Four logistic regression models were constructed, each with dichotomised UCLA score as the dependent variable. The key independent variables were the ISI (model 3.1), IAC (model 3.2), ICR (model 3.3), and PFR (model 3.4). These were interacted with ‘sex’ in each model. Partners/spouses were not included as a social relationship in the ISI, IAC, ICR, or PFR, but ‘partner status’ was a covariate (alongside the full covariate set). If ISI/IAC/ICR/PFR show a significantly greater impact on the odds of loneliness in men, this suggests men are more impacted by their perception of their social network than women.

The fourth hypothesis states that men’s loneliness is more affected by partner status than women’s. A logistic regression model, with UCLA score as the dependent variable, and an interaction between sex and partner status as the main independent variable, was constructed (model 4). If men who do not cohabit with a partner show a greater increase in the odds of loneliness than women, this suggests men are more reliant on partners. This model examines ‘never married’ and ‘previously married’ men and women separately to further investigate whether such a sex difference applies similarly to both these categories (see Chapter 3, section 3.6, p70).

The final hypothesis is that men’s perception of their social network is the cause of their greater reliance on partners/spouses for not recording a score of lonely. These models were dependent on finding a significant interaction between partner status and sex in model 4. Seven models were constructed. Four were almost identical to model 4, but added a measure of perception of social network as an independent variable. Model 5.1 added the ISI, model 5.2 the IAC, model 5.3 the ICR, and model 5.4 the PFR. This aimed to examine whether adding these would render the interaction terms for sex and partner status statistically insignificant or smaller (if significant in model 4). This would indicate that perception of social network intervenes in men’s greater reliance on partners/spouses. The final three models constructed a three-way interaction between sex, partner status, and the IAC (model 5.6), ICR (model 5.6), and PFR (model 5.7). These were undertaken to examine whether men who did not cohabit with a partner showed a greater likeliness of loneliness according to their perception of their social network than men who did cohabit with a partner (i.e., a man who does not cohabit with a partner may be particularly strongly impacted by their perception of their social network, whereas a man with a partner may not be, and women may show less of a difference). A three-way interaction between ISI, sex, and partner status was identified as potentially useful, but extremely low cell counts for some interaction terms led to a quasi-complete separation of the data.

Table 12. Summary of each model and the hypothesis it investigates.

Model number	*Dependent variable*	*Regression type*	*Independent variables*	*Hypothesis*
1	How often lonely (rarely/never → sometimes → often)	Ordinal (Proportional odds)	3 item UCLA score, sex, covariate set, partner status	With equal UCLA scores to women, men will be less likely to say they are lonely on a direct question.
2.1	Whether smokes currently (yes - no)	Logistic	3-item UCLA score, sex, interaction terms for sex by 3-item UCLA score, covariate set, partner status	Loneliness will result in a greater increase in unhealthy behaviour (cigarette and cigar consumption) in men than in women.
2.2	Typical fruit and vegetable consumption in a day	Poisson	3-item UCLA score, sex, interaction terms for sex by 3-item UCLA score, covariate set, partner status	Loneliness will result in a greater increase in unhealthy behaviour (lower fruit and vegetable consumption) in men than in women.
2.3	How often consumed alcohol in past year (4 categories)	Multinomial	3-item UCLA score, sex, interaction terms for sex by 3-item UCLA score, covariate set, partner status	Loneliness will result in a greater increase in unhealthy behaviour (alcohol consumption) in men than in women.
2.4	Estimated units alcohol consumed in past week	Negative Binomial	Whether lonely in past 7 days, sex, interaction terms for sex by whether lonely in past 7 days, covariate set, partner status	Loneliness will result in a greater increase in unhealthy behaviour (alcohol consumption) in men than in women.
3.1	UCLA score (dichotomised)	Logistic	ISI, sex, interaction terms for sex by ISI, covariate set, partner status	Men's perception of their social network (ISI) is more important to whether they are lonely than it is for women.
3.2	UCLA score (dichotomised)	Logistic	IAC, sex, interaction terms for sex by IAC, covariate set, partner status	Men's perception of their social network (IAC) is more important to whether they are lonely than it is for women.
3.3	UCLA score (dichotomised)	Logistic	ICR, sex, interaction terms for sex by ICR, covariate set, partner status	Men's perception of their social network (ICR) is more important to whether they are lonely than it is for women.

3.4	UCLA score (dichotomised)	Logistic	PFR, sex, interaction terms for sex by PFR, covariate set, partner status	Men’s perception of their social network (PFR) is more important to whether they are lonely than it is for women.
4	UCLA score (dichotomised)	Logistic	Partner status, sex, interaction terms for sex by partner status, covariate set	Men will show greater dependence on having a cohabiting partner for not having a score of lonely than will women.
5.1*	UCLA score (dichotomised)	Logistic	ISI, partner status, sex, interaction terms for sex by partner status, covariate set	Men’s lower quality social networks explains their greater reliance on partners for reducing the chances of loneliness.
5.2*	UCLA score (dichotomised)	Logistic	IAC, partner status, sex, interaction terms for sex by partner status, covariate set	Men’s lower quality social networks explains their greater reliance on partners for reducing the chances of loneliness.
5.3*	UCLA score (dichotomised)	Logistic	ICR, partner status, sex, interaction terms for sex by partner status, covariate set	Men’s lower quality social networks explains their greater reliance on partners for reducing the chances of loneliness.
5.4*	UCLA score (dichotomised)	Logistic	PFR, partner status, sex, interaction terms for sex by partner status, covariate set	Men’s lower quality social networks explains their greater reliance on partners for reducing the chances of loneliness.
5.5*	UCLA score (dichotomised)	Logistic	IAC, sex, partner status, interaction terms for sex by IAC by partner status, covariate set	Men’s lower quality social networks explains their greater reliance on partners for reducing the chances of loneliness.
5.6*	UCLA score (dichotomised)	Logistic	ICR, sex, partner status, interaction terms for sex by ICR by partner status, covariate set	Men’s lower quality social networks explains their greater reliance on partners for reducing the chances of loneliness.
5.7*	UCLA score (dichotomised)	Logistic	PFR, sex, partner status, interaction terms for sex by PFR by partner status, covariate set	Men’s lower quality social networks explains their greater reliance on partners for reducing the chances of loneliness.

* Conducting these was dependent on a significant interaction between partner status and sex in model 4.

5.4 Findings

This section relays the findings of the quantitative study. Section 5.4.1 summarises the results of the hypothesis tests. Section 5.4.2 presents the missing data analysis, and confirms why MICE was deemed useful to the study. Section 5.4.3 examines the descriptive statistics, including both the original and imputed data, and each variable disaggregated by sex. Section 5.4.4 then presents the findings of the regression models, including summary tables of the sex differences in each model.

5.4.1 Findings summary

Table 13 reiterates the five hypotheses, and summarises the findings based on the regression models. Men were less likely to state they were lonely in response to a direct question even with an equal UCLA score to women. They also showed a much greater association between partner status and loneliness, such that among previously married but not cohabiting people, men were lonelier, and among people in cohabiting relationships, women were lonelier. Among most people, perceptions of social network did not appear to impact men and women differently. However, in dichotomised models, severely isolated men showed no more loneliness than other men, whereas severely isolated women showed much greater odds of loneliness than not isolated women. There was some evidence perception of social network explained men's greater association between partner status and loneliness. Quality of friendships explained men's greater loneliness among previously married people, but also increased men's benefit from cohabiting relationships. Other measures of social network had no impact on men's greater association between loneliness and partner status. There was evidence of a greater association between alcohol consumption and loneliness in men, but only when measuring units of alcohol consumed in the past week. There was no evidence sex moderated the relationship between loneliness and eating fruit/veg or smoking.

Table 13. Hypotheses and key findings	
Hypothesis	*Summarised findings*
1. With equal UCLA scores to women, men will be less likely to say they are lonely on a direct question.	**Strong evidence for hypothesis** - Men were significantly less likely to state they were lonely than women even with equal UCLA scores.
2. Loneliness will be more associated with unhealthy behaviour in men than in women.	**Some evidence for hypothesis (only for alcohol consumption)** - Men showed a greater association between loneliness and alcohol consumption when measuring units consumed in the past week, but there was no evidence of an interaction when examining frequency of days on which alcohol was consumed. No evidence that sex modified the impact of loneliness when predicting smoking tobacco or fruit and vegetable intake.
3. Men's perception of their social network is more important to whether they are lonely than it is for women.	**Some evidence for alternative hypothesis** - Severe isolation, and/or having no close relationships (discounting partner/spouse), had no effect on the odds of a score of lonely in men, but a large effect in women. Total number of close relationships, and perception of friendships score, had a similar effect in men and women.
4. Men will show greater dependence on having a cohabiting partner for not having a score of lonely than will women.	**Strong evidence for hypothesis (but not among those who never married and do not cohabit)** - men who had experienced marriage, but do not cohabit with a partner, showed much greater odds of a score of lonely than women in the same position. Furthermore, men who cohabit with a partner showed lower odds of loneliness than women who cohabit, albeit the evidence for this was weaker. Men who have never married and do not cohabit with a partner showed lower odds of a score of lonely than their female counterparts.
5. Men's lower quality social networks explains their greater reliance on partners for reducing the chances of loneliness.	**Weak evidence for hypothesis** – controlling for perceptions of friendships appeared to explain previously married men's additional loneliness in model 4, but also allowed cohabiting men to benefit even more greatly than women. Other measures of social network showed no evidence of intervening in the association between partner status and sex.

5.4.2 Missing data analysis

Appendix 10 shows the univariate missing data rates. Just 23 of the 53 variables considered throughout the study had a missingness rate of <10%. 15 of the variables with a low missingness rate were demographic variables, and the other seven consisted of the seven item-scale for measuring the quality of partner/spousal relationships (not used in the final models). Of the variables used in the final models, only 15/45 had a missingness rate of <10%, all of which were demographic variables. The variables with the highest non-response rates tended to be about people’s relationships. 21% of valid respondents did not state whether they had a close relationship with any wider family members, and 20% did not state how often they wrote/emailed their children, wider family, or their friends. Little’s MCAR test, utilising all variables (including those not in the final models), was conducted to explore whether data was MAR or MCAR. This showed a Chi^2 value of 31989.63, with 28685 degrees of freedom, and a of P value of <.001. As the amount of missing data were high, and did not appear to be MCAR, imputation was conducted. The method of imputation is detailed in section 5.3.1.1 (p104).

5.4.3 Descriptive statistics

Table 14 displays descriptive statistics for continuous variables, and table 15 displays them disaggregated by sex. Table 16 displays the categorical variables, both overall and disaggregated by sex. Table 17 shows mean UCLA scores, disaggregated by sex and the direct question on loneliness. There were no large differences between the imputed and original data, but loneliness measures showed some small differences. The direct question showed a 1% greater number of ‘often’ lonely people in the imputed data, with a corresponding 1% lower number of ‘rarely/never’ lonely people in the original data (table 16). The UCLA scale showed a mean score of 4.15, with a standard error (SE) of .02, in the imputed data, and 4.10 (SE .02) in the original data (table 14). Despite this, the dichotomised UCLA scale showed a 1% lower number of people recording a score of ‘lonely’ in the imputed data. Some important categories contained very low cell counts. Table 16 shows that, in the original data, just 15 women, and 32 men, were severely isolated according to the ISI, compared to 20 women and 43 men in the imputed data. Similarly, the IAC showed just 22 women and 57 men had no close relationships, in contrast to 30 women and 71 men after imputation. Even on the direct question on loneliness, just 129 men stated they were ‘often’ lonely in the original data, compared to 161 in the imputed data. From this point, the findings refer to imputed data, and the original data if it provides meaningfully different results (see section 5.3.1.1, p104).

The dataset is 44% male. Table 16 shows many more men were in a cohabiting relationship (76% compared to 60%), whilst many more women had experienced marriage but now lived without a partner (35% compared to 17%). The percentages for never married and not cohabiting were similar (men = 7%, women = 5%). 7% of women, compared to just 1% of men, listed themselves as 'looking after home/family', whereas 27% of men were 'employed' or 'self-employed', in contrast to 19% of women. These data suggest women were more likely to have experienced the loss of a partner, but men were more likely have lives focused outside of the home. 38% of men were educated beyond A-levels/equivalent, but just 26% of women were, and the mean and median income and wealth were all higher for men (table 14). Despite this, men's health habits were worse. Men drank an estimated mean of 11.5 units of alcohol in the last week, whereas women drank an estimated mean of just 5 (table 15). Table 16 shows men were almost twice as likely to drink 'every day or more' (men = 18%, women = 10%), whereas women were almost twice as likely to never drink (men = 10%, women = 19%). Men ate a mean of 4.8 portions of fruit and vegetables a day, and women a mean of 5.4 (table 15). Among both men and women, 9% of people selected they currently smoked tobacco (table 16).

Women were lonelier than men according to all measures of loneliness. Table 15 shows men's mean UCLA score was 4.05 (SE .03), and women's was 4.23 (SE .03). An independent-samples T-test displayed a 95% CI of the mean difference of 0.11-0.25 (P<.001, equal variances not assumed). This suggests a small yet consistent and meaningful sex difference, particularly given that the scale has a range of just 6. Table 15 shows this translates to a 2% higher ratio of women recording a score of lonely according to the dichotomised UCLA scale (22% of women, 20% of men). The direct question showed a much larger sex difference. 75% of men said they were 'rarely/never' lonely when asked directly, compared to just 65% of women. Conversely, 28% of women were 'sometimes' lonely, and 8% 'often' lonely, whereas 20% of men were 'sometimes' lonely, and just 5% 'often'. When asked about the previous week, 14% of women had felt lonely, and just 10% of men. Despite a lower overall mean UCLA score, the mean score within each response to the direct question on loneliness is slightly higher for men (table 17). The largest difference was in the 'often' lonely category, in which men averaged a score of 7.61 (SE .12), and women 7.34 (SE .08). The sex difference in the 'rarely/never' and 'sometimes' lonely categories were extremely small. Though women appeared lonelier, men appeared to possess worse social networks. 1.4% of men were severely socially isolated (disregarding partners/spouses), compared to 0.5% of women, and 2.3% of men had no close relationships (disregarding partners/spouses), compared to 0.8% of women (table 16). Furthermore, table 15 shows women averaged more close relationships (7.77 compared to 7.11), and a better view of their friendships (mean PFR 24.27 compared to 22.90).

Table 14. Univariate mean, standard error, and quartiles for continuous variables

	Imputed data			**Original data**		
Variable (min. – max. values if applicable)	N	*Mean (standard error)*	*Median (Lower quartile – upper quartile)*	*N*	*Mean (standard error)*	*Median (Lower quartile – upper quartile)*
3-item UCLA score (3-9)	6936	**4.15** (0.02)	3 (3 - 5)	6145	**4.10** (0.02)	3 (3 - 5)
Perception of friendships relationships (PFR) score (7-28)	6453.6*	**23.68** (0.04)	24 (22 - 26)	5631	**23.74** (0.04)	24 (22 - 26)
Number of close relationships with children, extended family, or friends (ICR)	6936	**7.48** (0.06)	7 (4 - 9)	5129	**7.40** (0.06)	7 (4 - 9)
Portions of fruit and vegetables per day	6936	**5.14** (0.03)	5 (4 - 6)	6167	**5.17** (0.03)	5 (4 - 6)
Units of alcohol in the last week	6936	**7.86** (0.15)	3 (0 - 10.98)	6092	**7.88** (0.15)	3.5 (0 - 11.5)
Age in years (50 – 90)	6936	**70.01** (0.11)	69 (63 - 76)	6936	**70.01** (0.11)	68 (62 - 75)
Total wealth (benefit unit level)**	6936	**446,633.23** (9508.46)	298,221.63 (141646.1 - 523274.75)	6846	**446,032.11** (9552.43)	297,600 (141,000 – 521,500)
Total income (benefit unit level)**	6936	**555.88** (5.47)	457.27 (294.29 - 688.84)	6846	**555.23** (5.47)	456.66 (294.13 - 688.21)

* Imputation of whether a respondent has any friends was necessary, therefore N is also based on a pooled mean.

** ‘benefit unit level’ refers to the extent to which the respondent has access to the wealth/income. Wealth refers to all owned assets, including properties, businesses, and savings, minus debt. Income refers to weekly income from any source. Details can be found in the ‘financial derived variables user guide’ for ELSA (2017).

Table 15. Mean, standard error, and quartiles for continuous variables by sex

Variable (min. – max. values if applicable)	**Imputed data**				**Original data**			
	Mean (Standard error)		Median (lower quartile – upper quartile)		Mean (Standard error)		Median (lower quartile – upper quartile)	
	Women	*Men*	*Women*	*Men*	*Women*	*Men*	*women*	*Men*
3-item UCLA score (3-9)	**4.23** (0.03)	**4.05** (0.03)	3.54 (3 – 5)	3 (3 – 5)	**4.18** (0.03)	**4.00** (0.03)	3 (3 - 5)	3 (3 - 5)
Perception of friendships relationships (PFR) score (7-28)	**24.27** (0.05)	**22.90** (0.06)	25 (22 – 27)	23 (21 - 25)	**24.32** (0.05)	**22.96** (0.06)	25 (22 - 27)	23 (21 - 25)
Number of close relationships with children, extended family, or friends (ICR)	**7.77** (0.08)	**7.11** (0.10)	7 (5 - 10)	6 (4 - 9)	**7.74** (0.09)	**6.96** (0.10)	7 (5 - 10)	6 (4 - 9)
Portions of fruit and vegetables per day	**5.39** (0.04)	**4.82** (0.05)	5 (4 – 7)	5 (3 – 6)	**5.43** (0.04)	**4.83** (0.05)	5 (4 – 7)	5 (3 – 6)
Units of alcohol in the last week	**5.01** (0.14)	**11.52** (0.28)	1.5 (0 – 7.42)	7 (0 – 16.66)	**5.05** (0.14)	**11.46** (0.28)	1.5 (0 – 7.5)	7 (0 – 16.5)
Age in years (50-90)	**68.53** (0.15)	**69.88** (0.16)	69 (63 – 77)	69 (63 – 76)	**70.11** (0.15)	**69.88** (0.16)	69 (63 – 77)	69 (63 – 76)
Total income (benefit unit level)*	**514.82** (6.90)	**608.63** (8.74)	414.04 (261.59 - 639.90)	507.04 (344.87 - 749.75)	**514.41** (6.90)	**607.37** (8.72)	413.31 (261.05 -639.53)	506.28 (344.28 - 748.59)
Total wealth (benefit unit level)*	**413,428.51** (9,288.67)	**489,287.53** (18,101.75)	280,396.74 (129,777.04 - 502,200.32)	324,773.2 (160,000 - 559,016.32)	**413,152.84** (9,306.11)	**488,033.56** (18,193.17)	280,270.00 (129,401.75 - 502,007.50)	324,000.00 (160,000.00 - 555,862.50)

* 'benefit unit level' refers to the extent to which the respondent has access to the wealth/income. Wealth refers to all owned assets, including properties, businesses, and savings, minus debt. Income refers to weekly income from any source. Details can be found in the 'financial derived variables user guide' for ELSA (2017).

Table 16. Cell counts for categorical variables used in regression models, in total and by sex

Variable	*Imputed data*						*Original data*					
	All		Women		Men		All		Women		Men	
	N	%	N	%	N	%	N	%	N	%	N	%
Sex	*6936*	-	*3900*	-	*3036*	-	*6936*	-	*3900*	-	*3036*	-
How often feels lonely	*6936*		*3900*		*3036*		*6229*		*3498*		*2731*	
- hardly ever/never	4808	69	2537	65	2271	75	4390	70	2313	66	2077	76
- some of the time	1646	24	1043	28	604	20	1447	24	922	26	525	19
- often	482	7	321	8	161	5	392	6	263	8	129	5
Have you felt lonely much of the time in the last week	*6936*		*3900*		*3036*		*6901*		*3882*		*3019*	
- yes	843	12	547	14	296	10	840	12	545	14	295	10
- no	6093	88	3353	86	2740	90	6061	88	3337	86	2724	90
UCLA score (dichotomised)	*6936*		*3900*		*3036*		*6145*		*3448*		*2697*	
- not lonely (3-5)	5550	80	3049	78	2502	82	4982	81	3448	79	2252	83
- lonely (6+)	1386	20	851	22	534	18	1163	19	718	21	445	17
Very socially isolated outside of partner relationships (ISI)	*6936*		*3900*		*3036*		*4672*		*2440*		*2232*	
- yes	63	1	20	0	43	1	47	1	15	0	32	1
- no	6873	99	3880	100	3993	99	4625	99	2425	100	2200	99
Close relationships with children, extended family, or friends (IAC)	*6936*		*3900*		*3036*		*5129*		*2892*		*2237*	
- has none	101	1	30	1	71	2	79	2	22	1	57	3
- has some	6836	99	3870	99	2965	98	5050	98	2870	99	2180	97
How often had an alcoholic drink during last 12 months	*6936*		*3900*		*3036*		*6212*		*3484*		*2732*	
- never - once every couple of months	2288	33	1600	41	688	23	1978	32	1372	39	606	22
- once a month - twice a week	2426	35	1335	34	1091	36	2191	35	1206	35	985	36
- three - six days a week	1300	19	586	15	714	24	1198	19	549	16	649	24
- almost every day or more	923	13	380	10	543	18	845	14	353	10	492	18
Currently smokes	*6936*		*3900*		*3036*		*6913*		*3893*		*3020*	
- yes	649	9	362	9	287	9	647	9	362	9	285	9
- no	6287	91	3538	91	2749	91	6266	91	3531	91	2735	91
Partner status	*6936*		*3900*		*3036*		*6252*		*3500*		*2752*	
- cohabiting with a partner	4661	67	2353	60	2309	76	4310	69	2182	62	2128	77

- experienced marriage but does not cohabit with a partner	1893	27	1369	35	523	17	1614	26	1172	34	442	16
- never married NOT cohabiting (i.e., single)	382	6	178	5	204	7	328	5	146	4	182	7
Ethnicity	6936		3900		3036		6936		3900		3036	
- white	6709	97	3777	97	2932	97	6709	97	3777	97	2932	97
- non-white	227	3	123	3	104	3	227	3	123	3	104	3
Employment status	6936		3900		3036		6936		3900		3036	
- employed	1205	17	638	16	567	19	1205	17	638	16	567	19
- self-employed	359	5	128	3	231	8	359	5	128	3	231	8
- retired	4796	69	2733	70	2063	68	4796	69	2733	70	2063	68
- disabled	193	3	101	3	92	3	193	3	101	3	92	3
- looking after home or family	282	4	257	7	25	1	282	4	257	7	25	1
- other	101	1	43	1	58	2	101	1	43	1	58	2
Whether has a long-standing and limiting illness	6936		3900		3036		6935		3900		3035	
- yes	2511	36	1463	37	1047	34	2510	36	1463	37	1047	34
- no	4425	64	2437	63	1988	66	4425	64	2437	63	1988	66
Region	6936		3900		3036		6936		3900		3036	
- north	1980	28	1134	29	846	28	1948	28	1134	29	846	28
- midlands	1507	22	835	21	672	22	1507	22	835	21	672	22
- south and east	3449	50	1931	50	1518	50	3449	50	1931	50	1518	50
Education	6936		3900		3036		6765		3815		2950	
- less than GCSE or equivalent or foreign qualification	2790	40	1683	43	1107	36	2729	40	1651	43	1078	37
- GCSE or A-level or equivalent	1960	28	1198	31	762	25	1914	28	1174	31	740	25
- higher than A-level	2186	32	1019	26	1167	38	2122	31	990	26	1132	38
Whether difficult walking 1/4 mile unaided	6936		3900		3036		6935		3900		3035	
- no difficulty	4890	71	2631	68	2259	74	4889	70	2631	68	2258	74
- some difficulty	854	12	536	14	318	11	854	12	536	14	318	11
- much difficulty	425	6	250	6	175	6	425	6	250	6	175	6
- unable to	767	11	483	12	284	9	767	11	483	12	284	9

All data to 0 decimal places

Table 17. Mean UCLA scores for sex cross-tabulated with the direct question on loneliness

	Mean UCLA score (standard error)					
	Imputed data			Original data		
How often do you feel lonely	*Hardly ever*	*Some of the time*	*Often*	*Hardly ever*	*Some of the time*	*Often*
Men	**3.47** (.02)	**5.28** (.06)	**7.61** (.12)	**3.46** (.02)	**5.26** (.05)	**7.61** (.12)
Women	**3.42** (.02)	**5.25** (.05)	**7.34** (.08)	**3.41** (.02)	**5.23** (.04)	**7.30** (.09)
Total	**3.44** (.01)	**5.26** (.03)	**7.43** (.07)	**3.43** (.01)	**5.25** (.03)	**7.41** (.07)
N	*4808*	*1646.4*	*481.6*	*4341*	*1409*	*387*

5.4.4 Regression models

Table 18 gives the odds ratios (OR) and 95% confidence intervals (CI) for models investigating sex differences in the odds of a score of lonely when controlling for UCLA score (hypothesis 1), and in the impact of loneliness on health behaviours (hypothesis 2). Table 19 gives the OR and 95% CI for models investigating sex differences in the effect of perception of social network on the odds of a score of lonely (hypotheses 3). Table 20 shows the OR and 95% CI for models examining sex differences in the impact of partner status on loneliness (hypothesis 4), and whether perception of social network variables intervene in the interaction between sex and partner status (hypothesis 5). The dichotomised UCLA score was used for all models employing UCLA score as the dependent variable (Steptoe et al. 2013; Pikhartova et al. 2014; Goodman et al. 2015). The model using 'how often drank alcohol in the past year' as the dependent variable required multinomial regression. The test employing 'how many units of alcohol consumed in the past 7 days' as the dependent variable required negative binomial regression (Payne et al. 2018). Details on diagnostic tests and transformations are in appendix 7. The full models, including all covariates, using both imputed data and listwise deletion, are listed in the appendices 11 - 27. There were no notable differences between the results using imputed data and those using listwise deletion.

Evidence was found to support hypothesis 1, that men are less likely to respond they are lonely to a direct question than if asked indirectly. Table 18 shows that, even when controlling for UCLA score, men displayed significantly lower odds of stating they were sometimes or often lonely (Model 1: OR 0.72, 95% CI 0.62-0.84). The evidence for hypothesis 2, that loneliness may have a greater impact on men's health behaviours, showed mixed results. Men who stated they were lonely in the past week consumed the most alcohol in that week (model 2.4: IRR 2.62, 95% CI 2.21-3.11), whereas women who stated they were lonely drank the *least* (model 2.4: IRR 0.83, 95% CI 0.73-0.95). This suggests a major sex difference in the relationship between loneliness and alcohol consumption. However, in the multinomial regression (model 2.3), men appeared to drink alcohol more often (almost every day or more OR 4.22, 95% CI 2.55-6.97), but UCLA score did not show much impact on either men's or women's alcohol consumption. In the other models investigating health behaviours, men ate significantly fewer fruit/vegetables (model 2.2: IRR 0.86, 95% CI 0.81-0.92), but there was no evidence loneliness has a different effect in men and women (men's and women's UCLA score both showed an IRR of 0.98, 95% CI 0.97-1.00)[3]. No evidence was found to suggest any relationship between sex and loneliness in the odds of currently smoking (model 2.1).

Investigating the third hypothesis, that men show a greater link between their perception of their social network and loneliness, found no evidence in favour of the hypothesis, and some evidence for the alternative hypothesis (table 19). In the two models using dichotomised variables, severely isolated men (ISI)[4], and men with no close relationships (IAC)[4], were no more likely to record a score of lonely than other men (model 3.1: severely isolated men OR 1.01, 95% CI 0.42-2.40; model 3.2: men with no close relationships OR 1.10, 95% CI 0.57-2.11). Women, though, showed *much* greater odds of a score of lonely if they were severely isolated[4] (model 3.1: OR 7.58, 95% CI 2.45-23.48) or indicated they had no close relationships[4] (model 3.2: OR 3.40, 95% CI 1.50-7.71). However, the ICR (model 3.3), despite being the none-dichotomised version of the IAC, suggested men and women were similarly protected by a greater total number of close relationships (model 2.3: women's ICR OR 0.89, 95%CI 0.87-0.92; men's ICR OR 0.91, 95% CI 0.89-0.94). The interaction term was insignificant (P .178). Similarly, in the other model not using a dichotomised variable (model 3.4), women's Perception of Friendship Relationships (PFR) score showed an OR of 0.84 (95% CI 0.81-0.86), and men's an OR of 0.85 (95% CI 0.82-0.89), and the interaction term was again not statistically significant (P .443). These findings suggest that most men and women are similarly impacted by their perceptions of their social networks, but there is a difference between men and women with extremely poor social networks.

Table 20 shows that evidence was found to support the hypothesis that men are more reliant on spouses/partners for preventing loneliness, but this difference did not apply to those who had never married and did not cohabit with a partner. Model 4 shows previously married men who did not cohabit with a partner were by far the most likely sex by partner status group to record a score of lonely (OR 3.44, 95% CI 2.71 - 4.38). This interaction term was significant at P<.001. Further in keeping with the hypothesis, men who cohabited with a partner were the least lonely sex by partner status category (OR 0.83, 95% CI 0.68-1.00), although the upper confidence limit was close to 1 (.995

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[3] both scores were marginally under one, indicating a statistically significant but very small relationship in both men and women.

[4] Partners/spouses were not included as a relationship in these models, but were controlled for separately.

at 3 decimal places). However, never married and not cohabiting men were less likely to record a score of lonely than their female counterparts (not cohabiting never married men OR 2.28, 95% CI 1.60-3.23; not cohabiting never married women OR 2.63, 95% CI 1.60-3.23). This interaction term was not significant (P .85). Men's greater reliance on partners/spouses, then, only appeared to apply to those who have experienced marriage or currently cohabited with a partner – men who had never married, and did not cohabit with a partner, showed lower odds of loneliness than women in the same position.

Some evidence was found to support the fifth hypothesis, that men's poorer perceptions of their social network cause their greater reliance on partners/spouses. This was only when examining PFR, and not exactly in the manner hypothesised. The hypothesis was that adding measures of perception of social network would render the interaction between sex and partner status statistically insignificant. Instead, as table 20 shows, PFR (model 5.4) reduced the odds of a score of lonely for men in all partner status categories. Previously married but not cohabiting men were no longer much lonelier than women in the same position (men OR 2.87, 95% CI 2.21 - 3.74; women 2.84, 95% CI 2.29 - 3.52), but cohabiting men now showed much lower odds of a score of lonely than cohabiting women (OR 0.63, 95% CI 0.51 - 0.77).

This model could not include people with no friends, therefore model 4 was rerun without people who had no friends in model 5.4 (appendix 24). This showed similar results to the model that included people with no friends, suggesting that PFR score has a meaningful impact on the moderating effect of sex on partner status in the prediction of loneliness. Adding the ISI, IAC, and ICR to model 4 (models 5.1, 5.2, and 5.3) did not meaningfully impact the interaction between partner status and sex. Models with three-way interactions for sex by partner status by IAC/ICR/PFR were also constructed (models 5.5, 5.6, and 5.7, not included in table 20 for brevity). These hypothesised that previously married men would be more affected by their perceptions of their social network than previously married women. However, no evidence was found to support this (appendices 25-27).

Table 18. Odds of loneliness and poor health behaviour, by sex, in the English Longitudinal Study of Ageing (wave 8)

Independent Variables. N = 6936 (all models)	OR/IRR*	95% CI
Model investigating sex differences in response to a direct question on loneliness, controlling for 3-item University of California Loneliness (UCLA) score.		
Model 1. Ordinal regression, dependent variable: how often the respondent feels lonely**		
Male *(ref = female)*	0.72	0.62 – 0.84
3-item UCLA score	3.97	3.73 – 4.21
Models investigating the impact of loneliness in men and women on health behaviours.		
Model 2.1. Logistic regression, dependent variable: Whether smokes currently (ref = does not currently smoke)		
Women’s 3-item UCLA score	1.02	0.95 – 1.09
Men’s 3-item UCLA score	1.05	0.97 – 1.14
Model 2.2. Poisson regression, dependent variable: Typical number of fruit and vegetables consumed in a day		
Women’s 3-item UCLA score	0.98	0.97 – 1.00***
Men’s 3-item UCLA score	0.98	0.97 – 1.00****
Model 2.3. Multinomial regression, dependent variable: How often consumed alcohol in past year (ref = never - once every couple of months)		
Odds of drinking alcohol once a month - twice a week		
Women’s 3-item UCLA score	0.95	0.90 – 1.12
Men’s 3-item UCLA score	1.03	0.94 – 1.12
Odds of drinking alcohol three - six days a week		
Women’s 3-item UCLA score	0.90	0.83 – 0.97
Men’s 3-item UCLA score	1.04	0.93 – 1.17
Odds of drinking alcohol almost every day or more		
Women’s 3-item UCLA score	0.99	0.92 – 1.08
Men’s 3-item UCLA score	0.92	0.83 – 1.04
Model 2.4. Negative binomial regression, dependent variable: Estimated units alcohol consumed in past week (ref = women who have not felt lonely in past week)		
Women who have felt lonely in past week	0.83	0.73 – 0.95
Men who have not felt lonely in past week	2.31	2.18 – 2.47
Men who have felt lonely in past week	2.62	2.21 – 3.11

*IRR is the outcome for studies employing Poisson or Negative Binomial regression

**Proportional odds. Potential answers, in order: rarely/never→sometimes→often

*** .991 at 3dp

**** .996 at 3dp

OR = Odds Ratio. IRR = Incidence rate ratio. CI = Confidence Interval. All models using pooled means, and covariates: ethnicity, age, employment status, health status, whether has a limiting long-standing illness, whether difficult walking 1/4 mile unaided, total wealth, total income, region, education, partner status, sex.

Table 19. Impact of perception of social network in the odds of a score of lonely, by sex, in the English Longitudinal Study of Ageing (wave 8)

Logistic regression. Dependent Variable: dichotomised 3-item University of California Loneliness (UCLA) score. Ref = not lonely.

Independent Variables	OR	95% CI
Model 3.1. Indicator of severe isolation (ISI). Ref = Not severely isolated women.		
Not severely isolated men	1.02	0.89 - 1.18
Severely isolated women*	7.58	2.45 - 23.48
Severely isolated men*	1.01	0.42 - 2.40
N = 6881**		
Model 3.2. Indicator of any close relationships (IAC). Ref = Women with at least one close relationship*		
Men with a close relationship*	1.01	0.88 - 1.17
Women with no close relationships*	3.40	1.50 - 7.71
Men with no close relationships*	1.10	0.57 - 2.11
N = 6936		
Model 3.3. Index of Close Relationships (ICR)*		
Women’s number of close relationships*	0.89	0.87 - 0.92
Men’s number of close relationships*	0.91	0.89 - 0.94
N = 6936		
Model 3.4. Perception of Friendship Relationships (PFR) score		
Women’s perception of friendships score	0.84	0.81 - 0.86
Men’s perception of friendships score	0.85	0.82 - 0.89
N = 6453.64***		

*Excluding spouses/partners (this is a control variable).

** 55 participants displayed contradictory information, and were excluded from analysis. Models including these responses, unaltered from original data, were not notably different.

*** Whether the respondent had any friends required imputation, therefore N is a pooled mean

OR = Odds Ratio. CI = Confidence Interval. All models using pooled means, and covariates: ethnicity, age, employment status, health status, whether has a limiting long-standing illness, whether difficult walking 1/4 mile unaided, total wealth, total income, region, education, partner status.

Source: English Longitudinal Study of Ageing, wave 8

Table 20. Impact of partner status and perception of social network in the odds of a score of lonely, by sex, in the English Longitudinal Study of Ageing (wave 8)

Logistic regression. Dependent Variable: dichotomised 3-item University of California Loneliness (UCLA) score. Ref = not lonely.

Model investigating the impact of partner status in men and women			Models investigating whether perception of social network affects the association between partner status and sex							
	Model 4		Model 5.1		Model 5.2		Model 5.3		Model 5.4	
Partner status (ref = women in a cohabiting relationship)	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
- Men in a cohabiting relationship	0.83	0.68 - 1.00*	0.82	0.68 - 0.99	0.82	0.68 - 0.99	0.78	0.64 - 0.94	0.63	0.51 - 0.77
- Not cohabiting never married women	2.63	1.82 - 3.67	2.52	1.74 - 3.66	2.58	1.79 - 3.72	2.27	1.56 - 3.29	2.45	1.64 - 3.67
- Not cohabiting never married men	2.28	1.60 - 3.23	2.22	1.55 - 3.17	2.21	1.55 - 3.14	1.80	1.25 - 2.58	1.93	1.30 - 2.85
- Not cohabiting previously married women	2.50	2.07 - 3.07	2.53	2.07 - 3.09	2.53	2.07 - 3.08	2.70	2.21 - 3.30	2.84	2.29 - 3.52
- Not cohabiting previously married men	3.44	2.71 - 4.38	3.50	2.76 - 4.46	3.42	2.69 - 4.35	3.45	2.70 - 4.41	2.87	2.21 - 3.74
Severely isolated (ISI)**	-	-	2.11	1.12 - 3.97	-	-	-	-	-	-
No close relationships (IAC)**	-	-	-	-	1.61	0.98 - 2.66	-	-	-	-
Number of close relationships (ICR)**	-	-	-	-	-	-	0.90	0.88 - 0.92	-	-
Perception of friendships score (PFR)	-	-	-	-	-	-	-	-	0.84	0.82 - 0.86
Mean Nagelkerke R^2	.145		.147		.146		.179		.192	
N	6963		6881***		6963		6963		6453.64****	

* .995 at 3dp.

**Excluding spouses/partners.

*** 55 participants displayed contradictory information, and were excluded from analysis. Models including these responses, unaltered from original data, were not notably different.

**** mean N of each imputation. Imputed N varies as the number of people who have any friends varies across each imputation model. Recomputing model 4 excluding those with no friends in model 5.4 displayed similar results to model 4 including all participants.

OR = Odds Ratio. CI = Confidence Interval. All models using pooled means. Control variables: ethnicity, age, employment status, health status, whether has a limiting long - standing illness, whether difficult walking 1/4 mile unaided, total wealth, total income, region, education.

5.5 Discussion

This study used a single, large, England based dataset to investigate sex differences in loneliness. The results offered clear evidence men are less likely than women to respond they are lonely when asked on a direct question in comparison to the UCLA scale, a notion identified as likely by a number of scholars (e.g., Rokach 2018; De Jong-Gierveld 2018), but which has not yet been researched extensively. The findings also offered weight to the notion that men are more likely to drink alcohol in response to loneliness (Munoz Laboy et al. 2007: Juntilla et al. 2015), but, similarly to other studies, found no evidence of a sex difference in the impact of loneliness on smoking or fruit and vegetable consumption (Dyal and Valente 2015; Kobayashi and Steptoe 2018). In contrast to research implying men may show a stronger association between social network quality and loneliness (Bell and Gonzalez 1988; de Jong-Gierveld et al. 2009; Patulney and Wong 2013), this study found men and women were similarly impacted by the total number of close relationships, or perceived quality of friendships (when examined as linear models moderated by sex). Moreover, in models examining dichotomised variables, men who were severely isolated, or had no close relationships, seemed much *less* impacted by this than women. Though contrary to hypothesis four in this study, this is in-keeping with research suggesting that isolated older men may construct themselves as 'alone, not lonely' (Davidson 2004).

Among people who cohabited with a partner/spouse, and people who never married and did not cohabit with a partner, women were more likely to record a score of lonely. Among people who had experienced marriage, but did not live with a partner, men were lonelier. Though the literature review found a wide body of literature suggesting men are more reliant on partners (section 3.5.2, p59), none specified a difference according to whether a person has experienced marriage. Numerous authors have suggested poorer quality networks may increase men's reliance on partners/spouses (Collins 2018; Nurmi et al. 2018; McKenzie et al. 2018), and the descriptive statistics in this study suggested men did indeed have poorer social networks. However, social isolation, and the number of close relationships, appeared to have little bearing on men's greater association between partner status and loneliness. Friendship relationships, though, did have some impact. Controlling for PFR reduced loneliness in all three male sex by partner status categories. This model still displayed a greater association between partner status and loneliness in men, but men benefitted much more cohabiting relationships, and showed little difference to previously married women. Sections 5.5.1 – 5.5.5 discuss the results of each hypothesis in greater detail.

5.5.1 Strong evidence men are less likely to state they're lonely even with similar emotional experiences to women

Men's lower odds of stating they're lonely (than women with an equal UCLA score) could suggest that men 'understate' their loneliness, or that women 'overstate' it. The mean UCLA scores of men and women who were 'often' lonely showed a larger sex difference than the categories for 'rarely/never' and 'sometimes' (table 17, p118). This could indicate that women 'overstate' loneliness, given that, if the results were primarily a result of men 'understating', it might be more plausible to expect a larger difference in the less lonely categories. However, this comparison does not control for other variables, and the UCLA score was dichotomised in the regression model. It is also possible that these data could indicate men 'understate' by requiring a high UCLA score to select they are 'often' lonely. Interpreting the comparison of means is therefore inherently limited. Furthermore, the notion that men 'understate' loneliness is much more consistent with the wider evidence base (Yousaf et al. 2015). In theoretical pieces, Rokach (2018) and De Jong-Gierveld et al. (2018) have both argued that men may 'understate' loneliness on a direct question as it signifies a vulnerable and less masculine state. Further still, if loneliness is a *subjective* label linked to notions of lacking, or having lost, meaningful social relationships (see Chapter 2, section 2.1.4, p30), an individual who states themselves to be 'lonely' cannot be said to be wrong, even if the precise nature and strength of people's experiences vary.

The conceptualisation of loneliness as a 'label' suggests that, rather than indicating men/women understate/overstate loneliness, men may require 'lonelier' responses to the UCLA items for them to state that they are lonely. In other words, men and women possess different criteria for *identifying* as lonely. This may also explain why, in the same model that controls for UCLA score (model 1), partner status was the only other variable to show a statistically significant result (never married and not cohabiting OR 1.47, 95% CI 1.08-1.99; previously married but not cohabiting OR 2.54, 95% CI 2.13-3.03, reference group 'currently cohabiting with a partner'). Living alone, particularly after break ups or widowhood, may constitute a status associated with 'loneliness'. It may therefore be more expected or acceptable to state one is 'sometimes' or 'often' lonely regardless of actual emotional experiences (according to the 3-item UCLA scale).

Even this may over-simplify matters. Franklin et al.'s (2019) framing of loneliness as not 'belonging', or Ratcliffe et al.'s (2021) framing of it as lacking a sense of 'social worth' (in older UK men), conceptualise loneliness as a perception of one's place within a community. If the direct question undermines a sense of ‘belongingness’ or ‘social worth’, understating emotional pain may also *protect* from ‘loneliness’ by bestowing a masculine sense of ‘belongingness’ or ‘social worth’. This is a distinct possibility if, as many have argued, masculine identities eschew vulnerability (Connell 2005; Robertson 2007). This is different to simply ‘understating’ loneliness as it places men’s interpretations of their emotions within a cultural context in which they are attempting to maintain their ‘belongingness’ and ‘social worth’, even if it is a fraught and contradictory circumstance.

5.5.2 Moderate evidence men show a greater association between loneliness and alcohol consumption than women, but no evidence lonely men are more likely to smoke, or eat fewer fruit/vegetables

Tornstam (1992), Munoz-Laboy et al. (2009), and Junttila et al. (2015) all identified alcohol consumption as a potential consequence of male loneliness. In the current study, the results were mixed. In a model employing data related to the last week, and a measure of units consumed, men who had felt lonely in the past week drank significantly more alcohol than men who had not, whilst women who felt lonely drank *less* than women who had not. However, examining UCLA score and an estimation of the number of days alcohol was consumed in the past year found that men drank on a greater frequency of days, but found no evidence loneliness had a different impact on men and women.

It may be that measuring the actual number of units of alcohol consumed, and/or providing a clearer timeframe for identifying simultaneous loneliness and alcohol consumption, was able to pick up on associations the model based on the past year could not. Alternatively, it is possible that measuring the last week alone shows an unrepresentative relationship, or that the use of a different measure of loneliness produces different results. Nevertheless, previous literature has suggested a particular association between male loneliness and alcohol consumption (Tornstam 1992; Munoz-Laboy et al. 2009; Junttila et al. 2015). Indeed, alcoholism, masculinities, and mental health have been said to go ‘hand in hand’ (Brooks 2001, p289), and this has been placed as related to masculine ideals in which alcohol consumption is more acceptable than acknowledging mental health struggles (Courtenay 2000; Brooks 2001; Addis and Mahalik 2003). Previous research, then, suggests that it is more likely measuring the number of units of alcohol consumed, and a precise timeframe, allowed this test to pick up on a relationship the broader model could not.

Whilst some literature has suggested a theoretical link between unhealthy behaviours and male loneliness (Tornstam 1992; Munoz-Laboy et al. 2009; Junttila et al. 2015), smoking tobacco was not specified in these studies, and systematic review of smoking and loneliness by Dyal and Valente (2015) showed no strong evidence of a consistent sex difference. It is perhaps unsurprising, then, that the current study provided no evidence of a relationship between sex, smoking, and loneliness. Even the percentage of smokers was similar among men and women (table 16, p116), although the study did not differentiate according to how heavy a smoker the individual is. As with smoking, the literature review (Chapter 3, section 3.5.4, p65) did not specifically link unhealthy eating to loneliness in men, and one even provided some evidence it may be linked to loneliness in *women* (Junttilla et al. 2015). In the current study, though both men and lonelier people ate fewer fruit and vegetables, there was no evidence loneliness had a greater negative effect in men. It is possible that men's lesser consumption is related to unstated loneliness, or other unknown mental health concerns. However, research has pointed to masculine ideals around food as facilitating less healthy habits (Gough and Conner 2006; Levi et al. 2006), a notion more readily fitting with this data.

5.5.3 Some evidence men's loneliness is *less* associated with their perception of their network, but this is limited to the most severely isolated

It was hypothesised that men's odds of a score of lonely may be more impacted by their perception of their social network than women's. This was built from a diverse set of studies indicating that men are more 'socially' lonely (Clinton and Anderson 1999; Dykstra and de Jong-Gierveld 2004; Dykstra and Fokkema 2007; de Jong-Gierveld et al. 2009), that they may be more likely to attribute loneliness to physical circumstances, (Tornstam 1992; Junttila et al. 2015), that they place more emphasis on 'social marginality' (Rokach 1998; Rokach et al. 2002; Rokach 2003), and that social network size may matter more to men (Stokes and Levin 1986; Bell and Gonzalez 1988). Four models were constructed, none of which showed any evidence in favour of the hypothesis. When examining the total number of close relationships (ICR, model 3.3)[5], and perceptions of friendships (PFR, model 3.4), both men and women were similarly less lonely as the scores improved. In models using dichotomous variables, strong evidence for the alternative hypothesis was found, that men are less affected by their perception of their social network. Men who were severely isolated (ISI, model 3.1)[5], or had no close relationships (IAC, model 3.2)[5], were both much *less* impacted by this situation than women.

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[5] disregarding partners/spouses

The large and statistically significant sex difference when using the dichotomous variables (models 3.1 and 3.2), but not when using the scale variables (models 3.3 and 3.4), could suggest that dichotomising the data led to unreliable findings. Even when comparing the ICR and IAC (the IAC is a dichotomised version of the ICR), there is only evidence of a sex difference when using the IAC. However, the dichotomised variables are arguably more meaningful, as it is theoretically plausible to expect a greater difference between people with zero and some close relationships than it would be between people with, say, four and five close relationships, something the ICR considers equal to zero and one close relationship. Furthermore, the descriptive statistics indicated that men were less lonely using any measure of loneliness, but that they also had a worse perception of their social network on all measures (tables 15-16, p115-116). It is therefore reasonable to conclude that some men must be less affected by a perception of poor networks than women.

It is striking, then, that in the models using dichotomised variables, women's odds of a score of lonely were strongly impacted by having no close relationships, or being severely isolated, whereas men in these situations showed no evidence of greater loneliness *at all*. This suggests that men and women who have at least one close relationship possess a similar linear association between ICR and the odds of a score of lonely, but men with *no* close relationships deviate drastically from this relationship (models 3.2 and 3.3). Indeed, relatively few men recorded zero close relationships (1.02% of whole imputed dataset), which may indicate how the linear model could appear to show a good fit to the data despite this deviation. Furthermore, this logic theoretically extends to the ISI and PFR (models 3.1 and 3.4). The PFR requires at least one friend to form part of the sample, therefore it is inherently unable to pick up on a sex difference among severely isolated people or people with no close relationships (models 3.1 and 3.2). Conversely, the ISI is a dichotomous measure of severe social isolation, thus it is well placed to pick up on such a difference.

Men's lack of loneliness in response to being severely isolated, or having no close relationships, could simply suggest they are more likely to be content with a particularly isolated existence. This chimes well with the well-established loneliness-isolation distinction (Perlman and Peplau 1981; Cattan et al. 2005). Davidson (2004), in her qualitative study of older men's social networks, constructed the theme 'alone, not lonely' to encapsulate a lack of concern at such isolation. However, by itself, this does not explain why men and women should react so differently to isolation.

The results could indicate a masculine disinclination to acknowledge emotional pain is also relevant to the UCLA scale. If men are less inclined to state they are lonely in response to the direct question as it indicates vulnerability, then it is theoretically plausible that the UCLA items can also indicate vulnerability. This is still possible even if, as model 1 suggests, the UCLA score shows less of a sex difference. Men's unadjusted mean UCLA score was significantly lower than women's (section 5.4.3, p113). The regression models using the ISI and IAC therefore suggest this difference is disproportionately among severely isolated men/men with no close relationships. As well as the notion of 'alone, not lonely', Davidson (2004, p39) concluded that socially isolated men constructed a 'separateness' from other people. The data in this study, then, may be impacted by severely isolated men's tendency to construct a notion of 'separateness' that can influence the odds of a score of lonely even on the UCLA scale. Men who are not severely isolated, though, may show a similar linear relationship to women on the ICR and PFR as the existence of at least one social relationship is enough to render the notion of 'separateness' less meaningful.

5.5.4 Strong evidence men are more reliant on partners/spouses than women, but not when comparing never married and not cohabiting men and women

A wealth of literature has suggested partner status has a significantly greater impact on men's likeliness of loneliness. This has generally been found by examining marital status, as a difference between unmarried and married men (Pinquart and Sorensen 2001; Nowland et al. 2018), or sometimes by comparing widowed (Stevens and Westerhof 2006) or divorced (Dykstra and Fokkema 2007) men and women. This study is largely consistent with these findings, but with an important caveat. Men who had experienced marriage, but did not cohabit with a partner/spouse, showed much greater odds of loneliness than women in the same situation. Furthermore, men who cohabited with a partner were significantly less likely to record a score of lonely than cohabiting women, although the upper 95% confidence interval of this relationship was close to one. However, men who had *never* married, and did not cohabit with a partner, were slightly *less* likely to record a score of lonely than women in the same situation. This suggests that, rather than conceptualising a gendered difference between men and women in loneliness as being 'men are more dependent on spouses/partners', it may be that *some* men are more dependent on partners/spouses. Men who have never married, though, may not share a masculine reliance on partners/spouses for facilitating a not-lonely UCLA score.

5.5.5 Weak evidence men’s poorer perception of their social networks is associated with men’s stronger association with partner status in the odds of a score of lonely

Based on evidence primarily in qualitative work, it was hypothesised that men’s relatively poor social networks may explain their greater reliance on spouses/partners for preventing/alleviating loneliness (Davidson 2004; Collins 2018; Nurmi et al. 2018; McKenzie et al. 2018). The descriptive statistics suggested that, on all four related measures (ISI, IAC, ICR, and PFR), men’s social networks were poorer. However, only PFR score reduced the difference in loneliness between previously married men and women, and it also increased the benefit to cohabitation among men. This still suggests some support for the hypothesis, as it provides evidence that previously married men’s greater loneliness is related to their poorer perceptions of their friendships. Moreover, as PFR is the only measure focused on none-familial networks, it may best represent ‘perception of social network’.

However, the ISI, IAC, and ICR had no impact, and the notion of greater ‘reliance’ on partners/spouses does not fully encapsulate why men may benefit so much more from cohabitation. The association between sex and partner status, then, may consist of different origins. As women in a cohabiting relationship showed greater odds of a score of lonely than men in a cohabiting relationship, women may be relatively dissatisfied with their partner/spousal relationships, thus less affected by their loss. Men, on the other hand, may be ‘shocked’ into loneliness following the loss of a spouse. Notably, this is more consistent with the impact of PFR score than an interpretation solely focused on men ‘relying’ on partners/spouses for intimacy. If men perceive their partner relationships as better, it makes sense that they benefit even more from them, whilst being able to mitigate their loss similarly to women (i.e., according to the quality of their friendships).

These data could also indicate that men and women possess different criteria for answering positively/negatively to the UCLA items. For example, men may consider ‘I lack companionship’ to signify ‘spouse or partner’ more so than women. Conversely, never married men could have rejected a masculine association between companionship and spousal relationships, hence these men do not show an additive increase in the odds of a score of lonely. This is lent some weight by the finding that men with equal UCLA scores to women are less likely to respond that they are sometimes or often lonely, as this shows that gendered results can occur primarily due to gendered interpretations of the question.

Alternatively, if loneliness is related to 'belongingness' (Franklin et al.'s 2019), and/or 'social worth' (Ratcliffe et al. 2021), some men's perceptions of their 'worth' may depend more heavily on the successful maintenance of a nuclear family. Connell's (2005) theory of hegemonic masculinities places the heterosexual nuclear family as a key social structure in the history of gendered inequalities, thus forming and maintain a family could be particularly beneficial to men, and/or less so for women. This also effectively explains the lack of a significant interaction in men who have never married – the very fact that they have never married suggests such men are less likely to attach significance to the construction of a nuclear family. Furthermore, it remains consistent with the model controlling for PFR score, women may be less likely to benefit from a partner/spouse given that the nuclear family is a construct rooted in patriarchy. Which of these interpretations is most accurate, though, is difficult to tell from the data in the current study.

5.6 Strength and limitations

This study provided intricate, extensive, and generalisable details on sex and loneliness in England-based over 50s prior to the Covid-19 pandemic. It produced numerous theoretically and statistically significant results, adding weight, detail, and new perspectives to what is known about sex differences in loneliness. The older sample, and extensive and complex foci of the models, render some of its findings less detailed and/or generalisable than more narrowly focused studies, incorporating younger participants, might be. Nevertheless, investigating all of these hypotheses in a single dataset allowed for a complex and holistic study that can be effectively contrasted with theory and qualitative data.

The use of a sample consisting of people aged 50+ represents a major limitation to the generalisability of the results. It is well established that growing older increases the likeliness of isolating events such as widowhood, retirement, a loss of mobility (or other isolating health issue), and/or moving into specialist housing (Davidson 2004; Milligan et al. 2015; Reynolds et al. 2015; Robinson 2016; Nurmi et al. 2017; Collins 2018). Pinquart and Sorensen (2001) and Victor et al. (2005) found that among older people, women showed greater increases in loneliness than men as they aged. Victor et al. (2005) attribute this to women's greater likeliness of widowhood, therefore the focus on partner status in this study should mean this was adequately controlled for. Qualitative research has also emphasised older masculinities as specific to, and reformed around, the embodied and cultural realities of later life, which do not allow for the construction of 'dominant' masculine identities equally to younger men (Thompson and Langendoerfer 2016; Bartholomaeus and Tarrant

2016). Younger people, who face differently gendered life circumstances, may not present the same results as those found in this study.

Some variables held inherent limitations. None of the measures of people's perception of their social network (ISI, IAC, ICR, PFR) were specifically designed to measure this concept, casting serious doubt on the extent to which these findings can be used to reject the two hypotheses related to perception of their social network. All of the items on alcohol consumption involved scope for inaccuracy, therefore the different results for the two tests may be anomalous rather than socially meaningful. Ethnicity was simply coded as 'white' or 'non-white', and non-white people made up just 3% of the sample. The data also classed foreign qualifications as the lowest level of educational attainment, and did not record any information on the actual level of attainment they represent.

A larger study, or several more narrowly focused studies, could investigate ELSA in more depth. This study tested sex differences in responses to the UCLA scale and the non-time-specified direct question on loneliness as literature suggested this was the most likely area to find a difference (Rokach 2018; De Jong-Gierveld et al. 2018). However, the descriptive statistics suggested that the direct question asking about loneliness in the past week might facilitate different responses again, given that it had a smaller sex difference in the percentage of lonely people (table 16, p116). This could simply be a result of the short time window, which would theoretically reduce both sex's likeliness of loneliness. Nevertheless, further research may uncover different tendencies to both the UCLA scale and the non-time-specified direct question. The study also lacked a deep investigation of the UCLA scale. This was partly due to the dichotomisation of the scale, a decision that was influenced by its common use for overcoming poor model fit (Steptoe et al. 2013; Pikhartova et al. 2014; Goodman et al. 2015). It also failed to examine the possibility of varied sex differences among the items that constitute the scale, something Junttila et al. (2015) found was the case in the Finnish version.

The findings on the perception of social network variables, already noted as imperfect measures, may also have benefitted from further scrutiny. Further investigation into how sex moderates the impact of close relationships on loneliness could be useful, given that the findings suggested men and women were similarly affected unless they had no close relationships at all, at which point only women were negatively impacted. This may allow for a more informed interpretation of the data investigating whether the perception of social network variables intervene in the association between sex and partner status. This is particularly true of model 5.4, which suggested the PFR may impact the interaction between partner status and sex.

The study could have conducted more detailed sensitivity analyses in three areas. People with no friendships on the PFR, and people that showed contradictory data on involvement in groups and organisations, were investigated by simply producing models both without and without these respondents (models 3.1, 5.1, and 5.4). Sensitivity analyses on people that had a ‘proxy’ interview was not conducted at all. However, regardless of the outcome of sensitivity analyses, the use of a proxy interview remained theoretically unjustifiable in a study so focused on subjectivity and the likeliness of admitting loneliness. Longitudinal research may have allowed the study to examine sex differences in trajectories of loneliness. For example, investigating responses in the waves before and after the loss of a partner could investigate whether men are ‘shocked’ into loneliness following the loss of a partner. However, this was only identified as plausible after conducting the study, therefore is best viewed as a potential future direction for research.

Despite the large dataset, complete with imputations, many of the categorisations examined were small, reducing the chances of a statistically significant result (Button et al. 2013). This is likely to have been particularly problematic for the three-way interaction terms employed to investigate the impact of social network on the interaction between sex and partner status (models 5.5, 5.6, and 5.7). Indeed, a three-way interaction between sex, partner status, and the ISI could not even be conducted due to a quasi-complete separation of the data (some cell counts were zero even in the imputed datasets). Future research could make additional effort to sample participants who are severely isolated, or have no close relationships. Additionally, and perhaps in part due to this, many of the results held wide confidence intervals. This may also be a symptom of the subject matter - attempting to measure subjective emotion, which may be ‘understated’, and for which people may have different interpretations, would seem likely to find particularly varied results. Given this, that there were any significant results at all is striking, yet it remains that the strength, nature, and importance of the results is less clear.

This data was collected prior to the Covid-19 pandemic that resulted in ‘lockdowns’ across many parts of the world, including England (where this study was conducted). This, coupled with phrases such as ‘social distancing’ and ‘self-isolating’, led to much concern about an increase in loneliness, and a marked increase in google searches for ‘loneliness’ and related concerns was recorded (Brodeur et al. 2020). Data on this has not provided clearly consistent results. McQuaid et al. (2021)

record evidence of significant loneliness during the first wave in Canada, which appears in greater prevalence to pre-pandemic levels, although this was more prominent in young women, and least so in older men. Other studies have not shown a clear increase in loneliness, with an increase in social support possibly mitigating the effects of lockdown (Luchetti et al. 2020; Folk et al. 2020). What this means for the interpretation of this study is difficult to say, yet it would seem likely to be an event involving marked changes to people's constructions and experiences of loneliness and isolation.

Overall, though some variables employed were imperfect measures, they were the best approximations available, and could be used within a single and large dataset. Though further use of ELSA was identified as potentially useful in places, much of this was only evident after conducting the study, and would require far more extensive or focused research. This was therefore the most appropriate quantitative study possible with the resources available. However, little context on why such differences exist can be identified via this study design. Theory can be invoked, as it was in the discussion, yet multiple theoretical explanations were put forward for some findings, with little way to identify which are more plausible. Furthermore, these explanations were often constructed from a combination of statistical data and theory, rather than being rooted in the stated perspectives of specific people. The qualitative component of the mixed-methods thesis will attempt to rectify this limitation.

5.7 Chapter summary

This study used a large, single, relatively recent, England based dataset of men and women aged 50+ to investigate hypotheses related to sex differences in loneliness. The results suggest men are disinclined to acknowledge loneliness on a survey, particularly if they are severely isolated, yet with a greater tendency to drink alcohol in response to loneliness. Men display a greater association between partner status and loneliness, and possessed poorer quality social networks, but this may only partly represent a greater reliance on partners/spouses, and partly a greater perception of their existing partner/spousal relationships. The study was sometimes limited by its older sample, imperfect variables, and broad scope, but provided a detailed, generalisable, and holistic perspective on sex differences in loneliness. However, little information on why these aggregate differences exist can be concluded from this data. To help contextualise these findings, it is to qualitative research this thesis now turns.

6. Qualitative study: exploring men's constructions of loneliness

This chapter presents the qualitative component of the thesis. An interpretivist study was conducted, using a combination of free association techniques (Hollway and Jefferson 2000; 2008) and theory-led questions and analysis (Braun and Clark 2006). Semi-structured interviews were conducted with a diverse sample of 20 adult men. Chapter 4 identified one question and eight sub-questions as appropriate for qualitative inquiry (section 4.3, p84). These are reiterated below, with sub-questions 1, 3, and 4 adapted to better acknowledge the results of the quantitative study (Chapter 5).

What is the influence of sex or gender on men's constructions of loneliness, and their constructions of their experiences of loneliness?

1. Why might men show a greater association between partner status and loneliness than women? Why might this not be the case among men who have never married?
2. Why might men be less likely to respond they are lonely on a direct question than on an indirect scale?
3. Why might men be more likely than women to turn to alcohol when experiencing loneliness?
4. Why might severely isolated men be less impacted by this than women?
5. Do men show a reluctance to discuss emotional issues? Why?
6. Can being or feeling 'insufficiently masculine' frame men's constructions of their experiences of loneliness?
7. How might different intersections of identity such as class, ethnicity, sexuality, age, and physical ability intersect with men's constructions and/or experiences?
8. Are the findings linked? How and why?

Sub-questions 1-6 were not assumed *a priori* to constitute an appropriate interpretive framework, but were used as a theoretical guide (see Chapter 4, section 4.3.1, p85). A mixed-methods analysis, incorporating a more focused investigation of these sub-questions, takes place in Chapter 7. Section 6.1 details the methods used to conduct the qualitative study and analysis. Section 6.2 gives a full account of the qualitative findings. Section 6.3 offers a critical analysis and discussion of the findings in the context of the theoretical and empirical literature. Section 6.4 considers the strengths and weaknesses of the study. Section 6.5 summarises the study.

6.1 Methods

Chapter 4 defined the methodology as a qualitative interpretivist design, utilising two-part semi-structured interviews (section 4.3.2, p86). A pragmatic approach to sampling was taken (Braun and Clark 2021). This recognised theoretical saturation as a flawed goal in a study of this kind (Low 2019). The two parts to the interviews were guided by Hollway and Jefferson's (2000; 2008) 'free-association' approach, followed by structured questions aimed at reflexively considering the findings of the literature review and quantitative study. Theoretical thematic analysis (Braun and Clark 2006), incorporating Mason's (2002) recommendation of three readings (literal, interpretive, and reflexive), was used to code the data. Section 6.1.1 will describe how the sample was formed, and who it consists of. Section 6.1.2 describes how the data was collected. Section 6.1.3 details how the data was analysed, and section 6.1.4 considers issues of rigour. Section 6.1.5 discusses the ethics of the study.

6.1.1 Study population and sample

The study population consisted of men aged 18+ who were permanent UK residents and able to speak English. They did not need to consider themselves to have experienced loneliness as the study aimed to understand gendered perspectives regardless of the extent to which they had experienced it themselves. A maximum variation purposive sampling frame (Guest et al. 2013) aimed to enable the study to acknowledge differences among men, with particular reference to social groupings of men. Organisations likely to be able to find men who are LGBTQ+, black, Asian, older, and younger were therefore identified as appropriate study sites. Due to the Covid-19 restrictions in effect at the time, interviews took place either online via Zoom or Google meet, or on the telephone. A 'pragmatic' approach to sample size was taken (Braun and Clarke 2021). The final sample consisted of 20 men aged 20-71, who lived in a variety of places across Yorkshire, the North-East, and Scotland. Demographic details are specified in table 21.

A 'pragmatic' approach was employed as 'saturation' was considered an unrealistic goal for this study (Braun and Clarke 2021). For Hennink et al. (2017), saturation can be broadly defined as either 'code' saturation, which refers to a point at which the themes identified have become stable, or 'meaning' saturation, referring to a point at which there is no more insight the researcher is able to add. However, Low (2019) argues that, in many studies, it is unfeasible to ever conclude that no more relevant information can be found in further interviews. In the current thesis, which aims to highlight 'latent' themes, potentially widespread across society, yet with potentially infinite differences across social categories of people, Low's (2019) argument was considered particularly pertinent. Instead of 'saturation', then, the research aimed to provide context and insight relevant to men and loneliness, that is theoretically transferable to people beyond the study sample, but which is not purported to be exhaustive in the sense 'saturation' implies.

A maximum variation purposive sampling frame (Guest et al. 2013) aimed to enable the study to conceptualise differences among men, but also how men may be similar. In other words, a diverse sample is better placed to highlight that which is widespread, and potentially 'hegemonic' (Callinicos 2007; Howson 2008), than a less diverse sample, as it can identify that which is common across different groups. To form the sample, a number of minimum requirements were formulated. The final sample required at least three non-white men, three LGBTQ+ men, three men with a university education, three without a university education, three under 30 years old, and three over 60 years old.

Ethnic diversity was sought due to research such as Galdas et al. (2007) who suggested different masculine ideals in South Asian men meant they were not as reluctant as White-British men to seek help for health issues. LGBTQ+ participants were sought due to studies such as McAndrew and Warne (2010), and Rönkä et al. (2018), who found gay men relayed a 'loneliness of outsiderness'. Level of education was selected as Nixon (2009) found a distinct 'working-class' masculinity in the UK, for which educational level was the most convenient marker of class available (Bathmaker et al. 2013). Younger and older participants were sought as these age groups have been found to be the loneliest (Victor and Yang 2012), yet cultural frameworks for this may differ markedly (Ratcliffe et al. 2021).

The study also specified a minimum of 20 interviewees. This number was selected as Hagaman and Wutich (2017) suggest, in cross-cultural studies, 20-40 interviews are required to achieve saturation. They also suggest a minimum of three instances of a theme are sufficient to conceptualise it, influencing the choice of a minimum of three people within each sub-category. However, rather than representing attempts to achieve 'saturation', these choices were simply practically attainable targets able to find relevant themes in a culturally diverse group of men (Braun and Clark 2021). As sub-categories of three represents relatively small numbers of people, the study firstly aimed to fulfil these minimum targets, then consider whether more targeted interviews were required. However, after conducting 20 interviews, it was decided that a rich and detailed analysis of these interviews would be more effective than conducting further interviews.

To form the diverse sample, gatekeepers were sought in seven organisations: an LGBT group; a sports centre; a community centre (consisting of largely British-Pakistani attendees); a men's support and activity group; a group promoting good health in black people; and two umbrella organisations supporting voluntary work. Once a gatekeeper had been identified, they were sent a leaflet designed to advertise the research (appendix 28), and an information sheet giving greater details (appendix 29). After agreeing to assist, the gatekeeper either gave the leaflet to prospective participants, or, on some occasions, invited me to join an online meeting, at which I was given a chance to explain the research. Participants were offered a £10 gift voucher for taking part. Participants either contacted me, or asked me to contact them. To maintain the anonymity of participants, these organisations are not specified.

Table 21. Demographic information of interview participants.

Demographic	**N=20**
Age	**N (% of interviewees)**
18-30	**5** (25)
31-45	**5** (25)
46-60	**7** (35)
61+	**3** (15)
Ethnicity	
White-British	**14** (70)
South-Asian	**4** (20)
White Eastern-European	**1** (5)
White-African	**1** (5)
Sexual orientation	
Heterosexual	**12** (60)
Bisexual	**1** (5)
Homosexual	**7** (35)
Gender orientation	
Cisgender	**19** (95)
Transgender	**1** (5)
Attended higher education	
Yes, in the UK	**5** (25)
Yes, in another country	**2** (10)
Current student	**3** (15)
No	**10** (50)
Living situation	
Solo-living	**8** (40)

With spouse/partner (with or without children)	**7** (35)
With parents/guardians	**4** (20)
With housemates	**1** (5)

6.1.2 Data collection

Interviews were conducted remotely via video call (e.g., google meet, zoom), or telephone, in an enclosed room with no-one else present, using a headset to ensure only I can hear. They lasted between 30 and 120 minutes, and were video-recorded and auto-transcribed, or recorded on the phone and manually transcribed. They took place between January and March 2021, during severe Covid-19 restrictions. Each interview consisted of a relatively unstructured component, aiming to employ Hollway and Jefferson's technique of 'free association' (2000; 2008), and more structured questions aiming to use the literature review and quantitative study to better investigate men's perspectives. The rationale for this is discussed in Chapter 4, section 4.3.2 (p86). A full interview schedule is detailed in appendix 30. A more succinct schedule, used in the interviews to aid flow, is in appendix 31.

The two components of the interview were conducted sequentially. The first part of the interview schedule consists of questioning aimed at inducing 'free association' (Hollway and Jefferson 2000). In line with the highly inductive nature of this methodology, just three questions were pre-determined. These were focused on 'life-stories', and emotional interpretations of these stories, to enable a manifestation of lived experience (Plummer 2001; Hollway and Jefferson 2008). There were, though, a multitude of potential follow up questions. As recommended by Hollway and Jefferson (2000; 2008), these represent following up on that which is 'freely associated'. In addition to this, it was considered likely that some participants would discuss subjects identified in the literature review or quantitative study without being prompted to do so. Unlike Hollway and Jefferson's methodology, then, part one of the interview also references a number of specific topics that should be followed up on. As the interviews took place during severe Covid-19 restriction, this section of the interview also asked people to reflect on whether and how the pandemic had impacted their constructions and experiences.

In part two, the questions specifically ask about the topics found to be relevant in the literature review and/or statistical study. These questions were much narrower, and some opening questions even consist of 'yes/no' questions, the answer to which the interviewee was asked to elucidate. This aimed to mirror components of the quantitative study, facilitating data able to 'explain' it.

Additionally, a specific question on gender was included to form data on whether the man's narrative reflected a gendered experience, or something else. Finally, questions focused on policy and practice were asked, which also ask the men what they believe would benefit them. This was primarily constructed because of the sub-question specifying a need to consider the policy and practice ramifications of the data, but was also noted for its ability to further encourage reflexivity in the men's narratives.

6.1.3 Analysis

A theoretical thematic analysis (Braun and Clark 2006) was conducted, incorporating Mason's (2002) concept of 'literal', 'interpretive' and 'reflexive' readings. This aimed to conceptualise both manifest and latent themes by reflexively utilising theory in the interpretive framework of the study. The literal reading focused on coding 'manifest' data that clearly indicated answers to the research questions. The 'interpretive' reading then focused on more 'latent' or 'theoretical' themes. Finally, the 'reflexive' reading centred on questioning the nature and content of the themes. Seven a priori codes were formed: i) perceptions of masculinities; ii) perceptions of loneliness; iii) whether/why men may not admit to loneliness; iv) whether/why they may be more prone to alcohol when lonely; v) whether/why they may be more reliant on spouses; vi) whether/why they may feel lonely as a result of feeling or being labelled 'insufficiently masculine'; and vii) whether/why they may show less loneliness than women in response to not having any friends. A priori codes were constructed to ensure clear and reflexive focus on the results of the literature review and quantitative study. In line with the free association components of the interview schedule, though, open coding was conducted alongside this coding framework (Moghaddam 2006). This is partially represented by the two extremely broad a priori codes: perceptions of masculinities; and perceptions of loneliness. 'In vivo' coding, in which quotes were attached to one or more themes, then further into sub-themes, were used to arrange the data (Straus and Corbin 1998). Analysis and coding broadly consisted of eight stages:

1. Interviews were digitally recorded, transcribed verbatim, and uploaded to NVivo (2020).
2. A 'literal' reading focused on identifying 'manifest' themes. This used the seven a priori coding categories as an initial framework. Many codes and sub-codes were added during this stage.
3. Codes were cross-coded according to ethnicity, sexuality, social class, and age, to assist with identifying differences among men.
4. A more 'interpretive' second reading focused on inspecting the data for 'latent' themes. This aimed to conceptualise assumptions in the men's narratives.

5. Codes were again cross-coded into new categories, and according to ethnicity, sexuality, social class, and age, before being narrowed down to a draft code-set.
6. A ‘reflexive’ reading was conducted, aimed at questioning the codes, focusing on whether they were unduly influenced by the researcher, literature review, or quantitative study.
7. A decision on whether more interviews were required was taken.
8. A final set of themes and sub-themes was formed.

6.1.4 Rigour

Lincoln and Guba (1985) created four criteria for conducting rigorous qualitative research: credibility; dependability, confirmability; and transferability. This has provided the framework for much subsequent discussion on the topic, and remains influential (Morse 2015; Forero et al. 2018). This sub-section will use these concepts as a foundation for understanding and aiding the rigour of this study. After doing so, four actions were taken to aid the rigour of the study: i) the study will aim to conceptualise where and why it went beyond the interviewee’s stated perspectives; ii) a consideration of ‘deviant cases’ was conducted and described (appendix 32); iii) a ‘decision trail’ listing and discussing the themes after each ‘reading’ of the data was formed (appendix 33); and iv) a first-person reflexive account of conducting the interviews was written (appendix 34).

‘Credibility’ has been placed as akin to the quantitative concept of ‘validity’, as it denotes a requirement to truthfully portray ‘reality’ (Holloway and Wheeler 1996). In qualitative research, this means the portrayal of the participants should be accurate and reasonable. Two commonly proposed methods for enhancing credibility are ‘member checking’ and ‘attention to deviant cases’ (Guba and Lincoln 1989; Mays and Pope 1995; Holloway and Wheeler 1996). Member checking involves going back to the interviewees with the results, and asking them to clarify that they are a true representation of their statements. The current study, though, involved significant focus on ‘latent’ meaning (Boyatzis 1998), and building theory based on literature and data other than that which is in the interviews. It was therefore considered inappropriate to ask the interviewees to check the results in this manner (Morse 1998). Instead, the study aimed to specify where and how it went beyond the interviewees manifest perspectives. To do so, attempts were made to clarify participant responses during interviews (Horsburgh 2003), and the analysis and discussion will consider alternative interpretations of the data where appropriate.

‘Attention to deviant cases’ refers to the importance of not presenting the findings as if they were unproblematically universal (Sandelowski 1986; Mays and Pope 1995). In the current study, this may be a vital consideration. Part two of the interview involved an element of ‘explaining’ general trends, yet despite statistical significance, the quantitative data did not find these trends are universal. Furthermore, notions of ‘hegemony’ conceptualise widespread frameworks and assumptions that are not universal, but reflect a justification for existing power relations (Connell and Messerschmidt 2005). As such, their actual nature can vary greatly, and can be resisted and changed. In this study, the ‘reflexive’ reading will incorporate a specific and detailed consideration of deviant cases (appendix 32). This aimed to strengthen the theoretical positing of the findings by manifesting reasons for the deviant cases (Holloway and Wheeler 1996).

Dependability also possesses a parallel quantitative concept, that of ‘reliability’. Reliability usually refers to the stability and reproducibility of a quantitative study (Gerrish and Lacey 2010). In qualitative research, this means establishing and presenting the logical flow by which the findings were constructed. It is often facilitated by establishing a clear description of the methods, data collection, and analysis (Mays and Pope 2000). Forero et al. (2018, p3) purport this to mean that ‘the findings of this qualitative inquiry are repeatable if the inquiry occurred within the same cohort of participants, coders and context’. However, the importance of *theoretically* interpreting the data in a theoretical thematic analysis suggests it is not appropriate to describe the research as reproducible - a different researcher, with a different perspective, may produce different results. Rather, this study aimed to display how the findings were co-constructed between the interviewee and researcher (Mason 2002). To do so, a form of ‘decision trail’ was conducted (Long and Johnson 2000), which traces the development of the themes throughout the three readings of the data (appendix 33). A first-person reflexive account of conducting the interviews further aimed to clarify how the data was constructed in the interviews (appendix 34).

‘Confirmability’ represents the confidence with which the findings would be corroborated by others, and tends to be facilitated by a reflexive approach and internal discussion among researchers (Forero et al. 2018). ‘Triangulation’ has also been recommended, i.e., contrasting the data with quantitative data (Lincoln and Guba 1985; Forero et al. 2018). The mixed-methods approach taken in this thesis, and the reflexive reading already specified, were therefore considered useful for aiding confirmability without further additions to the analytical process. Lastly, ‘transferability’ represents the extent to which the results can be applied to other settings (Lincoln and Guba 1985).
This was also considered to be aided by the mixed-methods design, given that ‘generalisable’ data is already integral to the study. Additionally, the maximum variation sampling method (Guest et al.

2013) was incorporated to facilitate a consideration of how, and to who, the data is 'transferable'. o further action to aid 'transferability' was taken.

6.1.5 Ethical considerations

Ethics approval was granted by the ethics committee in the Department of Health Sciences, University of York. Discussing loneliness may be a distressing experience, yet it is important to understand people's experiences if policy and practice is to improve. It should also be acknowledged that men and masculinities may reify patriarchal power structures (Connell 2005), and that this could facilitate a difficult to negotiate dynamic in an interview with men about an emotional topic. Plummer's (2001) notion of 'critical humanism' emphasises that ethical research should involve a balance of individual well-being and justice ethics. This study needed to balance men's personal experiences of difficult emotions against gendered inequalities, therefore this aspect of critical humanism defined the ethical position of the study. This resulted in six specific strategies:

1. An information sheet was provided in advance of an interview (appendix 29), and a consent form was required (appendix 35).
2. A list of organisations able to provide help and support men experiencing loneliness were provided to participants (appendix 36).
3. An approach showing due diligence to the interviewees mental state was taken. Practically, this required sometimes asking whether the participant is OK, whether they wanted a break, and not asking potentially relevant questions if the question may cause distress.
4. Criticising the interviewee, or accusing them of unethical actions, was avoided.
5. Pseudonyms were used to protect anonymity.
6. In analysis, participants' narratives were placed within a theoretical socio-political landscape acknowledging unequal gendered relations, yet retained a view of the participant as a human who, in some cases, may not have constructed his perspective in relation to broader socio-political agenda. In other words, care was taken to acknowledge where masculine ideals may facilitate the marginalisation of women or other men, whilst clearly acknowledging interviewee's manifest goals and motives.

6.2 Findings

Analysis culminated in the formation of two 'layers' of themes. The first layer consists of a core conceptualisation of loneliness built from men's constructions, and the second consists of gendered social influences on the nature and likeliness of loneliness according to this conceptualisation. Section 6.2.1 summarises each layer, and justifies the need for two ‘layers’. Section 6.2.2 details the evidence for layer one, and section 6.2.3 the evidence for layer two.

6.2.1 Findings summary

In Chapter 2, the word ‘loneliness’ was conceptualised as a discursive construct, interpretable and actable in a multitude of ways. Nonetheless, the *emotion* of feeling as if one lacks, or has lost, meaningful social relationships, was conceptualised as the key problem for this study. However, many of the men’s assumptions and suggestions of what is important were not consistent with this. ‘Layer one’ represents a new conceptual framework for loneliness, and ‘layer two’ represents where and how maleness or masculinities could impact loneliness. They are conceptualised as ‘layers’ to emphasise that the impact of gender was made clearer by forming this novel conceptualisation of loneliness.

Layer one consisted of core frameworks for why loneliness may be felt. It was not presented as a conceptual whole by any single man, but from common ideas and assumptions. It comprises four themes: ‘socially negotiated self-worth’; ‘social connections’; ‘capacity to connect with others’; and ‘being positively occupied’ (i.e., doing something understood as positive that holds one’s attention). These were not independent of one another. Rather, each represented a component of loneliness, and together could form cyclical processes (figure 6, p146). ‘Capacity to connect with others’ represented a toolset for forming ‘social connections’. In turn, ‘social connections’ represented meaningful relationships with other people, which could provide opportunities to be ‘positively occupied’, or for feeling a ‘socially negotiated self-worth’. ‘Socially negotiated self-worth’ and ‘being positively occupied’ both consisted of a mental state, such that lacking them represented the internal emotion of loneliness. They could also form a component of cyclical processes. ‘Socially negotiated self-worth’ was associated with ‘capacity to connect with others’ in that it was framed as a reason for having difficulties with, or avoiding, social interactions. Similarly, ‘being positively occupied’ could facilitate ‘capacity to connect to others’ by providing shared points of interest.

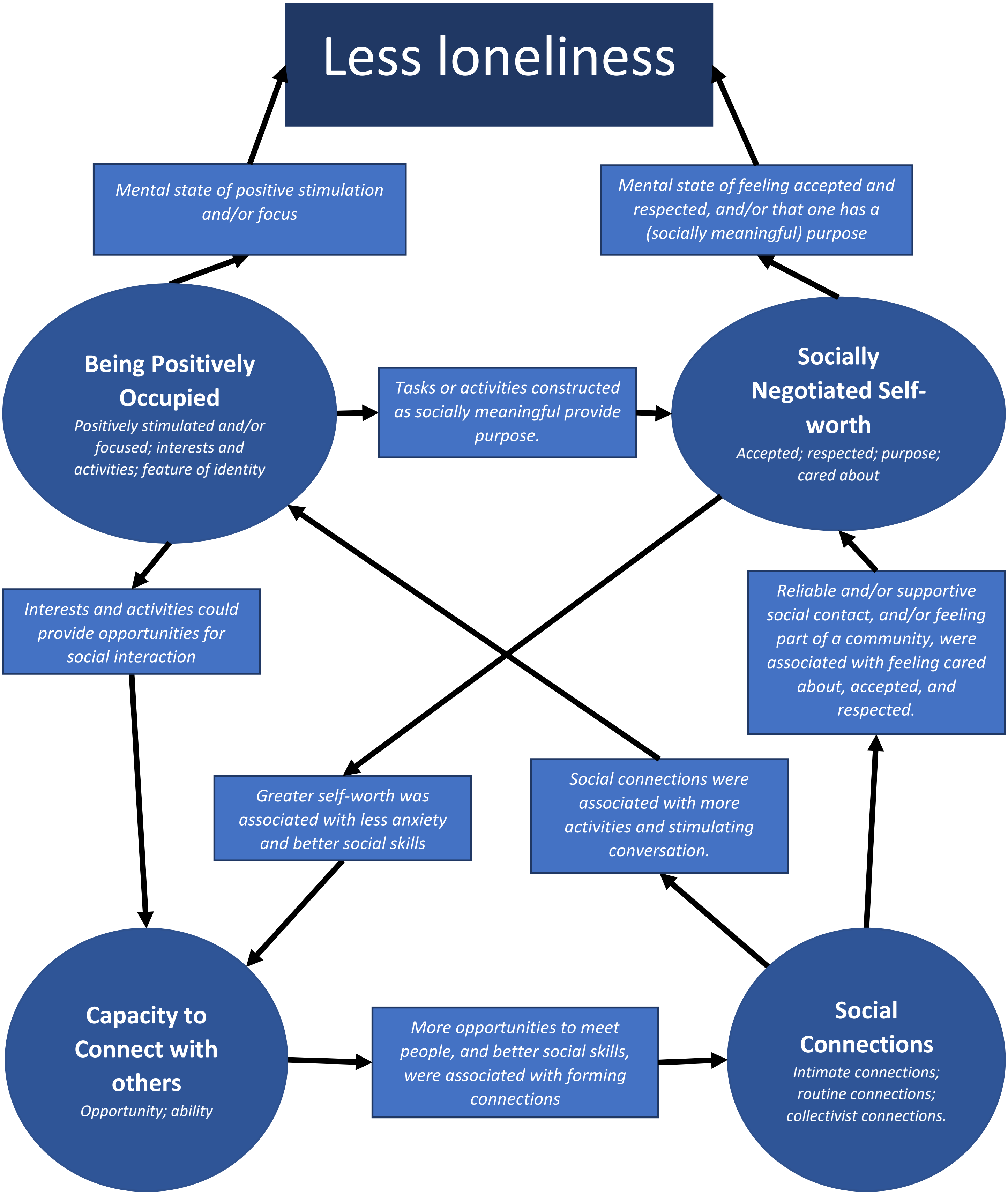
This did not consist of deterministic cycles of cause and effect, but discursive representations of processes that could be interrupted, slowed, turned, and restarted. Individual agency, social structures, and human biology were all framed as able to affect it. Layer two focuses on how maleness and masculinities could do so. Five themes were identified: a reluctance to admit loneliness; loneliness as associated with failure; avoiding displaying vulnerability as a barrier to forming social connections; masculine-appropriate behaviours, interests, and abilities; and masculine social roles. A notion of it being inappropriate for men to admit loneliness, and a broader association of loneliness with failure, impacted how men socially negotiated self-worth, making it harder to prevent and alleviate loneliness. Avoiding displaying vulnerability affected men's capacity to connect with others by limiting intimate interactions. Masculine social roles provided a socio-economic framework for men's interpersonal interactions. Notions of masculine-appropriate behaviours, interests, and abilities could affect both their capacity to connect with others, and the likeliness of whether, and how, men are 'occupied'. Table 22 summarises where and how these themes affected the fulfilment of 'less loneliness' according to the framework in layer one. The following sections will present the themes, sub-themes, and the evidence for each.

6.2.2 Layer 1: A core conceptualisation of loneliness

This section will present the themes and sub-themes for 'layer one'. It comprises four main themes, and 12 sub-themes (sub-themes in brackets): socially negotiated self-worth (accepted, respected, purpose, cared about), social connections (intimate connections, routine connections, collectivist connections), capacity to connect with others (ability, opportunity), and being positively occupied (positively stimulated and/or focused, interests and activities, feature of identity). These themes represent intertwined components of a conceptual framework for loneliness (figure 6, p146). This conceptualisation summarises and amalgamates consistent features in men's 'constructions'. Much of the evidence presented in this section consists of latent assumptions, rather than manifest and detailed narrative. Though different men emphasised different aspects of figure 6, all themes, and most sub-themes, were constructed by most or all of the men. This was likely because of the 'core' nature of the conceptualisation – it is difficult to imagine a person suggesting that they do NOT want to feel self-worth, or be positively occupied. This is further discussed in the consideration of deviant cases in appendix 32.

Figure 6. Flow chart showing a framework for loneliness (layer 1).

Circular bubbles represent the themes and sub-themes, and arrows show conceptual directions. Rectangular boxes provide detail on how the connected bubbles were associated.


Less loneliness
Being Positively Occupied
Positively stimulated and/or focused; interests and activities; feature of identity
Socially Negotiated Self-worth
Accepted; respected; purpose; cared about
Capacity to Connect with others
Opportunity; ability
Social Connections
Intimate connections; routine connections; collectivist connections.

Mental state of positive stimulation and/or focus

Mental state of feeling accepted and respected, and/or that one has a (socially meaningful) purpose

Tasks or activities constructed as socially meaningful provide purpose.

Interests and activities could provide opportunities for social interaction

Reliable and/or supportive social contact, and/or feeling part of a community, were associated with feeling cared about, accepted, and respected.

Greater self-worth was associated with less anxiety and better social skills

Social connections were associated with more activities and stimulating conversation.

More opportunities to meet people, and better social skills, were associated with forming connections

Table 22. Themes and sub-themes in layer two, and how and where they intersect with layer one

Theme	*Sub-themes*	*How impacts loneliness as conceptualised in layer one*
Reluctance to state loneliness - *in all sub-themes, not stating loneliness can lead to low self-worth as loneliness allowed to continue.*	Not masculine	Stating loneliness can undermine masculine self-worth.
	Negative repercussions	Stating loneliness may result in a loss of being accepted and/or respected by others.
	Not understood	Stating loneliness may create a barrier to social connections if others don't seem to understand.
	Responsibility	Stating loneliness undermines self-worth as implies they're not being strong for other people.
	Promoting resilience	Stating loneliness allows it to become the focus, thus not *positively* occupied.
Loneliness as associated with failure	Personal responsibility to maintain social contacts	Leads to a loss of self-worth as loneliness represents a failure to make and maintain relationships. Can improve self-worth by placing loneliness as not due to an unlikeable personality, but as resulting from a lack of effort.
	Markers of respect	Lack of *being* respected can be a barrier to forming connections, and not *feeling* respected was associated with lower self-worth.
Avoiding displaying vulnerability	n/a	Can lower capacity to connect with others. Particularly reduces likeliness of intimate connections.
Masculine-appropriate behaviours, interests, and abilities	Bullying	Being treated with open disrespect by others. Associated with lower self-worth and capacity to connect with others.
	Ostracisation	Not feeling accepted by others. Associated with lower self-worth and capacity to connect with others.
	Competitiveness	Can bestow self-worth if successful, but also reduced the capacity to connect with others.
	Masculine framework for forming social connections	Increases capacity to connect with others, and likeliness of being occupied, by providing common interests and activities.
Masculine social roles	Work and employment	Expectations of working and success affect capacity to connect with others.
	Family	Expectations of nuclear family affect capacity to connect with others.

6.2.2.1 Socially negotiated self-worth

This represented a parallel concept to 'loneliness', where self-worth was its inverse. It is described as 'socially negotiated' as it is inherently built according to the individual man's perception of his role in the social world – whether he feels 'worthy'. It was often implicit, but became clearer in four sub themes: accepted; respected; purpose; and cared about. 'Accepted' tended to focus on the extent to which the man felt welcome and/or valid, whereas 'respected' denoted a man's perception of how others see him. 'Purpose' represented the extent to which he felt his life had meaning, and was relevant to loneliness because this meaning was constructed within the social world. Lastly, feeling 'cared about' referred to a sense of having supportive and reliable social relationships, usually with specified individuals. The following sub-sections will relay how and why these themes denoted 'socially negotiated self-worth', and why this is a core component of 'loneliness'.

6.2.2.1.1 Accepted

Jonny, when discussing friendships, summarised the importance of feeling 'accepted' particularly succinctly:

> *Jonny: I want them to feel as though they know me for who I am, and they accepted me.*

In this except, he describes how social interaction on its own is insufficient. Rather, it is the sense of being 'accepted' that affects how he feels. The terminology 'for who I am' is notable. Later in the interview, he describes how, in the past, he had sought specific forms of employment, and attended courses, as something he did for 'other people'. Several men stated or implied something similar. Jim, for example, described this as 'people pleasing'. Conversely, Adam said 'I want people I can be my authentic self with'. Feeling 'accepted', then, may require an 'authentic' presentation of the self. Nevertheless, the desire to feel this way appeared sufficiently strong as to influence people to present themselves according to other people's desires.

6.2.2.1.2 Respected

This is best portrayed via Harry's experiences of working in a kitchen. Producing timely and good quality food had been important to him. However, some of his colleagues did not share his enthusiasm:

> *Harry: some people don't understand that, and I think that that made me feel lonely that, because I was, someone used to call me, 'oh he thinks he's Gordon Ramsey'.*

The mocking way he was described was, he believed, symptomatic of a general lack of respect he was afforded for his efforts, at least from his colleagues. In turn, he did not respect them either, leading to a disconnect he openly constructed as lonely. This exemplifies how self-worth could be 'socially negotiated', rather than specifically 'social' or 'individual'. The kitchen work had a purpose - the creation of good food for other people to eat. Harry shows pride in this, in turn implying it bestowed self-worth. However, the lack of respect his colleagues afforded him remained a lonely experience. The building of self-worth through feeling respected, then, was not easy, and required social acts that can be perceived differently by different people. As with feeling 'accepted', it did not just involve doing what others wanted, but required the individual to act in the way they felt appropriate. Despite this, the respect afforded by others, or lack thereof, remained a key component of the experience.

6.2.2.1.3 Purpose

Where 'accepted' and 'respected' represented how the individual felt they are perceived by others, 'purpose' was less bound to social interaction. Instead, it represented a sense of worth derived from actions constructed as meaningful:

> *Les: I think that's the key thing. It's the feeling of being needed…(doing) something that's necessary, and essential.*
>
> *Jim: Have a purpose. Have a sense of something to do. And that would stave off elements of loneliness.*

These two short quotes show instances where the importance of 'purpose' was directly linked to loneliness. For Les, this referred to how he, a former nurse, had volunteered to clean ambulances during the Covid-19 lockdown. For Jim, it referred to his voluntary work in addiction and mental health services. Indeed, the importance of helping others, particularly through volunteering or community activity, was cited by over half the interviewees.

These examples construct 'purpose' as something related to the direct benefit of others, but it could also represent 'achievement'. In Harry's experiences in the kitchen (section 6.2.2.1.2, p149), his desire to be a good chef could be conceptualised as 'purpose'. It could also consist of a moral imperative that may not be shared by others. This was particularly evident in the following two quotes relaying Martin's views and experiences of the Covid-19 restrictions:

> *1. Martin: Lockdown has a purpose. It has a message, a social message. We are healing now as a society. If you can sustain this loneliness, you're doing it for society.*
>
> *2. Martin: If I get an invitation, which I got several times, I have to say like bloody hell don't you read a newspaper? There's another lockdown! And it's makes me feel sorry to explain to you it's inappropriate...*
> *Interviewer: Is that a kind of loneliness, in effect?*
> *Martin: Yeah. It's like a spiral down it started, and it's pushing us more and more down.*

In the first quote, he explains that he felt the lockdown had an important ‘purpose’. In the second, he describes how being invited to a party resulted in a spiralling loneliness. By itself, being invited to a party would seem an unlikely cause of loneliness. However, for Martin at this time, being at home alone fulfilled a ‘social message’, and discovering that others did not share this purpose devalued his actions. Furthermore, as the phrase ‘*social* message’ encapsulates, it is a ‘socially negotiated’ purpose, and not simply an isolated perspective.

6.2.2.1.4 Cared about

Feeling ‘cared about’ represented a form of self-worth constructed in and from specific relationships. The most common type of relationship cited was a partner or spouse, although close friends, brothers, mothers, grandparents, Aunts, and children were all mentioned too. In the following excerpt, Alisdair discusses his past experiences with alcoholism. In doing so, he manifests both the importance of feeling ‘cared about’, and how this represents socially negotiated self-worth:

> *Alisdair: You didn't think people actually wanted to be in your company. You kind of tell yourself they invite you to things because they feel they have to, rather than they want you to be there. And it's just like the whole negative thing, it just builds up, just no self-confidence or self-esteem whatsoever. And obviously the more you isolate, the more that perpetuates.*

Since entering rehabilitation, he felt he’d begun to tackle these feelings. In particular, he’d developed a better relationship with his brother, with whom he spoke on the phone almost every day. Despite the severe Covid-19 restrictions in affect at the time of the interview, then, he stated:

> *Alisdair: It doesn't really affect me as much, with the loneliness. I know I've got people I can contact that would be glad to hear from me if I was feeling low.*

These quotes highlight that feeling ‘cared about’ is an emotional experience. In the first quote, Alisdair actually has people inviting him places, but he does not feel it. In the second, he does not actually contact anyone, he simply knows he could. Nevertheless, the physical social connection with his brother was key to building this feeling.

6.2.2.2 Social connections

Social connections were frequently constructed as central to loneliness. However, where ‘socially negotiated self-worth’ was an emotion, social connections possessed an inherently physical component, or at least the perception of one – the person or people with who they feel connected. In this way, it did not denote a feeling, nor was it the inverse of ‘isolation’. Rather, it was a key reason *for* a feeling. Their importance was constructed according to three types of connection. ‘Intimate’ connections referred to social relationships that were close and supportive. ‘Reliable’ ones were not necessarily as intimate, but were readily available. ‘Collectivist’ connections referred to a broader sense of being ‘part of something’.

6.2.2.2.1 Intimate connections

Intimate social relationships were the main factor able to facilitate a feeling of being ‘cared about’. In the example relayed in sub-section 6.2.2.1.4 (p150), the relationship Alisdair develops with his brother is the intimate connection. They are particularly important for providing support. Hassan discussed how this could help overcome any feelings of loneliness that may start to arise:

> *Hassan: If I had that kind of feeling, straight away, I would say, call my friends. Look, this weekend we are going to Wales, or this weekend we are going to Lake District, and we are climbing somewhere, or we will arrange a walk, and let's do it. Or tell kids, wife, we are going somewhere to do this.*

Hassan emphasises that he is confident his friends, wife, or children would be there for him, indeed willing to attend these activities without much notice. In both Alisdair and Hassan’s accounts, they also imply that they would do the same for them, and openly state that relationships require developing. Alisdair’s lack of self-worth led him to reject others, and it was only after he stopped rejecting others that he began to feel cared about. To feel ‘cared about’, then, may require some ‘caring for’. Hassan’s quote also shows how social connections can increase the likeliness of ‘being positively occupied’, given that he portrays these activities as requiring people to do them with.

6.2.2.2.2 Routine connections

This refers to social connections that were reliably available. These possess some crossover with ‘intimate’ connections. In both Alisdair’s and Hassan’s accounts above, a key element of the intimate connection is that they are reliably available. In Alisdair’s case, this is the phone call to his brother, and in Hassan’s, the availability of his wife, kids, and friends for walking trips. However, connections that were reliable, but not necessarily intimate, were also constructed as potentially beneficial. These tended to be routinised in some way:

> *Sam: Every weekend we, we have a few drinks, and we will put a bit of music on, we just try to, because we all have lectures and stuff during the week, so we try to let our hair down a bit at the weekend.*
>
> *Scott: I found it hard when I first stopped working. Because you have that contact with people that may not be your close friends, you know a lot about, but you have that general chitchat when you're at work.*

In Sam’s quote, he focuses on the routinised social activity as something to look forward to, rather than emphasising intimacy. In Scott’s, he describes social interactions at work as beneficial. He openly characterises these relationships as not ‘close’, but as dependable everyday interactions that he missed when they were gone. Where ‘intimate’ connections tended to associate with feeling ‘cared about’, these quotes from Sam and Scott encompass elements of ‘being positively occupied’, and feeling ‘accepted’. Specifically, the getting together for an activity in Sam’s account, and the general chitchat whilst working in Scott’s, suggest activities where they are ‘positively occupied’. In turn, because they are social, involvement implies they are ‘accepted’.

6.2.2.2.3 Collectivist connections

Collectivist connections tended to refer to groups, organisations, or communities. As Brian put it:

> *Brian: that's that very simple connection of being a part of something. I don't have to do everything, but if I'm just a part of something, that's good.*

Here, Brian does not refer to specific people, but to a sense of being ‘accepted’ by what he simply terms ‘something’. A similar notion was present in many interviews. Gary was a football fan, and lauded the atmosphere in grounds, and the collective identity that went with it, as giving him ‘confidence’. Political activism, and inherent features of identity, such as sexual orientation or ethnicity, were also sometimes constructed in this way. In a discussion about what helps prevent loneliness, Jim removed the notion of ‘connections’ from people even further:

> *Jim: Connect with something or someone. Doesn't have to be a person, but if it's a connection with something that helps you, and makes you feel a little bit more at peace with yourself, connect with something. Connect with a piece of art, connect with nature, connect with a person. Connect with a hobby. Connect with whatever.*

In this quote, the sense of being ‘part of something’ is particularly abstract. Nevertheless, the notion of a ‘connection’, leaving one ‘at peace’, suggests an arena where the individual feels accepted. It also manifests an association with two other components of loneliness, ‘being positively occupied’ and ‘purpose’. The attendance of football matches, or spending time on hobbies, suggests a positive and meaningful activity for the person, thus represents positive occupation. Connecting with hobbies, or political activism, implies a ‘purpose’, in these cases by furthering the hobby, or by campaigning for a political end.

6.2.2.3 Capacity to connect with others

This denotes how capable a man is of building social connections, thus points to just one other component of loneliness in figure 6 (p146) – social connections. It consisted of two dimensions: ability; and opportunity. Ability defines someone’s personal capacity to form connections. Lower self-worth was associated with reduced ability. Opportunity represents that which was external to the individual. These usually consisted of physical spaces that dictated interpersonal interactions, such as workplaces or families, or features of identity, such ethnicity or sexuality.

6.2.2.3.1 Ability

This refers to the individuals social skills and/or their likeliness of attending social arenas. It often centred on anxieties:

> *Jonny: I didn't want to have to be put in a social situation where I felt the anxiousness.*
>
> *Sam: I thought it best to just lock myself away. So I don't embarrass myself.*

In both of these quotes, Jonny and Sam relate how anxiety led them to avoid ‘social situations’, reducing their chances of building social connections. The cause of the anxiety could differ. Sam was epileptic, and when he first began to have seizures, he had been extremely self-conscious about doing so in public. Jonny, on the other hand, stated that he had found it very hard to develop friendships from a young age, and had developed mental health problems. As a result, social situations were a source of anxiety, in which he did not feel ‘accepted’ in the manner he relates in section 6.2.2.1.1 (p148). This resonates with Alisdair’s tale of low self-worth in section 6.2.2.1.4 (p150), in which he states that low self-confidence and self-esteem led to isolation, perpetuating low self-confidence and self-esteem. It is at this point, then, the first ‘cycle’ of loneliness is identifiable – lower self-worth can lead to a lower capacity to connect with others, which can lead to fewer social connections, which can lead to lower self-worth, and so on. Nevertheless, as Alisdair also emphasised, these cycles are not unbreakable.

6.2.2.3.2 Opportunity

Opportunities tended to relate to physical spaces and/or features of identity. In the sections above, disabilities have already been implied to affect the capacity to connect with others. Sam’s seizures prevented him from attending social situations (6.2.2.3.1), and Scott left the workplace that facilitated social interaction because of serious neurological, liver, and lung conditions (6.2.2.2.2, p152). Harry, on the other hand, discussed his capacity to form connections in relation to social class and crime:

> *Harry: it's a little bit rougher and it's a bad estate, sort of thing. It can be anyway, quite a lot of crime round here. So it's quite difficult to trust people.*

Community problems affected Harry’s confidence in social interactions, hindering the formation of social connections. He referred back to this several times throughout the interview, clearly relating it to social class when he mentioned that people have *‘no money, no hope’*. Gary, Hassan, Jonny, and Faisal discussed similar notions. Wealthier participants, though, did not tend to discuss crime in relation to loneliness.

The prejudices of others could reduce the capacity to connect with others. Gary, a trans man, relayed an example in which he lost a friend of over 10 years after they made a transphobic ‘joke’. Faisal, an Asian man, described how he had previously lived in an area that was a ‘focal point for racism’, leading to him and his family moving house. However, both these men also described how it could be easier to connect with men who share their identity. Identity, then, can be a barrier, but also a bridge to social connections. Saed summarised this effectively:

> *Saed: I do like talking to them, people who are similar to me kind of thing. It's not I don't talk to other people, sometimes it's easier talk to people like you about things…specific to culture, South Asian culture.*

'Opportunity', then, is contextual. Where 'ability' could be part of a cycle of self-worth, opportunities to connect with others were more affected by forces beyond the control of the individual, such as disability, ethnicity, and social class. Indeed, sex and gender were capable of being a key influence of this nature. This will be discussed in detail in 'layer two' (section 6.2.3, p158).

6.2.2.4 Being positively occupied

As with 'socially negotiated self-worth', this represented a mental state. It consisted of three dimensions: mentally stimulated and/or focused; interests and activities; and feature of identity. Being positively mentally stimulated and/or focused represents the aspect of being positively occupied that, in figure 6, points to 'less loneliness'. It was a mental state where what the individual is doing is their focus. Conversely, loneliness was a lack of 'doing', or a 'doing' that is negative. 'Interests and activities' formed part of the cycles in figure 6. It was associated with greater capacity to connect with others, in that a shared interest or activity could be a medium for building social connections. Lastly, 'feature of identity' summarises the cultural significance some placed on not being idle. In this way, it could be a framework for socially negotiated self-worth.

6.2.2.4.1 Positively stimulated and/or focused

This is best encapsulated by the frequency of the word 'busy', which was employed by 11 interviewees to represent the idea that 'busy' is not 'lonely'. Indeed, others used terms such as 'occupied' or 'not bored', such that 19/20 participants were coded as referencing this in some guise. Its relevance was manifested via three forms of narrative: those that constructed it as a technique to overcome loneliness; those that blurred the distinction between 'unstimulated' and 'lonely'; and those that placed loneliness as a neurological state. The following quotes from William and Brian emphasise it as a technique to overcome loneliness:

> *William: Distraction is one coping mechanism isn't it.*
>
> *Brian: doing things with your hands, you can focus on it. You can use mindfulness…to focus on just what you're doing at that moment in time.*

Here, both William and Brian suggest action is a positive way to deal with loneliness. William was less positive, viewing it as just a ‘distraction’. Brian, however, believed it to be a more genuine solution, presenting it as ‘mindfulness’. Either way, such methods are notable for their focus on activity and mental stimulation, rather than social interaction.

Narratives blurring the distinction between mental stimulation and loneliness showed this was not just a technique for alleviating loneliness, but a key component of what loneliness actually was. In the following two quotes, Adam and Faisal openly begin to recognise this:

> *Adam (discussing Covid-19 restrictions): It's difficult to discern, am I lonely? Or am I kind of devoid of activity, occupation?*
>
> *Faisal: It's that noise…if I look, TV off now, it'll be like there's something wrong…I can hear a pin drop. And when you hear a pin drop, there's something wrong. At least your mind or your eyes are occupied by looking at something.*

In his quote, Adam manifests the importance of mental stimulation to loneliness by expressing that, emotionally, ‘bored’ and ‘lonely’ were not easily distinguishable to him. Similarly, Faisal discusses how a lack of noise can be a lonely experience, to wit the TV was able to occupy his ‘mind’ and ‘eyes’ sufficiently enough to prevent worse loneliness. Social activities, and conversations, were often critical to positive stimulation. Adam lived alone, and normally socialised extensively out of the house, and suggests the loss of these during Covid-19 restrictions were the main antecedent for the feelings he describes. Faisal, on the other hand, lived in a large household, and was describing his rare moments of being home alone. For both men, social interactions were their ‘normal’ method of attaining this mental state. Nevertheless, it was the *mental* inactivity that signified loneliness, and not the lack of social interaction itself.

The notion of positive occupation as a mental state of none-loneliness was further encapsulated by men who emphasised loneliness in quasi-biological terms. Martin defined meeting people as a ‘social drug’. He even constructed it in contrast to alcoholism, which he defined as a way for alcoholics to ‘hug ourselves’ without the need for other people. Alcoholism, then, was a more negative form of occupation, ultimately inducing a poorer mental state, whereas the ‘social drug’ was a more positive occupation. Jonny also framed loneliness as biological, but in a different way:

> Jonny: *I think I can get confused between, sort of, love and lust…getting lonely in a physical sense happens to all of us.*

Here, he describes something he terms ‘physical’ loneliness, a phrase Jim also used, but in his case referring to physical actions with a social context. The notion of ‘physical’ loneliness places it as a biological condition. In Jonny’s case, this was defined by the notion that love/lust can facilitate positive neurological stimulation. However, it is one that is inherently related to situations involving other people, thus required careful management:

> Jonny: *I got into that relationship, and it just didn't feel like I was connected…I think that’s an important part of life, a romantic partner. But I don't want to try and force something.*

Though the positive neurological impact of love and/or lust could be beneficial, then, this could also facilitate a negative impact if the social connection was not sufficient.

6.2.2.4.2 Interests and activities

In the sub-theme above, being ‘positively stimulated and/or focused’ represented a mental state that is not lonely. Interests and activities, on the other hand, were two things: a route to this positive mental state; and a method of facilitating social connections. These two dimensions often came hand in hand. Liam summarised this in one short sentence where he explains why he values his friends:

> *Liam: Just doing stuff together and enjoying the same things.*

‘Doing stuff’ suggests the use of the activity to act as a positive form of stimulation, or something to be focused on, as in section 6.2.2.4.1 (p155). However, he also emphasises this as social, insofar as the stuff is done ‘together’, and enjoyed by all present. This implies that the activity acts as a bridge to build connections with those who also enjoy these activities. The latter was so important that even activities one is not particularly interested in could be beneficial:

> *William: Games on your phone, or your tablet, or your computer or whatever are fun up to a point, but sometimes it's the smoke in your eye, it's the olive, it's the cup of coffee and chat that goes with it. The board game is boring itself, it's the other stuff that goes with it. It's the hidden agenda. Play poker, yeah I'll play poker, and it's the hidden agenda, not the game, that's the fun.*

William was not particularly interested in the ‘boring’ game, but rather the social connections that could be fostered as a result of it – the ‘hidden agenda’ of ‘chat’. It was not a narrative devoid of the notion of being positively occupied. Sensory experiences, particularly taste and smell, are also constructed as positively stimulating. Nevertheless, the attendance of an activity one is not interested in strongly emphasises its role as beyond just that of an individual interest, and into one that manifests its potential for building social connections.

6.2.2.4.3 Feature of identity

The final sub-theme represents how ‘busy’ was sometimes constructed as a source of self-worth, distinct from it as representing positive stimulation:

Hassan: I'm not a person who is who is just sitting on the sofa or watching telly.

In this quote, Hassan implies he is proud to be someone who is not ‘sitting’ and ‘watching telly’. It is ‘socially negotiated’ as he is *not* the person who sits and watches TV, implying that someone else could be. This suggests ‘feature of identity’ is not truly appropriate for ‘layer one’, as it is dependent on believing ‘busy’ is a culturally significant bestower of self-worth. Many, many more frameworks for building self-worth, based on different cultural signifiers, are likely to exist, affecting and intersecting with these cycles. It is to how maleness and masculinities affect and intersect with layer one that the results now turn.

6.2.3 Layer 2: how maleness and masculinities affect layer 1

This section will focus on how maleness and masculinities impacted loneliness (as conceptualised in ‘layer one’). Five primary themes were constructed, incorporating 13 sub-themes (sub-themes in brackets): a reluctance to admit loneliness (not masculine, negative repercussions, not understood, responsibility, promoting resilience); loneliness as associated with failure (personal responsibility to maintain contacts, markers of respect); avoiding displaying vulnerability as a barrier to forming social connections; masculine-appropriate behaviours, interests, and abilities (bullying, ostracisation, competitiveness, framework for forming social connections); and masculine social roles (work and employment, family). Table 22 lists each theme and sub-theme, and provides a summary of how and where it impacts loneliness. This section relays the evidence for each theme and sub-theme, and details how it links to loneliness.

6.2.3.1 Reluctance to admit loneliness

This was constructed by all the interviewees, but from markedly different perspectives. To encapsulate these perspectives, five different rationales, displayed below as sub-themes, were conceptualised. The first sub-theme, ‘not masculine’, was a manifest construction of loneliness as not masculine. From this perspective, publicly acknowledging loneliness could undermine a masculine sense of self-worth. The second, ‘negative repercussions’, was more externally focused. In particular, some men believed that publicly stating feelings of loneliness could lead to a loss of respect, facilitating a loss of self-worth. The third, ‘not understood’, suggested that disclosing loneliness may not elicit a caring response, implying their emotions are invalid. This could lead to a loss of social connection with the individual they disclosed loneliness to, and/or a further loss in self-worth. ‘Responsibility’ offered a very different perspective. According to this, it could be necessary to avoid disclosing loneliness as a way to protect and care for others. In doing so, it can increase feelings of self-worth. Finally, ‘promoting resilience’ was markedly different again. This emphasised loneliness as a lack of positive stimulation or focus, and suggested that discussing loneliness was ‘negative’ focus that worsened it.

6.2.3.1.1 Not masculine

Most of the men constructed a notion of loneliness as not masculine. However, few said that, in the present, they personally avoid publicly acknowledging loneliness for this reason. Rather, this narrative tended to refer to other men, or to themselves in the past. Jim had experienced severe problems with alcoholism, and framed this as a key driver of how he became an addict:

> *Jim: it was that male sense of ego, that male sense of pride. Oh no, if you show the weakness, that’s bad. I'll stick the mask on and pretend everything’s fine.*

For Jim, his masculine sense of ‘pride’, which viewed loneliness as shameful, meant he could not acknowledge it. This manifests an inherent tension in masculine ideals, and self-worth. From this perspective, not being publicly identifiable as lonely can be a source of self-worth. Admitting it, then, can be perceived as only able to worsen the loneliness by further undermining self-worth. The problem for Jim, though, was that he *was* lonely, and lacked self-worth in a number of other ways. Instead of finding positive ways to overcome this, he turned to alcohol. Jim, and several other participants who had experienced mental health issues (Brian, Jonny, Harold, Alisdair), stated that improving their mental health required abandoning this masculine ideal.

6.2.3.1.2 Negative repercussions

In the sub-theme above, the only negative repercussion to acknowledging loneliness is the loss of self-worth that comes with doing so. If disclosing loneliness can have external negative effects, though, the beliefs of the individual man are less relevant. This was a particularly manifest concern in two South-Asian men:

> *Faisal: Sometimes you can become reserved, you become embarrassed, talking to him, friend, cos they might exploit it. They might say, well, Faisal said this, he's going mad!*
>
> *Ahmad: Some people in our community, it's a big problem with. If you share your sadness, or your worries with anybody, they spread it around. They look at you, and you feel that they know something about you.*

Where Jim discussed 'pride' as an internal emotion, both Faisal and Ahmad were concerned about the respect they were afforded by others. However, neither Faisal nor Ahmad said they experienced loneliness, and both suggested one of the key reasons they didn't was the existence of close and trusted family members. The negative consequences of a fear of negative ramifications can be overcome, then, if spaces for admitting loneliness exist.

Ahmad presents this fear in relation to his community, but latent features of other interviews suggest that this is not specific to South-Asian men. Jonny is a younger white man, who, like Jim, had rejected the notion that disclosing loneliness is not masculine after experiencing mental health problems. Nevertheless, he implies that it could still affect him:

> *Jonny: I was worried, and still I'm worried, if I ask for help, if I talk about certain parts of my life, parts of my personality, people might view me as less of a man. And I don't really know why that scares me to be viewed as less of a man!*

As this quote shows, his changed beliefs on masculinity and loneliness do not necessarily override the social context it arose from – he still worries he might be viewed as 'less of a man', even though he has rejected the premise. This implies that a fear of negative repercussions may be felt in multiple cultural contexts, but that its discursive representation varies. Faisal and Ahmad expressed it as a fear of gossip, whereas Jonny, in this instance, expressed it as a cultural construct.

6.2.3.1.3 Not understood

Four of the men were concerned that other people would dismiss or downplay their feelings. Harry and Jim constructed it like so:

> *Harry: I was really anxious and depressed, and I went to just talk. And as soon as I told them what level I was, what I was trying to achieve in life, they switched, and started making it difficult for me to, like, connect with them.*
>
> *Jim: How can you possibly be lonely, when you've got a wife and two children at home, you're in a secure job, and a nice house? But I'm still lonely.*

In Jim's case, he possessed things he thought others would say should prevent loneliness, and assumed he would not be taken seriously. Harry, on the other hand, actually relayed feelings of anxiety and depression to someone, but their reaction led to a loss of connection with that person. This suggests the fear of not being taken seriously is not necessarily unfounded. Moreover, in both Harry and Jim's accounts, not being taken seriously may result in feeling even less 'cared about' than if they do not disclose loneliness at all.

6.2.3.1.4 Responsibility

This represented a moral imperative to protect and care for other people. In these terms, 'loneliness' represented a vulnerable state, in which the lonely person needed caring for, a role distinct from doing the caring. Acknowledgement of loneliness could therefore result in a loss of self-worth. All eight men with children discussed a responsibility to family, but only four suggested they would not tell their children they are lonely. Hassan directly linked this to gender:

> *Hassan: with the ladies they will straight away, just like with a little thing, emotional, they will start crying. So, it's in our nature…you have to have one person, either with a wife or a husband or girlfriend or boyfriend, they would have the need to be strong just to show the kids, they loved, is ok, we are safe.*

He states that it does not *have* to be a man that is strong, but he also believed that women cry more easily, implying this is primarily a male responsibility. Despite this, Hassan also relayed the importance of acknowledging loneliness, using the phrase '*it's ok not to be ok*'. Logically, it may be difficult for some men to both display this 'strength', and openly admit enough of their own loneliness to alleviate it. In Hassan's case, he felt he could rely on his friends and family, and this appeared sufficient for him. Jim, however, also relayed that he avoided disclosing loneliness to his wife and children. In his case, though, this led to worse loneliness, alcoholism, and the breakup of his family. Faisal, Ahmad, and Nicolas specifically stated they would talk to their children about loneliness, and that this prevented loneliness. Participants with adult children seemed more open to disclosing loneliness to them.

6.2.3.1.5 Promoting resilience

Some men believed that not stating loneliness could help prevent it:

> *Harry: It only really bothers me if I dwell on it, or if someone else dwells on it on my behalf.*

In this brief quote, Harry implies that publicly stating loneliness for him could actually be the cause of problematic loneliness. This is in keeping with the notion of 'being positively occupied' as a route to less loneliness, as it suggests focusing on the loneliness is itself loneliness, and is best alleviated by focusing the mind differently. Five other men constructed similar ideas. Ahmad related that he believed the best way to deal with loneliness was to '*keep it to myself*' and '*think positive*'. Despite this, many of the participants recognised the danger of not talking about such issues, including Harry and Ahmad.

> *Harry: Loneliness can be a real problem. Especially when people don't express themselves.*
>
> *Ahmad: It's a lot of pressure, keeping it to yourself.*

This rationale, and indeed others, could have been influenced by a masculine reluctance to state loneliness, rather than solely representing a technique to overcome it. Nevertheless, as the importance of 'being positively occupied' manifests, focusing on loneliness could, theoretically, facilitate an increasingly lonely cycle. Harold even suggested that focusing on baking, instead of loneliness, could be a form of 'mindfulness' (section 6.2.2.4.1, p155). In doing so, he places the idea of not thinking about loneliness within a more mental health aware context. Nevertheless, many aspects of the interviews suggested that trying to force oneself to ignore a clear and identifiable problem is difficult.

6.2.3.2 Loneliness as associated with 'failure'

This was constructed from two markedly different angles. The first was that the individual has a personal responsibility to maintain social contacts. From this perspective, loneliness was a failure in this responsibility, suggesting further ramifications for an individual's self-worth. However, it could also represent agency in building and maintaining connections, such that increased effort could alleviate loneliness. The second was a connection between markers of successful masculinity, and a man's actual relationships. In this way, a man deemed as a 'failure' may be less able to form social connections with those that deem him so, and he may experience reduced self-worth as a result of this label.

6.2.3.2.1 Personal responsibility to maintain contacts

This theme emphasised agency in 'being positively occupied', 'purpose', and 'capacity to connect with others'. In the following quotes, both William and Brian place the blame for their feelings on themselves:

> *Brian: it's a failure, isn't it…because when I look at it, the loneliness was caused by my behaviour, and I knew to some extent what I was doing.*
>
> *William: I am partly to blame for my own life. And if I could just find someone to trust a bit more, that may have changed things.*

This suggests men may blame themselves for their loneliness, and worsen it, given that a sense of 'failure' would seem likely to further undermine self-worth. This is particularly notable given that, despite the responsibility placed on themselves, building and maintaning social contacts inherently requires input from other people. Nevertheless, this perspective was not entirely negative:

> *Brian: you just withdraw from all the social circles and then, it feels like you can't go back to them, when actually, you can. You know, friends are still there, and will still be there for you.*

Though he accepted the blame for his loneliness, he also constructed it in a way that assumed other people would want to 'be there' for him. In doing so, he felt more 'cared about' and 'accepted' *because* it placed his loneliness as a personal failure. Alisdair's account (section 6.2.2.1.4, p150), where he states that his alcoholism and low self-worth revolved around an assumption people did not care about him, suggests a similar precedent. Indeed, his recovery required him to reach out to people, and discover that he *could* build and maintain social connections. However, for this to be an effective technique, it requires a positive response from other people. For William, though, this did not happen:

> *William: the upper class and public schools rejected me, the gay community rejected me, the Catholic church rejected me, the Protestant church rejected me.*

William expressed a clear rationale for feeling ‘rejected’ by these groups, and referenced where and how he was ‘rejected’. Placing the blame on himself, then, as he does in the quote further up in this sub-section, did not appear entirely fair, and seemed to have facilitated worse loneliness.

6.2.3.2.2 Markers of respect

This was constructed as a broader relationship between wider difficulties in life, social support, and the social connections a person forges. Hassan discussed anti-social behaviour in teenagers, and placed the core of the issue as a loneliness wrought from a lack of success:

> *Hassan: If they do good in school, or they have good friends, which is kind of competition between them, that, look, I got this degree, and I got this good job, I have a cool car, I have a good home, and I'm doing well. Why you can't do it? Because you are clever as well! So they are joining each other. But on the other hand, if somebody is not doing well in school, or in general, they not a good environment at home…in that person is feel lonely, and loneliness is an easy target for them people, drug dealers. And him himself, or her herself, will be easily tempted to look, let's join them. I don't care about my life anyway.*

He goes on to suggest that boys are more likely to get involved in these kind of things than girls. In this way, the link between loneliness, self-worth, and respect relayed in layer one was affected by what were latently constructed as masculine ideals of success and failure. One throwaway comment from Nicolas seemed to show this in action:

> *Nicolas: I've realised, a friend that I've had for years, I can't stand him! I can’t understand why I was friends with him, he's done nothing with his life!*

Nicolas struggles to respect his friend, who he implies to be lazy and lacking ambition. Their friend would presumably have a different perspective, yet Nicolas’s view clearly constitutes a barrier to their continued friendship.

These examples present this association in its negative form, as failure equalling loneliness. However, masculine markers of respect could also facilitate social connections and self-worth, as Martin's discussion of groups and services begins to manifest:

> *Martin: I believe man, as long as they feel comfortable in the group, if there's a purpose to it. I might be a person who needs to see a purpose in something, but other people might not. Once you give a man a purpose, like the hermit, he might feel comfortable within the group. A group of a few people only, I am a part of that group, and I know there is a purpose in what we're doing...I feel comfy in such a group.*

Martin suggests that the need for 'purpose' is either inherently gendered, or that the group he describes comprises a masculine form of 'purpose'. Either way, this shows how a group with a purpose can facilitate positive cycles of self-worth and social connections – the group is only able to prevent and alleviate loneliness if it has a constructive goal all members adhere to.

6.2.3.3 Avoiding displaying vulnerability as a barrier to forming social connections

In section 6.2.3.1.1 (p159), it was put forward that masculine ideals of strength and invulnerability could lead to the non-acknowledgement of loneliness. A similar construction of masculinity, in which men are reluctant to display any vulnerability, also appeared to hinder their capacity to form social connections. Again, most of the men described this, but in relation to their past selves, or to other men. Neil, a gay man, put it like so:

> *Neil: When I look at a lot of my straight male friends, and their friendships, they seem to be a lot more superficial, a lot more kind of on the surface with it, with the things that they would talk about. They wouldn't necessarily talk about, you know, how they're feeling, or if they're upset, or it's all this bravado kind of thing.*

In the past, Neil had also tried to act in this way, describing it as trying to 'join in' but that he ultimately 'failed miserably'. For Neil, he found he was less lonely once he stopped trying to 'join in', describing himself as having learned to be 'a bit more okay with…being on your own'. Nevertheless, this suggests a desire to feel 'accepted' and 'respected', even if it meant acting according to a masculine ideal that wrought its own problems.

Neil’s quote also suggests the issue exists primarily within male-to-male interactions. Jonny noted that he has ‘been able to open up more with women than as many men’, emphasising this as a cultural barrier in male-to-male relationships. Many of the men emphasised it as not rational or deliberate, but as inherited, particularly through their father – as Alisdair said, it is ‘not something you grow up with’. Jonny, Alisdair, Jim, and William suggested that they had experienced severe mental health problems as a direct result of it, and Harold suggests it led to his father being overly dependent on his wife (Harold’s mother). Overall, then, most men emphasised that this was not a positive ideal, but an inherited one, to be resisted and overcome.

6.2.3.4 Masculine-appropriate behaviours, interests, and abilities

Cultural constructs of what is ‘masculine’ affected that which the men did and said, and this could intersect with the fulfilment of ‘less loneliness’. Four sub-themes to this were noted. The first, ‘bullying’, summarises how maliciously disrespectful attitudes could be based on masculine ideals. The second, ‘ostracisation’, was similar, but represented an implied situation of not being accepted, rather than an open one. The third, ‘competitiveness’, was derived from times when the men constructed this as a barrier to social connections, or as something that could lower self-worth. The last sub-theme, ‘framework for forming social connections’, could both help and hinder the fulfilment of ‘less loneliness’. Masculinities could influence the hobbies men take part in, or the conversations they have, affecting who they are likely to connect with. This *could* result in failing to make connections, or get involved in something, but it could also provide a framework for connecting with other people, particularly other men.

6.2.3.4.1 Bullying

This represented an open and forceful lack of being ‘respected’, originating from masculine ideals emphasising masculinities as a cultural requirement. Eleven men constructed this notion in a way that linked it to gender, albeit only five gave instances where it was directed at themselves. Sexual orientation was a particularly commonly cited focus of bullying, and ethnicity and self-confidence were also cited on several occasions. William said he was severely bullied at school, and in his view, this was primarily because of his accent and less ‘masculine’ personality (he was white-African, and later came out as gay). He also recalled a story of a shy Arabic boy, who he witnessed being physically attacked by other children, and stepped in to assist. After the incident, the boy wished to be his friend, but he said no, giving the following rationale:

> *William: He came up to me, and he thanks me profusely. And I, it was an injustice, it was wrong, but you're 2-3 years older than me! I'm not, I can't, I'm already in trouble for breaking up the fight, I can't be your friend! And he said, "but you've done so much for me", and I said, "I've done nothing, well, I did what anyone else should have done". I'm paraphrasing here, I'm probably painting a rosy picture. Anyway, he was not best pleased that I wouldn't be his friend, and cut a long story short, I don't think he made it as far as half term, because he was just picked on remorselessly. And I kind of understood his loneliness, because I mean he was alright guy, but I didn't do it to be his friend. And I guess I did a calculation that if I was his friend, I'd be getting a kicking every day, so I took the cowards way out.*

William constructs both himself and the Arabic boy as unable to avoid bullying. In turn, William not only lacked the capacity to connect with the boys who were bullies, but feared the impact of befriending other bullied boys. William states that he continued to feel rejected, and struggle to make social connections, for the rest of his life, and places his experiences at school as the beginning of this journey.

6.2.3.4.2 Ostracisation

Where 'bullying' was open and forceful, 'ostracisation' represented a marginalised individual. In another example taken from school, Nicolas states how his lack of masculine interests and abilities meant he struggled to form social connections:

> *Nicolas: I'm not into, sort of, fast cars and things, a lot of masculine things. I can't see the sense of it. I'm not particularly sporty, that's probably because of my (disability). Never have been, and that is probably why, at school, I didn't have a lot of friends.*

Nicolas believed his lack of interest and ability in 'masculine' activities reduced his capacity to form social connections. Other aspects of his narratives suggested this led to difficulties maintaining self-worth. He goes on to say:

> *Nicolas: I couldn't do sports. I was always the last to be chosen, every flipping dinner (laughs), when they choose the people for the teams. I was always the last one.*

The humorous emphasis he injects displayed that this is not something that affects him greatly now. Nevertheless, it mattered enough for him to relay it to me decades after the events. He didn't relay any instances of being openly derided, or physical beatings, such as William did. Nevertheless, his lack of ‘masculinity’ left him feeling isolated and inadequate, as his interests and abilities did not match the interests and abilities of the other boys.

6.2.3.4.3 Competitiveness

This refers to a masculine ideal that can reduce men’s capacity to connect with others, or lead to a loss of self-worth. Harry emphasises it as a divisive masculinity:

> *Harry: I found it difficult to integrate. I mean, like, to touch on the loneliness subjects...I can go to work, I can do my job, and I can have a few conversations, and it doesn't really bother me. But when people are competing... (lowers tone, trails off, and shakes head).*

Later in the interview, he details how he believes men are more competitive, and emphasises work success as masculine. This implies that the competing in this quote is masculine, and that this masculinity can be a barrier to forming social connections. Hassan, and others, construct a similar notion when they construct ‘failure’ as lonely (see section 6.2.3.2.2, p164). Failure refers to an emotional response, rather than, as in this instance, a behaviour that reduces the capacity to form connections. Nevertheless, it further exemplifies the associative framework, in which masculine competitiveness can be a barrier to social connections and/or self-worth.

6.2.3.4.4 Framework for forming social connections

The above three sub-themes tend to focus on masculine-appropriate behaviours, interests, and abilities as inherently negative, where failing to be masculine increases the likeliness of loneliness. This sub-theme, however, places them as a set of social norms that can facilitate the formation of social connections. Brian, when discussing former male colleagues at work, emphasised the potential to connect via interest in sport:

> *Brian: one guy, he had played rugby in the past, and one guy who was cyclist and exercise, so when they left, so then you've got that sort of thing going. And I don't know if it's just a coincidence, but again there's not any females colleagues that I work with that are active, sporty, and things like that. So you lose that shared thing.*

In this quote, talking about rugby and cycling enabled Brian to be more positively occupied, and build social connections, simply through these conversations. It did not specifically require men, yet the association with men and masculinities were clear to him, and he found it harder to connect with the women at work. Two other men expressed parallel ideals. Ahmad loved his wife, yet expressed a discomfort with the topics of conversation she and her female friends had, and Hassan's interests and activities were active, physical, and usually carried out with male friends. However, as noted in section 6.2.3.4.2 (p167), Nicolas did not like sport. Cycling and rugby, then, may not appeal to him, and he may struggle to connect with Brian should he enter Brian's workplace. This manifests a key implication of this framework - it *can* assist men's capacity to form connections, yet, for other men, it can limit their capacity too.

6.2.3.5 Masculine social roles

The theme titled 'masculine-appropriate behaviours, interests, and abilities' emphasised a doing of gender within interpersonal interactions. This theme holds some overlap, but focuses on men's existence within wider socio-economic structures and traditions. This was framed via two highly interlinked sub-themes: work and employment; and family. Gendered cultures of work and employment emphasised the workplace as a place men were. Narratives on family, on the other hand, tended to assume nuclear families, and a male role within them, as an assumed element of the life-course.

6.2.3.5.1 Work and employment

Masculine cultures of work and employment were relayed from two angles. In the following quote from Faisal, latent assumptions of gender roles had grand ramifications:

> *Faisal: Fathers, because they worked all their lives, sometimes they missed out with the kids. Didn't affect him as much (when they leave home). Mother's do become very lonely without kids, without family.*

In this quote, he assumes a gendered economy in which men work in a public sphere, and women within a family-orientated sphere. He does not construct a moral argument, only that in his life this is what was. Though he suggests fathers have a less intimate relationship with their children than mothers, he posits it as reducing men's loneliness. It would seem plausible that some men might consider a less close relationship with children a cause of loneliness. To Faisal, though, the opportunity to also form connections outside of the immediate family appeared to be a greater positive.

The second angle this was constructed from was one that placed masculinity as striving for achievement in the workplace:

> *Harry: Males can be a little bit too simple with things, I don't know, a bit too narrow. And, like, a lot of females will struggle with their career, possibly, because they're thinking about the home life and other things, and other situations. And men just think about one thing, possibly…it's more likely that men will really rise to the top, to the top of the top. Because of that. I'm not coming across as sexist am I?*

In this quote, Harry contrasts what he considers a masculine single-mindedness against a more social-orientated femininity. In doing so, he implies that men are less able and inclined to build 'social-connections', but more focused on 'success', and finds himself recognising an inherent inequality in this perspective. Where Faisal's constructions of work were more collectivist, in which the workplace was a place of social connections, Harry constructed it as a place of competition. Nevertheless, in both instances, it was a masculine setting.

6.2.3.5.2 Family

Faisal's account also assumed men to be the primary wage earner for the family. For Faisal, this was something he had attained, whereas Harry was single and childless. Men's position of engagement with this assumption, then, can markedly differ. Gay men could not fulfil traditional familial expectations, yet the normative status of it meant some had tried:

> *Les: I thought that was the way that you had to be, and I kind of played that game and fulfilled that role really well. Wife, family, car, house, job, blah blah blah blah blah blah. Why do you not feel fulfilled? Why do you still feel there's something not quite right? And that was the thing.*

After years of heterosexual marriage, in which they had a child, Les realised he was gay, leading to a difficult and seismic breakup. Though he was glad to be out as gay, he was unhappy at the strain this put on his social relationships, particularly with his child. This constructs a notion of a learned masculine ideal that led to a negative emotion (unfulfilled), which was deconstructed and resisted later in life. In a similarly stark example, another interviewee was currently married, but had not told his wife he was bisexual, for fear it would harm the relationship he treasured. Sexual orientation did not provide the only different position of engagement. Saed suggested a South Asian perspective was different. For him, the traditional male role was within a wider family unit, and marriage represented a coming together of families rather than individuals. Nevertheless, all the men engaged with normative and assumed cultural ideals of gender roles. As Les's quote suggests, it is difficult to simply ignore the 'game', or one's 'role' in it.

6.3 Discussion

The findings encompassed nine themes and 25 sub-themes. They were arranged into a novel conceptual framework comprising two 'layers'. The first layer consisted of four interconnected themes, and characterised men's core constructions of loneliness (figure 6, p146). 'Socially negotiated self-worth' and 'being positively occupied' were mental states representing the inverse of loneliness, and 'social connections' and 'capacity to connect with others' were part of a framework for how these mental states were achieved. The second layer consisted of five main themes where masculine ideals, or being male, could affect loneliness. These were: i) a reluctance to admit loneliness; ii) loneliness as associated with failure; iii) avoiding displaying vulnerability as a barrier to forming social connections; iv) masculine-appropriate behaviours, interests, and abilities; and v) masculine social roles. Table 22 (p147) displays how and where these masculinities impacted loneliness. Each of these were important because they facilitated tensions in the fulfilment of less loneliness according to the conceptualisation in layer one. In the following discussion, section 6.3.1 discusses the findings in 'layer one', and section 6.3.2 discusses the findings in 'layer two'. It is argued that these findings represent a useful and logical extension of perspectives on loneliness, albeit it is unclear whether 'layer one' represents a gendered construction of loneliness.

6.3.1 Layer one: men's constructions of loneliness

This sub-section discusses the men's core, and often implicit, constructions of loneliness. Section 6.3.1.1 focuses on how the conceptualisation of loneliness in layer one compares with existing conceptualisations. It argues that the men's emphasis on concepts such as 'purpose' necessitate a conceptualisation of it as a semiotic construction of an individual's emotional link to their external world. Section 6.3.1.2 contrasts this with Bourdieu's (1968; 2017) theory of habitus, which similarly emphasises the interplay between individual and society. Section 6.3.1.3 focuses on the concept of 'worth', noting that other authors have also placed self-worth as 'socially negotiated' without reference to the concept of 'loneliness'. Section 6.3.1.4 turns to the notion that 'socially negotiated self-worth' and 'being positively occupied' refer to mental states, which suggests that as, as Cacioppo et al. (2014) have argued, a 'neurology of loneliness' may benefit loneliness studies.

Section 6.3.1.5 considers the extent to which the conceptualisation in layer one is a gendered or universal perspective.

6.3.1.1 (Re)conceptualising loneliness

Many conceptualisations of loneliness emphasise it as a subjective emotion representing a perceived lack, or loss, of meaningful social relationships (Townsend 1957; Perlman and Peplau 1981; Weiss 1982; Cattan et al. 2005; Valtorta et al. 2016b). In Chapter 2 (section 2.1.4, p30), this was termed the 'loneliness-isolation distinction'. It was argued that this may represent a rational conceptualisation of emotional experiences, yet public use of the word 'loneliness' may not match this definition. For the men interviewed in this study, the core emotions were self-worth, and/or a mental state that was 'positively occupied'. This further distances the conceptualisation in the current thesis from the loneliness-isolation distinction. In this sub-section, it is argued that 'socially negotiated self-worth' and 'being positively occupied' can logically represent loneliness as they are psychological experiences occurring via, and in response to, the social world.

In figure 6 (p146), 'social connections' are defined as a feeling that one has meaningful relationships with other people. This mirrors the loneliness-isolation distinction as it represents the inverse of a lack, or loss, of meaningful social relationships. Further paralleling the loneliness-isolation distinction, 'capacity to connect with others' holds some parallels to 'social isolation', in that a socially isolated person logically has less capacity to connect with others. However, 'capacity to connect with others' is a much wider concept. Where social isolation solely represents a lack of social interactions, 'capacity to connect with others' incorporates any and all factors able to facilitate or prevent the formation of social connections, encompassing everything from anxiety, to employment, to sporting prowess. Moreover, a lack of 'social connections' cannot be defined as 'loneliness' in the present findings – if it was, factors such as keeping 'busy', or committing to a 'purpose', could not be so central to the men's discourse. 'Self-worth' and 'positive occupation' are better placed as the subjective emotion that is loneliness, then, as these concepts are consistent with *all* of the men's constructions and experiences.

Valtorta et al's. (2016b) notions of 'structure' and 'function' in loneliness are instructive for contextualising this. In Valtorta et al.'s work, 'structure' refers to the physical world, and 'function' to the benefits of social interactions. Using this terminology, 'being positively occupied' and 'self-worth' could be placed as 'functions' of social connections. Indeed, in the conceptualisation in figure 6, *every* arrow could be said to represent 'structure' and 'function'. For instance, where 'self-worth' points to ‘capacity to connect with others’, greater self-worth is a ‘structure’ facilitating the ‘function’ of increasing one’s capacity to connect with others. This is not the use of the phrase intended by Valtorta et al., and ‘structure’ is not an ideal term for concepts such as self-worth. Nevertheless, Valtorta et al.’s conceptualisation is useful for considering how the conceptual cycles in figure 6 represent discursive processes, rather than deterministic cause-effect cycles.

Using the De Jong-Gierveld scale, Heylen (2010) found that loneliness correlated with lower expectations of social relationships. To account for this, she proposes that some lonely people adapt their expectations of social relationships. She describes this as ‘deficit’ loneliness - loneliness that results from objective isolation. This renders her results inconsistent with the loneliness-isolation distinction, which emphasise an ‘imbalance’ between the relationships one has and the relationships one wants (Maes et al. 2019). For Heylen (2010), this means there can be two forms of loneliness: ‘deficit’ loneliness arises from objective isolation; and ‘cognitive’ loneliness which represents this ‘imbalance’.

The novel conceptualisation of loneliness constructed in this chapter further adds to Heylen’s (2010) findings. An ‘imbalance’ between the relationships one wants and has can represent loneliness if this is a pathway to low self-worth, or a lack of positive occupation. Moreover, ‘deficit’ loneliness is also possible if a socially isolated person lacks positive occupation, or self-worth, *even if they do not desire more or better social relationships*. Indeed, the benefits of more or better quality social relationships are likely to be highly intangible to a person who does not possess them, and may even be a source of anxiety. The concepts of ‘self-worth’ and ‘positive occupation’, then, are better placed than the loneliness-isolation distinction to understand isolated and/or lonely people who do not seek more and/or better social relationships.

Aartsen and Jylha (2011) suggest widowhood causes more loneliness than never having a partner/spouse. At face value, framing bereavement in terms of ‘self-worth’ or ‘positive occupation’ would seem a poor and somewhat narcissistic conceptualisation. Moreover, framing it according to the loneliness-isolation distinction appears logical insofar as it represents the loss of a social relationship, likely to invoke subjective feelings. However, numerous works have suggested ‘guilt’ can be a component of bereavement (Li et al. 2014). This is notable as ‘guilt’ is an emotion logically likely to undermine self-worth. Bereavement studies have also highlighted the loss of everyday social interactions with the lost person, and difficulties replacing this interaction (Breen and Connor 2011; Bergland et al. 2016; Collins 2018). This suggests bereaved people experience significant difficulties in continuing to be ‘positively occupied’. If ‘self-worth’ and ‘positive occupation’ are viewed as individually felt emotions resulting from a social connection, then the novel conceptualisation of loneliness in the current study can be reconciled with the experience of bereavement. Importantly, the connection should be viewed as a mutually beneficial relationship promoting well-being, rather than a exploitative well of positive emotions. Moreover, following a bereavement, it is not the *perceived* loss of good relationships that has the greatest negative effect, but the *actual* loss of a *specific* person, and everything that existed with that person.

6.3.1.2 loneliness and ‘habitus’

The novel conceptualisation in figure 6 (p146) places loneliness as an area in which individual emotion and collective endeavour are inextricably bound. Bourdieu’s (1968; 2017) concept of ‘habitus’ places individuals as existing within, interacting with, and reproducing, social structures, norms, and values. In his influential work, he emphasises this is an interplay of structure and agency that reproduces inequality (Wacquant 2004). In the current study, ‘self-worth’ was placed as ‘socially negotiated’, therefore the interrelatedness of an individual with social structure is a key component of how and why loneliness is felt. ‘Habitus’, then, is a relevant concept as the arbiter of self-worth is bound by individual interactions with structures, norms, and values – i.e., it is ‘socially negotiated’ within the habitus. In turn, the pursuit of less loneliness can provide a motivation to reproduce existing structures and norms, given that rejecting normative signifiers of self-worth may lead to a loss of feeling accepted or respected.

‘Capacity to connect with others’ can also be further understood using Bourdieu’s ideas. For Bourdieu (1973), ‘cultural capital’ is the mechanism by which inequalities are reproduced, as it allows some people to negotiate the habitus more resourcefully. Bourdieu aims to conceptualise people’s resources for educational or financial success, rather than the pursuit of less loneliness. Nevertheless, less loneliness would logically seem to be an important goal for any person, and ‘capacity to connect with others’ highlights inequalities in the realisation of that goal. Putnam’s (2000) theory of social capital further exemplifies this. Putnam emphasises trust and reciprocity within social networks as a route to status and financial security (Carpiano 2006). This shift in terminology more clearly manifests its implications for loneliness. Nyquist et al. (2016) even conducted a cross sectional survey, and found that social capital, in particular ‘trust’, was negatively associated with ‘loneliness’. Similarly, Coll-Planas et al. (2017) found that an intervention to improve ‘social capital’ resulted in a statistically significant reduction in loneliness. Social capital, then, is vital to a person’s capacity to connect with others within the habitus.

6.3.1.3 Theories of 'worth'

Kantian theories of 'moral worth' consider people to possess individual interpretations of what is 'worthy'. Kant terms this 'moral law', and places it as built alongside civic laws and duties, yet emphasises that we may resist civic laws and duties if they violate moral law (Johnson and Cureton 2004). Loneliness defined as a lack of self-worth consists of some similar dimensions. Like Kant's civic laws and duties, markers of self-worth were built in relation to the world outside the individual. Moreover, akin to Kant's 'moral law', people's individual perceptions of what is worthy could influence them to resist and reject external signifiers of worth. In turn, loneliness could result from situations in which 'moral law' and 'civic law and duties' diverged. In these interviews, loneliness was sometimes felt when an individual sacrificed their 'moral law' in order to, as it was put by some of the men, 'people please' (section 6.2.2.1.1, p148). However, upholding one's own moral law against the desires of others could also be a lonely experience, such as in Martin's adherence to Covid-19 restrictions (section 6.2.2.1.3, p150). Loneliness, then, at last in terms of self-worth, could be positioned as being about upholding one's own moral law, but also about having this recognised as 'worthy' by others.

'Self-worth theory' presents a similar idea, in which motivation and ability intertwine in the formation of self-worth (Covington 1984; 2009). This theory has largely been applied to educational contexts, in particular an association between school rejection and academic achievement (Thompson 1997). In this study, Hassan framed a lack of school success in a way that was consistent with this theory, but also as a lonely experience (section 6.2.3.2.2, p164). Again, then, the results of this study emphasise loneliness as a concept linking personal emotions to the 'habitus'. The 'self-worth' in self-worth theory is a socially constructed ideal, and as such is partly signified by other people and social structures – success in school. In this association between academic difficulty and school rejection, school rejection represents the formation of a new ideal for socially negotiating self-worth. In this cultural setting, 'purpose' is defined in opposition to education, and an individual is accepted and respected, and forms social connections, in accordance with these new ideals.

6.3.1.4 A neurology of loneliness

Both 'being positively occupied' and 'socially negotiated self-worth' represent mental states. This implies that understanding the interplay between the social world and biology is a key component of loneliness. This supports Cacioppo et al.'s (2016) call for a 'neurology of loneliness'. In a systematic review of the 'neurobiology of loneliness', Lam et al. (2021) find evidence that loneliness can affect the structure and function of the brain, with strong evidence it is linked to biological markers associated with Alzheimer's. The importance of being 'positively occupied', then, may represent the social arena in which these neurological conditions are shaped, such that a lack of positive mental stimulation facilitates negative effects. This may explain why 'social isolation' has sometimes been found to match or exceed the negative effects of loneliness (Steptoe et al. 2013; Leigh-Hunt et al. 2017). It also explains why the participants in this thesis wished to be 'busy', whilst continuing to value 'rest' - neither boredom nor exhaustion would seem likely to promote a positive neurological response.

Self-worth was also conceptualised as a mental state, thus may also represent a neurological component of loneliness. Above, the habitus was emphasised as something people negotiate with and within to attain a feeling of self-worth. It is not clear, though, why an individual would need to 'socially negotiate' this, instead of simply constructing and fulfilling their own 'moral law' (see section 6.3.1.3, p174). Lizardo (2004, p376) argues that the habitus regards the individual to be 'a physical, embodied actor, subject to developmental, cognitive and emotive constraints and affected by the very real physical and institutional configurations of the field'. The 'field' is an identifiable arena, such as a family, workplace, profession, or marketplace (Leander 2010). Piagetian notions of cognitive development are central to the 'habitus', then, as they frame the neurobiological development of the individual with the field (Lizardo 2004).

This suggests some level of innate need for social interaction in humans. In John and Stephanie Cacioppo's work, they argue that loneliness represents an evolutionary mechanism encouraging us to form social bonds (Cacioppo et al. 2006; Cacioppo et al. 2014; Cacioppo and Cacioppo 2018). For them, 'beneficial social interactions and reliable social relationships can contribute to the likelihood of survival, reproduction, and consequent genetic legacy' (Cacioppo and Cacioppo 2018, p136). This clarifies why and how a person's individual 'moral law' can sometimes take precedent, yet sometimes might not. If a social connection requires an act opposed to an individual's moral law, they may go through with it to ensure the social bond. Alternatively, they may not because it does not represent the act of mutual benefit that drives the purpose of the social bond. The neurological, then, is subject to the sociological, and vice-versa.

6.3.1.5 The influence of gender in layer one

That which is described in 'layer one' was often derived from latent features of the interviews, and involved no reference to gender by the interviewees. Nevertheless, numerous features of it resonate with work on men and masculinities. In Brannon's (1976) four 'injunctions of manhood', being a 'big wheel' is said to consist of being 'respected', a notion that was a key sub-theme for 'socially negotiated self-worth' (section 6.2.2.1.2, p148). The notion of 'purpose', also a sub-theme of 'socially negotiated self-worth', resonates with the frequently touted link between masculinity and 'instrumentalism' (Bem 1993; Matud 2019). From this perspective, masculinity is said to be individualistic and goal orientated, therefore the 'socially negotiated self-worth' presented in this study may be the realisation of that goal. Similarly, research on interventions for ameliorating loneliness have found that 'task-focused' or 'constructive' activities are more effective in men (Reynolds et al. 2015; Milligan et al. 2015; Anstiss et al. 2018; Collins 2018). This may frame the importance of being 'positively occupied', given that 'tasks' require focusing on to complete. In Willis and Vickery (2022), they also found men commonly referred to being 'busy' as a method of alleviating loneliness, yet portray it as a distraction rooted in masculine notions of self-reliance. The conceptualisation of loneliness in 'layer one', then, may be a masculine representation, reflecting masculine norms.

Emslie et al (2004, p224) warned that 'in the haste to move away from treating older men as genderless, it is easy to move to a situation where gender is everywhere and explains everything'. In this study, conducted with men of different ages, the same consideration may be applicable – just because the interviews were with men, does not mean their conceptualisations are gender-specific. The notion that being a 'big wheel' pertains to be 'respected', and that 'instrumental' masculinities pertain to 'purpose', may signify gendered factors in what *bestows* self-worth, rather than a difference in the importance of self-worth itself. Similarly, the relative success of 'task-focused' interventions may signify that men are more likely to attain positive mental stimulation via a task, than, for instance, a coffee morning. In Willis and Vickery's (2022) study, a key exemplifying quote for the importance of being 'busy' involves a man stating 'that's why I always like to be busy…because no time for thinking and worrying about things' (Willis and Vickery 2022, p6). This suggests that their results could also be interpreted as reflecting the seeking of a positive mental state. Moreover, it is difficult to see 'self-worth' and 'social connections' as concepts that are irrelevant to women. The aspects of figure 6 that resonate with theories of masculinity, then, could be conceptualised as 'layer two' – gendered elements of the social world that impact men's fulfilment of 'less loneliness'.

6.3.2 Layer two: the influence of gender on loneliness

This section of the discussion turns to where the findings definitively pertained to the impact of gender on men's constructions of loneliness/constructions of their experiences. Section 6.3.2.1 discusses the notion that vulnerability is not masculine, and the related notion that men are reluctant to admit loneliness. Section 6.3.2.2 turns to the notion of masculinity as dominance, and how this is relevant to the findings. Section 6.3.2.3 then places this in relation to gendered inequalities, before section 6.3.2.4 discusses intersectionality within men's constructions and/or experiences.

6.3.2.1 Masculinity as invulnerability

A male reluctance to recognise, admit, and/or seek help for mental health problems has been commonly identified in masculinities studies (Yousaf et al. 2015). The findings in this chapter, particularly of a reluctance to admit loneliness (section 6.2.3.1, p 159), add to a growing body of literature relating this principle to loneliness (Cela and Fokkema 2017; De Jong-Gierveld et al. 2018). Ideals of strength, and eschewing vulnerability, are often cited as crucial to understanding this reluctance (Addis and Mahalik 2003; Connell 2005; Yousaf et al. 2015). As well as facilitating a reluctance to seek help, masculinities of this type may also render it more difficult to form relationships (Oliffe and Thorne 2007; Munoz-Laboy et al. 2009; Bergland et al. 2016; Nurmi et al. 2017; Collins 2018). The results of the current study similarly place 'invulnerable' masculinities as a barrier to both seeking help for loneliness, and forming loneliness preventing relationships.

Leaving feelings of loneliness unchecked, and being unable to form social connections, would seem a high price to pay for maintaining masculinity. However, the men constructed masculine ideals within a social context in which they are assumed and exemplified, by both themselves and, vitally, other people. As such, being 'masculine' can bestow a socially negotiated self-worth, felt as an individual, yet which originates from their view of how other people perceive them. In this context, they may no longer feel 'accepted' or 'respected' if they admit to feelings of loneliness (see section 6.2.3.1, p159). This resonates with work that has found loneliness in men to be particularly stigmatised (Borys and Perlman 1985; Lau and Green 1992; Lau and Kong 1999). Though admitting loneliness may be an important step in overcoming it, and vulnerability may be important for forming intimate social connections, it may also constitute a genuine risk to men's self-worth and social relationships. In this way, the current study constructs a fuller account of men's motives for adhering to masculinities that can and do have negative consequences.

6.3.2.2 Masculinity as dominance

Many of the narratives throughout the current study imply masculinities are related to dominance. This wasn't directly stated, but emphases on masculinity as invulnerability, strength, competitiveness, and success all latently build this notion. Stories of competitiveness, bullying, and ostracisation (section 6.2.3.4, p166) highlight how even seemingly mundane factors, such as an interest in 'fast cars', can become part of everyday discourse of dominance rendering some men lonelier. Masculinity has also been constructed by some authors as 'control' and 'autonomy' (Day et al. 2003; Gough and Conner 2006; Canham 2009; Newman et al. 2009). The notion that not stating loneliness promotes resilience (section 6.2.3.1.5, p162), and that maintaining social relationships is a personal responsibility (section 6.2.3.2.1, p163), similarly construct loneliness as something an individual controls. On the one hand, this represents agency, yet loneliness, and social relationships, are not something an individual *can* have full control of. Emphasising control may therefore be a masculine narrative of asserting dominance in a situation that, ultimately, cannot be controlled.

Lee and Robbins (2000) found men were more likely than women to develop a sense of social connectedness through 'social comparison'. Masculinity as 'competitiveness' and 'success' similarly place men as negotiating a positive emotional state via attempted dominance, yet 'social comparison' can encapsulate scenarios not captured by these concepts. Moreover, comparing oneself to others can logically result in either greater or lower self-worth, therefore it is highly consistent with the current findings. It can also hinder the formation of potentially beneficial social connections if it replaces honest and supportive social interaction. In this way, though Lee and Robbins (2000) focus on 'social connectedness' (not loneliness), their study exemplifies how 'dominance' can impact a man's interpretation of his social interactions, and thus loneliness.

6.3.2.3 Masculinities and gendered inequalities

The consistent association of masculinity with dominance strongly resonates with theories that emphasise masculinity as a reification of gender inequality (MacInnes 1998; Connell 2005). In MacInnes (1998) work, he argues that masculinity is a discourse solely serving to explain and justify inequality, thus requires abandoning. Harry, when he found that his perspectives on masculinity and femininity led to ideals he recognised as 'sexist', showed a stark example of this (section 6.2.3.5.1, p169). In the current study, many of the men's narratives involved open resistance to masculine ideals that were constructed as existing externally of themselves. Connell's theories of hegemonic masculinities construct masculinities as a relational feature of gender in the social world, yet which are also a product of history and structure (Connell 2005; Connell and Messerschmidt 2005). This begins to manifest how the men could reject masculine ideals, whilst at the same time acknowledge their continued influence.

Hegemonic masculinities reify and reform structural inequalities (Connell 2005). In this way, they are what Leander (2010) terms ‘structuring structures’. They can therefore be conceptualised as part of the ‘habitus’. Alongside the implicit centrality of ‘dominance’, this was the core feature of gender evident in men’s narratives. As the men recognised, masculinities could both help and hinder the formation of social connections, as well as the manner in which self-worth could be socially negotiated. As Robertson (2007, p35) put it, masculinities are ‘precursors to, and products of, intersubjective encounters’. Men, then, can show resistance, and promote change, but only in response to the ‘pre-cursors’. In the current study, these ‘pre-cursors’ constituted a framework for social interactions, and by extension, for social connections and self-worth.

6.3.2.4 Intersectionality in men’s constructions

Hegemonic masculinities theory also conceptualises how different men can experience loneliness differently, given that masculinities may be no more stringent a concept than one that exists to reify inequalities (Connell 2005). Ageing, and loneliness in older people, has long been a focus in loneliness studies (Victor and Yang 2012; Kantar Public 2017; Ratcliffe et al. 2021). Ratcliffe et al. (2021) concluded that loneliness can be shameful and non-masculine, but also a subordinating stereotype of older age. This emphasises men as holding different positions within the habitus, in this case finding evidence that age impacts men’s resources for experiencing self-worth and positive occupation.

Vincent (2006) constructs ageing according to three dimensions: *age strata*, which are the embodied realities of age and ageing; *cohort*, which refers to people born at a certain point in time; and *generation*, which is a person’s position within family networks. Several of the interviewee’s suggested masculine ideals were inherited, particularly from fathers, and were increasingly challenged and overcome with age (section 6.2.3.3, p165). However, resisting masculinity was also constructed as an inherent feature of ageing, i.e., of learning to deconstruct hegemonic masculinities with time and experience. This suggests that changing masculine attitudes are a complex mesh of different components of ageing. Inheriting masculine ideals from one’s father implies a generational passing down of masculinities, resisted and reformed in each generation. Learning to resist masculinities, though, suggests that age strata may also be significant, as it posits this resistance as an inherent feature of maturing. However, if attitudes are changing across society, as several men also claimed, this becomes a cohort affect, whereby the socio-political landscapes are changing the habitus a person is born into. Constructions of masculinity, then, may reflect processes of social change occurring at different speeds, in different ways, in different people.

Though all the men interviewed above relayed some dislike of ‘masculinity’, LGBTQ+ men, men with disabilities, and men with experience of mental health problems relayed particularly stark opposition. Robertson (2007) found that gay and disabled masculinities were more amenable to seeking help for health issues, a finding matched here. Though constructed as a liberating process by most, it could also come at a price. For some LGBTQ+ men, heteronormative masculinities led them to decisions that were difficult to undo, such as marriage (section 6.2.3.5.2, p170), and instances of bullying and discrimination were conveyed (section 6.2.3.4.1, p166). Heterosexual men who had experienced mental health problems cited masculinities as a core issue in the severity of their problems (section 6.2.3.1.1, p159). Though resisting and rejecting masculinities was constructed as helpful, the inspiration to do so was often related to a serious sense of marginalisation or subordination.

Ethnicity, and intertwined cultural and religious beliefs, could frame differences in gendered ideology. The South-Asian men in these interviews suggested they place more significance on family than White-British people, and Saed constructed marriage as a coming together of families rather than individuals (section 6.2.3.5.2, p170). However, where Galdas et al. (2007) found South-Asian men to be more willing to seek help for heart problems than White-British men, this did not appear to be the case for loneliness. Rather, a reluctance to admit loneliness was still constructed, but in a different manner, in which they emphasised the potential for their disclosure to be exploited more ardently than other ethnic groups (section 6.2.3.1.2, p160).

Social class, and interlinked considerations of educational achievement and financial security, were also highlighted. Jackson (2002) suggested ‘laddishness’ represents a rejection of difficult to attain educational achievement, that can bestow alternate forms of ‘self-worth’. Hassan’s portrayal of loneliness as leading from poverty, and to crime, was markedly similar (section 6.2.3.2.2, p164). Importantly, though, Hassan’s portrayal adds that loneliness can be a key component of this process, given that it is the ‘socially negotiated’ aspect of this process that gives rise to both the loss of self-worth, and the collective reformation of anti-educational ideals. In the section on masculine social roles (section 6.2.3.5, p169), Faisal constructs a ‘breadwinner’ role for men, whereas Harry constructs masculinity as focused on competitiveness and success. A ‘breadwinner’ role implies a working class perspective, as earning money to provide for a family, whereas an ‘achiever’ may suggest a more middle class perspective in which ambition and success are more possible. However, both Faisal and Harry were relatively poor, yet Faisal was married with children and Harry lived alone. The family-orientated nature of Faisal’s perspective, and individualist nature of Harry’s, may therefore relate to their home circumstance as much as it does to social class.

6.4 Strengths and limitations

A large proportion of the interviewees were involved in voluntary community projects. This may have influenced the importance of themes such as ‘purpose’ and ‘being positively occupied’, although these were similarly identifiable in participants who were not as involved in such projects. Conducting the interviews during severe Covid-19 restrictions may have affected the results. On the one hand, it afforded the men a particular insight, as it had provided a situation where they had been given cause to think about the nature of isolation and loneliness. However, the findings may only represent the abnormality of the time. The situation also impacted the nature of the interviews. Zoom and Google Meet were largely effective, and the one-to-one nature of the interviews meant establishing rapport did not feel any more difficult than usual. They also allowed participants to choose to not show their face, which several did, and the auto-transcription services were imperfect but helpful. However, poor sound quality in the telephone interviews meant some have unintelligible moments. A better quality telephone and/or recording device may have prevented this occurrence.

It was posited above that loneliness may represent an evolutionary need for social co-operation (section 6.3.1.4, p176). However, qualitative research of this kind was not designed to investigate neurological mechanisms. More research, including a ‘neurology of loneliness’ as suggested by Cacioppo et al. (2016), is required to investigate these theoretical avenues. It was argued that the men’s focus on concepts such as being ‘busy’, or having ‘purpose’, meant that defining loneliness as a perceived lack/loss of social relationships was untenable. It could be argued though, that these were incoherent narratives, related to other aspects of mental health, thus are unsuitable for conceptualising loneliness. Some men even stated that ‘connections’ were the primary arbiter of loneliness, not ‘self-worth’ or ‘being positively occupied’. Conversely, if ‘socially-negotiated self-worth’ and ‘being positively occupied’ represent the core experiences of loneliness, it could be argued that ‘social connections’ and ‘capacity to connect with others’ do not belong in ‘layer one’ - like gender, they were able to impact mental states, without them being a deterministic cause.

Nevertheless, ‘layer one’ represented a holistic conceptualisation of loneliness, rather than deterministic cycles. In keeping with the qualitative methodology, this places the conceptualisation as a recognition of processes, rather than outcomes (Murphy et al. 1998). As the discussion elaborates, ‘loneliness’ inherently entails a consideration of both mental state *and* social interaction. ‘Social connections’ and ‘capacity to connect with others’ are therefore required to conceptualise this inherent duality, even if they are not an emotion. Likewise, constructing ‘self-worth’ and ‘being positively occupied’ as the mental states of loneliness, rather than focusing solely on social connections, completes this duality.

Despite being a study of gender, a significant amount of attention has been given to re-examining how loneliness is conceptualised. This was necessary because the gendered results of this study were more coherent after constructing ‘layer one’. In particular, a stronger framework for men’s motives could be constructed. In past research, masculine ideals of strength and dominance have been placed as the underlying reason for a disinclination to display vulnerability (Addis and Mahalik 2003; De Jong-Gierveld *et al.* 2018), yet it is difficult to see a man valuing ‘domination’ if it renders him depressed and lonely. However, if invulnerability is a source of self-worth, this offers a much clearer motive for men’s action, even if it leaves men less able to overcome loneliness. Furthermore, if bullying, or ostracisation, can centre on a label as ‘not masculine’, it is unsurprising that a man may feel greater pressure to conform to masculine expectations. Indeed, to be the bully is easily constructed as morally repugnant, yet the dominance the bully feels may afford him self-worth. In these ways, the study takes men’s actions beyond ‘naked domination’ (Connell 2005, p79), and towards a view of masculinities as part of a ‘habitus’ in which men negotiate their self-worth and opportunities for positive occupation.

6.5 Chapter summary

This chapter conducted a qualitative study investigating men’s subjective perspectives of loneliness. A diverse sample of 20 UK based men were interviewed. A novel conceptualisation of loneliness placed it as representing mental states of positive occupation and/or self-worth, negotiated principally, but not wholly, via social connections (layer one). A reluctance to admit loneliness, an association between loneliness and failure, an expectation of invulnerability, and notions of masculine-appropriate behaviours, interests, and roles, impacted whether and how none-loneliness was achieved (layer two). These findings suggest loneliness may be a neurological condition negotiated within a ‘habitus’ (Bourdieu 1968; 2017) that incorporates multiple and varied gendered norms, values, and structures. However, whilst the current study was guided by the results of the literature review (Chapter 3) and quantitative study (Chapter 5), it did not systematically contrast its findings with them (see Chapter 4, section 4.1, p77). In the final Chapter, a third analysis will identify whether and how the three studies can be integrated, from which more holistic conclusions can be wrought.

Chapter 7. MMR analysis, discussion, and conclusions

This thesis addressed one main question, and nine sub-questions:

What is the influence of sex or gender on men's constructions and/or experiences of loneliness?

1. Are men reluctant to discuss emotional issues? Why?
2. Are men more reliant on partners/spouses for preventing/alleviating loneliness? If so, is this equally true for never married and previously married men? Why?
3. How do different measurements of loneliness impact sex differences? In particular, are men less likely to respond they are lonely on a direct question than on an indirect scale? Why?
4. Are men more likely than women to turn to poor health behaviours when experiencing loneliness? Why?
5. Is feeling/being labelled insufficiently masculine a cause of loneliness? Why?
6. Is men's loneliness more closely linked to perception of social network than women's? Why?
7. Are these trends independent phenomena, or are they linked? If so, how and why are they linked?
8. How might different intersections of identity such as class, ethnicity, sexuality, age, and physical ability intersect with men's constructions and/or experiences?
9. What do the 'answers' to these questions mean for policy and practice related to tackling loneliness?

Chapter 5 conducted a quantitative study investigating hypotheses based on the sub-questions, and Chapter 6 conducted a qualitative study guided by the sub-questions, but primarily aimed at answering the main question. In this chapter, these studies are systematically contrasted using the MMR methodology presented in Chapter 4. The chapter then turns to the implications of this research, including holding a discussion of its ramifications for policy and practice (sub-question 9). Section 7.1 details the method of MMR analysis, and section 7.2 gives the findings of it. Section 7.3 discusses how these findings build on the discussions in Chapters 5 (section 5.5, p124) and 6 (section 6.3, p171). Section 7.4 considers the strengths and weaknesses of the MMR analysis. Section 7.5 turns to the implications for policy and practice, and section 7.6 considers what future research can further build on the findings. Section 7.7 summarises the conclusions of the thesis.

7.1 MMR analysis methods

This Chapter aimed to add greater 'analytic density' to the literature review, quantitative study, and qualitative study than they could as the sum of their parts (Fielding 2012). A triangulation protocol theoretically contrasted the data in a tabular format (O' Cathain et al. 2010). As laid out in Chapter 4 (section 4.1, p77), the synthetic constructs formed in Chapter 3 (section 3.5, p55) are as used as the foundation to the sequential analyses (Morse 2003; Cresswell and Plano-Clark 2018). The findings of the quantitative and qualitative studies are then described as 'expansive', 'confirmatory', 'discordant', or 'silent' (Farmer et al. 2006; Fetters et al. 2013). The datasets are 'expansive' if they facilitate greater insight than as separate studies, 'confirmatory' if they simply agree, 'discordant' if they disagree, and 'silent' if a study does not recognise a key datapoint. By conducting a qualitative study able to induce themes, a more holistic MMR thesis was sought, rather than one that prioritised explaining the quantitative findings (Morse 2003). To ensure that the triangulation protocol did not revert to a solely 'explanatory' design, the findings were arranged thematically after producing the table (see Chapter 4, section 4.4, p89). The analysis does not systematically re-analyse raw data, although some new quotations from the qualitative data were used to highlight how the themes relate to the previous results.

7.2 MMR findings

This section presents the triangulation protocol, then identifies four themes: self-worth and positive occupation; invulnerability; nuclear family ideation; and social comparison. Section 7.2.1 summarises the MMR findings. Section 7.2.2 then relays the triangulation protocol, and section 7.2.3 details the themes were constructed.

7.2.1 Findings summary

The 'layers' constructed in the qualitative study encapsulated that any cultural ideal of masculinity can impact loneliness, and the social connections that are often integral to its prevention. This indicates that the generalisable trends arising in the quantitative study represent widespread and powerful constructs of masculinity. An association between invulnerability and masculinity, conceptualised in the literature review and qualitative study, provided a logical framework for quantitative findings suggesting men are reluctant to indicate loneliness on a survey, show greater reliance on partners/spouses, and have a greater propensity to drink alcohol when lonely. Nuclear family roles were constructed as a masculine signifier of none-loneliness in the qualitative study, offering further context to men's greater association between loneliness and partner status. In the qualitative study and literature review, masculine forms of social comparison were also identified as able to impact self-worth, and the likeliness of forming social connections. Vitally, in both the qualitative study and literature review, either feeling or being labelled as not masculine was identified as a challenge to forming social connections, experiencing a socially negotiated sense of self-worth, and/or being positively occupied. Failing to adhere to influential cultural norms and values of masculinity, then, can also risk loneliness, even on a confidential survey.

7.2.2 Triangulation protocol

This section conducts and presents the triangulation protocol (table 23). It relays the findings according to a 'sequential' design (Morse 2003; Creswell and Plano-Clark 2018), using the six 'synthetic constructs' formed in the literature review (Chapter 3, section 3.5, p55) as its foundation. In table 23, these are listed as analyses 1-6. Analysis 7 was added as it was posited that men's poor social networks may frame a greater reliance on partners (section 3.6, p68).

The quantitative study found evidence men show a greater association between partner status and loneliness (analysis 2), are reluctant to state loneliness in response to a direct question (analysis 3), and are more likely to drink alcohol when lonely (analysis 4). It also found that poorer quality friendships facilitate greater loneliness among men who were married, but now live without a partner (analysis 7). In the qualitative study, many of the men stated that acknowledging loneliness required a none-masculine acknowledgement of vulnerability (Chapter 6, section 6.2.3.1, p159). Some even indicated this led to alcoholism (section 6.2.2.1.4, p150), or to a reliance on partners/spouses (section 6.2.3.3, p165), in lieu of the social support attainable through displaying vulnerability. The notion of 'invulnerability' is therefore an expansive addition to quantitative trends. It is also logically consistent with of a reluctance to admit emotional issues (analysis 1). Additionally, men's reluctance to state loneliness was consistent with the notion that focusing on loneliness is itself a worse cause of loneliness (analysis 3).

Men's greater association between partner status and loneliness can be further explained by a strong discursive link between forming a nuclear family and not being lonely (analyses 2 and 7). However, whilst the literature review suggested that men may be more impacted by their perceptions of their social network, the quantitative study found no evidence for this, and some evidence severely isolated men are particularly unaffected (analysis 6). Moreover, the qualitative findings were more in line with the quantitative study. Analysis 6 therefore concludes severely isolated men are more motivated to downplay loneliness, even on an indirect survey measurement, as it is more integral to the self-worth of men with no close contacts. Lastly, though it could not be investigated in the quantitative study, the qualitative study found confirmatory evidence that feeling or being labelled insufficiently masculine can result in loneliness (analysis 5).

Table 23. Triangulation protocol summarising the explanatory-sequential analysis.

Analysis number	*Synthetic construct*	*Quantitative study finding*	*Relevant qualitative findings*	*Exemplifying quote/s*	*Explanatory summary*
1	Men may be reluctant to discuss emotional issues.	n/a	*Avoiding displaying vulnerability* and *reluctance to admit loneliness* - showing vulnerability, including by admitting loneliness, could result in a loss of socially negotiated self-worth.	Faisal*: They might say, well, Faisal said this, he's going mad!*	*Confirmatory* – masculinities could frame a reluctance to discuss emotional issues.
2	Romantic relationships may be more important for preventing loneliness in men than in women.	Men who had experienced marriage, but did not cohabit with a partner, showed a greater likeliness of a score of lonely than women in the same position (male*previously married and not cohabiting with partner OR 3.44, 95% CI 2.71 - 4.38). Men who had never married, and men who cohabited with a partner, were slightly less likely to record a score of lonely than their female counterparts.	*Avoiding displaying vulnerability* – masculine avoiding vulnerability limits capacity for building intimate relationships, particularly with men.	Jonny: *I've been able to open up more with women than as many men.*	*Expansive* – Men often related the importance of spouses, sometimes clearly related a particular reliance on women, and placed it directly as related to a masculine ideal of invulnerability as hurting the formation of intimate relationships, particularly with men. - a partner/spouse was placed as a cultural expectation, potentially affecting their needs and actions, and culturally signified none-loneliness.
			Masculine social roles – spousal relationships a cultural expectation and signifier of none-loneliness, impacting men's socially negotiated self-worth.	Neil: *I had a feeling, a sense of inadequacy, that if you're on your own, or something, like you are a loser or something.*	
3	Different measurements tools may provide different patterns in the prevalence of loneliness.	Men were less likely to state they're lonely than women even if they possess the same UCLA score (odds of sometimes/often lonely in men .72, 95% CI .62-.84, controlling for UCLA score).	*Reluctance to admit loneliness* - admitting loneliness could result in a loss of self-worth.	Jim: *it was that male sense of ego, that male sense of pride. Oh no, if you show the weakness, that's bad.*	*Expansive* - masculine ideals of invulnerability mean stating loneliness directly may worsen it by representing a source of lower self-worth. - Masculine techniques for improving resilience may mean stating loneliness directly is perceived to worsen it by shifting focus onto it.
			Promoting resilience - not acknowledging loneliness as a masculine tactic for 'being positively occupied', thus not lonely.	Harry: *It only really bothers me if I dwell on it.*	
4	Lonely men may be more	Men showed a stronger association between loneliness and alcohol	*Avoiding displaying vulnerability* and *reluctance to*	Jim: *I really was just very lonely. But I was just masking*	*Expansive* - self-worth could be derived from masculine ideals of

	likely to engage in risky/unhealthy behaviour.	consumption measuring whether lonely in past 7 days and units of alcohol in past 7 days (male*lonely in past 7 days OR 2.62, 95% CI 2.21 - 3.11). No significant interaction between sex and smoking tobacco, fruit and vegetable intake, or yearly alcohol consumption.	*admit loneliness* - participants who were recovering addicts stated they used alcohol/drugs because they were lonely. Masculine self-worth, linked to strength and invulnerability, was said to have prevented them from admitting and seeking help for loneliness.	*a lot of things…it's part of addiction.* Alisdair: *drink blacked everything out rather than deal with the situation.*	success and invulnerability. Alcohol abuse was a method of maintaining self-worth (though worsening it in the longer term). Food and tobacco not mentioned, though other drugs could play a similar role to alcohol.
5	Feeling, or being deemed, ‘insufficiently masculine’ can result in loneliness.	n/a	*Masculine-appropriate behaviours, interests and abilities* – bullying and ostracisation could significantly reduce men’s self-worth and capacity to connect with others.	Nicolas: *I'm not into, sort of, fast cars and things, a lot of masculine things...that is probably why, at school, I didn't have a lot of friends.*	*Expansive* – synthetic construct based on a small amount of data. Qualitative study emphasised how being respected and accepted by other people could have a major effect on loneliness, and that cultural ideals of masculinity were often integral to men’s chances of feeling accepted and respected.
			Masculine social roles – none-fulfilment of masculine cultural roles could lower self-worth and reduce capacity to connect to others.	William: *The Abbot of the school asked me “are you a puff”? I said, “no father, I'm a gay man”. And he put his cross to his chest and he said, “God help us all!”*	
			Loneliness as associated with failure and *negative repercussions to admitting loneliness* – loss of masculine markers of respect could result in a lower capacity to connect with others, and/or lower self-worth.	Nicolas: *I can’t understand why I was friends with him, he's done nothing with his life!* Faisal: *They might say, well, Faisal said this, he’s going mad!*	

6	Men's loneliness appears to be more closely associated with a perception they possess poor quality social networks.	Severe isolation, and/or having no close relationships[†], showed no evidence of an effect on loneliness in men (Male*severely isolated OR 1.01, 95% CI .42 - 2.40), but a large effect in women (female*severely isolated OR 7.58, 95% CI 2.45 - 23.48)	*Socially negotiated self-worth* and *being positively occupied* – these emphasised as none-loneliness, not a perception of good social relationships. However, social connections were consistently placed as vital to attaining these.	Les: *I think that's the key thing. It's the feeling of being needed…(doing) something that's necessary, and essential.* Adam: *It's difficult to discern, am I lonely? Or am I kind of devoid of activity, occupation?*	*Expansive* - Masculine sources of self-worth, or being positively occupied, may not require social relationships - reluctance to state loneliness is plausibly stronger in severely isolated men, given that they have the greatest need for the self-worth it may provide. *Discordant* – interviewees emphasised social connections as key to attaining self-worth. *Silent* – literature review suggested men were more likely to construct loneliness in physical terms, but no more on this was recorded.
			Reluctance to admit loneliness - admitting loneliness could result in a loss of self-worth.	Brian: *I'd convinced myself that I'm sort of loner, and I don't need to socialise.*	
			Promoting resilience - not acknowledging loneliness as a masculine tactic for 'being positively occupied'.	Harry: *It only really bothers me (loneliness) if I dwell on it.*	
7	Men's reliance on romantic partners may originate from men's poorer social networks[††]	Controlling for perceptions of friendships facilitated no sex difference in previously married (men OR 2.87, 95% CI 2.21 - 3.74; women 2.84, 95% CI 2.29 - 3.52), but cohabiting men benefit even more greatly from cohabiting (OR 0.63, 95% CI 0.51 - 0.77. Other measures showed no evidence of an impact.	*Avoiding displaying vulnerability* - reliance on relationships with women, particularly spouses, was related to masculine injunctions of invulnerability.	Harold - *my father didn't have any friends outside of just him and my mother…you could call it suffocating*.	*Discordant/confirmatory* - Some men clearly related a male reliance on spouses, and placed it as related to a masculine ideal of invulnerability that reduced their capacity to connect with others. *Expansive* –nuclear family ideation suggests an alternative framework for men's greater association between loneliness and partner status.
			Masculine social roles – spousal relationships a cultural expectation and signifier of success, impacting men's socially negotiated self-worth.	Les: *I kind of played that game and fulfilled that role really well. Wife, family, car, house, job, blah blah blah. Why do you not feel fulfilled?*	

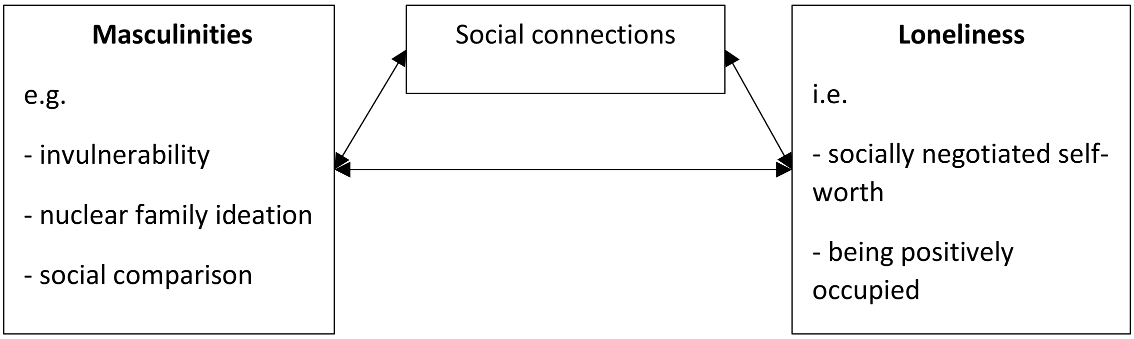
[†] spouses/cohabiting partners were not included within the interaction, but were controlled for separately

[††] This consists of a combination of two synthetic constructs, that were theoretically contrasted in this way in literature

7.2.3 Thematic findings

This section presents a thematic summary of the key findings. The triangulation protocol limits the interpretation of the findings to explaining the previous results (Morse 2003). These themes were formed in a manner guided by Mason's (2006) premise that MMR research aims to place individual perspectives within their wider socio-cultural existence. It uses both the triangulation protocol and the separate findings of each study to guide its analysis (see Chapter 4, section 4.4, p89). Four themes were constructed: self-worth and positive occupation; invulnerability; nuclear family ideation; and social comparison. 'Self-worth' and 'positive occupation' represented core features of loneliness, whereas 'invulnerability', 'nuclear family ideation', and 'social comparison' were common masculine ideals that could impact self-worth and positive occupation. Figure 7 visually summarises how these themes interrelate. This section details how the themes were constructed.

Figure 7. Visual representation of the core relationship between masculinities and loneliness



7.2.3.1 Self-worth and positive occupation

The qualitative study offered a new conceptualisation of loneliness that was more consistent with the men's narratives than previous incarnations. In it, loneliness was emphasised as mental states of 'self-worth' or 'positive occupation'. Masculinities, on the other hand, are cultural ideals that impact whether and how a person can experience these mental states. The literature review and quantitative study did not directly identify these concepts, but they do provide an effective and consistent framework for interpreting the findings of them (table 23). It also provides the framework for a vital additional perspective. In much of the findings, masculinities appear to result in negative consequences, such as being reluctant to admit loneliness (analyses 1 and 3), or more likely to drink alcohol (analysis 4). However, analysis 5 also displays evidence that masculine norms provide a basis for socially negotiating self-worth, and/or for forming the social connections. Failing to adhere to masculine norms, then, can present a risk to loneliness. This is even logical on a confidential survey –

if a man’s none-loneliness is bound in self-worth attached to masculine ideals of invulnerability, it is reasonable to assume stating they are lonely would undermine this perception of the self.

7.2.2.2 Invulnerability

In the triangulation protocol, an association between invulnerability and masculinity provided a context for much of the findings of the literature review and quantitative study (table 23). It was posited to explain men’s disinclination to state loneliness (analysis 3), greater reliance on partners/spouses (analysis 2 and 7), greater alcohol consumption when lonely (analysis 4), and less loneliness among severely isolated men more reliant on ideals of invulnerability for self-worth (analyses 5 and 6). It is therefore a key thematic finding. In identifying it, two dimensions were recognised. On the one hand, because women are viewed as more comfortable with vulnerability, some men suggested it was easier to talk to women (analysis 2). On the other, as the man himself is less comfortable displaying vulnerability, they often relied on fewer people for intimacy. The person with whom they shared an intimate relationship, though, did not always need to be a woman. Alisdair, for example, relays a strong and intimate relationship with his brother (Chapter 6, section 6.2.2.1.4, p150). The trends found in the quantitative study, then, may be an amalgamation of an aggregately greater ease in displaying vulnerability to women, and a separate tendency to have fewer intimate relationships. This may also explain why men who had never married did not show a greater likeliness of loneliness than women (analysis 2) - such men may have a different individual with who they share an intimate relationship.

7.2.3.3 Nuclear family ideation

In the qualitative study, several of the men constructed a nuclear family as a ‘role’, i.e., an expected position within the social world (Chapter 6, section 6.2.3.5, p169). The role was constructed from a masculine viewpoint that often assumed heterosexual relations and features resonant of a ‘breadwinner’ role. It could even be the public arbiter of loneliness, such that the successful formation and maintenance of a masculine nuclear family role defined none-loneliness. In the quantitative study, men showed a greater association between partner status and loneliness than women (Chapter 5, section 5.4.4.4, p123). The qualitative findings indicate that, rather than this quantitative trend solely representing a masculine reliance on partners, nuclear family ideation may facilitate this statistical trend (table 23, analysis 7). Furthermore, as men showed a stronger statistical association between loneliness and partner status, the nuclear family ideation displayed in the qualitative interviews is more likely to be a masculine notion than something that shared equally by men and women.

This may explain why controlling for perception of friendships (PFR) score allowed men to further benefit from being in a cohabiting relationship, whilst equalising the odds of loneliness in previously married men and women (table 23, analysis 7). If men discursively associate a cohabiting relationship with none-loneliness, then they are more likely to benefit from it on a sliding scale according to how positively they view their friendships. Conversely, their aggregately poorer friendships (table 15, p115) may indeed cause their greater loneliness among previously married but not cohabiting people (analysis 2), hence this group do not show a sex difference in analysis 7. This also remains consistent with the finding that never married and not cohabiting men showed less loneliness than their female counterparts. Theoretically, as such men have never married, they are less likely to share masculine ideals extolling nuclear families, thus do not place it as key to none-loneliness.

7.2.4.4 Social comparison

This was not directly evidenced in the quantitative study or literature review, therefore it is not included in the triangulation protocol. Rather, multiple components of the qualitative study indicated the relevance of social comparison, but the overarching relevance of social comparison as a masculine norm impacting loneliness was identified after contrasting the datasets. This sub-section will detail this process. In the qualitative study, masculinities were cited to frame 'competitive' ideals rendering social connections harder to form (section 6.2.3.4.3, p168), and a link between masculine markers of 'failure' and loneliness was constructed (section 6.2.3.2, p163). Furthermore, some men suggested that a masculine presentation of the self is important to the respect and acceptance they receive within their social spheres (section 6.2.3.1.2, p160). In the discussion of the qualitative study, it was noted that masculine values linked to dominance may facilitate a male tendency towards social comparison over collective social support (Chapter 6, section 6.3.2.2, p179). After forming the themes 'self-worth and positive occupation' and 'invulnerability', the relevance of this becomes increasingly salient. Like 'invulnerability', 'social comparison' theoretically originates from masculine ideals of dominance as a way to socially negotiate self-worth. This further contextualises the quantitative findings by placing invulnerability as related to implicit superiority to 'vulnerable' people, or people who 'fail' to form and maintain a nuclear family - people who, through a gendered process of social comparison, are less 'masculine'.

7.3 Discussion

This section will discuss how the MMR analysis adds to the discussions already conducted in Chapters 5 (section 5.5, p124) and 6 (section 6.3, p171). The quantitative study provided details on aggregate tendencies around sex and loneliness, but the subjective nature of the topic facilitated interpretive limitations. The qualitative study constructed individuals as negotiating mental states within the 'habitus' (Wacquant 2004; Bourdieu 2017), where cultural ideals of masculinity interplay with moral perspectives and social needs. The MMR analysis added analytic density by identifying that 'socially negotiated self-worth' and 'being positively occupied' provide a useful analytical framework for contextualising how masculine ideals of social comparison, invulnerability, and nuclear family roles can facilitate the quantifiable sex differences. This discussion argues that these represent 'hegemonic' masculine ideals, and evidences how and why they can impact men on a mass scale despite considerable diversity and resistance.

Men and women possess (aggregately) different biologies, some of which is potentially mood affecting (Andersen and Teicher 2000; Langeslag et al. 2012; McHenry et al. 2014). Socially negotiated self-worth and positive occupation were identified as mental states, and the MMR findings suggest these are relevant to large scale sex differences in loneliness. Socio-biological perspectives of gender and loneliness may therefore be more relevant than many 21st century authors have argued (Haywood and Mac an Ghaill 2003; Connell 2005; Giddens and Sutton 2013). This still cannot be considered deterministic, as an aggregate difference is not applicable to all (Giddens and Sutton 2013). Moreover, a reduced propensity to acknowledge loneliness, a greater reliance on partners/spouses, a greater propensity to use alcohol, and a lesser reaction to severe isolation, are logically unlikely to solely represent matters of innate biology. Rather, as the concept of 'habitus' (Bourdieu 1968; 2017) was utilised in Chapter 6 to emphasise (section 6.3.1.2, p174), facilitating a positive neurological response is likely to depend on cultural norms, values, and opportunities. Nevertheless, this study suggests it is possible that some gendered features of biology could facilitate aggregate differences in neurological responses, even if they are not universal, and are heavily impacted by social structures, norms, values, and inequalities.

Social comparison, invulnerability, and nuclear family ideation link masculinities to dominance, heterosexuality, and historical gendered labour relations. In this way, they are consistent with Connell's (2005) theory of hegemonic masculinities. Despite this, in the qualitative work, the men largely emphasised ideals of caring, honesty, and responsibility, more akin to Andersen's (2010) notion of 'inclusive' masculinities than dominance seeking. Importantly, though, these were constructed in contrast to negative masculinities of strength, domination, and prejudice. For Harrington (2021), placing some men and masculinities as ‘toxic’ allows hegemonic masculinities to maintain cultural dominance by emphasising the moral superiority of ‘healthy’ masculinities. Similarly, Ratcliffe et al. (2021) emphasise that it is through ‘morally congratulable’ masculine ideals that hegemonic masculinities are reformed. The qualitative findings in the current thesis emphasised that notions of invulnerability, social comparison, and nuclear family remained associated with men and masculinity in spite of the individual’s moral framework. This is a crucial distinction as it emphasises how a cultural influence can be ‘hegemonic’, and able to influence trends on a mass scale despite the resistance of individual men. In other words, men ‘socially negotiate’ their mental state via historical gender structures and ideologies. Moreover, these structures and ideologies provide the basis for forming social connections, for what is considered ‘worthy’, and for what men may be ‘occupied’ with.

Men do not engage with the same masculinities from the same position. In the qualitative study, LGBTQ+ men, men with mental health problems, South-Asian men, working class men, partnered men, single men, and educationally unsuccessful men, were all highlighted as having potentially different constructions and/or experiences. Masculinities could also vary and evolve in ways that shaped and reshaped individual perspectives through life-course. Some men highlighted how they had learnt to avoid displaying vulnerability at a young age, often from fathers, before deconstructing these ideals as they aged (Chapter 6, section 6.2.3.3, p165). This may explain why, in the literature review, older work found social network size has a greater impact on loneliness in men than women (Stokes and Levin 1986; Bell and Gonzalez 1988), whilst this study found evidence for the opposite – masculinities have simply changed.

Alternatively, work such as Thompson (2006) and Bartholomaeus and Tarrant (2016) emphasise embodied realities of ageing as facilitating reformations of masculinities in older men, suggesting that ageing can provide a timeless spark for reformulating masculinities. Either way, this emphasises the need to conceptualise difference and fluidity. In the present thesis, masculine cultures of invulnerability, social comparison, and nuclear family ideation were particularly well evidenced, and linked to sex differences in the importance of partner status, alcohol use, and the impact of severe isolation. Despite this, these masculinities and statistical trends are neither fixed, nor relevant to all men in the same way. Rather, they are simply the masculinities that most consistently impacted men’s constructions and/or experiences of loneliness in these data.

Different positions of engagement may account for some of the discordance across the datasets. The quantitative study found that severely isolated men were no lonelier than other men, yet the men in the qualitative study frequently stated that social connections were vital. Heylen (2010) proposes that people may adapt their expectations of social relationships according to their actual circumstances. Indeed, Nicolaisen and Thorsen (2014a, p251) suggest that it may be ‘easier for men to admit to a lack of social contacts than to emotions of missing contact’. Further still, Baider and Goldzweig (2022) argue that living alone is more likely to be a result of life history than specific choice, emphasising isolation as a situation to handle rather than a choice. If invulnerability can provide a modicum of self-worth, then it is theoretically viable to suggest that severely isolated men’s seeming lack of loneliness in the quantitative data, even according to the UCLA scale, is related to a masculine adaptation to their situation.

The quantitative study only found relatively weak evidence that men’s poorer perceptions of their social networks was associated with their greater reliance on partners/spouses, yet this was frequently identified in the literature and qualitative study (analysis 7, table 23, p188). Nuclear family ideation suggests a different context for an association between partner status and loneliness, in which having a partner is discursively associated with none-loneliness. This is consistent with theoretical perspectives that have placed the nuclear family as a site in which gendered socio-economic relations are historically regulated through roles such as ‘breadwinner’ and ‘housewife’ (Connell 2005; Franklin et al. 2019). Nevertheless, controlling for perceptions of friendships did, as hypothesised, render the difference between previously married men and women small and not statistically significant. Juxtaposed with the literature and qualitative study, this suggest that men’s poorer networks do, in part, frame their greater reliance on partners/spouses, it is only that nuclear family ideation further facilitates men’s greater association between partner status and loneliness.

Overall, the three sets of findings were largely complementary, and invoking theory and new conceptualisations was able to logically explain seemingly discordant findings. Men’s reduced likeliness of stating loneliness in response to a direct question makes sense if invulnerability is a source of self-worth, and/or something perceived to worsen loneliness by focusing attention on it. If invulnerability provides a sense of self-worth, then it is logical that severely isolated men, more reliant on this source of well-being, are more likely to downplay loneliness. The greater association between alcohol use and loneliness makes sense if men find it more difficult than women to display vulnerability, form intimate relationships, and/or admit to loneliness. If avoiding displaying vulnerability is masculine, then it follows that men are more likely to display vulnerability to women, and/or be more likely to rely on fewer intimate social connections, hence a greater tendency to rely on spouses/partners. If nuclear family ideation is masculine, then it makes sense for cohabiting relationships to have a greater benefit to men. If feeling and/or being labelled as 'insufficiently masculine' would seem likely to result in loneliness if it reduces a man's capacity to connect with others, and/or negatively impacts their self-worth. Last but not least, if men are more likely to socially negotiate self-worth via social comparison, all of the above makes more sense than seeking help or support. These are not deterministic relationships, and each is something that 'can' happen, or 'may' do, rather than inherently always 'does'. Nevertheless, if masculinities exist prior to interpersonal interactions (Robertson 2007), they are able to impact men's constructions and/or experiences of loneliness on a macro-scale.

7.4 Strengths and limitations

The MMR analysis facilitated more generalisable and better contextualised findings than the separate studies could have (Fielding 2012; Cresswell and Plano-Clark 2018). However, it could not overcome all of the limitations specific to each study. The quantitative study included a sample of men and women aged 50+, and though more age diverse samples in the literature review and qualitative study suggest its results may be transferable to younger populations, the evidence for generalising remains weakened. Both the quantitative and qualitative study were cross-sectional, and though changes across generations and over the life-course were identified in the latter, these could not be systematically investigated. The quantitative study sample was collected prior to the Covid-19 pandemic, and the qualitative study during severe restrictions, potentially increasing the possibility of discordance between the two samples, and reducing their relevance to the post-pandemic world.

The novel conceptualisation of loneliness constructed in this thesis was theoretically consistent with the quantitative study and literature review, but specific evidence for it was only identified in the qualitative study. Only including men in the qualitative study, and conducting it after the quantitative study was completed, limits insight on whether, where, and how this aspect of the findings is gendered. Focusing on male voices to contextualise the sex differences found in the quantitative study may have disguised the reformation of male dominance (Pease et al. 2014). Though the discussion included significant focus on patriarchal inequalities as a component of masculinities, it remains that women's voices are relatively marginalised by this. Identifying the importance of mental states opens up the possibility that gendered features of biology could impact loneliness. However, it could not offer any detail on what these biological differences might be, and the suggestion alone risks reformulating socio-biological approaches that have been used to legitimise inequalities (Carrigan 1985; Giddens and Sutton 2013).

The qualitative study employed theoretical thematic analysis, a technique designed to construct findings in line with the extant literature and data (Braun and Clark 2006). Employing this at the end of the research sequence facilitated results that were more easily contrasted and integrated, and was particularly useful for ‘explaining’ the quantitative findings (Cresswell and Plano-Clark 2018). This could be argued to have facilitated findings that appear more coherent and consistent than they actually were (Uprichard and Dawney 2019). However, the qualitative study did not employ a purely ‘explanatory’ methodology, instead incorporating techniques of ‘free-association’ (Hollway and Jefferson 2000; 2008) to facilitate an inductive approach. This allowed it to identify perspectives an ‘explanatory-sequential’ (Cresswell and Plano-Clark 2018) design may have missed. In particular, such a design would have ignored key features of the men’s narratives such as men’s focus on being ‘busy’, as this does not directly relate to the quantitative data. Indeed, from this, some discordance between the qualitative and quantitative studies was identified, yet which ultimately aided the formulation of a more holistic and detailed interpretation of the three datasets.

7.5 Implications for policy and practice

In 2018, the UK government announced a loneliness strategy committing to employing a lead minister for loneliness, that it be considered in broader policy, and that a ‘national indicator’ is used to measure loneliness. The Covid-19 pandemic further highlighted loneliness as a potential social issue, albeit much of this focus shifted to an emphasis on it as caused by social restrictions (Manavis 2021; Bauer 2021). The 2018 strategy, and a 2021 plan focused on how to tackle loneliness, involved little recourse to gender, but third sector groups such as CALM have highlighted male difficulties in seeking help for mental health struggles. The findings presented in this thesis emphasise a need for gender-sensitive policy and practice, which includes a greater focus on primary prevention strategies. They also suggest that secondary and tertiary interventions facilitating self-worth can be particularly useful. Strategies should also note that some men, particularly socially isolated and heavier drinking men, may require more support than they state.

A recent Global Action on Men’s Health report (GAMH 2019) lamented a tendency to conceptualise men as ‘victims of their own masculinity’, i.e., men who were lonelier due to their own actions. Presenting masculine ideals of invulnerability, nuclear family, and social comparison as facilitating tensions in the prevention and alleviation of loneliness could be interpreted in the way this report considered problematic. However, this thesis placed men as agents within a cultural framework of historical, assumed, and idealised masculinities. Individual men, then, were not the sole authors of masculinities, and often constructed them in oppressive terms rather than as something they themselves were. Moreover, not adhering to masculinities could have negative consequences. This implies a large yet complex role for primary prevention strategies, in particular strategies able to challenge oppressive masculine ideals. Indeed, the central importance of socially negotiated self-worth, and being positively occupied, places primary prevention strategies as even more critical, as these are fundamental aspects of the human experience.

Despite this, primary prevention has been unduly absent in loneliness policy and strategy (Valtorta 2017). The 2018 government strategy commits to incorporating a consideration of loneliness in wider policy, but the 2021 action plan focuses on ‘signposting’ and ‘social prescribing’ as the primary roles for workplaces and education providers (HM Government 2021). The central relevance of socially negotiating self-worth, though, suggests a much more important role for such organisations. Authors have linked difficulties in education to reduced self-worth, and subsequently to criminal sub-cultures (Thompson 1996; Covington 2009). The results of this thesis place loneliness as mediatory driver in this theoretical process. In adulthood, numerous authors have linked work to exploitation (Scott 2017; Van Doorn 2017), an experience unlikely to provide self-worth or a sense of positive occupation. Work ‘alienation’ may also be a problem. Shantz et al. (2015, p384) define alienation as a ‘dissociate state of the individual in relation to the product or process of work’. They find that that ‘autonomy’, ‘task variety’, ‘task identity’, and ‘social relationships at work' were associated with alienation. Fulfilling activity, which the individual values, and in which they feel valued, is therefore likely to be important for preventing and alleviating loneliness. Workplaces, education providers, and indeed all institutions with major roles in people’s public life, are therefore vital far beyond signposting and social prescribing.

This is a particularly grand and politically difficult policy and strategy recommendation. Nevertheless, it could, at least, form a greater part of discussion. Perhaps more practically, the sentiment may also be useful for service design. Ratcliffe et al. (2021) interviewed older men, and found services such as volunteering in a shop were particularly effective as they provided a sense of ‘social worth’. ‘Men’s sheds’ have been instigated around the world to tackle loneliness in older men (Milligan et al. 2015; Reynolds et al. 2015). Carrying out DIY projects to alleviate loneliness is resonant with the notion of ‘being positively occupied’. Reynolds et al. (2015) recorded that ‘pro-social’ projects were particularly beneficial, suggesting shed activities are more effective if they can be a source of self-worth. Aiming to provide meaningful activities, rather social interaction, may be a useful mindset for intervention based practice.

The findings also imply some support for a 'strengths-based' approach. Strengths-based approaches focus on an individual's strengths as a route to mental health improvements (Xie 2013). Logically, this is conducive to socially negotiating self-worth, and potentially to discovering activity able to facilitate a sense of positive occupation. Strengths-based masculinity frameworks have emphasised utilising positive aspects of masculinities to improve men's health behaviours (Hammer and Good 2010). The findings in this thesis, though, placed masculinities as 'invulnerability', 'nuclear family ideation', and 'social comparison', concepts that are unlikely to provide a positive framework for preventing or overcoming loneliness. Though a strengths-based approach may be beneficial, then, incorporating a specifically 'masculine' framework may reify 'hegemonic' ideals that negatively impact loneliness in men.

The finding that positive occupation is an inverse state to loneliness suggests inactivity may be a key cause of loneliness in men. Activity based interventions, such as sports or arts, may yield benefit. Social isolation suggests a lack of social activity, providing a pathway for how isolation can lead to loneliness. The findings in this thesis suggest that severely isolated men may be particularly disinclined to perceive themselves as lonely. Targeting isolated men, regardless of whether they present as 'lonely', may prevent a loss of positive occupation and self-worth brought about by sustained isolation. However, it remains vital for services not to simply prescribe activity or social interaction, as activity or interaction that does not promote self-worth is inherently limited, and could even worsen loneliness. Indeed, the Covid-19 pandemic highlighted that even social contact itself can be a source of anxiety or reduced self-worth, given that some men associated this with an increased risk of health complications for themselves or other people. Social contact that increases anxiety or reduces self-worth is likely to have a negative impact on loneliness.

Masculine ideals of invulnerability and social comparison may provide a barrier to help-seeking. To this end, avoiding terms indicating vulnerability, such as 'lonely', may be effective for attracting men to services. More broadly, appealing to masculine ideals may also be tempting to services. A sport based intervention, for example, could utilise competitive success to promote self-worth. However, failing to challenge masculinities risks reconstructing inequalities, reinforcing a poor self-image, hindering the formation of social connections, and/or render men feeling they should not seek help.

Such tactics therefore need to be applied cautiously, with due consideration of the potential long term consequences. Gough's (2016) recommendation of placing experts in online spaces where mental health is discussed may be particularly useful, as this can overcome barriers to seeking support whilst deconstructing the masculinities that facilitate hesitancy.

The emphasis on partner status in this thesis is similarly complex. If men are less lonely with a partner/spouse, it could be said that policy should aim to build, maintain, and replace such relationships when necessary. Marriage has long been extolled by conservative campaigners. Indeed, the 2018 loneliness strategy recommends a 'family and relationships test' be conducted on all policy, suggesting an emphasis on family relationships. The Conservative governments led by David Cameron even introduced financial incentives for couples to marry and stay married (Hayton 2015). Research has not investigated whether this has had an impact on loneliness. However, the premise inherently aims to influence people's, mainly women's, decisions on whether to marry and stay married. As such, this tactic is morally questionable even if it could reduce men's loneliness. Furthermore, in this study, the defining feature of a loneliness preventing partner relationship was simply that it was a good relationship, rather than it inherently being a *married* one. Indeed, the extolment of marriage was a potentially problematic feature of nuclear family ideation, which was constructed by some men as something that had caused loneliness, or contributed to a hesitancy in seeking help. Policy and practice, then, may be better served by deconstructing nuclear family ideation, and its discursive link to none-loneliness, by emphasising a broader notion of positive intimate relationships instead. Financial incentives for marriage should be removed and disregarded as this may encourage people to remain with partners with who they do not have a good relationship, and unjustly punishes people with alternative social relationships.

The findings strongly suggest that identifying lonely men may be more difficult than simply asking. In surveys, utilising an indirect scale may be more accurate than using a direct question, yet this still requires indicating some vulnerability, thus may still be unreliable to some degree. On the other hand, a link between alcohol use, loneliness, and a reluctance to display vulnerability suggests that greater alcohol consumption may be a useful indicator of unstated loneliness. It may be possible to reach and support men through alcohol sales, although this may involve managing conflicts of interests if a reduction in alcohol sales is assumed to result from loneliness support. Support services aimed at recently separated, divorced, or widowed men are likely to be an important and uncontroversial area of focus. LGBTQ+, older men, disabled men, or indeed any man who is perceived, or perceives themselves, to deviate from 'hegemonic' norms of masculinity, may experience loneliness in relation to this deviation. Group specific support, with individuals who can empathise, is theoretically likely to be effective for such men. More broadly, nuanced and targeted data and interventions are required to appropriately factor in the needs of different men (O' Sullivan et al. 2022).

7.6 Implications for future research

Further investigation of whether and how socially negotiated self-worth and positive occupation are integral features of loneliness could aid mental health studies. More detailed data on the topics investigated in this study, such as the gendered findings in relation to alcohol, partners/spouses, isolation, and nuclear family ideation, could assist in further generalising and contextualising the findings. Mixed gender research, longitudinal research, and systematic reviews, focused on severely isolated people, people under 50 years old, utilising better measures of social relationships and acknowledging nuclear family ideation, may all be fruitful for expanding on the data in this thesis. A neurology of loneliness would be useful for defining the neurochemical processes in loneliness, and what their link to the social world is.

The importance of socially negotiating self-worth and being positively occupied was evidenced in the qualitative study, and was aligned with the findings of the quantitative study and literature review. However, little previous research has linked these concepts to loneliness, therefore further research is vital. Quantitative research examining associations between self-worth, positive occupation, and loneliness may clarify their generalisable relevance to loneliness studies. Research focused on social isolation, including a consideration of boredom or activity levels, may assist in examining the relative importance of positive occupation. Qualitative research with mixed gender samples would be useful for identifying whether and how these concepts are relevant to women's constructions and/or experiences of loneliness. Indeed, research acknowledging this conceptualisation with all kinds of different people could assist in identifying whether and how these concepts are universal or otherwise.

Research with severely isolated people may better manifest why socially isolated men showed little loneliness in surveys. Conducting this using an explanatory-sequential mixed-methods design (Cresswell and Plano-Clark 2018) would allow such a study to identify which isolated men do not state they are lonely on a survey, then interview them accordingly. The pathway behind men's greater association between loneliness and partner status could be better investigated in statistical data, given that only their aggregately lower perceptions of their friendships, but not close relationships or social isolation, appeared linked to this. Research using more pertinent variables for representing people's perceptions of their relationships, and including a measure of nuclear family ideation, may further aid such investigations. It may be beneficial to investigate the extent to which not stating loneliness denotes protection from worse loneliness, given that this was a markedly different motive to the more common notion that loneliness is not masculine.

Quantitative work including people under the age of 50 is required to generalise the findings to younger men, although the literature review and qualitative study suggested these findings may be transferable. The men in the qualitative study suggested that masculine notions of invulnerability were deconstructed both with age, and with each generation. Longitudinal research is needed to identify the extent to which this is a process of social change, or a feature of the life-course. Though both studies provided evidence of sex differences in the association between loneliness and partner status, alcohol use, and in the likeliness of directly acknowledging loneliness, systematic literature reviews incorporating meta-analyses may provide a stronger evidence base. Further investigating differences between loneliness measures may be particularly useful for interpreting loneliness data. Qualitative work with groups of men missing from this study, such as black men, children, and single parents, would be useful for identifying the perspectives of such groups.

The Centre for Reviews and Dissemination (2015) have suggested that existing research has focused on evaluations of pilot interventions. This thesis adds weight to the need for loneliness research focused on the efficacy of broader social policy, or on situations not linked to specific intervention programmes. More focus on why and how an intervention is effective, as opposed to simply whether it is, could also be beneficial. The literature review and quantitative data were conducted prior to the Covid-19 pandemic, and the qualitative study at its height. Numerous authors have identified this as potentially impacting loneliness (Brodeur et al. 2020; Luchetti et al. 2020; Folk et al. 2020; McQuaid et al. 2021). Future research may need to identify whether and how this has impacted gendered constructions and/or experiences in the longer term.

The conceptualisation of loneliness as mental states supports Cacioppo et al.'s (2016) call for a neurology of loneliness. However, it also suggests such an approach would need strictly contextualising, particularly in gendered research. There *may* be gendered features of biology that facilitate differences in social needs, yet any such research would need to appropriately acknowledge social and biological diversity. Indeed, the results of this thesis do not inherently evidence that the neurological components of loneliness are gendered at all – it only highlights the possibility that they could be. Rather, it suggests two dimensions to such a neurology. Firstly, identifying relevant neurochemical processes may better our understanding of loneliness. For instance, it may be useful to investigate whether loneliness can be associated with neurochemicals such as serotonin, dopamine, or tryptophan, as research in other areas of mental health has (Cohen and Browning 2015; Worley 2017). It may also be worth further investigating whether loneliness consists of a lack of appropriate mental stimulation, akin to a brain that lacks exercise, as a link between loneliness and Alzheimer's disease suggests is possible (Lam et al. 2021). In this kind of research, it is possible that gendered features of biology facilitate differences in social needs, yet it is neurochemical processes, not sex or gender itself, that drive them.

The second dimension relates to the social conditions that influence neurological processes. S*ocially negotiated* self-worth, and the need for the *opportunity* to be positively occupied, places neurological states as responsive to the social world. The neurological component of this, though, is not well understood. For instance, can lab induced isolation be found to prompt similar neurochemical states to those of severely isolated people? Are specific neurological states such as low serotonin levels more associated with self-reported loneliness, or low self-reported self-worth? This type of research may be a more fruitful area for research into the impact of gender than the approaches above. For example, are there neurological differences related to perspectives on gender norms? Are sex differences identifiable in neurological responses to situations such as social isolation, the loss of a spouse/partner, or school 'failure'? Such research would need to acknowledge gendered interpretations of what is considered to bestow 'self-worth', and gendered social structures impacting how men and women are 'occupied'. This could manifest whether and how men and women show different neurological patterns in relation to gendered social structures and ideologies.

7.7 Conclusions

This thesis investigated the influence of sex or gender on men's constructions and/or experiences of loneliness. The mixed-methods approach allowed the study to place men's subjective perspectives within a wider socio-structural framework. The quantitative study provided generalisable evidence that men are more reluctant than women to display loneliness, and more likely to drink alcohol when lonely. It has extended the evidence base indicating that men are more reliant on partners/spouses by showing that men who have never married and do not cohabit may not share this trend, and that men's poorer friendships may partially explain this reliance. The qualitative study extends current understanding further, constructing a novel conceptualisation of loneliness. This placed it as individually felt emotions of self-worth and positive occupation, primarily (but not solely) negotiated via social connections. Masculinities constituted cultural norms and values impacting the formation of social connections, self-worth, and positive occupation.

A mixed-methods analysis concluded masculine ideals of ‘invulnerability’, ‘social comparison’, and ‘nuclear family ideation’ influence UK men widely enough to facilitate quantifiable sex differences. Notions of invulnerability are consistent with a reluctance to indicate loneliness, a reliance on partners/spouses (as options for intimacy are limited), and alcohol use (as this is more masculine than displaying vulnerability). ‘Nuclear family ideation’ further contextualises men’s greater association between partner status and loneliness, in particular men’s greater benefit from cohabiting relationships. Vitally, as masculinities were cultural norms and values, failing to adhere to them constitutes a serious risk to loneliness, even if adhering to them was problematic and harmful. Indeed, bullying, ostracisation, and a lack of respect may all be consequences of not being masculine.

These findings emphasise a need for gender-sensitive policy and practice. This should include a greater focus on primary prevention strategies that can foster self-worth and social connections whilst deconstructing ‘hegemonic’ masculinities. Secondary and tertiary interventions promoting self-worth, and/or providing meaningful activity, can also be useful. Future strategies and research efforts should note that some men, particularly socially isolated and heavier drinking men, may require more support than they acknowledge. Future research on loneliness can benefit by conceptualising it as a neurological state that is responsive to the social world. In doing so, different experiences of loneliness according to gender, or any other intersection of identity, can be understood in relation to core human needs.

Appendix

Appendix 1: Searches employed for literature review

Search terms related to gender (listed as 'all gender terms' below)

Sex OR gender OR Men OR Mens OR Men's OR Man OR Mans OR Man's OR Male OR males OR Male's OR Manl* OR macho OR machismo OR Masculin*

Detailed search methods for each database

Database (all searches up to 30th June 2019)	*Search methods*	*Number of results*
Ovid, MEDLINE 1946 - date	1. Within text (title, abstract) - (lone* OR "social* isolat*") AND (all gender terms) 2. Limit to - English language studies AND human studies 3. Within text - NOT child* or teen* or adolescen* or pube* or youth or young* or animal* or mice or rat* or mouse or sensory or confine*	2039
Ovid, PsycInfo 1806 - date	1. subject headings – (loneliness-explode OR social isolation-exact) AND (masculinity-explode OR human sex differences-explode OR human males-explode OR gender identity-explode). 2. Within text (title) – NOT (child* OR teen* OR adolescent* OR pube* OR youth OR young*). 3. Limit to - English language studies AND human studies	390
Ovid, Social policy and practice	1. Within text (heading word, title, abstract) – (all gender terms) 2. Within text (heading word, title) – (lone* OR "social* isolat*") 3. 1 AND 2. 3. Within text (title) – NOT (child* OR teen* OR adolescent* OR pube* OR youth OR young*).	258
Scopus	1. Within text (title, abstract) - (lone* OR "social* isolat*") AND (all gender terms). 2. Limit to – English language, peer reviewed journals. 3. Limit to – Subject area (Social sciences, psychology, arts and humanities, Nursing, multidisciplinary, decision sciences, undefined). 4. Exclude – subject area (medicine, neuroscience, biochemistry, genetics and molecular biology, business, management and accounting, computer science, engineering, economics, econometrics and finance, agricultural and biological sciences, mathematics, pharmacology, veterinary, energy, chemical engineering, physics and astronomy,	1568

	dentistry, chemistry, environmental science, earth and planetary sciences).	
Proquest, Applied Social Science Index and Abstracts (ASSIA)	1. Within text (abstract) – all gender terms. 2. Thesaurus terms – loneliness (exact-explode), social isolation (exact). 3. 1 AND 2. 4. within text (title) – NOT (child* or teen* or adolescent* or pube* or youth or young*). 5. Limit to – English language, peer reviewed journals.	371
Web Of Science, Social Sciences Citation Index (SScI) 1956 - date	1. within text (title) – (lone* OR "social* isolat*") AND (all gender terms). 2. limit to – English language only. 3. Exclude - Web of Science categories (pharmacology, pharmacy, regional urban planning, respiratory system, zoology, cardiac cardiovascular systems, computer science cybernetics, psychology biological, entomology, history, ergonomics, genetics heredity, clinical neurology, international relations, oncology, endocrinology metabolism, physiology, neurosciences, management, toxicology, business.	201
Proquest, Sociological Abstracts	1. Within text (abstract) – all gender terms 2. Thesaurus terms – loneliness (exact-explode), social isolation (exact). 3. 1 AND 2. 4. within text (title) – NOT (child* or teen* or adolescent* or pube* or youth or young*). 5. Limit to – English language, peer reviewed journals.	321

Appendix 2: Quantitative studies information and data

Studies are listed in alphabetical order. Many studies included extensive amounts of data, therefore this is not an exhaustive list of all the data in each study. NS refers to 'not significant' (considered as P=<.05 throughout). All data is rounded to 2 decimal points unless this information was not provided.

Author/s (date of publication)	*Title*	*Sample details*	*Relevant measures/scales*	*Summary of relevant methods*	*Summary of relevant data*	*Table 5 position and statistic.*
Ayalon et al. (2013)	Associations of loneliness in older married men and women.	Health and Retirement Study, USA. Ages 50+, N= 2723 (completed as a couple)	3 item Revised UCLA. Positive and negative relationship with partner items.	1. Pearson correlations of loneliness and quality of relationship measures. 2a. Path analysis (pairwise covariance matrix) of loneliness and quality of relationship measures. 2b. adds a measure of whether loneliness in spouse affects men and women differently.	1. All items significantly correlated in both men and women in the same direction. 2a. No clear sex differences. 2b. No sex difference. Note – all findings extremely similar for men and women in this study.	Women lonelier. T test men 4.1, women 4.2 (t=3.3, p<.05).
Bell (1991)	Gender, friendship network density, and loneliness	USA, social welfare agency employees. N= 173 (68 men)	20 item revised UCLA. List 7 closest friends and rate how close to each other.	1. correlations between variables and loneliness, stratified by sex.	1. Variables where only one sex shows a p<.05 correlation, or both are in different directions – none.	No difference. T-test. Men 36.81, women 35.27, t=-1.18 p>.05.
Bell and Gonzalez (1988)	Loneliness, negative life events, and the provisions of social relationships	USA, University students. N=303 (114 men)	Author designed 5 item loneliness scale (uses word 'loneliness') Social provisions scale Thoits negative life events scale. Social network and contact items.	1. t-test on sex and loneliness 2. multiple regression, stepwise entry, stratified by sex. Outcome – loneliness, predictors – social provisions. 3. 6 hierarchical linear regression models on loneliness, stratified by sex. Outcome – loneliness. Predictors (in order) – social	1. women – 8.72, men – 9.60, ns. 2. Study lists p=<.05 predictors. Men – social integration, guidance, opportunities for nurturance. Women – guidance, attachment. 3. models where adding interaction with negative life event was p=<.05 on F change. Men – attachment, guidance, opportunities for nurturance, reassurance of worth. Women -	No difference (direct question). t-test on sex and loneliness, women 8.72, men 9.60, ns.

				provision item (different item in each model), negative life events, social provision item*negative life events.	attachment, guidance, opportunities for nurturance, reassurance of worth, reliable alliance, social integration.	
Blazina et al. (2007)*	The Relationship Between Masculinity Ideology, Loneliness, and Separation-Individuation Difficulties	USA, University students. N=179 (all men)	Male Role Norms Scale (MRNS) The Psychological Separation Inventory. Differential Loneliness Scale.	1. Correlations of loneliness with other variables. 2. Linear regression, outcome - loneliness. Predictor - MRNS	1. p=<.05 correlations – MRNS (.28), Conflictual Independence from Mother (.45), Conflictual Independence from Father (.45), Attitudinal independence father (-.18). 2. MRNS b=0.10, p=<.01.	-
Blazina et al. (2008)*	Gender Role Conflict and Separation-Individuation Difficulties: Their Impact on College Men's Loneliness	USA, University students. N=179 (all men)	Gender Role Conflict Scale (GRC) The Psychological Separation Inventory. Differential Loneliness Scale.	1. Correlations of loneliness with other variables. 2. Hierarchical linear regression, outcome - loneliness. Predictor step 1 – GRC. 2 - Conflictual Independence from Mother, Conflictual Independence from Father.	1. p=<.05 correlations – GRC (.34), Conflictual Independence from Mother (.45), Conflictual Independence from Father (.45), Attitudinal independence father (-.18). 2. step 1. GRC b=.11, p=<.01. R^2 = .12 Step 2. GRC b=.07, p=<.01. Conflict-independence from mother b=0.15, p=<.01. Conflict-independence from father b=0.13, p=<.01. R^2 = .30	-
Blier and Blier-Wilson (1989)	Gender Differences in Self-Rated Emotional Expressiveness	USA, University students. N=225 (100 men)	Modified Self-Efficacy Questionnaire for Social Skills. Sex.	ANOVA and post hoc analyses (Tukey) between mean for expressing loneliness stratified by sex of subject and sex of person expressing emotion to.	Male - Male target 69.71, Female target 72.88 Female - Male target 73.89, Female target 77.24 Study states ns	-
Borys and Perlman (1985)	Gender differences in loneliness	Canada, University students. N=117 (48 men).	Questions about whether the person would accept a described hypothetical lonely person, named 'Jim' or 'Sue', into	2x2 ANOVA's (higher = less accepting of lonely hypothetical person).	Sex of participant – men 22.3, women 24.7, p=<.01. Sex of hypothetical lonely person – men 25.1, women 22.6, p=<.01. sex of respondent*sex of hypothetical lonely person ns.	-

			various components of the respondents life.			
Botterill et al. (2016)	Marital Status and Problem Gambling Among Australian Older Adults: The Mediating Role of Loneliness	Australia, ages 60+. N=183 (92 men)	Revised UCLA Problem gambling severity index	1. Moderated mediation results with gender as the moderator. 1a. Outcome – loneliness. 1b. Outcome – problem gambling. 2. Simple mediation stratified by sex. 2a. Outcome – loneliness. 2b. Outcome – problem gambling.	1. beta values. sex ns, single .37, sex(women)*single -.30 2.marital status .13, gender ns, loneliness .57, sex*loneliness ns. 2a. men. marital status significant, women isn't. 2b. loneliness significant for men and women.	No difference. Regression 1. women b= -.01, p>.05. controlling for marital status, sex*marital status
Clinton and Anderson (1999)	Social and Emotional Loneliness: Gender Differences and Relationships with Self-Monitoring and Perceived Control	USA, African American university students. N=100 (50 men)	Author devised questions representing social and emotional loneliness. Personality - Revised Self-Monitoring Scale, Revised Spheres of Control Scale. Socio-metrics - Items measuring no. of close friends.	1. ANCOVA of sex and loneliness types, controlling for other loneliness type and age. 2. Stepwise regression on social loneliness. 9 steps, order - emotional loneliness, age, no. close friends, sex, sex*socio-metrics, self-monitoring A, self-monitoring B, control, sex*personality. 3. Stepwise regression on emotional loneliness. 9 steps, order – social loneliness, age, sex, sex*reciprocal best friend, self-monitoring A, self-monitoring B, control, control*monitoring B), control*sex	1. No sex difference. 2&3. only states score of added variable with each step. Stratified correlations referred to for direction of relationships. 2. NS - Sex, sex*sociometrics, sex*personality. 3. NS – sex. Significant - sex*reciprocal best friend (men with no best friend lonelier than men with best friend, not significant for women), control*sex (women with less control lonelier, no difference in men).	No difference. Social loneliness means women .04, men -.04. emotional women .05, men -.05. study states ns.

Cramer and Neyedley (1998)	Sex Differences in Loneliness: The Role of Masculinity and Femininity	Canada, Psychology undergraduate students. N=256 (104 men)	UCLA Bex sex-role inventory	1. t-tests loneliness score by sex-role score. 2. F tests. 3. partialled correlations.	1. loneliness – masculinity 4.75, femininity 4.96, p=.05. 2. sex, loneliness, p=.11 Sex role (as control), loneliness, sex (men – 41.23, women 38.37), p=.01 3. sex-loneliness, masculinity controlled – r=-0.17, p=.01. sex-loneliness, femininity controlled – r=-0.08, p=.21. * masculinity predicts less loneliness, but not by much.	No difference. ANOVA sex and loneliness. Men 41.05, women 38.79, F=2.63, p=.11
Dahlberg et al. (2015)	Predictors of loneliness among older women and men in Sweden: A national longitudinal study	Swedish Panel Study of Living Conditions of the Oldest Old, Sweden. Ages 75+, N=587 (224 men)	All conducted at 2 time points (2004 & 2011). Direct question on loneliness. Demographics. Mobility. Multiple choice request for respondent to select health and mental health items respondent has experienced. 2004-2011 change scores for depression, mobility, and social contact.	Both models conducted in total and separately for men and women. Higher = lonelier in 2011. 1. Bivariate associations between 2004 variables/change scores and 2011 loneliness (categorical variables), T-tests on mean difference between lonely/not lonely at 2011. 2. Logistic regression of all 2004 variables/change scores on 2011 loneliness (Odds ratio).	Variables in each model where P=<.05 for 1 sex, but not the other (no results significant in different directions) 1. Loneliness in 2004, mobility, widowhood, age, depression change score, and social contacts at 2011 associated with loneliness in women but not men. 2. mobility problems, mobility change (reduction), depression, widowhood increase odds of loneliness in women only. (low) social contacts and social contacts reduction increase odds in men only. 2b. Specific data related to widowhood: long term widowhood women 2.24 (p=.03), men 1.09 (p=.94); recent widowhood women 3.35 (p=.01), men 18.11 (p=<.01).	Women lonelier. bivariate test (13% vs 4% lonely, p=<.01)
de Jong-Gierveld et al. (2009)	Quality of Marriages in Later Life and Emotional and Social Loneliness	Longitudinal Aging Study Amsterdam (Wave 2001 – 2002). Netherlands,	De jong-Gierveld loneliness scale. 1. Socio-demographics.	1. Hierarchical negative binomial regression. Outcome - emotional loneliness. Predictors – models 1-3 follow steps in table to left. Step 4 adds an interaction.	1. no overall sex difference in any model. men in 1^{st}/2^{nd} marriage less lonely (sex*1^{st}/2^{nd} marriage interaction 3.20, p=<.05). 2. Men more socially lonelier all 4 models (p=<.01 on all), no large changes	Men lonelier. Regression emotional loneliness (step 1 odds),

		ages 64-92. N=755 (456 men)	2. No. of children and support from spouse. 3. Measures of relationship quality, importance, and spouse health.	2. Same as 1 but outcome – social loneliness, and different interaction in model 4.	in B value. Men with less healthy spouses lonelier (Sex*health of spouse 0.62, p=<.05).	women 1.21, ns. Regression social loneliness (step 1 odds), women .68 (p=<.01)
DiTommaso et al. (2005)	The Universality of relationship characteristics: a cross-cultural comparison of different types of attachment and loneliness in Canadian and visiting Chinese students	Canada, University students. N=222 (68 men)	Social and emotional loneliness scale (short form).	ANOVA of sex differences in SELSA sub-scales of loneliness. Also measures interactions with culture (Canadian or Chinese student)	Sex differences p=<.05. Family – men 2.82, women 2.30. Romantic – men 3.76, women 3.18. Social – men 2.90, women 2.26. P<.5 interactions. Family – Chinese men more affected than all others.	Men lonelier. ANOVA. Family – men 2.82, women 2.30. Romantic – men 3.76, women 3.18. Social – men 2.90, women 2.26.
Dong and Chen (2017)	Gender differences in the experience of loneliness in U.S. Chinese older adults	USA, Population Study of Chinese Elderly in Chicago. Ethnic Chinese USA, aged 60+. N=3135 (1316 men)	Revised UCLA scale. Socio-demographics. Overall health status, quality of life, and health changes over the last year (direct self report)	1. Chi2 different types of loneliness by gender. 2. Chi2 socio-demographics by gender for lonely respondents only. 3. Logistic regression (unclear if univariate or multiple with interactions).	1. men less likely to suffer ‘lack of companionship’, no significant differences in ‘left out of life’ or ‘isolated from others’. 2. results not shown – unclear which differences are significant. 3. P=<.05 odds ratios of women experiencing loneliness (compared to men). Age - 70-74 (1.47), 75-79 (2.10), 80+ (1.48). Education - 0-6 years (1.37), 7-12 (1.36). No. of children – 4+ (1.28), No. of grandchildren 4+ (1.57). Years in USA – 31+ (1.74). Years in local community – 21-30 (1.94). Origin – China (1.28), Hong Kong (2.93). Health status – poor (1.41). Quality of life – very good (2.33), fair (1.53).	Women lonelier. 28% vs 23% lonely, p<.01.

Dykstra and de Jong-Gierveld (2004)**	Gender and Marital-History Differences in Emotional and Social Loneliness among Dutch Older Adults	Netherlands, living arrangements and social networks survey 1992. Aged 55-89. N = 3737 (1800 men).	11 item by the De Jong-Gierveld Loneliness scale. Social embeddedness – measures of social support and social isolation. Socio-demographics.	1a. t-tests of sex differences in both emotional loneliness, stratified by marital status and history. All listed comparisons are to same marital status category in women 1b. same tests for social loneliness. 2a. standardised regression - determinants of emotional loneliness in men (3 models, this study will use final model). Predictors - marital history, marital status, 10 measures of 'social embeddedness', and demographic controls. Separate models for men and women. 2b. same as 2a for social loneliness.	1a. All categories of married men less lonely. Never married men lonelier. All categories of widowed men lonelier. No sex difference for divorce. 1b. Married men lonelier (unless previously widowed). Never married and divorced men lonelier. No sex difference in widows. 2a. p=<.05 predictors in men (not including demographic controls) - ever divorced (0.1), ever widowed (0.29), remarried (-0.17), single (0.2). 2b. ever divorced (0.09), single (0.07), Network size (-0.23), Emotional support received (-0.08), Emotional support given (-0.07), Instrumental support received (-0.06), Active in voluntary associations (-0.07), Church attendance (0.09).	- (repeated sample)
Dykstra and Fokkema (2007)	Social and Emotional Loneliness Among Divorced and Married Men and Women: Comparing the Deficit and Cognitive Perspectives	Divorce in the Netherlands survey 1998. Ages 30-76. N=2346 (945 men)	De jong-Gierveld loneliness scale. Partner histories. Measures of relationship quality and importance. Socio-demographics.	1a. sex × Marital History ANOVA for social loneliness. 1b. same as 1a but for emotional loneliness 2a. regression. Outcome = social loneliness. Predictors sex*has a partner, sex, age, partner, ever divorced, support network size. 2b. Same as 2a but swap emotional and social loneliness around. 3a. stepwise regression models where loneliness is	1a. Men more socially lonely (F=56.6, p=<.001). Divorced men particularly socially lonely. 1b. no significant sex differences 2/3. Female=1, no partner=1 2a. Sex*partner –.02 (ns). 2b. Sex*partner 0.09 (p=<.05). 3a. Support network size helps explain social loneliness of divorced men, 'partner-centeredness' greater emotional loneliness of divorced men. 3b. Support network size and 'partner-centeredness' could not explain differences in emotional loneliness.	Men lonelier. ANOVA social loneliness (F=56.6, p=<.001). no sex difference ANOVA emotional loneliness.

				outcome, using samples of divorced respondents. 3 step models for both social and emotional loneliness. 3b. stepwise regression models where loneliness is outcome, using samples of married respondents. 3 step models for both social and emotional loneliness.		
Green and Wildermuth (1993)	Self-focus, other-focus, and interpersonal needs as correlates of loneliness	Australia, University students. N=95 (44 men)	Revised UCLA Self-others scale Miller et al.'s openers scale Schultz's fundamental interpersonal relations orientation-behaviour scale	1. Pearson correlations of UCLA with all other variables, stratified by sex. 2. Stepwise multiple regression models stratified by sex. Outcome – loneliness. Predictors – only lists significant ones, order not specified.	1. Correlations where P=<.05 for 1 sex, but not the other (no results significant in different directions). Men – expressed control, wanted control. Women – expressed affection. 2. Significant predictors men – expressed inclusion (-.47), wanted control (.35). Women - expressed affection (-.42).	No difference. T-test, men 39.91, women 36.90 (t=1.53, p=>.05)
Helm et al. (2018)	Explaining sex differences in existential isolation research	USA, 2 samples. 1. University students, N=1429 (488 men). 2. University students, N=211 (106 men)	1. socio-demographics. Rosenberg Self-Esteem scale. Existential isolation scale. 3 item UCLA. 2. 20 item UCLA version 3. Existential isolation scale. Agentic and Communal Values scale.	1. linear regression. Outcome - Existential isolation. Predictors – sex, self-esteem, loneliness. 2a. mediation analyses of communal values between sex and existential isolation. 2b. mediation analyses of loneliness between sex and existential isolation.	1. all predictors p<.01 (men and lonely more existential isolation). Interaction ns. 2a. communal values rendered sex insignificant. 2b. sex and loneliness significant on all models (men and lonely more existential isolation).	1 – men lonelier. correlation, r=.15 (p<.01) 2 – no difference. Study states F = <1

			socio-demographics.			
Johnson et al. (2006)	Categorical and continuous measurement of sex-role orientation: differences in associations with young adults' reports of well-being	USA, University students. N=286 (101 men)	Revised UCLA Bem sex role inventory. Personal discomfort sub-scale of Minnesota multiphasic Personality Inventory. Rosenberg self-esteem scale. Franke and Hymnel social anxiety and social avoidance scale.	1. Pearson Correlations. 2. ANOVA (sex*sex-role*loneliness). Post hoc tukey comparisons. 3. Multivariate regression. Outcome -loneliness. predictors – sex role orientations (nothing else stated).	1. Loneliness and: masculinity (-.39, p<.01); femininity (-.19, ns). 2. P=<.05 sex roles. Androgynous (-.22), masculine (-.33) less lonely. 3. masculinity ns (no data). Femininity b=6.29 (p<.05).	-
Junttila et al. (2015)	Mapping the Lonely Landscape - Assessing Loneliness and Its Consequences	Finland, N=17258 (6389 men).	Finnish version of UCLA, version 3. Direct question. Relationship satisfaction questions. Consequences of loneliness questions.	1a. Test of mean difference for sex in individual UCLA items. Following table lists items with difference p=<.05. 1b. same for consequences of loneliness. 2a. Test of mean differences for sex and relationship satisfaction measure items, social loneliness, and emotional loneliness. 2b. same as 2a, further stratified for age in 10 year groups. 3. 54 Linear Regressions stratified by sex. Outcomes – outcomes of loneliness. Predictors - Relationship satisfaction questions, UCLA.	1a. Men lonelier - I have nobody to talk to, I feel as if nobody really understands me, I find myself waiting for people to call or write, I feel completely alone, I am unable to reach out and communicate with those around me, It is difficult for me to make friends. Women - I feel starved for company, I feel shut out and excluded by others. 1b. men say is consequence of loneliness more – depression, Lack of initiative, Fear of future, isolating home, social fears, divorce, unemployment, poverty, incurring debt, gambling, substance abuse. Women – comfort shopping, comfort eating, loss of appetite. 2a. men – less good friends, satisfaction with personal relationships, social	- (only contains significance tests for each item so who is lonelier overall not clear)

				Not listed as no important new information.	loneliness. Women - less emotional loneliness. 2b. men 30-39 less good friends, less social and emotional loneliness as get older. Women same + more satisfaction with personal relationships.	
Kalil et al. (2010)	Job Insecurity and Change Over Time in Health Among Older Men and Women	Chicago Health, Aging, and Social Relations Study (Cook County, USA). persons born between 1935 and 1952, aged 50 – 67, who had not experienced a job loss at 2 consecutive time points. N = 190 (91 men)	20 item UCLA Job insecurity - respondents employer reorganized or downsized, or respondent was disciplined at work or demoted	OLS regression. outcome=loneliness. Predictors=job insecurity & sex (dummy categories for secure/insecure and sex), demographic controls (age, ethnicity, education, working, income), loneliness at earlier time point controlled	Reference category – Male x secure job Male & insecure 0.20 (p=>.1) Female & secure 0.25 (p=>.1) Female & insecure 2.06 (p=<.1)	-
Knox et al. (2007)	The Lonely College Male	USA, East Carolina University students (‘freshman’ and ‘sophomores’) N=377 (57% female)	5-point Likert scale for ‘I feel a deep sense of loneliness’. Items pertaining to relationships, self-concept, alcohol use, and health-related behaviours.	difference of means tests (specifics unstated)	Percentage stated have a ‘deep sense of loneliness’ - 26% men, 16% women. Study states ns, specifics of how this relates to Likert scale unstated. Additional relevant data Have a love partner - 36% men, 54% women (p= <.01) Seeking love partner - 57% men, 43% women (p=<.05) Can’t make friends - 9.3% men, 2.3% women (p=<.05)	No difference (direct question). Percentage stated have a ‘deep sense of loneliness’ - 26% men, 16% women. Study states ns.
Lau and Green (1992)	The social stigma of loneliness: effect of target	USA, University students. N=96 (48 men). Study then replicated	Questionnaire containing description of a lonely or not lonely man or	1. Attribution scales ANOVA (all p=<.05). 1a. Loneliness*sex of hypothetical person 1b. Loneliness*sex of subject.	1a. lonely man rated less adjusted and sociable. 1b. Women rated lonely person less adjusted.	-

	person’s and perceivers sex	with new sample of 96 (48 men).	woman. Attribution scales of ‘adjustment’, sociability/congeniality’, and achievement/competence’. Questions on acceptance of, and attraction to, hypothetical person.	1c. Loneliness*sex of subject* sex of hypothetical person. 2. Acceptance and attraction ANOVA (all p=<.05). 2a. Loneliness*sex of hypothetical person. 2b. Loneliness*sex of subject. 2c. Loneliness*sex of subject* sex of hypothetical person. 3. same as 1 & 2 with new sample. Results different to first sample listed. 3a. Loneliness*sex of subject. 3b. Loneliness*sex of hypothetical person.	1c. Women rated lonely woman lower in achievement, men rated same. Lonely male rated lower in achievement by men and women. 2a. lonely woman rated less physically attractive and more passive. Little difference for lonely men. 2b. women dislike and wouldn’t be friends with lonely person. 2c. women rated lonely woman as weaker and less sincere, men no difference. Men and women rated lonely man weaker and less sincere. 3a. Women judged lonely person less sociable. 3b. Lonely men less wanted as a friend.	
Lau and Kong (1999)	The Acceptance of Lonely Others: Effects of Loneliness and Gender of the Target Person and Loneliness of the Perceiver	USA, University students. N=96 (48 men)	Questionnaire containing description of a lonely or not lonely man or woman. UCLA. Attribution scales of ‘adjustment’, sociability/congeniality’, and achievement/competence’. Questions on acceptance of, and attraction to, hypothetical person. Perception of self questions -	1. Attribution scales ANOVA (all p=<.05) 1a. Loneliness of hypothetical person *sex of hypothetical person 1b. Loneliness of hypothetical person *sex of hypothetical person*loneliness of subject. 2. Acceptance and attraction ANOVA (all p=<.05). 2a. Loneliness of hypothetical person *sex of hypothetical person*loneliness of subject. 2b. Loneliness of hypothetical person*sex of hypothetical person. 3. Linear regression, stratified by sex. Outcome – loneliness.	1a. lonely male rated less sociable. 1b. lonely woman and lonely man rated less adjusted. Not lonely people rated lonely man lowest, lonely perceivers little difference. 2a. lonely man less liked and less wanted as a friend. 2b. lonely woman rated less attractive and more passive than non-lonely woman. Men little difference. Lonely man rated less sincere than non-lonely man, women less difference. 3. Predictors where one sex is p=<.05 and the other not –appearance (men -.08, women -.29), stability (men .17, women -.25), general self-concept (men -.46, women -.07). Predictors where both p=<.05 – relations with same gender peers.	-

			physical appearance, physical ability, emotional stability, relations with same gender peers, relations with opposite gender peers, relations with parents, general self-concept.	Predictors – all perception of self questions.		
Mittal and Silvera (2018)	Never truly alone, we always have our purchases: Loneliness and sex as predictors of purchase attachment and future purchase intentions	USA, 5 studies conducted via mTurk. 1 & 2– 87 (48 women), 3 – 193 (106 women), 4 – 88 (51 women), 5 – 154 (56 women).	1&2. UCLA Questions on reasons for purchases 3. wrote about time felt lonely. Favourite purchases. 4. experiment where tried to influence people's views on experiential and material purchases. 5. direct question on loneliness. List 3 most self-defining purchases, what would spend gift card on, self-classify material or	1. ANOVA of sex, purchase reasons, and interaction of them. Age controlled. 2. Contrast analysis. 3. mediation analysis. 4. Hayes' ModProbe interaction. 5. Contrast analysis.	1. lonely women attach to material purchases, lonely men to experiential. 2. confirms above 3. sex ns. 4. sex ns 5. sex differences only for lonely, 95% CI [153.37, −1.88], p = .04 (women attach more to material).	- (no study clearly provided this information)

			experiential purchase.			
Nicolaisen and Thorsen (2014b)	Loneliness among men and women – a five-year follow-up study	Norwegian study of the life course, ageing and generations, 2002–2003 and 2007–2008. Aged 40-80 at baseline. N=3750 (1826 men).	Direct question on loneliness. Socio-demographics. adverse life events during childhood. Partner status. Education. Health.	1. 3 Logistic regressions people aged 40-59 (whole sample, men, women) Outcome – odds ratio sometimes/always lonely (comparator seldom/never). Predictors – all. 2. same but ages 60-80.	1. no sex difference in whole sample regression. Variables where p=<.05 for 1 sex but not the other –bullied (childhood) men 1.63 (p=.01), women 1.38 (p=.23). 2. Women lonelier (1.41 (p=.02). Variables where p=<.05 for 1 sex but not the other - Economic problems in family (childhood) men 1.15 (p=.56), women 1.67 (p=.02). Conflicts between parents (childhood) men 1.81 (p=.04), women 1.00 (p=>.99). Bullied (childhood) men 2.83 (p=.03), women 1.55 (p=.32).	Women lonelier (bivariate). Lonely at time 1: men 27%, women 34%, p<.01.
Nicolaisen and Thorsen (2014a)	Who Are Lonely? Loneliness in Different Age Groups (18-81 Years Old), Using Two Measures of Loneliness	Norway. Life Course, Generation, and Gender study 2007/08. Ages 18-81, N= 14743 (7268 men)	Single direct question on loneliness. Short De jong-Gierveld loneliness scale. Socio-demographics - sex, age, marital status, subjective health.	1. Linear regressions. Outcome - direct loneliness question. Predictors – socio-demographics. 2. Chi2 tests of gender and age groups for loneliness measures.	Direct question – women's B value 0.14 (p<.01) 2. Test statistics not shown. States for direct question, women always lonelier. For De Jong scale, men lonelier ages 18-29 and 30-49, but not 50-64 and 65-81. Also states men more socially lonely, but women aged 50-64 and 65-81 more emotionally lonely (no difference in younger).	Women lonelier (direct). women's B value 0.14 (p<.01). De Jong-Gierveld results not included on table as doesn't provide a clear overall test of sex difference.
Nowland et al. (2018)	Influence of loneliness and rejection sensitivity on threat	UK, University students and staff. N=319 (36% men)	20 item revised UCLA. Rejection Sensitivity Questionnaire.	2-way ANOVA's for gender on loneliness (1), gender*relationship status (2).	1. no gender main affect. 2. significant interaction. Men lonelier when not in a relationship (t(110)=3.75, p=< .001), women (t(203)=0.45, p=.653).	No difference. ANOVA gender and loneliness. F=<1, p.976.

	sensitivity in romantic relationships in young and middle-aged adults.		Relationship Incentive and Threat Sensitivity Scales. Sex and age.			
Oshagan and Allen (1992)	Three loneliness scales: an assessment of their measurement properties	USA, University students. N= 94% of 314 (294-296, 35% men)	UCLA Loneliness deprivation scale Emotional/social loneliness inventory	Omnibus test for difference of means across sex for each loneliness scale	Actual means not specified. UCLA 17.21, ns. Loneliness deprivation scale 55.12, p<.01 (men lonelier). Emotional/social loneliness inventory 51.42, p<.01 (men slightly lonelier, differences for emotional and social loneliness separately ns).	no difference (UCLA) men lonelier (Loneliness deprivation scale, emotional/social loneliness inventory)
Patulney and Wong (2013)	Poor Mothers and Lonely Single Males: The ‘Essentially’ Excluded Women and Men of Australia	Australia, Community Understanding of Poverty and Social Exclusion (CUPSE) survey. N=2704 (1054 men)	Social disconnection and exclusion variables (asked both if had it, and whether thought was important to control for ‘preferences’). Depression, loneliness and anxiety controls (unstated). Socio-demographic controls.	Study states percentages, and that some data is regression based, doesn’t give details. As data is extensive, only main conclusions are listed.	Single men most disconnected, followed by poor women. Men more disconnected in isolation sense, women more excluded in things like ‘lacking nights out, weekly meals and holidays’, even after considering preferences.	-
Peters and Liefbroer (1997)**	Beyond Marital Status: Partner History and Well-Being in Old Age	Netherlands, Living Arrangements and Social Networks survey	11 item by the De Jong-Gierveld Loneliness scale. Partner status and partner history – if	1a. Linear regression. Outcome - loneliness. Predictor - sex, currently single, male* single	1a. men -.1 (ns), single 1.35 (p=<.01), male*single 0.79 (p=<.01). 1b. men .1 (ns), single 1.01 (p=<.01), male*single .69 (p=<.01). 2a. males*not in union 0.74 (p=<.01).	No difference. Linear regression, -.1, ns.

		1992. Age 55+, N=3390 (1745 men)	cohabiting, married, in romantic relationship throughout life. Socio-demographics. Health – functional ability scales.	1b. 1a + controlling for age, education, health, income, network size. 2a. linear regression. Outcome – loneliness. Predictors – sex*not married/in a civil union, controlling for union history. 2b. 2a + controlling for sex, age, education, health, income, network size, age*not in union, network size*not in union	2b. males*not in union 0.66 (p=<.01).	
Petersen et al. (2016)	Phone behaviour and its relationship to loneliness in older adults	USA, 70+. N=26 (3 men)	20 item UCLA Recorded phone time usage (min. 6 months) Sex, age. Health controls. 'Flag' for weekend days.	Mixed effects negative binomial regression. 1. Outcome – mean daily no. of phone calls. Predictors – loneliness, sex, age, health controls, weekend, date (normalised) 2. outcome – incoming calls. Predictors – same as 1 minus 'date'. 3. outcome – outgoing calls. Predictors – same as 2.	Gender incidence rate ratios (men reference). 1. 2.03 2. 2.28 3. 1.61 All p<.01	-
Pikhartova et al. (2014)	Does owning a pet protect older people against loneliness?	UK, English Longitudinal Study of Ageing (Waves 0, 2, 3, and 5). N=5120 (2272 men)	3 item revised UCLA Do you own a pet? Gender, age, marital status, presence of close personal relationships (social networks), social participation,	1. Logistic regression (odds ratio). Outcome = loneliness, predictor = have a pet (each wave separate model), all other variables (controls). Stratified by sex with test for interaction of sex*pet ownership. 2. Logistic regression (odds ratio). Outcome = have a pet wave 5, predictor = loneliness	Results where interaction p=<.05. 1. wave 5 (cross sectional) – men 1.04, women 1.41. Pet wave 0, loneliness wave 4 – men .84, women 1.84. 2. wave 5 (cross sectional) – men .79, women 1.84. wave 3 – men .97, women 1.56. wave 4 – men 1.10, women 1.81. 3. (no p values) never lonely – ref. always lonely – men 1.12, women 2.40. became lonely – men 1.09, women .76.	Women lonelier. Study reports about 7% more women were lonely across each wave.

			working status, social position, household income, health status.	(each wave separate model), all other variables, pet ownership wave 0 (controls). Stratified by sex with test for interaction. 3. logistic regression (odds ratio). Outcome = pet ownership wave 5. Predictors – history of loneliness, all other variables, pet ownership wave 0. Stratified by sex.	stopped being lonely – men .94, women 1.81. fluctuating – men 1.02, women 1.24.	
Pinquart and Sorensen (2001)	Gender Differences in Self-Concept and Psychological Well-Being in Old Age: A Meta-Analysis	Meta-analysis. Study included if some participants aged >60 and mean >55, and written in English, German, French, or Russian. Search criteria not systematic, but extensive (300, but not all about loneliness)	Included studies required zero-order effect sizes for loneliness, or associations that could be transformed into zero-order effect sizes. Unclear how loneliness defined. Competence – measures of 'activities of daily living' or 'instrumental activities of daily living'. No further details. Health – self reported symptomology. Demographics.	1. Weighted simple regression. Predictor variable = loneliness, outcome = size of gender difference in health, competence, education, or income. Sum of loneliness scores for each sex listed to show direction of data. 2. Weighted multiple linear regression. Outcome = gender difference in loneliness, predictors = mean age, year study published. 3. Difference of mean tests – loneliness x Study sample all married/some married/none married. Sum of loneliness scores for each sex and marriage study sample listed to show direction of data. 4. Test of mean sex difference in effect size (weighted) between studies judged to	1. men statistically significantly less likely to be lonely in studies with higher gender differences in 'competence'. No significant gender difference in loneliness in studies with gender differences in health, education, or income. 2. larger gender differences in loneliness found among older age people (b=-.004, p=<.001), in which men are less lonely with age, and smaller gender differences are found in more recent publications (b=.005, p=<.001), but in which men remained statistically significantly lonelier than women even in more recent studies (separate test). 3. In studies where all or some respondents are married, women are significantly lonelier. In studies where none are married, no significant sex difference (though study concludes this is due to low sample as women are still lonelier in these samples. 4. positive g = men lonelier	Women lonelier (direct question). Didn't separate other scales so no other inclusion. Test of mean sex difference in effect size (weighted). Sum of men 26,110, sum of women 30,872, significance of means 10.39 (p-<.01).

				have high quality scales, low quality scales, or having used a direct single question about loneliness.	high quality scales – g=0.01, test of mean difference -0.19 (ns) low quality – g=-.13, test of mean difference 3.29, p=<.01 single item – g=-0.20, test of mean difference 10.39, p=<.01	
Pollet et al. (2018)	Measurement Equivalence Between Men and Women in the Abbreviated Social and Emotional Loneliness Scale for Adults (SELSA)	Netherlands (though states most respondents German), N=273 (181 women)	15 item Social and Emotional Loneliness Scale for Adults	t-test of mean difference for sex in different forms of loneliness.	family loneliness - women 8.58, men 9.41, p=.13 Social loneliness – women 6.29, men 6.93, p=.11 Romantic loneliness – women 22.14, men 19.27, p=.06	No difference (see previous boxes).
Rokach (1998)	The relation of cultural background to the causes of loneliness	Canada. N=679 (318 men)	Rokach causes of loneliness scale (5 sub-scales) Socio-demographics.	1. f-tests of mean scores for each sex and cause of loneliness sub-scale, stratified by cultural background. 2. MANOVA difference between men of different cultural background.	P<.05 results. 1. North Americans (NA) – unfulfilling intimate relationships (men .35, women .71), social marginality (men .31, women .16). South Asians (SA) – none. West Indians (WI) – developmental deficits (men .33, women .78), unfulfilling	-

					intimate relationships (men .11, women .53), social marginality (men .10, women .26). 2. Personal inadequacies (NA 1.66, SA 1.95, WI 1.42), unfulfilling intimate relationships (NA .35, SA .09, WI .11), relocation-significant separation (NA .82, SA .84, WI 1.91), social marginality (NA .31, SA .26, WI .10).	
Rokach (1999)	Cultural Background and Coping With Loneliness	Canada, N=679 (318 men)	Rokach coping with loneliness scale, 6 sub-scales – reflection and acceptance (1), self-development and understanding (2), social support network (3), distancing and denial (4), religion and faith (5), increased activity (6). Sex, ethnicity, marital status, age.	1. MANOVA sex differences within different cultures (North American – NA, South Asian – SA, West Indian WI). 2. MANOVA differences between men of different cultures.	P<.05 difference. 1. NA – 1 (men 1.52, women 2.02) SA – 6 (men .86, women .61) WI – 2 (men .04, women .56), 3 (men .39, women .78, 6 (men 1.01, women .90). 2. 4 – NA .32, SA .09, WI .07 5 – NA .76, SA 1.19, WI 1.65	-
Rokach (2000)	Loneliness and the life cycle	Canada, N=711 (501 men)	Rokach experience of loneliness scale (5 factor sub-scale) – emotional distress (1), social inadequacy and alienation (2), growth and discovery (3), interpersonal	1. MANCOVA sex differences in mean loneliness experience score for each age group within each sub-scale 2. MANCOVA age differences between men. Age 13-18 results not displayed.	1. p=<.05 sex differences. 3 - age 19-30 men 7.09, women 5.94; 60-80 men 9.39, women 5.73 4 - 19-30 men 5.91, women 5.07. 5 - 19-30 men 4.05, women 3.13; 60-80 men 3.76, women 2.22. 2. All sub-scales p<.05. 1 – 19-30 (8.98), 31-60 (7.78), 60-80 (5.58). 2 – 19-30 (8.73), 31-60 (7.72), 60-80 (7.35).	-

			isolation (4), self-alienation (5). Sex, marital status, age.		3 – 19-30 (7.09), 31-60 (6.14), 60-80 (9.39). 4 – 19-30 (5.91), 31-60 (5.43), 60-80 (3.06). 5 – 19-30 (4.05), 31-60 (3.06), 60-80 (3.76).	
Rokach (2001)	Strategies of Coping with Loneliness throughout the Lifespan	Canada, N=711 (501 men)	Rokach coping with loneliness scale, 6 sub-scales – reflection and acceptance (1), self-development and understanding (2), social support network (3), distancing and denial (4), religion and faith (5), increased activity (6). Sex, education, marital status, age.	1. MANOVA of sex differences in sub-scale, stratified by age. 2. MANOVA of differences between men of different age groups. non-adult samples not displayed.	P<.05 sex differences. **1**. Ages 19-30 – 1 (men 9.64, women 7.72), 2 (men 2.06, women 1.35), 4 (men 3.78, women 3.50), 6 (men 2.47, women 1.56). 31-59 – none. 60-80 – 1 (men 11.69, women 6.59). **2**. 1 – (19-30 9.64, 31-59 9.18, 60-80 11.69).	-
Rokach (2003)	The lonely and homeless: causes and consequences	Canada, N=861 (531 men)	Rokach causes of loneliness scale (5 sub-scales) Socio-demographics.	1. MANCOVA for sex differences in each sub-scale stratified by homeless/not homeless. 2. difference between homeless and not homeless men.	P<.05 results. Homeless - unfulfilling intimate relationships (men 1.43, women 1.84), Social marginality (men 2.19, women 1.52). 2. all 5 sub-scales, for both men and women, homeless are higher.	-
Rokach (2005)	Private lives in public places: loneliness of the homeless	Canada, homeless and non-homeless samples. N=861 (521 men).	Rokach experience of loneliness scale. Sex, marital status, age.	1.MANCOVA for sex differences in loneliness sub-scale scores., F-test for significance of differences. 1. sex differences in homeless.	P<.05 results. 1. homeless – ns. 2. Not homeless. emotional distress – men 2.43, women 3.1 social inadequacy and alienation – men 2.9, women 2.45	-

				2. sex differences in not homeless. 3. Difference between homeless and not homeless men.	growth and discovery – men 2.1, women 2.64 3. emotional distress – homeless 2.84, not homeless 2.43 interpersonal isolation - homeless 3.35, not homeless 2.77 growth and discovery - homeless 1.87, not homeless 1.21	
Rokach and Brock (1995)	The effects of gender, marital status, and the chronicity and immediacy of loneliness	Canada, N=633 (295 men)	Rokach causes of loneliness scale. Demographics.	MANOVA of gender and each cause of loneliness sub-scale. Study does not measure interaction of sex and marital status in sub-scales.	P=<.05 differences in sub-scales. Social marginality (men -.58, women .47)	-
Rokach and Brock (1997)	Loneliness and the Effects of Life Changes	Canada, N=633 (295 men)	Rokach experience of loneliness scale. Sex, marital status, age.	One ways ANOVA's comparing factor scores.	P=<.05 differences in factor score. emotional distress – men .187, women -.165 interpersonal isolation – men -.185, women .164.	-
Rokach and Brock (1998)	Coping with loneliness	Canada, N=633 (295 men)	Rokach coping with loneliness scale. Sex, marital status, age.	MANOVA sex differences in sub-scale means.	P=<.05 sex differences. self-development and understanding - men -.50, women .46. increased activity – men -.15, women .14	-
Rokach et al. (2002)	Causes of Loneliness in North America and Spain	Canada/Spain. N=1093 (694 men)	Rokach causes of loneliness scale. Socio-demographics.	1. MANCOVA for sex differences in each sub-scale stratified by nation. 2. difference between Canadian and Spanish men.	P<.05 results. Canada (CA) - Personal inadequacies (men 8.79, women 7.13), Developmental deficits (men 6.70, women 5.15), relocation-significant separation (men 3.49, women 2.53), Social marginality (men 3.48, women 1.66). Spain (SP) – none. 2. Personal inadequacies (CA 8.79, SP 3.80), Developmental deficits (CA 6.70, SP 1.94), unfulfilling intimate	-

					relationships (CA 4.59, SP 1.20), relocation-significant separation (CA 3.49, SP 1.38), Social marginality (CA 3.48, SP .44).	
Rokach et al. (2007)	The effects of gender and marital status on loneliness of the aged.	North America, ages 63-91. N=328 (89 men)	Rokach experience of loneliness questionnaire (includes 5 dimensions).	MANCOVA, then MANOVA and ANOVA to test which factors of the loneliness experience differ significantly.	Significant differences – men experience less 'growth and discovery'. - married men less 'interpersonal isolation' than unmarried, women's MANOVA for married/unmarried insignificant.	-
Rotenberg (1997)	The relation between loneliness and gender role orientation reconsidered	Canada, university students. N=258 (109 men)	20 item revised UCLA Bex-sex role inventory.	Loneliness means stratified by sex and gender role ANOVA (using logged data due to skewed normality). T-Tests or ANOVA for significance of difference.	Overall model significant. P=<.05 differences stated in study – gender role for women only (androgynous less lonely, no other differences).	-
Rotenberg and Kmill (1992)	Perception of lonely and non-lonely persons as a function of individual differences in loneliness	Canada, University students. N=275 (96 men).	UCLA to categorise lonely/non lonely student. Adapted version of Borys and Perlman's acceptance of loneliness description and measurement above (deletes lines about rejection, being disliked, and having negative views). Questions denote either 'psycho-social	1a. 2x2x2 ANOVA (sex of participant, loneliness of participant, psychosocial functioning of hypothetical lonely person). 1b. Tukey comparisons to test means. 2. same as 1, but for acceptance instead of psychosocial functioning.	1. main effects and interaction all p=<.05. 1b. participants psychosocial score for hypothetical lonely person – women 1.78, men 2.03, p=<.05. Both also lower for lonely hypothetical person than non-lonely hypothetical person. 2. no significant sex differences (data not shown).	-

			functioning' or 'acceptance'.			
Rotenberg and Korol (1995)	The role of loneliness and gender in individuals' love styles	Canada, University undergraduate students. N=147 (62 men)	20 item revised UCLA scale. 42 item love attitude scale.	1. correlations of love styles with loneliness. 2. Stepwise multiple regression, followed by test of Beta values in 'previous' regression model to test significance of difference.	1. variables where 1 sex is significant and other not/different direction and both significant – ludus (men .33, women .14ns), 2. Ludus love style predicts loneliness more strongly in men (no detail published).	No difference. Study states when tested 'there were no appreciable differences', but no data.
Schultz and Moore (1986)	The loneliness experience of college students: sex differences	USA undergraduate students N = 112 (59 men)	All included measures - UCLA Direct question about loneliness Spielberger state-trait anxiety Likeability, happiness, and life satisfaction Zung depression Social risk-taking	Separate correlations (by gender) of loneliness with various personality and mental health measures. Significance of sex difference for each correlation tested using Fishers r to z transformation. Correlation test not specified (does state 'decimal point removed').	Statistically significant differences between correlations: Loneliness – UCLA (women 22, men 62). Study says no difference on direct question, men lonelier UCLA. State anxiety – UCLA (women 05, men 49) Likeability – UCLA (women 05, men -38) State anxiety – Loneliness (women 07, men 53) Life satisfaction – loneliness (women -03, men -54) Happiness – loneliness (women -04, men -52)	Men lonelier (UCLA) – correlation (r= -.27) No difference (direct question) – correlation (only states ns)
Shmitt and Kurdek (1985)	Age and gender differences in and personality correlates of loneliness in different relationships	USA, 71 male college students, 85 female students, 51 older women	60 item differential loneliness scale – measures quantity and quality of 'family', 'group', 'friendship', and romantic 'sexual' loneliness. Rotters locus of control scale. Health status. Social support. Depression.	1. ANOVA on sex and loneliness type. 2. Correlations of each type of loneliness with non-loneliness variables, college men and women compared using Fischers z transformation. 3. 12 Linear regressions, stratified by sex and age. Outcome - all 4 loneliness types. Predictors - non-loneliness variables.	1. Men more 'family', 'large group' and 'friendship' loneliness, no sex difference in 'romantic/sexual' loneliness. 2. Variables with a sex difference – poor health and family loneliness correlate in men, depression with group loneliness in women, low family social support and friendship loneliness in men. 3. variables where predictor is significant for college men or women, but not both Family. Men - health status. Women - depression, anxiety.	Men lonelier. ANOVA gender significant F for 'family', 'large group' and 'friendship' loneliness, no sex difference in 'romantic/sexual' loneliness. Doesn't give overall means.

			Self-consciousness. Socio-demographics.		Large group. Men – social support friends, social support family. Women – depression, public self-consciousness, anxiety. Friendship. depression – women. Romantic/sexual – none.	
Spahni et al. (2016)	Psychological adaptation to spousal bereavement in old age: The role of trait resilience, marital history, and context of death.	Switzerland, aged 60-89. N=1239 (598/1239 men, 480/1239 widowed).	Psychological adaptation scales - Centre for Epidemiologic Studies Depression, de Jong Gierveld Loneliness, satisfaction with life. Resilience scale. Marital quality questions. Direct question on how coped with bereavement. Socio-demographics.	1. 2-way ANOVA on loneliness for marital status (widowed or married only), gender, and marital status*sex. 2. Hierarchical linear regression, 4 steps. Outcome = loneliness. Step 1 – demographics. 2 – resilience. 3 – marriage quality. 4 – time since loss and question on how coped.	1. men significantly lonelier than women, widowed significantly lonelier, no significant interaction for marital status*sex. 2. step 1 men = .11 Step 2 men = .10 Step 3 men = .10 Step 4 men = .12 All steps p=<.05 for sex.	Men lonelier. Regression (step 1), men b=.11 (p<.05).
Stevens and Westerhof (2006)	Marriage, Social Integration, and Loneliness in the Second Half of Life A Comparison of Dutch and German Men and Women	German Aging Survey and Dutch Ageing survey, Germany and Netherlands. Ages 40-85. N=4102 (57% men)	de Jong-Gierveld loneliness scale 1. Nationality, sex, age, education, income, health. 2. No. of family members (4 questions). 3. Partner relationship quality (4 questions).	7 linear regressions to determine mediator in sex difference, done in a stepwise fashion. Each step added in the order the variables are listed in the box to the left. 2. post hoc analyses, data not listed.	1. Steps 1-4. Men significantly lonelier. Steps 5-7. No sex difference in loneliness. Study concludes women's greater emotional support from friends caused the sex difference in steps 1-4. 2. Widowers lonelier than widows in both nations (interaction p=<.05).	Men lonelier. Regression, b= -.07 P<.05), controlling for nationality, age, education, income, health.

			4 Friends – companionship. 5. Friends – emotional support. 6. instrumental support from children. 7. emotional support from family.			
Stokes and Levin (1986)	Gender Differences in Predicting Loneliness From Social Network Characteristics	USA. 3 samples. 1. University students, N=179 (97 men). 2. evening class attendants/25+ university students, N=124 (42 men). 3. university students, N=143 (76 men)	20 item UCLA (sample 1) 20 item revised UCLA (sample 2, 3) Social Network List. Inventory of Socially Supportive Behaviors. New social network density measures. Miller Topics Inventory.	1. t-tests for difference in loneliness. 2. Hierarchical regression, stratified by sex and sample. Outcome – loneliness. Predictors – all variables (study doesn't provide all data). 3. correlations between loneliness and other variables, stratified by sex.	1. Sample 2 – men 43.66, women 38.28. sample 3 – men 36.00, women 33.00. 2. when relatives & size of network included, density increased variance 11.4% men (p < .001), 4.8% for female subjects (p < .05). Sample 2 16% for men (p < .01), .03% (ns) women. Sample 2 men – when social support included first, no increment is significant. 3. Variables where one sex p<.05, or different direction - Density (men -.35, women -.19)	1 - No difference 2&3 – men lonelier 1. men 42.47, women 40.31 2. men 43.66, women 38.28. 3. men 36.00, women 33.00.
Sundberg (1988)	Loneliness: sexual and racial differences in college freshman	USA, University first years. N=209 (52% men)	The loneliness inventory (uses word loneliness)	T tests for group means of sex.	Tests where difference p<.05 – Total loneliness score (men 2.86, women 2.70), feelings of being alone or alienated from positive persons, places, or things (men 3.1, women 2.85), feelings of self-pity, rejection, or lack of purpose (men 3.34, women 2.96)	Women lonelier. T tests for group means of sex, (men 2.86, women 2.70), p<.05.
Tornstam (1992)	Loneliness in marriage	Sweden, N=2795, aged 15-80	Author designed loneliness scale – uses phrase	1. Based on ANOVA, details unclear.	1. Married women aged 20-49 lonelier than married men aged 20-49 (no other	Women lonelier (direct question).

			'loneliness' on all items. Expectations of relationship. Self-esteem. Self-report causes of loneliness. How cope with loneliness. Social network. Demographics.	2. Study states based on 'eta coefficients'. Married people aged 20-49 only. 3. Coping behaviour sex differences, data unstated.	sex difference within marital status and age groups). 2. Men significantly more likely to attribute loneliness to being far from home (21 men-11 women) or traveling often (8-1), less likely to attribute it to being misunderstood (16-26), not needed (7-16), or uninteresting (7-15) 3. Women more likely to cry and seek contact with others. Men more likely to watch TV, exercise, work, drink alcohol.	Bivariate regression for people aged 20-49, b= .13, p<.01.
Victor et al. (2005)	Older People's Experiences of Loneliness in the UK: Does Gender Matter?	UK People aged 65+ N = 999 (53% female)	Direct question about loneliness. Demographics.	Two logistical regressions. 1. Unadjusted odds ratio of always/often/sometimes lonely compared to 'never' lonely 2. Same regression adjusted for age, marital status and whether lives alone.	1. Women's odds of loneliness 2.03 (CI 1.58–2.59). 2. women's adjusted odds of loneliness 1.15 (CI 0.87–1.51) Study concludes marital and household status cause women's greater loneliness in older people.	Women lonelier. Unadjusted odds ratio of always/often/sometimes lonely compared to 'never' lonely. Women's odds of loneliness 2.03 (CI (1.58–2.59).
Wang et al. (2008)	Loneliness, Gender, and Parasocial Interaction: A Uses and Gratifications Approach	USA, university undergraduate students. N=154 (59 men).	Social and Emotional Loneliness Scale. UCLA version 3 (4 items on chronic loneliness). 4 items on situational loneliness.	1. Untested means of seven types of loneliness 2. study displays a graph of loneliness x para-social interaction, stratified by sex and loneliness type. Exact scores not stated. 3. Regression examining modifying effects of sex on relationship between	1. Family – men 1.56, women 1.54. Romantic – men 4.21, women 3.28. Social - men 1.76, women 1.53. Chronic - men 2.47, women 2.04. Situational - men 0.40, women 0.55. Transient - men 1.67, women 1.71. 2. chronic lonely no -men much less, yes – similar (men more).	- (no significance tests)

			3 items on transient loneliness. 10-item Para-social Interaction Scale	loneliness and para-social interaction (no full table or equation).	Family lonely no – similar (women more), yes – women much more (really big difference). Romantic lonely no – similar (women more), yes – women much more. 3. sex alone = ns. Loneliness interacted with sex on all the types of loneliness above, not the others.	
Wheeler et al. (1983)	Loneliness, Social Interaction, and Sex Roles	USA, University students. N=96 (43 men)	Revised UCLA (adapted to 5-point answer format). Self-report quantity and quality of social interactions in past week. Personal Attributes Questionnaire.	1. ANOVA - loneliness by sex. 2a. correlations between loneliness and quantity of interactions, stratified by sex of respondent AND sex of person interacted with, and tests of mean difference between sex. 2b. same, but for quality of interaction. 3. Duncan test for mean differences between 4 means (sex*sex of person interacted with) for each interaction quality variable. 4. Post hoc tests on sex differences in loneliness means stratified by relationship type. 5. correlations of loneliness and femininity, stratified by sex. 6. Semi partial correlations (squared) indicating Sex Differences in Percentage of Loneliness Variance Related to Major Variables.	1. men 45.8, women 41.7, p<.10 2a. % same sex interaction (men .23, women -.24), % opposite sex interaction (men -.35, women .30), more time with opposite sex (men -.46, women .15), more interactions with opposite sex (men -.32, women .12), longer interactions with opposite sex (men -.29, women .16). 2b. self-disclosure - same sex interaction (men -.57, women -.21). 3. p=<.05 for meaningfulness, Intimacy, self-disclosure, Other-disclosure, Pleasantness, Initiation, Influence (on all, all male interactions rated lowest quality). 4. p=<.05 differences. Women lonelier on all. Meaningfulness – same sex best friend, same sex friend, opposite sex romantic partner, opposite sex platonic. Intimacy - same sex best friend, same sex friend. Self-disclosure - same sex best friend, same sex friend. Other disclosure - same sex best friend, same sex friend. Pleasantness - same sex best friend, same sex friend. Satisfaction - same sex best friend, same sex friend, opposite sex platonic.	No difference. ANOVA men 45.8, women 41.7, p<.10. way written implies P value greater than .05 albeit was less than .1

					5. men -.39 (p=<.01), women -.36 (p=<.01). 6. meaningfulness with men (A) - men 12, women 17. Time with females (B) – men 3, women 7. Femininity (C) – men 3, women 6. A+B – men 11, women 1. A+C – men 5, women 0. B+C – men 1, women 4. A+B+C – men 6, women 3.	
Wheeless et al. (1988)	A test of self-disclosure based on perceptions of targets loneliness and gender orientation	USA, university students. N=580 (145 initial students, who were asked to find a male and female acquaintance, and a male and female friend)	Revised UCLA. Modified Bex-sex role inventory. Wheeless self-disclosure scales.	Canonical correlation for targets' perceived gender orientation and loneliness with self-disclosure dimensions. Study lists significant models.	1. femininity .96, loneliness -.59, masculinity .18. honesty .99, amount .62, depth .53, valence .24 2. loneliness .81, femininity .27, masculinity .06. Depth .84, amount .52, valence -.23, honesty -.12	No difference. MANOVA study states no 'main effects' for sex on loneliness (F=.64, p>05)
Wood (1976)	Loneliness, social identity, and social structure	Canada, approx. 50% university students. N=258 (71 men)	Sisenwein loneliness scale Direct question on loneliness Twenty statements test Rosenberg self-esteem scale Demographic info	Regression and ANOVA predicting loneliness (Sisenwein). not all data stated in study.	P=<.05 results Sex (women lonelier). Sex*marital status (bigger difference between married/unmarried men). Sex*education (study says reduced sex difference, data unclear). Sex*marital status*education (married and educated women lonelier).	Women lonelier. Regression (b= 2.528). Controlling marital status, age, education, occupation, Sex*marital status, Sex*education, Sex*marital status*education.
Woodward et al. (1981)	Loneliness and divorce	USA, divorced persons, N=59.	Loneliness inventory (LI-D) (all use phrase 'loneliness')	1. t-tests between loneliness scores for sex (stratified by divorce status).	1. no significant differences. 2. Men 1st figure. When decided to divorce 16-9. Separating 16-29. Filing for divorce 32-16. Divorce decreed 12-20.	No difference. T-test, data unstated.

			Socio-demographics	2. Percentages of when felt loneliest in divorce process, stratified by sex. No comparison test.	Time of survey 0-12. No loneliness 24-14.	
Zebhauser et al. (2014)	How much does it hurt to be lonely? Mental and physical differences between older men and women in the KORA-Age Study	KORA-Age Study, Augsburg, Germany, random sub-sample aged 64-94. N=1079 (50.5% men)	12 item German UCLA. Socio-demographics - Social network index, demographics. Physical health variables – disabled, cognitive status, impairment of senses, physical activity. Mental health variables – life satisfaction, depression, anxiety, resilience.	1. Univariate chi2 test between dichotomised lonely/not lonely and every variable, separated by gender. 2. 6 logistic regression models (Odds ratios). Outcome=loneliness on all, three regressions done twice for men and women. Predictors=socio-demographics (model 1). physical health (using variables listed in previous box, model 2), and mental health using variables listed in previous box, model 3).	Variables in each model where P=<.05 for 1 sex, but not the other (no results significant in different directions). 1. Age (women lonelier with age), live at home or not (women lonelier alone), Physical activity (less active women lonelier). 2. Age (women 85+ lonelier, OR 2.66), life satisfaction (lonely men low satisfaction, OR 2.84) Other notable conclusion – 'women not hurt by loneliness as badly as men' (lonely male depression OR 5.11, women 2.88, both p=<.01).	No difference. Men 17, women 17.5, ns.

* Has another study that uses the same sample

** Has another study that uses the same sample

Appendix 3: List of qualitative and mixed methods studies included in literature review, with additional contextual information

Studies listed in alphabetical order.

Authors (date)	Title	Study context	Sample population	Relevant findings
Anstiss et al. (2018)	Men's re-placement: Social practices in a Men's Shed	Ethnographic research exploring a men's shed*.	New Zealand, ethnographic study (largely participant observation) in one men's shed.	The shed structure parallels work settings – author terms this a 're-placement' after retirement. This is helpful as provides social interaction through a positive shared experience.
Bergland et al. (2016)	Experiences of Older Men Living Alone: A Qualitative Study	Explore the experiences of living alone for older men.	Norway. Interviews with 7 Men aged 80+ who live alone.	Themes (sub-themes): lonely at times (Easy to be Forgotten, Social Contact Only When Needed, and Painful Moment); missing and longing for a shared life (Missing the Spouse, Longing for Someone New); keeping active; and some kind of freedom (Less Care Burden, Being in Control).
Cela and Fokkema (2017)	Being lonely later in life: a qualitative study among Albanians and Moroccans in Italy	Investigate the lived experience of loneliness in older Immigrants to Italy.	34 in-depth interviews, ages 50+, Albanian or Moroccan birth.	Men clearly, sometimes openly, hesitant to talk about being lonely. Both sexes don't want to worry others by saying they're lonely. Women say husbands don't talk about loneliness.
Collins (2018)	The personal communities of men experiencing later life widowhood	Explores the social worlds of widowed older men	UK. 7 in depth interviews using 'subtle-realist' perspective. Widowed men, aged 71-89.	They were often lonely before death of spouse as caring an isolating experience. They had limited social networks. The men worried about how actions around widowed would be interpreted. Disliked female dominated settings (quote - 'stuck with load of women'). Liked 'task' focused organisations and social ties. 5/7 interviewees Didn't express desire for new partner.
Davidson (2004)	"Why Can't a Man Be More Like a Woman?": Marital Status and Social Networking of Older Men	Mixed methods study, of which the statistical data offered little for this review. Interviews aimed to compare how marital status influences older men's lives.	UK. 85 interviews, married/cohabiting (30), widowed (33), divorced (10), never married (12) men, aged 65+.	Older men say they are 'alone, not lonely', and independent. Assumption of feminine lens when viewing older men's lives. Author quote - 'the imperative of "separateness" allied to masculine self-identity appears to hamper the establishment of new relationships'. Marriage provides social circles for older men. One man described this a 'sad reflection' on himself. Widowers get support, divorced seek new partner.

Gerstel (1988)	Divorce, gender, and social integration	Compare how men and women experience separation/divorce.	USA, 104 interviews with separated or divorced people (52 men, median age 33). Closed and open question survey. closed asked about social interactions and demographics, open followed up and expanded.	Separation meant time for others in men. men made casual and new relationships, women stuck with old friends and kin. Men with custody of children less so though.
McAndrew and Warne (2010)	Coming out to talk about suicide: Gay men and suicidality	Gain an in-depth understanding of the life experiences contributing to the suicidality.	UK. 4 gay men who had 'experienced suicidality'. Free-association interviews, narrative analysis.	Author creates theme titled 'the loneliness of outsiderness'. Appears to be that a non-hegemonic masculine identity results in loneliness.
McKenzie et al. (2018)	Masculinity, Social Connectedness, and Mental Health: Men's Diverse Patterns of Practice	Understand men's social support networks, and how men go about seeking and mobilizing social support	New Zealand, 15 men. Topic guide driven interview.	Talking about personal difficulties more acceptable if with women. Humour used to deflect importance of emotion. Some experienced 'difficulties in confiding' (due to bad past experiences). Men do seek support despite overall façade. Suggests need to deconstruct hegemonic masculine portrayals of men as not seeking supportive relationships.
Milligan et al. (2015)	The experiences of older male adults throughout their involvement in a community programme for men	Assess the impact and effectiveness of three men's sheds* programmes	UK. 24 Semi-structured interviews and 4 focus groups (n=33) with shed members (men), aged 59-83. 5 interviews project staff.	Supportive environment after isolating life event. Mental stimulation. Mix of engaged and socially isolated helps. Hands on without pressure - masculinities less competitive than when young, study thinks 'hegemony' overridden.
Munoz-Laboy et al. (2009)	Loneliness as a Sexual Risk Factor for Male Mexican Migrant Workers	Examine the relationship between HIV/AIDS and loneliness in Mexican migrant workers to the USA.	USA, Mexican men with partner in Mexico. Mixed methods. Ethnographic observations of places Mexican men identified key socialising spots (street corners, bars, soccer fields, dance clubs,	Drank alcohol, hung out with friends, and went to church to deal with loneliness. Said was difficult to talk to other men, no-one could say why. Not having anyone to talk to when missing family correlated with loneliness (r –0.31, P=.03). Visit sex workers to not be alone.

			Catholic churches). Structured interviews (50). Life-history interviews (10).	
Nurmi et al. (2017)	Older men's perceptions of the need for and access to male-focused community programmes such as Men's Sheds	Explore men's perceptions of the need for Men's Sheds* and issues concerning access to them.	Canada, focus groups, 64 men aged 55+.	Men believed they're less likely to develop friendships than women. All conclusions – sheds build local connections, branding is key to engagement, helps if find people before they retire, the exchange of knowledge is what men most like about it.
Reynolds et al. (2015)	The experiences of older male adults throughout their involvement in a community programme for men	Grounded methodology. Investigating men's experiences in male orientated community programme.	Canada. 12 Interviews with white men participating in men's sheds*, aged 61 – 87.	Join to prevent loneliness from retirement, housing, health, or widowhood. Flexibility and knowledge exchange are key factors. Masculine nature of shed makes it more likely to engage men.
Robinson (2016)	Ageing fears and concerns of gay men aged 60 and over	Examine what older gay men are concerned about.	New Zealand, UK, Australia, USA. 25 men ages 60+. semi-structured interview, initially for another study about gay men's relationships across the life course. Focused on answers to questions about ageing.	More women in homes isolating if gay. Death of friends causing loneliness, but gay community ageist so younger friends hard to come by.
Rönkä et al. (2018)	Multidimensional and fluctuating experiences of loneliness from childhood to young adulthood in Northern Finland	Research the experience of both past and present loneliness among young adults.	39 semi-structured interviews (7 men) with people aged 27/28 who, at age 15/16, had selected they were 'very lonely' on a survey.	One man clearly suggested being unable to live up to masculine norms results in loneliness. Authors found same for non-feminine women. No other gendered findings.
Ronkainen and Ryba (2016)	Is hockey just a game? Contesting meanings of the ice hockey life projects	Examines the existential aspect of being an injured player in a team game.	Finland. 2 male retired professional ice hockey players. Three interviews	Being injured felt lonely even when training with others, as couldn't fully take part. Could not enact hegemonic masculinity fully, but could endure pain, avoid seeking help, and suffer alone.

	through a career threatening injury		of each participant.	
Ronkainen et al. (2016)	What can gender tell us about the pre-retirement experiences of elite distance runners in Finland?: A thematic narrative analysis	Explores gender differences in running career at an age where retirement will soon follow.	Finland. Interviews with 19 top-level athletes aged 25-62 (10 men).	Constructions of isolated nature of running differed – men had a notion of the ‘lonely hero’, whereas women felt lonely and struggled to identify with lonely hero ideal. Men also noted running was the source of companionship, women less so.
* a group where older men conduct DIY tasks, at their own behest, in a community funded ‘shed’ with tools and support staff.				

Appendix 4: analysis of quantitative studies in literature review

63 quantitative studies were included, in which eight themes were identified. These are: (i) that men are more ‘hurt’ by loneliness, as other wellbeing measures tend to be more associated with loneliness in men; (ii) that whether a man is involved in a romantic relationship or not is a stronger predictor of loneliness in men; (iii) that men and women experience different types of loneliness, most clearly in that men show greater ‘social’ loneliness, and women more ‘emotional’ loneliness; (iv) that different measurements of loneliness provide different gendered results, most clearly in that surveys using the word ‘loneliness’ or ‘lonely’ tend to display reduced loneliness in men; (v) that gender roles may affect people’s constructions and experiences of loneliness; (vi) that lonely men may be less socially accepted than women and not lonely men; (vii) that men act differently when faced with loneliness, particularly by using physical activities to deal with it, where women focus on emotional release; and (viii) that measures related to social networks have a greater statistical influence on men’s loneliness. The following sections detail the evidence for the theme, and states how it influenced the final synthetic constructs listed in the main text.

Men are ‘hurt’ more by loneliness

Seven studies investigated sex differences in the association between loneliness and psychological measures (table A). The notion that men are ‘hurt’ more by loneliness was posited by Zebhauser et al. (2014), who found lonely men to state more depression than lonely women. However, Dahlberg et al. (2015) found that depression was not associated with loneliness in men, although an increase in depression over two time points did result higher odds of loneliness in men than it did in women. In the other studies, poor social skills (Pinquart and Sorensen 2001), anxiety, (low) likeability, (low) life satisfaction, and unhappiness (Schultz and Moore 1986), (low) social integration and (low) opportunities for nurturance (Bell and Gonzalez 1988), and a low sense of control in life and wanting more control (Green and Wildermuth 1993), were all found to be solely or more strongly associated with loneliness in men. Conversely, only low levels of attachment to peers (Bell and Gozalez 1988), and low amounts of expressing affection (Green and Wildermuth 1993), were found to be solely or more strongly associated with loneliness in women. This theme was not included in the final synthetic constructs as the data in these studies is particularly varied, the qualitative studies suggested little further on the topic, and the inclusion criteria specified that measures of health and mental health were not the focus of the review.

Table A. Summary of the studies where sex, loneliness, and another measure of wellbeing were compared

Author/s	Sample	Summary of relevant results/conclusions
Schultz and Moore (1986)	USA, University students	Men stronger correlations of some traits with loneliness (anxiety, likeability, life satisfaction, happiness).
Bell and Gonzalez (1988)	USA, University students	Social integration, guidance, opportunities for nurturance predict loneliness in men. Guidance, attachment in women.
Green and Wildermuth (1993)	Australia, University students.	Loneliness in men associated with low expressed control, wanted control, women with low expressed affection.
Pinquart and Sorensen (2001)	Meta analyses of 103 studies.	Lower social skills better predictor of loneliness in men.
Blazina et al. (2007)	USA, male University students.	Attitudinal independence from father = less loneliness, not significant for mothers.
Zebhauser et al. (2014)	Germany, ages 64-94	Women lonelier, no difference for men - older, less active. Men lonelier, no difference for women – low life satisfaction. Lonely men more depressed than lonely women, though significant for both.
Dahlberg et al. (2015)	Sweden, ages 75+	Women lonelier, but not when controlling for other factors. mobility problems (7 years past), mobility reduction, depression (7 years past), widowhood (7 years past) increase odds of loneliness in women only. (low) social contacts and social contacts reduction increase odds in men only. An increase in depression over two time points showed higher odds of loneliness in men.

Men's partner status has a greater impact on the likeliness of stating they are lonely

20 studies investigated sex differences in the relevance of romantic relationships to loneliness (table B). Ten (Wood 1976; Peters and Liefbroer 1997; Pinquart and Sorensen 2001; Dykstra and de Jong-Gierveld 2004; Stevens and Westerhof 2006; Dykstra and Fokkema 2007; de Jong Gierveld et al. 2009; Palutney and Wong 2013; Botterill et al. 2016; Nowland et al. 2018) found a larger difference between single and married men than they did between single and married women, and two more suggest that completely single men are lonelier than those in unmarried romantic relationships (Knox et al. 2007; Peters and Liefbroer 1997). Dykstra and Fokkema (2007) found that 'partner-centeredness' explained divorced men's greater loneliness, but was not a significant factor in women, indicating men's attitudes explain this statistical trend. Tornstam (1992), however, found married women to be lonelier than married men, suggesting that being in a romantic relationship may also be less protective for women. DiTommaso et al. (2005), Wang et al. (2008), and Pollet et al.

(2008) also found men to be more ‘romantically’ lonely, albeit only DiTommaso et al. (2005) found this to be statistically significant at P<.05, and Smitt and Kurdek (1985) found no difference in this. However, these surveys place single people as ‘romantically lonely’ regardless of whether they desire a partner, thus are ineffective for investigating the extent to which people are affected by partner status.

Three studies refuted the notion that partner status has a greater impact on men’s loneliness. Dahlberg et al. (2015) found that long term widowhood (7+ years) was only a predictor of loneliness in women. However, they also found that recent widowhood (<7 years) was a much stronger predictor of loneliness in men, and they did not record whether respondents entered a new relationship in those seven years, a mitigating factor which could have a significant bearing on these results. Woodward et al. (1981), in a series of tests stratified by divorce status, found no significant sex differences in loneliness. Finally, Spahni et al. (2016) found that men were lonelier than women, and the widowed lonelier than the partnered, but that widowhood affected men and women similarly. This theme was reformed into the construct ‘romantic relationships may be more important for preventing loneliness in men’.

Table B. Summary of the main results about sex differences in romantic dyads and loneliness (excluding results already listed in table A).

Author/s	Sample	Summary of relevant results/conclusions
Wood (1976)	Canada, 50% University students	Women lonelier. Marital status and sex interaction (single men lonelier than married, less difference in women).
Woodward et al. (1981)	USA, divorcees	No significant sex differences in loneliness (stratified by divorce status). In percentage form, women lonelier. Men lonelier at time decided to divorce, and when actually filed for it. Women lonelier when physically separating, and time of survey.
Shmitt and Kurdek (1985)	USA, University students	Men more ‘family’, ‘large group’ and ‘friendship’ loneliness, no sex difference in ‘romantic/sexual’ loneliness.
Tornstam (1992)	Sweden	Married women aged 20-49 lonelier than married men aged 20-49 (no other sex difference within marital status and age groups).
Peters and Liefbroer (1997)*	Netherlands, ages 55+	Single men lonelier than single women or men in a relationship. Same for men not in a civil union of any kind.
Pinquart and Sorensen (2001)	Meta analyses of 103 studies.	Marital status (unmarried) better predictors of loneliness in men.

Dykstra and de Jong-Gierveld (2004)*	Netherlands, ages 55+	Emotional loneliness sex differences - Married men less, never married and widowed men more. Divorced no difference. Men unaffected by other measures, women sometimes were, particular ‘social embeddedness’ measures. Social loneliness sex differences – Married men (unless previously widowed), Never married men, divorced men lonelier. Participation in voluntary organizations = less loneliness for men, seeing children or not having children = less loneliness for women.
DiTommaso et al. (2005)	Canada, mixture of Canadian and Chinese University students.	Men more romantic loneliness.
Victor et al. (2005)	UK, aged 65+	Women lonelier as more single, widowed, and living alone.
Stevens and Westerhof (2006)	Germany, Netherlands, ages 40-85	Widowers lonelier than widows in both nations.
Dykstra and Fokkema (2007)	Netherlands, ages 30+	ANOVA men more socially lonely, emotional loneliness no difference. Divorced men lonelier than divorced women. Regression women more emotional loneliness, social no difference. Support network size helps explain social loneliness of divorced men, ‘partner-centeredness’ greater emotional loneliness of divorced men.
Knox et al. (2007)	USA, University students	Women more likely to have a romantic partner, men more likely to want one.
Rokach et al. (2007)	North America, ages 63+	Married men less ‘interpersonal isolation’ than unmarried men, married and unmarried women no differences.
de Jong Gierveld et al. (2009)	Netherlands, ages 64+	Men in 1st/2nd marriage less emotionally lonely. Men more socially lonely, and more affected by an unhealthy spouse.
Wang et al. (2008)	USA, University students	Romantic loneliness means – men 4.21, women 3.28 (no significance test)
Ayalon et al. (2013)	USA, ages 50+	Quality of relationship affects men and women equally.
Palutney and Wong (2013)	Australia	Single men most ‘disconnected’ after controlling for preferences, followed by poor women. Women more disconnected overall.

Dahlberg et al. (2015)	Sweden, ages 75+	Recently widowed men lonelier than recently widowed women, but if not recent women lonelier.
Spahni et al. (2016)	Switzerland, ages 60+	Men lonelier, and widowed lonelier, but no interaction.
Botterill et al. (2016)	Australia, ages 60+	Loneliness and marital status interaction - sex(women)*single -.30, p=<.05.
Pollet et al. (2018)	Netherlands (most respondents German)	Romantic loneliness – women 22.14, men 19.27, p=.06
Nowland et al. (2018)	UK, University students and staff	Men lonelier when not in a relationship, women no difference.
* studies used same dataset		

Men and women experience different types of loneliness

16 studies measured sex differences in different types of loneliness. Using the de Jong-Gierveld scale, Dykstra and de Jong-Gierveld (2004), Dykstra and Fokkema (2007), and de Jong-Gierveld et al. (2009) found that men were more socially lonely, and women more emotionally lonely. However, using a self-devised scale, Clinton and Anderson (1999) found no significant differences in men's and women's social or emotional loneliness, and using the social-emotional loneliness scale (SELSA), Pollet et al. (2018) found no significant (P=<.05) differences in social, family, or romantic loneliness, whilst DiTomasso et al. (2005) found men were significantly lonelier on all three sub-scales. Using the UCLA scale, Juntilla et al. (2015) found that *women* were more socially lonely, and men more emotionally lonely, albeit with small effect sizes. Juntilla et al. (2015) also found that the UCLA items selected more frequently by women related to being rejected by others, whereas the men's items largely related to either their social skills or a sense of social isolation. Similarly, in Sundberg (1988), men were more likely to select they felt 'alone or alienated from positive persons, places, or things'. This theme was provided evidence for the notion that men's loneliness appears to be more closely associated with a perception they possess poor quality social networks, and that different measurements tools provide different patterns in the prevalence of loneliness.

Table C. Summary of the main results in studies focused on different types of loneliness.

Author/s	Sample	Summary of relevant results/conclusions

Shmitt and Kurdek (1985)	USA, University students	Men more ‘family’, ‘large group’ and ‘friendship’ loneliness, no sex difference in ‘romantic/sexual’ loneliness[6].
Sundberg (1988)	USA, University students	Men feel more - lonely, ‘alone or alienated from positive persons, places, or things’, ‘self-pity, rejection, or lack of purpose’.
Oshagan and Allen (1992)	USA University students	Emotional/social loneliness inventory – men slightly lonelier, but no differences when two types of loneliness separated.
Rokach and Brock (1997)	Canada	Men more emotional distress, women more interpersonal isolation.
Clinton and Anderson (1999)	USA, African American University students	No sex differences in ANOVA. In regression interactions, men with no best friend, and women with less control, socially lonelier.
Rokach (2000)	Canada	Men aged 19-30 more experienced - growth and discovery, interpersonal isolation, self-alienation (60-80 too). Among men, younger more of all kinds of loneliness.
Dykstra and de Jong-Gierveld (2004)	Netherlands, ages 55+*	Emotional loneliness sex differences - Married men less, never married and widowed men more. Divorced no difference. Men unaffected by other measures, women sometimes were, particular ‘social embeddedness’ measures. Social loneliness sex differences – Married men (unless previously widowed), Never married men, divorced men lonelier. Participation in voluntary organizations resulted in less loneliness for men, seeing children or not having children less for women.
DiTommaso et al. (2005)	Canada, mixture of Canadian and Chinese University students.	Men more social, family, and romantic loneliness. For family loneliness, there was a large sex difference in Chinese students, but a small difference in Canadian students.
Rokach (2005)	Canada, homeless and non-homeless samples	No sex differences in homeless sample. Not homeless men more social inadequacy and alienation, women more emotional distress and growth and discovery. Homeless men more emotional distress, Interpersonal isolation, and Self-alienation than not homeless men.
Dykstra and Fokkema (2007)	Netherlands, ages 30+	ANOVA men more socially lonely, emotional loneliness no difference. Divorced men lonelier than divorced women. Regression women more

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[6] By measuring loneliness this way, the study measures the respondents’ satisfaction with particular relationships/lack thereof, rather than loneliness as defined in this thesis.

		emotional loneliness, social no difference. Support network size helps explain social loneliness of divorced men, 'partner-centeredness' greater emotional loneliness of divorced men.
Wang et al. (2008)	USA, university undergraduate students.	Lists means of six types of loneliness: Family; Romantic; Social; Chronic; Situational; and Transient. Romantic, social, chronic show men lonelier (no significance test).
de Jong Gierveld et al. (2009)	Netherlands, ages 64+	Men in 1st/2nd marriage less emotionally lonely. Men more socially lonely, and more affected by an unhealthy spouse.
Nicolaisen and Thorsen (2014a)	Norway	men more socially lonely, but women aged 50-64 and 65-81 more emotionally lonely (no difference in younger).
Junttila et al. (2015)	Finland	Men feel more- nobody to talk to, nobody understands me, find myself waiting for people to call or write, feel alone, unable to reach out, difficult to make friends. Less good friends, satisfaction with personal relationships, social loneliness. Women feel more - starved for company, shut out and excluded by others. Less emotional loneliness.
Dong and Chen (2017)	USA, ethic Chinese aged 60+	men less likely to suffer 'lack of companionship', no significant differences in 'left out of life' or 'isolated from others'.
Pollet et al. (2018)	Netherlands (most respondents German)	family loneliness (higher = lonelier) - women 8.58, men 9.41, p=.13 Social loneliness – women 6.29, men 6.93, p=.11 Romantic loneliness – women 22.14, men 19.27, p=.06

Different measurements of loneliness facilitate different gendered results

Four studies compared sex differences in prevalence of loneliness using multiple measurements (table D). Three included both a direct question asking how often the respondent felt lonely, and a scale where emotions said to represent loneliness are measured (Schultz and Moore 1986; Pinquart and Sorensen 2001; Nicolaisen and Thorsen 2014a). On all three of these, men appeared to show less loneliness in response to a direct question than when they answered the indirect scale. The final study, Oshagan and Allen (1992), found no sex difference in the UCLA scale, but that men appeared much lonelier than women when using the loneliness deprivation scale.

Table D. Summary of the studies examining the results of different measurements of loneliness.

Author/s	*Sample*	*Summary of relevant results/conclusions*
Schultz and Moore (1986)	USA, undergraduate students	For UCLA, men significantly lonelier. For direct question, no sex difference. In a correlation of two, Men's scores much more strongly correlated than women's.
Oshagan and Allen (1992)	USA, University students	UCLA – no sex difference Loneliness deprivation scale - men lonelier Emotional/social loneliness inventory – men slightly lonelier
Pinquart and Sorensen (2001)	Meta-analysis, 103 studies	Studies using a direct question or of 'low quality' show women to be lonelier, whereas high quality scales show no significant difference
Nicolaisen and Thorsen (2014a)	Norway	Using De jong-Gierveld scale, men lonelier aged 18-49, no difference after. Using direct question, women lonelier in all age groups.

To further investigate this, the results of who is lonelier (men or women) for all included studies that involved a significance test, or significance tests of different types of loneliness from which an overall difference was clear, were collated (table E). Appendix 2 indicates whether, and where, each study was placed in this table. When examining the studies, it was clear that student populations tended to display men as lonelier, so the number of studies conducted with students was included in the table. Among twelve studies finding men to be 'lonelier', eight consisted of student samples, and the other four used the De Jong-Gierveld scale. When using the UCLA scale, over half of the studies found no significant sex differences. All the UCLA studies showing men to be lonelier consisted of student populations, whereas none of the three where women were lonelier were students. Six out of seven studies investigating non-student samples using a single direct question found women to be lonelier, and no studies using this method found men to be lonelier.

Table E. A table showing how many included studies found men/women are lonelier (or no significant difference), stratified by measurement type.

Scale used	Number showing men lonelier		Number showing women lonelier		Studies where difference is p=>.05		Total
	All samples	*Number of student samples showing men lonelier*	*All samples*	*Number of student samples showing women lonelier*	*All samples*	*Number of student samples showing no difference*	
UCLA	4*	4*	3	0	12*	9*	19

Question/s using a direct question	0	0	7****	1	3	2	10
De Jong-Gierveld	4**	0	0	0	1***	0	5
SELSA	1	1	0	0	1	0	2
Differential loneliness scale	1	1	0	0	0	0	1
Sisenwein loneliness scale	0	0	1	1	0	0	1
Clinton and Anderson scale	0	0	0	0	1	1	1
Loneliness deprivation scale	1	1	0	0	0	0	1
Emotional/social loneliness inventory	1	1	0	0	0	0	1
Total	**12**	**8**	**11**	**2**	**18**	**12**	**41**

* Stokes and Levin (1986) reported 3 separate samples (2 in which men were lonelier, 1 no difference), and Helm et al. (2018) reported 2 separate samples (1 men lonelier, 1 no difference).

** Some studies didn't report the overall sex difference in loneliness, only in different types of loneliness. Those that clearly suggested the likely relationship were included in this table. Two were included as 'men lonelier' using the De Jong Gierveld scale (Dykstra and Fokkema 2007; de Jong Gierveld et al. 2009), and one as no differences using SELSA (Pollet et al. 2018).

*** As Peters and Liefbroer (1997) and Dykstra and de Jong-Gierveld (2004) used the same survey sample, only Peters and Liefbroer's (1997) result are included in this study (Dykstra and de Jong-Gierveld did not include a comparison of overall loneliness).

**** One of these studies was Pinquart and Sorensen's (2001) meta-analysis of many studies.

Gender roles affect the construction and experience of loneliness

Seven studies investigated gender roles and loneliness (table F). Six used scales measuring gender role identification to examine whether 'masculinity' correlated with loneliness (although the two studies by Blazina et al. used the same dataset). Three datasets suggested that masculinity did not correlate with loneliness (Wheeler 1983; Rotenberg 1997; Johnson et al. 2006), and one found that masculinity predicted slightly greater loneliness (Blazina et al. 2007/Blazina et al. 2008). However, in the only study specifically focused on whether masculinity was associated with loneliness, Cramer and Neyedley (1998) concluded that masculine identity resulted in lower loneliness scores. Additionally, Blazina et al. (2008) found that gender role conflict increased feelings of loneliness in men, and Wheeler et al. (1983) and Wheeless et al. (1988) associate 'femininity' with more open and meaningful social relationships. Blazina et al. (2008), Wheeler et al. (1983), and Wheeless et al. (1988) contributed to the construct that men are reluctant to state loneliness. The inherent validity issues of masculinity-femininity scales meant these studies contributed no more, although it was noted that they do not specifically refute any final synthetic construct.

Table F. Summary of the studies examining gender roles and loneliness.

Author/s	*Sample*	*Summary of relevant results/conclusions*
Wheeler et al. (1983)	USA, University students.	Femininity negatively associated with loneliness for all. Spending more time with women, and meaningful relationships with men, prevent loneliness (though dyads involving at least one woman were more likely to be meaningful).
Wheeless et al. (1988)	USA, University students.	Femininity (more) and loneliness (less) predict disclosure to others. Masculinity and Sex not significant.
Rotenberg (1997)	Canada, university students	Androgynous women less lonely, no other differences.
Cramer and Neyedley (1998)	Canada, university students	Sex differences originally not significant, controlling for masculinity resulted in men lonelier.
Johnson et al. (2006)	USA, University students	Using correlations and ANOVA, masculinity (Bem sex-role inventory) = less loneliness. In regression, masculinity not significant, but femininity predicts more loneliness.
Blazina et al. (2007)*	USA, male University students.	Masculinity predicted (slightly) greater loneliness.
Blazina et al. (2008)*	USA, male University students.	Gender role conflict increased loneliness.

* studies used same dataset

Lonely men may be less socially accepted than lonely women

Four studies investigated people’s perceptions of lonely men (table G). In these, participants were given a description of a lonely man and/or woman, before answering a survey about their views of the hypothetical individual/s. Three found that lonely men were less socially ‘accepted’, (Borys and Perlman 1985; Lau and Green 1992; Lau and Kong 1999), and one found no difference (Rotenberg and Kmill 1992). Women were generally found to be less accepting of lonely people (Borys and Perlman 1985; Rotenberg and Kmill 1992; Lau and Green 1992), albeit Lau and Green's study found this may be limited to their views of lonely women only. Lau and Green and Lau and Kong's work also found that lonely men and lonely women were perceived differently in other ways – in both, the lonely woman was rated as 'unattractive' and 'passive', whereas the lonely man was rated lowly for 'social skills' and 'social desirability'. This provided evidence for the construct that men are reluctant to discuss emotional issues.

Table G. Summary of the studies examining men's and women's perceptions of lonely men.

Author/s	*Sample*	*Summary of relevant results/conclusions*
Borys and Perlman (1985)	Canada, University students	People are less accepting of a lonely man, and women are less accepting of lonely people. Interaction not statistically significant, though moves in the direction would expect from these two relationships.
Rotenberg and Kmill (1992)	Canada, University students	Women attributed less psychosocial functioning to lonely people. No other sex differences. Lonely people were less accepting of lonely people.
Lau and Green (1992)	USA, University students	Lonely men rated less 'adjusted', sociable, weaker, less sincere, and less desirable as a friend. Lonely women less attractive, more passive, weaker (by women only), less sincere (by women only). Women rated lonely people less adjusted, lower in achievement, disliked, and wouldn't be friends with them.
Lau and Kong (1999)	USA, University students	Lonely men rated less sociable, less 'adjusted' (by not lonely people only), less liked, less wanted as a friend, less sincere, lower 'self-concept'. Lonely women rated less attractive, more passive, worse appearance, less 'stable'.

Men act differently when faced with loneliness

Eleven studies investigated either the actions of men experiencing loneliness, or men's perceptions of how lonely people act (table H). Tornstam (1992) found men utilise activities, such as drinking alcohol or watching TV, whereas women focused on emotional release. Juntilla et al. (2015) found men, more so than women, believed loneliness led to depression, a lack of initiative, a fear of the future, and living in an isolating home. Botterill et al. (2016), however, found no sex difference in the likeliness of loneliness predicting problem gambling, and three studies using the Rokach 'coping with loneliness' scale (Rokach and Brock 1998; Rokach 1999; Rokach 2001) found inconsistent results. Blier and Blier-Wilson (1989) investigated sex differences in how comfortable students were expressing loneliness, and found that men were less comfortable, and that men and women were less comfortable expressing it *to* men, but that neither relationship was large or consistent enough difference to warrant statistical significance at p<.05. However, women were significantly more comfortable expressing other emotions, as were all people to women (aside from anger). Finally, Rotenberg and Korol (1995) found that a 'game-playing' attitude to love was more strongly associated with loneliness in men. Tornstam (1992), Botterill et al. (2016), and Junttila et al. (2015) provided evidence for the construct that men engage in risky/unhealthy behaviours. Tornstam (1992) and Junttila et al. (2015) also assisted in the construction of 'men's loneliness appears to be more closely associated with a perception they possess poor quality social networks'. The remaining studies were considered unable to add data of clear relevance and direction.

Table H. Summary of the studies examining men actions and attitudes to feeling lonely

Author/s	*Sample*	*Summary of relevant results/conclusions*
Blier and Blier-Wilson (1989)	USA, University students	Women expressed more loneliness, and people were more confident talking to women about it, but neither were statistically significant. Women were significantly more comfortable expressing fear, sadness, and liking/love, but men more comfortable expressing anger (only to men)
Tornstam (1992)	Sweden	Among married people aged 20-49, Men more likely to cope with loneliness by watching TV, exercising, working, drinking alcohol. Women more likely to cry and seek contact with others. Data based on untested percentages.
Rotenberg and Korol (1995)	Canada, University students	Ludus love style (game-playing) associated with loneliness in men not women.
Rokach and Brock (1998)	Canada	Large difference in coping with loneliness through 'self-development and understanding' (men less), and men also less likely to 'increase activity'.
Rokach (1999)	Canada	Differences of men compared to women - North American (NA) less self-development and understanding, South Asian (SA) more increase activity, West Indian (WI) less self-development and understanding, social support network. Differences between men of different cultures – NA more distancing and denial, WI most increased activity, SA more increased activity than NA.
Rokach (2001)	Canada	Younger men more than women - reflection and acceptance, self-development and understanding, distancing and denial, increased activity.

		No sex differences middle aged. Older men more reflection and acceptance. Comparison between men – older men more reflection and acceptance.
Wang et al. (2008)	USA, University students	Sex differences in use of para-social interaction. Not 'chronically' lonely people – men much less (are lonely no difference). 'family' and 'romantic' lonely people – women much more (not lonely similar).
Pikhartova et al. (2014)	UK, ages 50+	Owning a pet both a reaction to, and can alleviate, loneliness in women, but not in men.
Botterill et al. (2016)	Australia, ages 60+	Loneliness equally likely to result in problem gambling for men and women (though significantly more men are problem gamblers).
Junttila et al. (2015)	Finland	Men say consequence of loneliness – depression, Lack of initiative, Fear of future, isolating home, social fears, divorce, unemployment, poverty, incurring debt, gambling, substance abuse. Women say consequence of loneliness – comfort shopping, comfort eating, loss of appetite.
Mittal and Silvera (2018)	USA, via mTurk	Lonely women more attach to material purchases, lonely men to experiential purchases. No sex differences in not lonely.

Social networks, loneliness, and sex: A perception of poor networks is of greater statistical relevance to men's loneliness

14 studies investigated sex differences in the relationship between loneliness and social networks (table I). Four of these focused on the extent to which social network size predicts loneliness. Stokes and Levin (1986) found social network size and type to be more strongly associated with loneliness in men, and Bell and Gonzalez (1988) found 'social integration' a predictor of loneliness in men but not women. Bell (1991), however, found no sex difference in this, and Dykstra and de Jong-Gierveld (2004), found that, for emotional loneliness, only *women* show a strong association between social networks and loneliness. However, research less directly focused on social networks offers notable evidence for this theme. Palutney and Wong (2013) found that, even after controlling for social network preferences, men considered themselves to be more 'socially disconnected'. Among four studies using the Rokach 'causes of loneliness' scale (Rokach and Brock 1995; Rokach 1998; Rokach et al. 2002; Rokach 2003), three found men were more likely to state 'social marginality' a cause of loneliness (Rokach 1998; Rokach et al. 2002; Rokach 2003), although this was only found in North American and South Asian men, but not in Spanish or West Indian men. Sundberg (1988) found that feeling 'alone or alienated from positive persons, places, or things' was more common in men,

although there was no difference in feelings of ‘isolation’. Tornstam (1992) even found men placed loneliness as arising from a physical distance from people, particularly family, whereas women were more likely to state emotional factors such as being ‘misunderstood’. Lastly, Stevens and Westerhof (2006) found that ‘emotional support from friends’ mediated sex differences in loneliness (in that men had less emotional support, thus were lonelier), but that this mattered equally for men and women. This provided the key framework for the construct ‘Men’s loneliness appears to be more closely associated with a perception they possess poor quality social networks’.

Table I. Summary of the studies examining sex differences in the relationship between loneliness and social networks

Author/s	*Sample*	*Summary of relevant results/conclusions*
Stokes and Levin (1986)	USA, University students/evening class attendants	More social networks, especially dense, interconnected networks, are better predictors of low loneliness for men
Bell and Gonzalez (1988)	USA, University students	Social integration, guidance, opportunities for nurturance predict loneliness in men. Guidance, attachment in women.
Sundberg (1988)	USA, University students	Men feel more - lonely, ‘alone or alienated from positive persons, places, or things’, ‘self-pity, rejection, or lack of purpose’. No difference in ‘isolation’.
Bell (1991)	USA, social welfare agency employees.	Finds no difference in association between network density and loneliness, whether bivariate or controlling for closeness of relationships.
Tornstam (1992)	Sweden	Among married people aged 20-49, men more likely to attribute loneliness to being far from home or travelling, women to being misunderstood, not needed, or uninteresting.
Rokach and Brock (1995)	Canada	Women score higher - ‘social marginality’.
Rokach (1998)	Canada (North Americans, South-Asian immigrants, West-Indian immigrants)	Identify ‘social marginality’ as a cause of loneliness more - North American men, West Indian women. Differences between men – social marginality less in west Indian men than North American or South Asian men.
Rokach et al. (2002)	Canada, Spain.	Canadian men identified ‘social marginality’ as a greater cause of loneliness than Canadian women and Spanish men and women.
Rokach (2003)	Canada, homeless and not homeless.	Homeless men more social marginality than homeless women and not homeless men. No difference in not homeless men.

Dykstra and de Jong-Gierveld (2004)	Netherlands, ages 55+*	Emotional loneliness – women less loneliness if higher network size, instrumental support given, contact with children, no living children, church attendance. Social loneliness – men less loneliness if Participation in voluntary organizations, women less if seeing children, no living children.
Stevens and Westerhof (2006)	Germany, Netherlands, ages 40-85	Women's greater emotional support from friends causes the sex difference means they are less lonely than men.
Palutney and Wong (2013)	Australia	Single men most disconnected, followed by poor women. After controlling for what people consider important, men are more socially isolated than would like, women would like more experiences such as 'nights out', 'weekly meals' and 'holidays'.
Petersen et al. (2016)	USA, aged 70+	When controlling for loneliness, women still involved in many more phone calls. Bigger sex difference in receiving calls.
Helm et al. (2018)	USA, University students	Sex (men more) and loneliness (lonely more) significant predictors of existential isolation, but no interaction. Endorsement of communal values mediated sex difference.

Appendix 5: analysis of qualitative studies

16 qualitative studies were included (two used mixed methods, but were included for their qualitative results). Six themes were identified. The first four are themes said to represent all men/masculinities: that romantic relationships appear particularly important for preventing loneliness in men; that men may find it more difficult to engage in intimate conversation; that being insufficiently masculine may be a cause of loneliness; and that lonely men may be particularly prone to risky/unhealthy behaviour. The final two represent themes related to specific groups of men: that sporting masculinities may construct forms of loneliness as heroic; and older men may face isolating life events, in addition to which services aiming to prevent/alleviate loneliness in older men may benefit from a constructive focus, an effort to avoid feminine assumptions of their needs, and the constructive of a masculine yet supportive atmosphere. The following sections detail the evidence for the theme, and states how it influenced the final synthetic constructs listed in the main text.

Romantic relationships are particularly important for preventing loneliness in men

Six studies provided findings suggesting this. First and foremost, men did seem to consider a romantic partner the first, and primary, person for meaningful social interaction (Davidson 2004; Bergland 2016; Collins 2018), and Munoz-Laboy et al. (2009) argued that distance from a spouse was a key cause of loneliness in immigrant men. Gerstel (1988), Davidson (2004), and Bergland (2016) also noted men were particularly likely to seek new partners after divorce/widowhood, and Davidson (2004) and Collins (2018) expressed the loneliness of men whose spouse had died – “all that intimacy goes and there is nothing to replace it” (Collins 2018, p426). Lastly, Davidson (2004), Nurmi et al. (2016), and Collins (2018) found evidence men’s social networks were often limited and dependent on their spouse. For instance, when discussing services aiming to alleviate loneliness, one man stated:

“…a group focused on men is self-perpetuating because then the people participating get more practice in being responsible for their own social network, their own social life, instead of that doing, that thing through the female spouse” (Nurmi et al. 2016, p804).

These studies were eventually constructed as ‘partner/spousal relationships may be more important for preventing loneliness in men’.

Table J. Summary of the qualitative findings related to men, loneliness, and romantic dyads

Authors (date)	Study context	Relevant findings
Gerstel (1988)	Compare how men and women experience separation/divorce.	Separation meant time for other people to men. Men made casual and new relationships, women stuck with old friends and kin. Men with custody of children more similar to women though in sticking with kin and old relationships.
Davidson (2004)	Mixed methods study, of which the statistical data offered little for this review. Interviews aimed to compare how marital status influences older men's lives.	Marriage provides social circles for older men. One man described this a 'sad reflection' on himself. Widowers get support, divorced seek new partner.
Munoz-Laboy et al. (2009)	Examine the relationship between HIV/AIDS and loneliness in Mexican migrant workers to the USA.	Authors believed missing family who remained in Mexico a key cause of loneliness, and of risky sexual behaviour.
Bergland et al. (2016)	Explore the experiences of living alone for older men.	Theme (sub-themes): missing and longing for a shared life (Missing the Spouse, Longing for Someone New).
Nurmi et al. (2017)	Explore men's perceptions of the need for Men's Sheds, and issues concerning access to them.	Men tend to socialise through spouses.
Collins (2018)	Explores the social worlds of widowed older men	They were often lonely before death of spouse as caring an isolating experience. They had limited social networks. The men worried about how actions around widowed would be interpreted. Didn't express desire for new partner.

Men find it more difficult to engage in intimate conversation

Five studies suggested that men find it difficult to engage in intimate conversation. This was identifiable in two ways that represented important sub-themes. The first is that this difficulty results in an unlikeliness of discussing feelings of loneliness:

"most of us are here alone, by ourselves. Nobody wants to talk about sad things" (Munoz-Laboy et al. 2009, p805).
"talking about it [loneliness] doesn't happen…This does not mean that we [men] aren't lonely, we keep it inside, we just don't say it" (Cela and Fokkema 2017, p1209).

It was also concluded by some that a difficulty with intimate conversation *resulted* in loneliness. For Davidson (2004, p39), ‘the imperative of “separateness” allied to masculine self-identity appears to hamper the establishment of new relationships’. Similarly, McKenzie et al. (2018) argued the construction of a strong and emotionally controlled masculine identity among men in their study could prevent meaningful relationships from forming. However, they also found that some men emphasised negative experiences as the cause of their ‘difficulties in confiding’, and that men often engaged in practices of emotional support, it was only that doing so may be risky and difficult:

“It felt like I invested, put myself out there on a limb and built up, had to really sort of build myself up to struggle to get the words out…but it didn’t really go anywhere” (Mckenzie et al. 2018, p1253).

This data was used to evidence and contextualise ‘men may be reluctant to discuss emotional issues’.

Table K. Summary of the qualitative findings suggesting men struggle to engage in intimate conversation

Authors (date)	Study context	Relevant findings
Davidson (2004)	Mixed methods study, of which the statistical data offered little for this review. Interviews aimed to compare how marital status influences older men’s lives.	Men emphasise ‘self sufficiency’ (aka independent living). One man described this a ‘sad reflection’ on himself. Author concludes this may hamper formation of new relationships.
Munoz-Laboy et al. (2009)	Examine the relationship between HIV/AIDS and loneliness in Mexican migrant workers to the USA.	Men said was difficult to talk to other men, no-one could say why. Not having anyone to talk to when missing family correlated with loneliness (r –0.31, P=.03).
Cela and Fokkema (2017)	Investigate the lived experience of loneliness in older Immigrants to Italy.	Men clearly, sometimes openly, hesitant to talk about being lonely. Both sexes don’t want to worry others by saying they’re lonely. Women say husbands don’t talk about loneliness.
McKenzie et al. (2018)	Understand men’s social support networks, and how men go about seeking and mobilizing social support.	Talking about personal difficulties more acceptable if with women. Some experienced ‘difficulties in confiding’ (as had bad experience). Men do seek support despite overall façade.

Not being masculine enough is a cause of loneliness

Two studies found that being unable to portray a sufficiently masculinity identity resulted in feelings of loneliness, albeit the amount of focus on this topic was relatively low. In McAndrew and Warne (2010), the study is focused on gay identity, and conclude its inherently non-masculine nature resulted in a 'loneliness of outsiderness'. In Rönkä et al. (2018), just one man, who is also gay, identifies the same issue. This data was reformed into 'feeling or being labelled 'insufficiently masculine' can result in loneliness'.

Table L. Summary of the findings suggesting less 'masculine' men are lonely

Authors (date)	Study context	Relevant findings
McAndrew and Warne (2010)	Gain an in-depth understanding of the life experiences contributing to the suicidality.	Author creates theme titled 'the loneliness of outsiderness'. Appears to be that a non-hegemonic masculine identity results in loneliness.
Rönkä et al. (2018)	Research the experience of both past and present loneliness among young adults.	One man clearly suggested being unable to live up to masculine norms results in loneliness. Authors found same for non-feminine women.

Lonely men are more likely to conduct risky/unhealthy behaviours

This was only identified in one qualitative study. In Munoz-Laboy et al. (2009), Mexican migrants to the United States men said they drank alcohol, attended church, and consorted with prostitutes and/or casual girlfriends, often without a condom, to alleviate loneliness. his added to the eventual construct 'Lonely men may be more likely to engage in risky/unhealthy behaviour'.

Table M. Summary of the gendered findings on risky behaviours and loneliness

Authors (date)	Study context	Relevant findings
Munoz-Laboy et al. (2009)	Examine the relationship between HIV/AIDS and loneliness in Mexican migrant workers to the USA.	Drank alcohol, hung out with friends, and went to church to deal with loneliness. Visit sex workers to not be alone. These men often surrounded by others, but felt alone.

Men, loneliness, and sport

Two studies reported findings on men and loneliness in high profile sporting contexts. Ronkainen et al. (2016) found that, in the highly individual sport of running, men drew on cultural notions of a ‘lonely hero’. Female runners, on the other hand, were more candid about feelings of loneliness, and considered the ‘lone wolf’ mentality among runners an active source of loneliness. Ronkainen and Ryba (2016) interviewed injured ice hockey professionals, finding that, even in social settings, they felt lonely as they were ‘letting the team down’. However, this was not an emotion discussed openly, and they noted a particularly strong advocation of masculine principles related to ‘suffering alone’ and avoiding seeking help. Ronkainen and Ryba (2016) was used to further evidence ‘Feeling or being labelled ‘insufficiently masculine’ can result in loneliness’, and Ronkainen et al. (2016) was solely noted as consistent with ‘men may be reluctant to discuss emotional issues’.

Table N. Summary of the findings on sex and loneliness in sporting arenas		
Authors (date)	Study context	Relevant findings
Ronkainen et al. (2016)	Explores gender differences in men’s and women’s running careers at an age where they will soon retire.	Constructions of isolated nature of running differed – men had a notion of the ‘lonely hero’, whereas women felt lonely and struggled to identify with lonely hero ideal. Men also noted running was the source of companionship, women less so.
Ronkainen and Ryba (2016)	Examines the existential aspect of being an injured man in a team game.	Being injured felt lonely even when training with others, as couldn’t fully take part. Strong advocation of enduring pain, avoiding seeking help, and suffering alone.

Loneliness in older men

Nine qualitative studies were conducted with older men, in which six sub-themes were identified. Two were identified above: that romantic relationships are important to men’s loneliness (Davidson 2004; Reynolds et al. 2015; Bergland et al. 2016; Nurmi et al. 2016); and that men are less likely to engage in intimate conversation (Cela and Fokkema 2017). The other four themes appeared more specific to the intersection of age and gender. Firstly, most studies acknowledged particular isolating life events, such as widowhood, retirement, a loss of mobility (or other isolating health issue), and/or moving into specialist housing, are more common with age (Davidson 2004; Milligan et al. 2015; Reynolds et al. 2015; Robinson 2016; Nurmi et al. 2017; Collins 2018). However, the older men in some studies were clear that, whilst isolating, these events did not necessarily induce loneliness (Davidson 2004; Bergland et al. 2016).

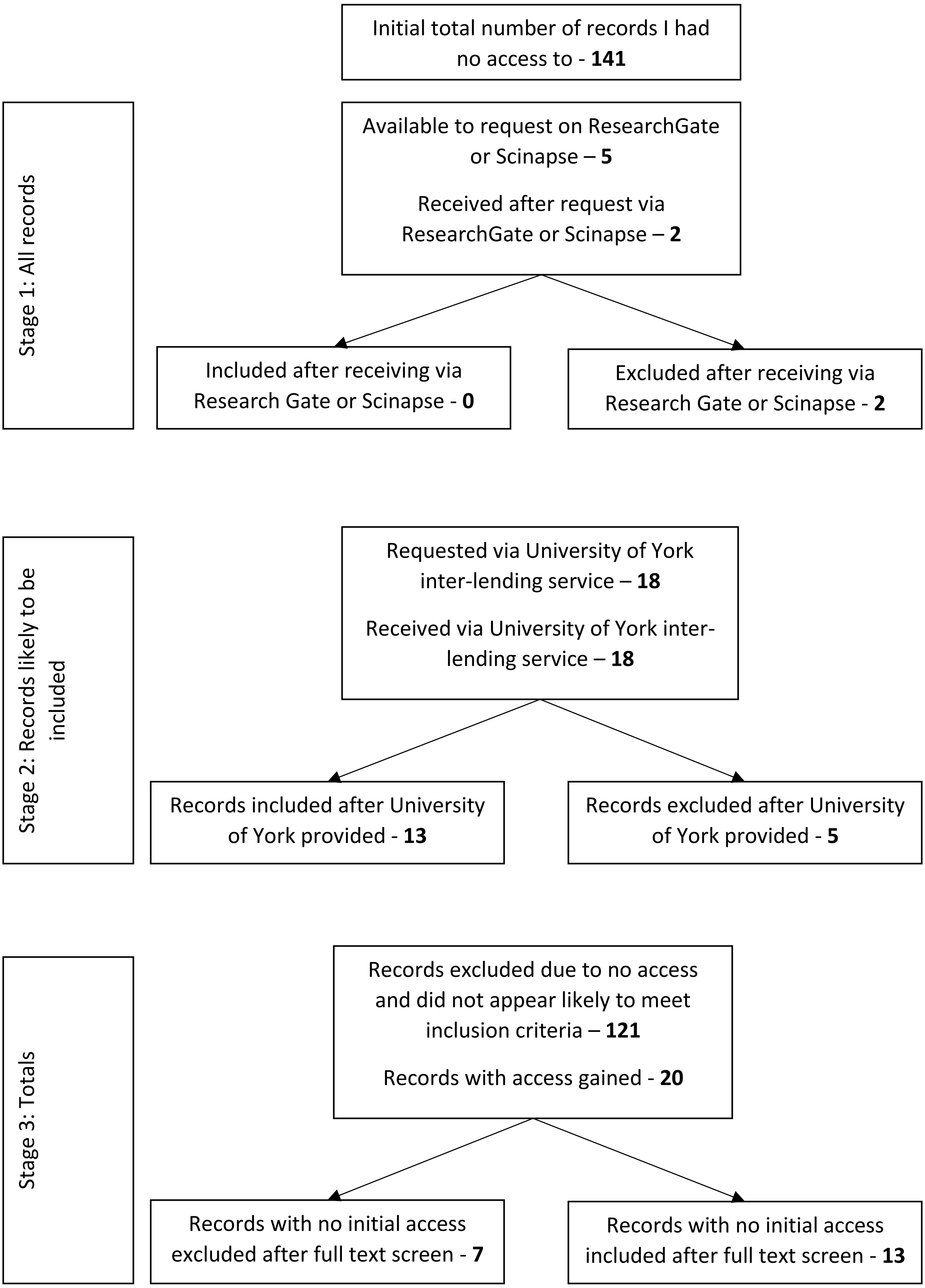
The other three themes were related to what constitutes an effective service for preventing or alleviating loneliness in older men. The first was that older men prefer services with a constructive focus (Reynolds et al. 2015; Milligan et al. 2015; Anstiss et al. 2018; Collins 2018). Collins (2018, p429), for instance, found that men preferred 'task-focused' settings, and Anstiss et al. (2018) even suggested that successful services mimic workplace settings. Secondly, several accounts suggested that older men's lives are placed within a feminine context (Davidson 2004; Robinson 2016; Collins 2018). Davidson (2004) conceptualises this as a 'feminine lens', and argues that it may facilitate the erroneous conclusion that 'alone' equals 'lonely'. Moreover, some men argued this could have a negative impact on the nature of services, such as one man who lamented being 'stuck in with a load of women' (Collins 2018, p426). Lastly, several accounts highlight the need for a supportive atmosphere. In Milligan et al (2015, p142), for instance, one man stated 'there's nothing to prove. And people come here in relaxed fashion doing that which they are able to do', and even Anstiss et al. (2018) argue the work-like structure they identified involved a more supportive and pressure free environment than traditional work settings. This was not used as a synthetic construct, as it does not relay a specific and different influence of sex or gender in men's construction and experiences. Instead, this data provided a framework for beginning to manifest differences among men within the final synthetic constructs.

Table O. Summary of the qualitative findings on sex and loneliness in studies of older people

Authors (date)	Study context	Relevant findings
Davidson (2004)	Mixed methods study, of which the statistical data offered little for this review. Interviews aimed to compare how marital status influences older men's lives.	Single older men say they are 'alone, not lonely', and independent. A 'feminine lens' often utilised when viewing older men's lives. one man described his isolation as a 'sad reflection', despite appearing ok with being alone.
Reynolds et al. (2015)	Grounded methodology investigating men's experiences in a men's shed.	Join to prevent loneliness from retirement, housing, health, or widowhood. Flexibility and knowledge exchange are key factors. Masculine nature of shed makes it more likely to engage men.
Milligan et al. (2015)	Assess the impact and effectiveness of three men's sheds programmes.	Supportive environment after isolating life event. Mental stimulation. Mix of engaged and socially isolated helps.

		Hands on without pressure - masculinities less competitive than when young, study thinks hegemony overridden.
Bergland et al. (2016)	Explore the experiences of living alone for older men.	Themes (sub-themes): lonely at times (Easy to be Forgotten, Social Contact Only When Needed, and Painful Moment); missing and longing for a shared life (Missing the Spouse, Longing for Someone New); keeping active; and some kind of freedom (Less Care Burden, Being in Control).
Robinson (2016)	Examine what older gay men are concerned about.	More women in homes isolating if gay. Death of friends causing loneliness, but gay community ageist so younger friends hard to come by.
Cela and Fokkema (2017)	Investigate the lived experience of loneliness in older Immigrants to Italy.	Men clearly, sometimes openly, hesitant to talk about being lonely. Both sexes don’t want to worry others by saying they’re lonely. Women say husbands don’t talk about loneliness.
Nurmi et al. (2017)	Explore men’s perceptions of the need for Men’s Sheds, and issues concerning access to them.	Men believed they’re less likely to develop friendships than women. All conclusions – sheds build local connections, branding is key to engagement, helps if find people before they retire, the exchange of knowledge is what men most like about it.
Anstiss et al. (2018)	Ethnographic research exploring the social space that is a men’s shed.	The shed structure parallels work settings – author terms this a ‘re-placement’ after retirement. This is helpful as provides social interaction through a positive shared experience.
Collins (2018)	Explores the social worlds of widowed older men	They were often lonely before death of spouse as caring an isolating experience. They had limited social networks. The men worried about how actions around widowed would be interpreted. Disliked female dominated settings (quote - ‘stuck in with load of women’). Liked ‘task’ focused organisations and social ties.

Appendix 6. Flow-chart describing the process employed for studies I had no access to when conducting the literature review


Initial total number of records I had no access to - 141
Stage 1: All records
Available to request on ResearchGate or Scinapse – 5
Received after request via ResearchGate or Scinapse – 2
Included after receiving via Research Gate or Scinapse - 0
Excluded after receiving via Research Gate or Scinapse - 2
Stage 2: Records likely to be included
Requested via University of York inter-lending service – 18
Received via University of York inter-lending service – 18
Records included after University of York provided - 13
Records excluded after University of York provided - 5
Stage 3: Totals
Records excluded due to no access and did not appear likely to meet inclusion criteria – 121
Records with access gained - 20
Records with no initial access excluded after full text screen - 7
Records with no initial access included after full text screen - 13

82

Additional notes: 82 of the 121 articles not obtained, and 96 of the initial 141, were published prior to the year 2000, suggesting the age of the records was a key barrier. Among the 39 records published in the 21st century for which I had no access, 5 were published in journals suggesting they would not meet the language and country criteria, 2 seemed unlikely to have been peer reviewed, 2 did not provide an abstract, 2 did not appear to be empirical research; and 1 appeared focused on research conducted in the 1940's. Definitive reasons why access was such a problem are unclear.

Appendix 7. Diagnostic information and adaptations.

On all models, variance Inflation Factors (VIF) were examined for each independent variable, and a value of above five was considered for adaptation/removal (Craney and Surles 2002). The only variables that ever did so were the interaction terms critical to the test, therefore they could not be removed. For model 1, the test of parallel lines found no imputation model, or the listwise deletion, showed a statistically significant result, suggesting the odds were proportional. The deviance statistic also suggested a good fit (p=>.999), but Pearson's Chi^2 was highly significant (P=<.001). A multinomial also model suggested an ordinal relationship, therefore the ordinal model was used as the final model. On all models employing the UCLA scale as the dependent variable (models 3 - 5.7), diagnostic graphs suggested there was neither a normal distribution of standardised residuals, nor uniform variance of predicted vs observed residuals. Figures A and B were taken from model 1.1, imputation 13, though all models and imputations saw strikingly similar results, likely due to the relatively similar nature of the models. Logistic regression, using the dichotomised UCLA score, was conducted for all models where UCLA score was the dependent variable. The Hosmer and Lemeshow test suggested these had all possessed an acceptable fit to the data.

For the ordinal regression with the dependent variable 'how often the respondent drunk alcohol over the past year' (model 2.3), the mean test of parallel lines strongly suggested the odds were not sufficiently proportional (P=<.001). The first adaption was a multinomial logistic regression using all eight responses. As some models showed similar results, some categories were combined: 'never', 'once or twice a year', and 'once every couple of months' were combined to make 'never - twice a month'; 'once or twice a month' and 'once or twice a week' became 'once a month - twice a week'; 'three or four days a week' and 'five or six days a week' became 'three - six days a week', and 'almost every day or more' remained the highest category. Another ordinal regression examined whether the odds were sufficiently proportional using the combined four response categories, but this again showed a significance of P=<.001. The final model is a multinomial regression with the four response categories. Model 2.4, which utilised 'whether felt lonely much in the last week' as the dependent variable, also failed to meet diagnostic criteria. Poisson regression showed a Pearson/degrees of freedom value of over 7 for all imputations, therefore negative binomial regression, using Maximum Likelihood Estimation, was conducted.

Figure A.

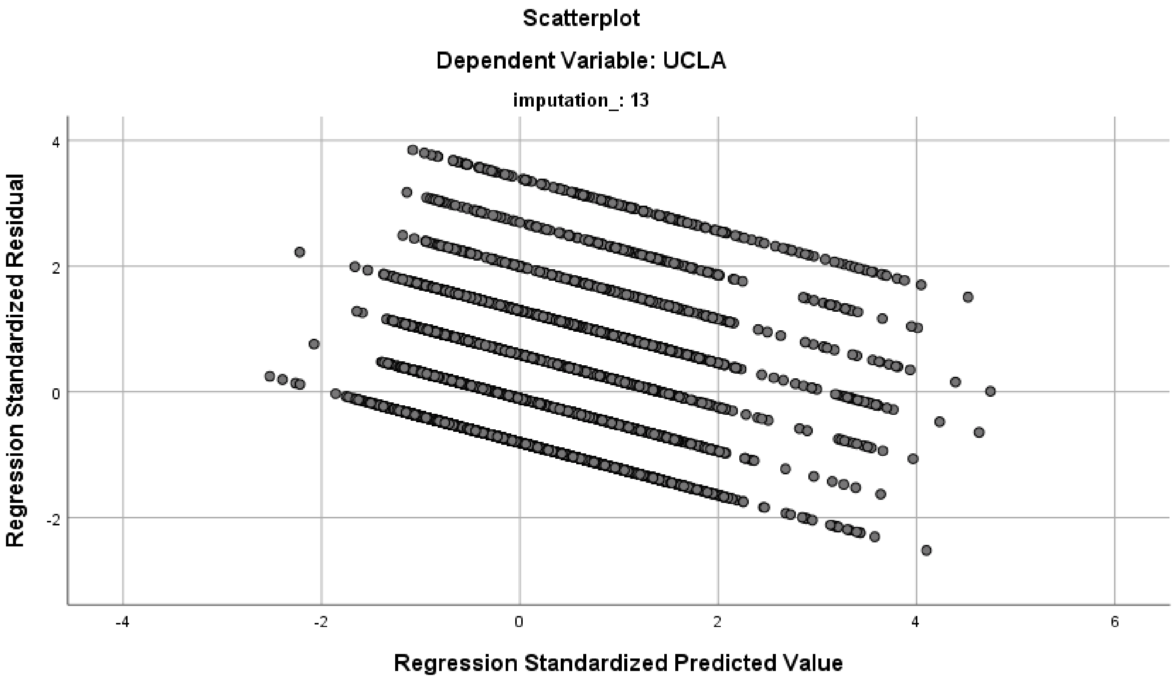
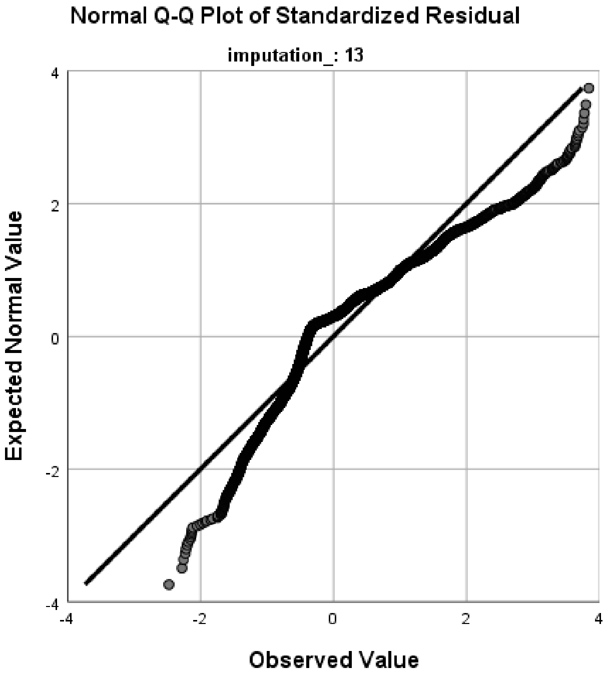

Scatterplot
Dependent Variable: UCLA
imputation_: 13
Regression Standardized Residual
4
2
0
-2
-4
-2
0
2
4
6
Regression Standardized Predicted Value

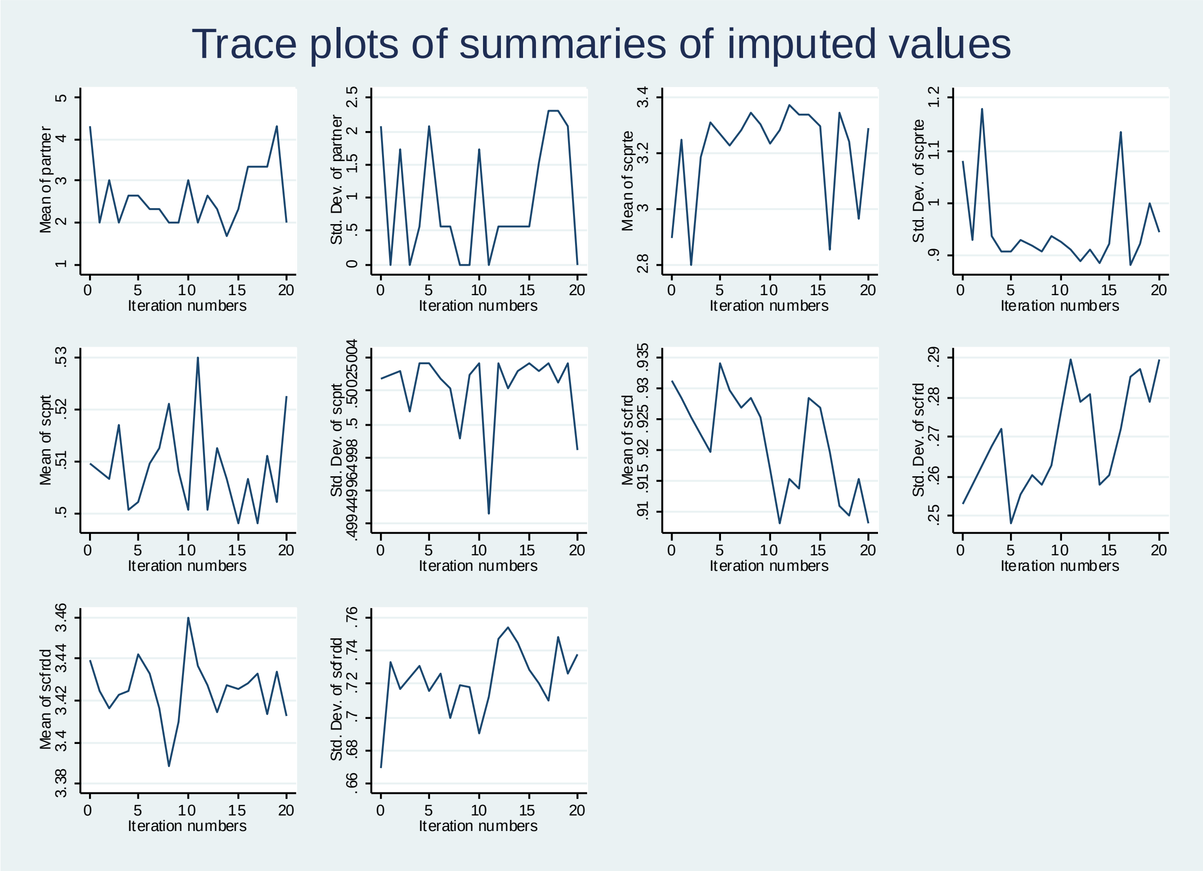
Figure B.


Normal Q-Q Plot of Standardized Residual
imputation_: 13
Expected Normal Value
4
2
0
-2
-4
-4
-2
0
2
4
Observed Value

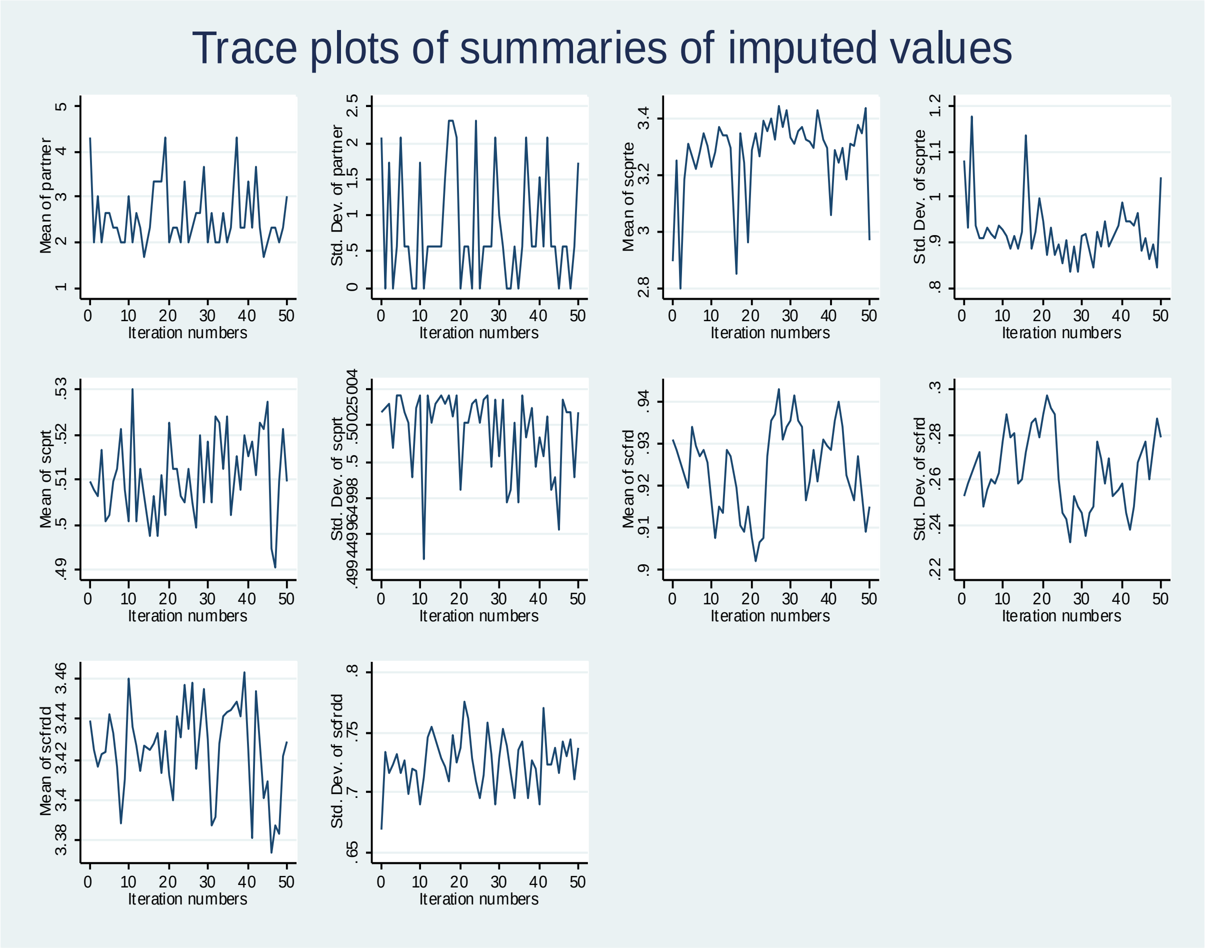
Appendix 8: trace plots of selected variables imputation summaries

Partner – marital status
Scprte - How much their spouse/partner lets the respondent down
Scprt - Whether has a husband, wife or partner with whom they live
Scfrd - Whether the respondent has any friends
Scfrdd - How much their friends criticise the respondent

Chain 1 (Burnin = 20)



Chain 2 (Burnin = 50)



Appendix 9: Do file for MICE

```
set maxvar 6500

mi set flong

mi register imputed scprta scprtb scprtc scprtd scprte scprtf scprtg partner heska scfeele hefunc scorg96 scako
scdrpin scdrwin scdrspi scfru scveg scfrda scfrdb scfrdc scfrdd scfrde scfrdf scfrdg scfrdm scfrdh scfrdi scfrdj
scfrdk scfamh scfami scfamj scfamk scfamm scchdh scchdi scchdj scchdk scchdm pscede scfeela scfeelb scfeelc
totinc_bu_s nettotw_bu_s qual3 scfrd scprt heill helim

mi xeq: replace helim = 0 if heill == 0

mi xeq: replace scfrda = 0 if scfrd == 0

mi xeq: replace scfrdb = 0 if scfrd == 0

mi xeq: replace scfrdc = 0 if scfrd == 0

mi xeq: replace scfrdd = 0 if scfrd == 0

mi xeq: replace scfrde = 0 if scfrd == 0

mi xeq: replace scfrdf = 0 if scfrd == 0

mi xeq: replace scfrdg = 0 if scfrd == 0

mi xeq: replace scprta = 0 if scprt == 0

mi xeq: replace scprtb = 0 if scprt == 0

mi xeq: replace scprtc = 0 if scprt == 0

mi xeq: replace scprtd = 0 if scprt == 0

mi xeq: replace scprte = 0 if scprt == 0

mi xeq: replace scprtf = 0 if scprt == 0

mi xeq: replace scprtg = 0 if scprt == 0


mi impute chained (logit, augment) heska pscede scprt scfrd scorg96 heill (logit, augment cond (if heill==1))
helim (pmm, knn(10) cond(if scfrd==1)) scfrda scfrdb scfrdc scfrdd scfrde scfrdf scfrdg (pmm, knn(10) cond(if
scprt==1)) scprta scprtb scprtc scprtd scprte scprtf scprtg (pmm, knn(10)) totinc_bu_s nettotw_bu_s scfru
scveg scdrpin scdrwin scdrspi scchdm scfrdm scfamm qual3 scfeela scfeelb scfeelc scfeele scchdh scchdi scchdj
scchdk scfamh scfami scfamj scfamk scfrdh scfrdi scfrdj scfrdk hefunc scako (mlogit, augment) partner = indsex
indager region wpdes, add(25) rseed(873357) noisily burnin(20)
```

Appendix 10. Amount of missing data for each variable, ordered according to amount missing

Variables	*Sample*	*Missing*		
	Valid N	N	% of total sample	% of valid responses (if different)
How many other family members the respondent has a close relationship with	6936	1452	20.9	-
How often respondent writes to or emails children	6936	1381	19.9	-
How often the respondent writes to or emails other family members	6936	1376	19.8	-
How often the respondent writes to or emails their friends	6936	1341	19.3	-
How often the respondent sends or receives text messages from other family members	6936	1180	17.0	-
How often respondent sends or receives text messages from children	6936	1114	16.1	-
How often the respondent sends/receives text messages from friends	6936	1139	16.4	-
How many friends the respondent has a close relationship with	6936	1058	15.3	-
How many children the respondent has a close relationship with	6936	1056	15.2	-
Respondent is not a member of any organisations, clubs or societies	6936	972	14.0	-
How often respondent meets up with children on average	6936	905	13.0	-
How often respondent speaks on the phone to children	6936	877	12.6	-
How often the respondent meets up with other family members	6936	848	12.2	-
How often the respondent speaks with their friends on the phone	6936	826	11.9	-
How often the respondent speaks on the phone to other family members	6936	818	11.8	-
How much their friends criticise the respondent	5822	814	11.7	14.0
Number of measures of spirit the respondent had last in the last 7 days	6936	798	11.5	-
Number of pints of beer the respondent had last in the last 7 days	6936	796	11.5	-
Number of glasses of wine the respondent had last in the last 7 days	6936	792	11.4	-
How often the respondent meets up with their friends	6936	784	11.3	-
How much their friends let the respondent down	5822	766	11.0	13.2
Portions of vegetables (excluding potatoes) eaten on a typical day	6936	758	10.9	-

How often feels isolated from others	6936	752	10.8	-
How often their friends make too many demands on the respondent	5822	744	10.7	12.8
How much their friends get on the respondent's nerves	5822	743	10.7	12.8
How often feels left out	6936	743	10.7	-
How much respondent's friends understand the way they feel about things	5822	742	10.7	12.7
Portions of fruit (of any kind) eaten on a typical day	6936	740	10.7	-
How much respondent can rely on their friends if they have a serious problem	5822	736	10.6	12.6
How much respondent can open up to their friends if they need to talk about their worries	5822	736	10.6	12.6
How often had alcoholic drinks in last 12 months	6936	724	10.4	-
How often feels they lack companionship	6936	717	10.3	-
How often feels lonely	6936	707	10.2	-
Whether has a husband, wife or partner with whom they live	6936	681	9.8	-
Education	6936	171	2.5	-
BU total net (non-pension) wealth - summary var	6936	90	1.3	-
BU total net income - summary var	6936	90	1.3	-
Whether felt lonely much of the time during past week	6936	35	.5	-
Whether smokes	6936	23	.3	-
Marital status	6936	3	<.1	-
Whether difficult walking 1/4 mile unaided	6936	1	<.1	-
Whether has long-standing illness	6936	1	<.1	-
Whether long-standing and limiting illness	6936	1	<.1	-
(D) Definitive age variable collapsed at 90+	6936	0	0	-
(D) Ethnicity recoded into white and non-white (consolidated)	6936	0	0	-
Best description of employment status	6936	0	0	-
Region	6936	0	0	-
Sex	6936	0	0	-

Missing data rates for variables not employed in the final models

Variables	*Sample*	*Missing*		
	Valid N	N	% of total sample	% of valid responses (if different)

How often their spouse/partner makes too many demands on the respondent	4313	401	5.8	9.1
How much their spouse/partner lets the respondent down	4313	399	5.8	9.1
How much their spouse/partner gets on the respondent's nerves	4313	394	5.7	9.1
How much their spouse/partner criticises the respondent	4313	394	5.7	9.1
How much their spouse/partner understands the way they feel about things	4313	390	5.6	9.1
How much can open up to their spouse/partner if they need to talk about their worries	4313	390	5.6	9.1
How much can rely on their spouse/partner if they have a serious problem	4313	386	5.6	9.1
Computed: whether respondent had an institutional interview	6936	0	0	-

Appendix 11. Regression model 1.

Ordinal regression on how often the respondent feels lonely (rarely/never>sometimes>often), using pooled means

N=6936	B	Standard Error	P	95% Confidence Interval	
				lower	Upper
Sex (male = 1)	-.330	.0774	.000	-.482	-.178
UCLA scale	1.378	.0307	.000	1.317	1.438
Ethnicity (non-white)	.236	.1948	.226	-.146	.619
Age	-.009	.0055	.086	-.020	.001
Partner status - first marriage and cohabiting (ref)					
- Never married and not cohabiting	.382	.1555	.014	.077	.688
- previously married but not cohabiting	.932	.0897	.000	.756	1.108
Occupation status - retired (ref)					
- employed	-.135	.1237	.276	-.377	.108
- Self employed	-.203	.1878	.279	-.572	.165
- permanently sick/disabled	.051	.2248	.820	-.390	.493
- Looking after home/family	.052	.1786	.771	-.298	.402
- other	.224	.2940	.446	-.352	.801
How much difficulty walking ¼ mile – none (ref)					
- some	.216	.1127	.055	-.005	.437
- much	.218	.1533	.155	-.082	.519
- can’t	.104	.1357	.444	-.162	.370
Has a limiting long-standing illness	.055	.0898	.538	-.121	.231
Total wealth	-8.862E-8	9.1839E-8	.337	-2.707E-7	9.351E-8
Total income	.000	.0001	.404	.000	.000
Region – north or rest of UK					
- south and east	-.039	.0856	.651	-.207	.129
- midlands	.079	.1016	.436	-.120	.278
Education – less than GCSE/equivalent (ref)					
-GSCE/A-level/equivalent	-.121	.0882	.172	-.294	.052
-Higher than A-level	-.165	.0919	.073	-.345	.015

Ordinal regression on how often the respondent feels lonely (rarely/never>sometimes>often), using listwise deletion

N=5984	B	Standard Error	P	95% Confidence Interval	
				lower	Upper
Sex (male = 1)	-.341	.0813	.000	-.501	-.182
UCLA scale	1.383	.0320	.000	1.321	1.446
Ethnicity (non-white)	.299	.2146	.164	-.122	.719
Age	-.010	.0057	.076	-.021	.001
Partner status - first marriage and cohabiting (ref)					
- Never married and not cohabiting	.453	.1603	.005	.139	.767
- previously married but not cohabiting	.971	.0929	.000	.789	1.153
Occupation status - retired (ref)					
- employed	-.161	.1267	.203	-.410	.087
- Self employed	-.212	.1993	.286	-.603	.178
- permanently sick/disabled	.003	.2416	.991	-.471	.476
- Looking after home/family	.022	.1845	.906	-.340	.383
- other	.120	.3269	.713	-.520	.761
How much difficulty walking ¼ mile – none (ref)					
- some	.161	.1207	.182	-.076	.397
- much	.168	.1626	.301	-.151	.487
- can’t	-.045	.1468	.759	-.333	.243
Has a limiting long-standing illness	.081	.0941	.390	-.104	.265
Total wealth	-1.082E-7	8.4149E-8	. 199	-2.731E-7	5.674E-8
Total income	.000	.0001	.353	.000	.000
Region – north or rest of UK					
- south and east	-.018	.0909	.840	-.196	.160
- midlands	.083	.1068	.437	-.126	.292
Education – less than GCSE/equivalent (ref)					
-GSCE/A-level/equivalent	-.104	.0921	.261	-.284	.077
-Higher than A-level	-.159	.0961	.098	-.347	.030

Appendix 12. Regression model 2.1.

Logistic regression on whether smokes (currently smokes=1), using pooled means

N=6936	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Intercept	3.401	.000	2.349	4.453
Sex (male =1)	.047	.850	-.440	.534
Women's UCLA score	.017	.648	-.055	.088
Men's UCLA score	.051	.225	-.032	.134
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	.168	.344	-.181	.517
Never married and not cohabiting	.336	.004	.108	.564
Ethnicity (non-white)	-.578	.027	-1.089	-.066
Occupation status - retired (ref)				
- employed	-.193	.161	-.462	.077
- Self employed	-.460	.058	-.936	.016
- permanently sick/disabled	.218	.282	-.179	.615
- Looking after home/family	.073	.733	-.347	.494
- other	.022	.939	-.544	.588
How much difficulty walking ¼ mile – none (ref)				
- some	.256	.077	-.027	.539
- much	.743	.000	.403	1.083
- can't	.545	.001	.225	.866
Has a limiting long-standing illness	.069	.547	-.155	.293
Region – North or remainder of UK (ref)				
- South and East	.275	.009	.069	.480
- Midlands	.111	.356	-.125	.346
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.186	.069	-.387	.014
-Higher than A-level	-.537	.000	-.773	-.301
Age	-.081	.000	-.095	-.067
Total wealth	-9.950E-7	.000	-1.381E-6	-6.091E-7
Total income	.000	.076	-.001	3.641E-5

Logistic regression on whether smokes (currently smokes=1), using listwise deletion

N=5902	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Intercept	3.195	.000	2.010	4.380
Sex (male =1)	-.003	.992	-.530	.525
Women's UCLA score	.015	.691	-.061	.092
Men's UCLA score	.067	.133	-.020	.155
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	.216	.271	-.168	.600
Never married and not cohabiting	.334	.008	.086	.582
Ethnicity (non-white)	-.426	.179	-1.047	.195
Occupation status - retired (ref)				
- employed	-.307	.161	-.813	.198
- Self employed	-.214	.233	-.514	.086
- permanently sick/disabled	.260	.272	-.204	.725
- Looking after home/family	.162	.479	-.287	.611
- other	.181	.556	-.438	.801
How much difficulty walking ¼ mile – none (ref)				
- some	.282	.076	-.029	.594
- much	.573	.004	.180	.966
- can't	.508	.007	.141	.876
Has a limiting long-standing illness	-.017	.891	-.265	.231
Region – North or remainder of UK (ref)				
- South and East	.360	.002	.128	.593
- midlands	.123	.371	-.146	.393
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.106	.342	-.326	.113
-Higher than A-level	-.501	.000	-.761	-.241
Age	-.079	.000	-.094	-.063
Total wealth	-8.794E-7	.000	-1.272E-6	-4.867E-7
Total income	-.001	.021	-.001	-7.618E-5

Appendix 13. Regression model 2.2.

Poisson regression on estimated number of fruit and vegetables eaten on a typical day, using pooled means

N=6936	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Intercept	1.617	.000	1.484	1.751
Sex (male = 1)	-.146	.011	-.213	-.079
*Sex*UCLA score*				
Men's UCLA score	-.016	.000	-.029	-.004
Women's UCLA score	-.019	.000	-.029	-.009
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	-.098	.000	-.152	-.043
Never married and not cohabiting	-.052	.000	-.081	-.023
Ethnicity (non-white)	.100	.002	.038	.161
Occupation status - retired (ref)				
- employed	.005	.778	-.031	.041
- Self employed	-.031	.255	-.085	.023
- permanently sick/disabled	-.131	.003	-.218	-.043
- Looking after home/family	-.003	.922	-.057	.052
- other	-.110	.028	-.208	-.012
How much difficulty walking ¼ mile – none (ref)				
- some	-.033	.086	-.071	.005
- much	-.072	.008	-.125	-.018
- can't	-.052	.025	-.098	-.006
Has a limiting long-standing illness	-.013	.388	-.042	.016
Region – North or remainder of UK (ref)				
- South and East	.020	.132	-.006	.047
- Midlands	.005	.760	-.027	.036
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	.033	.016	.006	.061
-Higher than A-level	.074	.000	.047	.102
Age	.002	.040	8.537E-5	.004
Total wealth	2.748E-8	.003	9.649E-9	4.532E-8
Total income	1.900E-5	.228	-1.191E-5	4.991E-5

Poisson regression on estimated number of fruit and vegetables eaten on a typical day, using listwise deletion

N=5801	B	P	95% CI (Wald)	
			lower	*upper*
Intercept	1.581	.000	1.444	1.717
Sex (male = 1)	-.153	.030	-.222	-.085
*Sex*UCLA score*				
Men's UCLA score	-.015	.000	-.028	-.001
Women's UCLA score	-.020	.000	-.030	-.010
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	-.109	.000	-.165	-.053
Never married and not cohabiting	-.050	.001	-.080	-.019
Ethnicity (non-white)	.102	.004	.033	.172
Occupation status - retired (ref)				
- employed	.024	.191	-.012	.061
- Self employed	-.047	.102	-.103	.009
- permanently sick/disabled	-.146	.002	-.239	-.053
- Looking after home/family	.000	.994	-.057	.058
- other	-.146	.008	-.254	-.037
How much difficulty walking ¼ mile – none (ref)				
- some	-.034	.095	-.073	.006
- much	-.065	.023	-.122	-.009
- can't	-.044	.075	-.092	.004
Has a limiting long-standing illness	-.015	.327	-.044	.015
Region – North or remainder of UK (ref)				
- South and East	.022	.119	-.006	.049
- Midlands	.010	.569	-.023	.042
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	.028	.052	.000	.057
-Higher than A-level	.073	.000	.044	.101
Age	.002	.014	.000	.004
Total wealth	3.862E-8	.000	1.863E-8	5.862E-8
Total income	2.231E-5	.177	-1.011E-5	5.472E-5

Appendix 14. Regression model 2.3.

Multinomial regression on ‘How often had alcoholic drinks in last 12 months’, using pooled means (ref = between never and once every couple of months), using pooled means

N=6936		B	P	OR	95% CI (exp)B	
					lower	upper
Once a month - twice a week	Intercept	-1.242	.010			
	Sex (male = 1)	.491	.014	1.635	1.104	2.421
	UCLA (women)	-.051	.071	.950	.899	1.004
	Interaction term for male*UCLA score	.029	.517	1.029	.943	1.124
	Partner status (Previously married and not cohabiting = ref)					
	Cohabiting with a partner	.464	.003	1.590	1.177	2.148
	Never married and not cohabiting	.368	.022	1.444	1.056	1.976
	Previously married and not cohabiting (ef)					
	Ethnicity (white)	.973	.000	2.647	1.842	3.803
	Employment status (other = ref)					
	Retired	-.020	.937	.980	.599	1.604
	Employed	-.142	.585	.868	.521	1.445
	Self-employed	-.415	.155	.660	.373	1.170
	Permanently sick/disabled	-.607	.066	.545	.285	1.042
	Looking after home/family	-.305	.287	.737	.421	1.292
	How difficult walking 1/4 mile (can’t = ref)					
	No difficulty	1.031	.000	2.804	2.154	3.649
	Some difficulty	.738	.000	2.091	1.598	2.736
	Much difficulty	.395	.016	1.484	1.078	2.042
	Whether has a long-standing limiting illness	.185	.029	1.203	1.019	1.420
	Region (south and east = ref)					
	North	.217	.006	1.242	1.064	1.449
	Midlands	.097	.244	1.102	.936	1.298
	Educational level (ref = higher than A - level or equivalent)					
	Less than GCSE or equivalent or foreign qualification	-.283	.001	.753	.634	.895
	GCSE or A-level or equivalent	-.128	.158	.880	.737	1.051
	Age	-.016	.001	.984	.975	.994
	Total wealth	.000	.000	1.000	1.000	1.000
	Total income	.000	.005	1.000	1.000	1.001
	Intercept	-2.581	.000			
	Sex (male = 1)	.770	.001	2.161	1.347	3.465

Three - six days a week	UCLA (women)	-.106	.007	.899	.832	.971
	Interaction term for male*UCLA score	.042	.459	1.043	.933	1.166
	Partner status (Previously married and not cohabiting = ref)					
	Cohabiting with a partner	.291	.115	1.338	.931	1.922
	Never married and not cohabiting	.112	.571	1.118	.760	1.645
	Previously married and not cohabiting (ef)					
	Ethnicity (white)	1.512	.000	4.538	2.515	8.188
	Employment status (other = ref)					
	Retired	.840	.031	2.316	1.079	4.970
	Employed	.611	.121	1.842	.851	3.988
	Self-employed	.711	.089	2.035	.897	4.621
	Permanently sick/disabled	.387	.438	1.473	.553	3.920
	Looking after home/family	.403	.354	1.497	.638	3.509
	How difficult walking 1/4 mile (can't = ref)					
	No difficulty	1.173	.000	3.232	2.276	4.589
	Some difficulty	.494	.014	1.639	1.107	2.427
	Much difficulty	.636	.005	1.889	1.211	2.945
	Whether has a long-standing limiting illness	.304	.003	1.355	1.109	1.655
	Region (south and east = ref)					
	North	.234	.014	1.264	1.048	1.525
	Midlands	.000	1.000	1.000	.818	1.223
	Educational level (ref = higher than A - level or equivalent)					
	Less than GCSE or equivalent or foreign qualification	-.753	.000	.471	.385	.576
	GCSE or A-level or equivalent	-.393	.000	.675	.548	.831
	Age	-.025	.000	.975	.964	.987
	Total wealth	.000	.000	1.000	1.000	1.000
	Total income	.001	.000	1.001	1.000	1.001
Almost every day or more	Intercept	-4.631	.000			
	Sex (male = 1)	1.440	.000	4.219	2.554	6.970
	UCLA (women)	-.001	.985	.999	.924	1.081
	Interaction term for male*UCLA score	-.079	.172	.924	.825	1.035
	Partner status (Previously married and not cohabiting = ref)					
	Cohabiting with a partner	.185	.355	1.203	.813	1.780
	Never married and not cohabiting	.150	.472	1.162	.771	1.751

Previously married and not cohabiting (ef)					
Ethnicity (white)	1.382	.000	3.983	2.138	7.419
Employment status (other = ref)					
Retired	.722	.102	2.058	.866	4.894
Employed	.513	.255	1.670	.690	4.044
Self-employed	.542	.256	1.719	.675	4.381
Permanently sick/disabled	.667	.203	1.948	.697	5.445
Looking after home/family	.721	.139	2.056	.792	5.339
How difficult walking 1/4 mile (can't = ref)					
No difficulty	.885	.000	2.422	1.708	3.434
Some difficulty	.408	.035	1.503	1.030	2.193
Much difficulty	.260	.264	1.296	.822	2.045
Whether has a long-standing limiting illness	.222	.048	1.249	1.002	1.556
Region (south and east = ref)					
North	.111	.292	1.118	.909	1.374
Midlands	.047	.668	1.049	.844	1.302
Educational level (ref = higher than A - level or equivalent)					
Less than GCSE or equivalent or foreign qualification	-.652	.000	.521	.422	.644
GCSE or A-level or equivalent	-.424	.000	.654	.523	.819
Age	.000	.957	1.000	.987	1.012
Total wealth	.000	.000	1.000	1.000	1.000
Total income	.001	.000	1.001	1.000	1.001

Multinomial regression on ‘How often had alcoholic drinks in last 12 months’ (ref = between never and once every couple of months), using listwise deletion

N=5839		B	P	OR	95% CI (exp)B	
					lower	upper
Once a month - twice a week	Intercept	-1.139	.028			
	Sex (male = 1)	.449	.026	1.567	1.055	2.328
	UCLA (women)	-.052	.064	.949	.898	1.003
	Interaction term for male*UCLA score	.039	.392	1.039	.951	1.136
	Partner status (Previously married and not cohabiting = ref)					
	Cohabiting with a partner	.450	.004	1.568	1.153	2.133
	Never married and not cohabiting	.341	.034	1.407	1.027	1.927
	Previously married and not cohabiting (ef)					
	Ethnicity (white)	1.297	.000	3.658	2.422	5.526
	Employment status (other = ref)					
	Retired	-.162	.558	.850	.494	1.463
	Employed	-.275	.330	.760	.437	1.320
	Self-employed	-.565	.076	.568	.304	1.062
	Permanently sick/disabled	-.906	.012	.404	.200	.816
	Looking after home/family	-.427	.175	.653	.352	1.209
	How difficult walking 1/4 mile (can’t = ref)					
	No difficulty	.975	.000	2.651	2.027	3.468
	Some difficulty	.703	.000	2.020	1.527	2.673
	Much difficulty	.450	.010	1.568	1.115	2.206
	Whether has a long-standing limiting illness	.170	.045	1.185	1.004	1.399
	Region (south and east = ref)					
	North	.268	.001	1.308	1.113	1.537
	Midlands	.112	.198	1.119	.943	1.327
	Educational level (ref = higher than A - level or equivalent)					
	Less than GCSE or equivalent or foreign qualification	-.244	.005	.784	.661	.930
	GCSE or A-level or equivalent	-.084	.362	.920	.768	1.101
	Age	-.019	.000	.981	.971	.991
	Total wealth	.000	.000	1.000	1.000	1.000
	Total income	.000	.030	1.000	1.000	1.001
	Intercept	-2.941	.000			
	Sex (male = 1)	.771	.002	2.162	1.325	3.529

Three - six days a week	UCLA (women)	-.101	.012	.904	.836	.978
	Interaction term for male*UCLA score	.029	.617	1.030	.918	1.155
	Partner status (Previously married and not cohabiting = ref)					
	Cohabiting with a partner	.383	.047	1.466	1.005	2.138
	Never married and not cohabiting	.210	.300	1.234	.829	1.837
	Previously married and not cohabiting (ef)					
	Ethnicity (white)	1.990	.000	7.314	3.812	14.033
	Employment status (other = ref)					
	Retired	.705	.091	2.023	.894	4.581
	Employed	.510	.227	1.665	.728	3.806
	Self-employed	.582	.193	1.790	.745	4.299
	Permanently sick/disabled	.213	.685	1.238	.442	3.468
	Looking after home/family	.257	.582	1.293	.518	3.228
	How difficult walking 1/4 mile (can't = ref)					
	No difficulty	1.072	.000	2.921	2.002	4.263
	Some difficulty	.424	.046	1.528	1.007	2.318
	Much difficulty	.757	.002	2.131	1.333	3.408
	Whether has a long-standing limiting illness	.310	.004	1.363	1.106	1.680
	Region (south and east = ref)					
	North	.314	.001	1.368	1.128	1.661
	Midlands	.024	.824	1.024	.829	1.265
	Educational level (ref = higher than A - level or equivalent)					
	Less than GCSE or equivalent or foreign qualification	-.723	.000	.485	.396	.595
	GCSE or A-level or equivalent	-.351	.001	.704	.573	.866
	Age	-.026	.000	.974	.962	.987
	Total wealth	.000	.000	1.000	1.000	1.000
	Total income	.001	.000	1.001	1.000	1.001
Almost every day or more	Intercept	-4.597	.000			
	Sex (male = 1)	1.443	.000	4.235	2.516	7.128
	UCLA (women)	.006	.892	1.006	.927	1.090
	Interaction term for male*UCLA score	-.087	.149	.917	.814	1.032
	Partner status (Previously married and not cohabiting = ref)					

	Cohabiting with a partner	.147	.466	1.158	.780	1.720
	Never married and not cohabiting	.121	.567	1.129	.746	1.709
	Ethnicity (white)	1.730	.000	5.641	2.826	11.257
	Employment status (other = ref)					
	Retired	.523	.248	1.687	.695	4.095
	Employed	.242	.599	1.274	.516	3.143
	Self-employed	.363	.456	1.438	.553	3.739
	Permanently sick/disabled	.420	.434	1.522	.531	4.365
	Looking after home/family	.556	.265	1.743	.656	4.633
	How difficult walking 1/4 mile (can't = ref)					
	No difficulty	.681	.000	1.976	1.390	2.810
	Some difficulty	.185	.349	1.203	.817	1.770
	Much difficulty	.158	.510	1.171	.732	1.875
	Whether has a long-standing limiting illness	.209	.067	1.232	.986	1.540
	Region (south and east = ref)	0^b	.	.	.	.
	North	.152	.163	1.164	.940	1.441
	Midlands	.034	.767	1.035	.825	1.297
	Educational level (ref = higher than A - level or equivalent)	0^b	.	.	.	.
	Less than GCSE or equivalent or foreign qualification	-.584	.000	.558	.449	.692
	GCSE or A-level or equivalent	-.400	.001	.670	.533	.843
	Age	.001	.933	1.001	.987	1.014
	Total wealth	.000	.000	1.000	1.000	1.000
	Total income	.001	.000	1.001	1.000	1.001

Appendix 15. Regression model 2.4.

Negative Binomial regression on alcohol consumed in past 7 days, using pooled means

N=6936	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Intercept (women who have not felt lonely in past 7 days)	3.433	.000	3.125	3.741
women who have felt lonely in past 7 days	-.181	.007	-.313	-.050
men who have not felt lonely in past 7 days	.841	.000	.780	.902
men who have felt lonely in past 7 days	.964	.000	.793	1.134
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	-.030	.687	-.175	.116
Never married and not cohabiting	-.023	.568	-.100	.055
Ethnicity (non-white)	-.717	.000	-.932	-.502
Occupation status - retired (ref)				
- employed	-.087	.073	-.182	.008
- Self employed	-.050	.466	-.184	.084
- permanently sick/disabled	.060	.633	-.187	.307
- Looking after home/family	-.100	.181	-.247	.047
- other	-.486	.000	-.743	-.229
How much difficulty walking ¼ mile – none (ref)				
- some	-.244	.000	-.349	-.139
- much	-.330	.000	-.473	-.186
- can’t	-.464	.000	-.594	-.334
Has a limiting long-standing illness	-.091	.014	-.163	-.019
Region – North or remainder of UK (ref)				
- South and East	-.087	.017	-.158	-.016
- Midlands	-.053	.215	-.136	.031
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	.146	.000	.076	.215
-Higher than A-level	.237	.000	.163	.311
Age	-.024	.000	-.029	-.020
Total wealth	9.962E-8	.002	3.758E-8	1.617E-7
Total income	.000	.000	.000	.000

Negative Binomial regression on alcohol consumed in past 7 days, using listwise deletion

N=5780	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Intercept (women who have not felt lonely in past 7 days)	3.541	.000	3.231	3.851
women who have felt lonely in past 7 days	-.150	.013	-.269	-.031
men who have not felt lonely in past 7 days	.859	.000	.798	.920
men who have felt lonely in past 7 days	1.002	.000	.852	1.151
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	-.053	.423	-.182	.076
Never married and not cohabiting	-.029	.448	-.103	.045
Ethnicity (non-white)	-1.032	.000	-1.220	-.844
Occupation status - retired (ref)				
- employed	-.114	.011	-.203	-.026
- Self employed	-.028	.670	-.159	.102
- permanently sick/disabled	-.016	.885	-.226	.195
- Looking after home/family	-.064	.390	-.209	.082
- other	-.478	.000	-.718	-.238
How much difficulty walking ¼ mile – none (ref)				
- some	-.243	.000	-.339	-.147
- much	-.315	.000	-.451	-.179
- can’t	-.352	.000	-.470	-.233
Has a limiting long-standing illness	-.094	.009	-.166	-.023
Region – North or remainder of UK (ref)				
- South and East	-.110	.001	-.177	-.043
- Midlands	-.069	.089	-.148	.010
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	.147	.000	.078	.215
-Higher than A-level	.229	.000	.160	.298
Age	-.026	.000	-.031	-.022
Total wealth	1.373E-7	.000	7.362E-8	2.009E-7
Total income	.000	.000	.000	.000

Appendix 16. Regression model 3.1.

Logistic regression on dichotomised UCLA scale (lonely=1), using pooled means

N=6881	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Intercept	-.234	.540	-.981	.514
*ISI*sex (ref - not severely isolated women)*				
Not severely isolated men	.023	.755	-.120	.165
Severely isolated women	2.026	.000	.895	3.156
Severely isolated men	.007	.987	-.861	.875
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	-.968	.000	-1.236	-.700
Never married and not cohabiting	.161	.246	-.111	.433
Ethnicity (non-white)	.308	.096	-.054	.669
Occupation status - retired (ref)				
- employed	.062	.588	-.164	.289
- Self employed	.094	.586	-.244	.432
- permanently sick/disabled	1.102	.000	.731	1.474
- Looking after home/family	.413	.014	.084	.742
- other	-.025	.928	-.574	.524
How much difficulty walking ¼ mile – none (ref)				
- some	.383	.000	.174	.591
- much	.484	.001	.205	.763
- can’t	.485	.000	.243	.728
Has a limiting long-standing illness	.228	.007	.064	.392
Region – North or remainder of UK (ref)				
- Midlands	.074	.439	-.113	.260
- South and East	.031	.696	-.126	.189
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.082	.331	-.249	.084
-Higher than A-level	-.189	.030	-.359	-.018
Age	-.011	.021	-.021	-.002
Total wealth	6.049E-9	.943	-1.618E-7	1.739E-7
Total income	.000	.028	-.001	-3.140E-5

Logistic regression on dichotomised UCLA scale (lonely=1), using listwise deletion

N=4425	B	P	95% CI (Wald)	
			lower	*upper*
Intercept	-.264	.589	-1.219	.692
*ISI*sex (ref - not severely isolated women)*				
Not severely isolated men	-.186	.716	-1.188	.816
Severely isolated women	2.030	.001	.855	3.204
Severely isolated men	.009	.921	-.165	.182
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	-1.025	.000	-1.340	-.709
Never married and not cohabiting	.072	.659	-.248	.392
Ethnicity	.141	.600	-.387	.669
Occupation status - retired (ref)				
- employed	.139	.309	-.129	.408
- Self employed	.102	.625	-.306	.509
- permanently sick/disabled	1.473	.000	.984	1.963
- Looking after home/family	.448	.037	.028	.869
- other	-.149	.661	-.817	.518
How much difficulty walking ¼ mile – none (ref)				
- some	.231	.084	-.031	.493
- much	-.039	.840	-.413	.336
- can’t	.438	.006	.128	.748
Has a limiting long-standing illness	.231	.027	-.031	.493
Region – North (ref)				
- Midlands	.137	.244	-.094	.368
- South and East	.017	.868	-.183	.216
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.070	.494	-.271	.131
-Higher than A-level	-.157	.136	-.364	.049
Age	-.010	.120	-.023	.003
Total wealth	1.344E-8	.883	-1.652E-7	1.921E-7
Total income	.000	.012	-.001	-8.676E-5

Appendix 17. Regression model 3.2.

Logistic regression on UCLA score (lonely=1), using pooled means

N=6936	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Intercept	-1.179	.001	-1.900	-.457
IAC by Sex - women with at least one close relationship (ref)				
Men with at least one close relationship	.010	.890	-.133	.153
Women with no close relationships	1.225	.003	.406	2.044
Men with no close relationships	.094	.777	-.557	.745
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	.960	.000	.695	1.225
Never married and not cohabiting	1.118	.000	.953	1.282
Ethnicity (non-white)	.276	.128	-.080	.631
Occupation status - retired (ref)				
- employed	.084	.465	-.141	.308
- Self employed	.096	.575	-.241	.434
- permanently sick/disabled	1.080	.000	.712	1.449
- Looking after home/family	.435	.009	.109	.762
- other	-.044	.876	-.589	.502
How much difficulty walking ¼ mile – none (ref)				
- some	.401	.000	.195	.606
- much	.474	.001	.197	.751
- can't	.482	.000	.241	.722
Has a limiting long-standing illness	.234		.070	.397
Region – North or remainder of UK (ref)				
- South and East	.018	.819	-.138	.175
- midlands	.057	.548	-.128	.242
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.090	.284	-.255	.075
-Higher than A-level	-.189	.028	-.358	-.021
Age	-.011	.020	-.021	-.002
Total wealth	7.990E-9	.924	-1.589E-7	1.749E-7
Total income	.000	.021	-.001	-4.722E-5

Logistic regression on UCLA score (lonely=1), using listwise deletion

N=4853	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Intercept	-1.088	.015	-1.964	-.212
IAC by Sex - women with at least one close relationship (ref)				
Men with at least one close relationship	-.026	.761	-.195	.143
Women with no close relationships	1.201	.000	.286	2.116
Men with no close relationships	-.080	.836	-.838	.678
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	1.006	.000	.696	1.316
Never married and not cohabiting	1.157	.000	.966	1.349
Ethnicity (non-white)	.423	.073	-.040	.887
Occupation status - retired (ref)				
- employed	.073	.578	-.184	.330
- Self employed	.068	.740	-.331	.466
- permanently sick/disabled	1.102	.000	.662	1.541
- Looking after home/family	.454	.017	.080	.828
- other	-.229	.515	-.917	.460
How much difficulty walking ¼ mile – none (ref)				
- some	.439	.000	.195	.682
- much	.425	.011	.095	.755
- can’t	.533	.000	.238	.828
Has a limiting long-standing illness	.200	.047	.003	.396
Region – North or remainder of UK (ref)				
- South and East	.050	.602	-.137	.236
- midlands	.029	.797	-.192	.250
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.237	.159	-.435	-.038
-Higher than A-level	-.135	.019	-.323	.053
Age	-.013	.029	-.025	-.001
Total wealth	-5.112E-8	.565	-2.251E-7	1.228E-7
Total income	.000	.055	-.001	6.599E-6

Appendix 18. Regression model 3.3.

Logistic regression on UCLA score (lonely=1), using pooled means

N=6936	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Intercept	-.475	.213	-1.224	.273
Sex (male = 1)	-.236	.097	-.515	.043
*ICR*sex*				
Women’s ICR	-.115	.000	-.142	-.088
Men’s ICR	-.089	.000	-.117	-.060
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	.830	.000	.563	1.097
Never married and not cohabiting	1.181	.000	1.012	1.350
Ethnicity (non-white)	.359	.052	-.003	.722
Occupation status - retired (ref)				
- employed	.071	.539	-.155	.296
- Self employed	.123	.480	-.219	.466
- permanently sick/disabled	1.061	.000	.679	1.442
- Looking after home/family	.450	.007	.122	.778
- other	-.080	.777	-.629	.470
How much difficulty walking ¼ mile – none (ref)				
- some	.399	.000	.190	.608
- much	.463	.001	.182	.744
- can’t	.492	.000	.246	.738
Has a limiting long-standing illness	.212	.013	.045	.378
Region – North or remainder of UK (ref)				
- South and East	.005	.949	-.151	.161
- midlands	.048	.612	-.139	.236
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.108	.204	-.275	.059
-Higher than A-level	-.218	.013	-.389	-.046
Age	-.010	.052	-.019	6.453E-5
Total wealth	4.204E-8	.615	-1.234E-7	2.074E-7
Total income	.000	.037	-.001	-1.744E-5

Logistic regression on UCLA score (lonely=1), using listwise deletion

N=4853	B	P	95% CI (Wald)	
			lower	*upper*
Intercept	-.213	.647	-1.124	.699
Sex (male = 1)	-.346	.037	-.670	-.022
*ISI*sex interaction terms*				
Women's UCLA score	-.134	.000	-.164	-.104
Men's UCLA score	-.100	.000	-.135	-.065
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	.862	.000	.547	1.177
Never married and not cohabiting	1.220	.000	1.024	1.416
Ethnicity (non-white)	.519	.032	.043	.994
Occupation status - retired (ref)				
- employed	.055	.676	-.204	.315
- Self employed	.092	.655	-.312	.496
- permanently sick/disabled	1.096	.000	.641	1.550
- Looking after home/family	.481	.013	.103	.858
- other	-.273	.440	-.967	.421
How much difficulty walking ¼ mile – none (ref)				
- some	.439	.001	.191	.687
- much	.400	.020	.063	.736
- can't	.542	.000	.242	.842
Has a limiting long-standing illness	.175	.085	-.024	.373
Region – North or remainder of UK (ref)				
- South and East	.025	.794	-.164	.214
- midlands	.005	.965	-.219	.229
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.142	.868	-.333	.049
-Higher than A-level	-.261	.770	-.462	-.060
Age	-.012	.049	-.024	-5.886E-5
Total wealth	-8.449E-9	.925	-1.834E-7	1.665E-7
Total income	.000	.082	-.001	3.472E-5

Appendix 19. Regression model 3.4.

Logistic regression on dichotomised UCLA scale (lonely=1), using pooled means

N=6453.64*	B	P	95% CI (Wald)	
			lower	*upper*
Intercept	2.777	.000	1.731	3.823
Sex (male =1)	-.711	217	-1.841	.418
*PFR*sex*				
Women's PFR score	-.177	.000	-.208	-.147
Men's PFR score	-.158	.000	-.196	-.119
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	1.003	.000	.711	1.294
Never married and not cohabiting	1.220	.000	1.039	1.401
Ethnicity (non-white)	.217	.254	-.156	.590
Occupation status - retired (ref)				
- employed	-.005	.969	-.249	.240
- Self employed	.052	.776	-.307	.412
- permanently sick/disabled	.988	.000	.574	1.402
- Looking after home/family	.243	.191	-.121	.607
- other	-.286	.396	-.948	.376
How much difficulty walking ¼ mile – none (ref)				
- some	.281	.014	.057	.505
- much	.396	.009	.099	.694
- can't	.383	.005	.119	.647
Has a limiting long-standing illness	.247	.006	.070	.424
Region – North or remainder of UK (ref)				
- south and east	.053	.542	-.118	.225
- midlands	.029	.780	-.172	.230
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.076	.404	-.255	.103
-Higher than A-level	-.148	.112	-.330	.035
Age	-.008	.122	-.019	.002
Total wealth	-1.981E-8	.816	-1.869E-7	1.473E-7
Total income	.000	.075	-.001	2.603E-5

* mean N of each imputation. Imputed N varies as the number of people who have any friends varies across each imputation model.

Logistic regression on dichotomised UCLA scale (lonely=1), using listwise deletion

N=5316	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Intercept	2.963	.000	1.821	4.105
Sex (male =1)	-.632	.287	-1.793	.530
*PFR*sex*				
Women's PFR score	-.180	.000	-.212	-.147
Men's PFR score	-.165	.000	-.205	-.126
Partner status - in a cohabiting relationship (ref)				
Previously married but not cohabiting	1.104	.000	.792	1.416
Never married and not cohabiting	1.262	.000	1.073	1.451
Ethnicity (non-white)	.148	.520	-.303	.598
Occupation status - retired (ref)				
- employed	.019	.883	-.237	.275
- Self employed	-.004	.985	-.404	.397
- permanently sick/disabled	1.056	.000	.593	1.520
- Looking after home/family	.319	.097	-.058	.695
- other	-.664	.079	-1.403	.076
How much difficulty walking ¼ mile – none (ref)				
- some	.239	.055	-.005	.483
- much	.297	.069	-.023	.618
- can't	.288	.052	-.002	.577
Has a limiting long-standing illness	.292	.003	.100	.484
Region – North or remainder of UK (ref)				
- South and East	.024	.799	-.161	.209
- Midlands	-.003	.975	-.221	.214
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.060	.528	-.247	.127
-Higher than A-level	-.126	.206	-.321	.069
Age	-.010	.077	-.022	.001
Total wealth	-1.295E-8	.881	-1.823E-7	1.565E-7
Total income	.000	.037	-.001	-1.893E-5

Appendix 20. Regression model 4.

Logistic regression on UCLA score (lonely=1), pooled means

N=6936	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	-1.122	.002	-1.842	-.402
Partners status by sex - cohabiting women (ref)				
- cohabiting men	-.192	.044	-.380	-.005
- not cohabiting and never married women	.966	.000	.600	1.332
- not cohabiting but previously married women	.924	.000	.726	1.123
- not cohabiting and never married men	.822	.000	.470	1.174
- not cohabiting but previously married men	1.236	.000	.996	1.476
Ethnicity (non-white)	.282	.121	-.075	.638
Occupation status - retired (ref)				
- employed	.107	.353	-.118	.332
- Self employed	.119	.491	-.220	.458
- permanently sick/disabled	1.085	.000	.716	1.454
- Looking after home/family	.397	.016	.073	.721
- other	-.020	.941	-.563	.523
How much difficulty walking ¼ mile – none (ref)				
- some	.402	.000	.197	.607
- much	.473	.001	.196	.750
- can’t	.485	.000	.244	.726
Has a limiting long-standing illness	.231	.006	.067	.394
Region – North or remainder of UK (ref)				
- South and East	.020	.807	-.137	.176
- Midlands	.054	.570	-.132	.239
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.092	.273	-.257	.073
-Higher than A-level	-.184	.033	-.353	-.015
Age	-.011	.032	-.020	-.001
Total wealth	7.461E-9	.931	-1.621E-7	1.771E-7
Total income	.000	.014	-.001	-6.857E-5

Logistic regression on UCLA score (lonely=1), listwise deletion

N=5902	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	-1.228	.002	-1.998	-.458
Partners status by sex - cohabiting women (ref)	-	-	-	-
- cohabiting men	-.206	.040	-.404	-.009
- not cohabiting and never married women	1.064	.000	.672	1.456
- not cohabiting but previously married women	.955	.000	.752	1.159
- not cohabiting and never married men	.813	.000	.436	1.189
- not cohabiting but previously married men	1.235	.000	.978	1.491
Ethnicity (non-white)	.275	.184	-.130	.680
Occupation status - retired (ref)				
- employed	.151	.199	-.080	.383
- Self employed	.090	.629	-.275	.454
- permanently sick/disabled	1.189	.000	.786	1.592
- Looking after home/family	.505	.003	.176	.834
- other	-.194	.523	-.787	.400
How much difficulty walking ¼ mile – none (ref)				
- some	.365	.001	.148	.581
- much	.381	.010	.092	.670
- can’t	.459	.000	.204	.715
Has a limiting long-standing illness	.237	.007	.065	.410
Region – North or remainder of UK (ref)				
- South and East	.032	.708	-.134	.198
- Midlands	.058	.563	-.138	.253
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.062	.076	-.230	.106
-Higher than A-level	-.160	.469	-.337	.017
Age	-.009	.072	-.020	.001
Total wealth	-4.033E-8	.617	-1.984E-7	1.177E-7
Total income	.000	.016	-.001	-6.367E-5

Appendix 21. Regression model 5.1.

Logistic regression on UCLA score (lonely=1), pooled means

N=6881	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	-1.177	.000	-1.900	-.455
ISI (severely isolated = 1)	.748	.020	.116	1.379
Partners status by sex - cohabiting women (ref)				
- cohabiting men	-.201	.037	-.389	-.013
- not cohabiting and never married women	.926	.000	.553	1.298
- not cohabiting but previously married women	.928	.000	.728	1.127
- not cohabiting and never married men	.797	.000	.441	1.154
- not cohabiting but previously married men	1.254	.000	1.014	1.495
Ethnicity (non-white)	.317	.086	-.045	.679
Occupation status - retired (ref)				
- employed	.089	.440	-.138	.317
- Self employed	.123	.479	-.217	.462
- permanently sick/disabled	1.095	.000	.724	1.467
- Looking after home/family	.380	.022	.054	.707
- other	-.033	.905	-.583	.516
How much difficulty walking ¼ mile – none (ref)				
- some	.388	.000	.180	.596
- much	.489	.001	.210	.769
- can't	.489	.000	.247	.731
Has a limiting long-standing illness	.220	.009	.056	.385
Region – North or remainder of UK (ref)				
- South and East	.025	.755	-.133	.183
- Midlands	.067	.483	-.120	.253
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.078	.355	-.245	.088
-Higher than A-level	-.176	.044	-.347	-.005
Age	-.010	.042	-.020	.000
Total wealth	4.014E-9	.963	-1.679E-7	1.759E-7
Total income	.000	.020	-.001	-5.061E-5

Logistic regression on UCLA score (lonely=1), listwise deletion

N=4455	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	-1.189	.013	-2.123	-.254
ISI (severely isolated = 1)	.715	.051	-.004	1.434
Partners status by sex - cohabiting women (ref)				
- cohabiting men	-.261	.026	-.490	-.032
- not cohabiting and never married women	.997	.000	.536	1.457
- not cohabiting but previously married women	.826	.000	.578	1.073
- not cohabiting and never married men	.770	.000	.355	1.184
- not cohabiting but previously married men	1.242	.000	.947	1.537
Ethnicity (non-white)	.130	.634	-.404	.663
Occupation status - retired (ref)				
- employed	.169	.218	-.100	.437
- Self employed	.132	.526	-.277	.541
- permanently sick/disabled	1.429	.000	.939	1.920
- Looking after home/family	.387	.071	-.032	.806
- other	-.139	.682	-.806	.528
How much difficulty walking ¼ mile – none (ref)				
- some	.246	.065	-.016	.508
- much	-.043	.823	-.419	.333
- can’t	.444	.005	.133	.755
Has a limiting long-standing illness	.224	.034	.017	.430
Region – North or remainder of UK (ref)				
- South and East	.006	.956	-.193	.205
- Midlands	.122	.299	-.108	.353
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.061	.552	-.261	.140
-Higher than A-level	-.144	.172	-.351	.063
Age	-.009	.154	-.022	.003
Total wealth	4.624E-9	.959	-1.729E-7	1.821E-7
Total income	.000	.008	-.001	.000

Appendix 22. Regression model 5.2.

Logistic regression on UCLA score (lonely=1), pooled means

N=6936	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	-1.143	.002	-1.863	-.423
IAC (no close relationships = 1)	.479	.059	-.019	.977
Partners status by sex - cohabiting women (ref)				
- cohabiting men	-.200	.037	-.388	-.012
- not cohabiting and never married women	.948	.000	.581	1.315
- not cohabiting but previously married women	.927	.000	.729	1.125
- not cohabiting and never married men	.791	.000	.436	1.145
- not cohabiting but previously married men	1.230	.000	.990	1.470
Ethnicity (non-white)	.287	.114	-.069	.643
Occupation status - retired (ref)				
- employed	.108	.346	-.117	.333
- Self employed	.116	.500	-.222	.455
- permanently sick/disabled	1.079	.000	.709	1.449
- Looking after home/family	.399	.016	.075	.723
- other	-.050	.858	-.597	.497
How much difficulty walking ¼ mile – none (ref)				
- some	.404	.000	.199	.610
- much	.472	.001	.194	.750
- can’t	.483	.000	.242	.724
Has a limiting long-standing illness	.229	.006	.066	.393
Region – North or remainder of UK (ref)				
- South and East	.017	.590	-.139	.174
- Midlands	.051	.830	-.134	.236
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.091	.277	-.257	.074
-Higher than A-level	-.182	.035	-.351	-.013
Age	-.010	.037	-.020	-.001
Total wealth	7.791E-9	.927	-1.614E-7	1.770E-7
Total income	.000	.015	-.001	-6.561E-5

Logistic regression on UCLA score (6+/lonely=1), listwise deletion

N=4853	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	-1.019	.022	-1.894	-.144
IAC (no close relationships = 1)	.393	.182	-.183	.969
Partners status by sex - cohabiting women (ref)				
- cohabiting men	-.199	.079	-.422	.023
- not cohabiting and never married women	1.053	.000	.618	1.488
- not cohabiting but previously married women	.999	.000	.771	1.228
- not cohabiting and never married men	.794	.000	.378	1.210
- not cohabiting but previously married men	1.241	.000	.949	1.533
Ethnicity (non-white)	.417	.079	-.048	.883
Occupation status - retired (ref)				
- employed	.091	.489	-.166	.347
- Self employed	.083	.682	-.316	.483
- permanently sick/disabled	1.093	.000	.652	1.533
- Looking after home/family	.425	.026	.052	.798
- other	-.224	.523	-.912	.463
How much difficulty walking ¼ mile – none (ref)				
- some	.440	.000	.196	.684
- much	.413	.014	.084	.743
- can’t	.534	.000	.239	.829
Has a limiting long-standing illness	.195	.052	-.002	.392
Region – North or remainder of UK (ref)				
- South and East	.046	.627	-.140	.232
- Midlands	.019	.864	-.202	.240
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.135	.158	-.323	.053
-Higher than A-level	-.233	.022	-.432	-.034
Age	-.013	.034	-.025	-.001
Total wealth	-5.349E-8	.545	-2.268E-7	1.198E-7
Total income	.000	.042	-.001	-1.095E-5

Appendix 23. Regression model 5.3.

Logistic regression on dichotomised UCLA scale (lonely=1), using pooled means

N=6936	B	P	95% CI (Wald)	
			lower	*upper*
Constant	-.536	.153	-1.273	.200
ICR	-.104	.000	-.124	-.084
Partners status by sex - cohabiting women (ref)				
- cohabiting men	-.252	.010	-.444	-.060
- not cohabiting and never married women	.818	.000	.446	1.191
- not cohabiting but previously married women	.993	.000	.791	1.194
- not cohabiting and never married men	.586	.001	.226	.946
- not cohabiting but previously married men	1.239	.000	.994	1.484
Ethnicity (non-white)	.372	.045	.009	.735
Occupation status - retired (ref)				
- employed	.094	.415	-.133	.321
- Self employed	.139	.430	-.206	.484
- permanently sick/disabled	1.069	.000	.687	1.451
- Looking after home/family	.414	.013	.088	.741
- other	-.082	.772	-.634	.471
How much difficulty walking ¼ mile – none (ref)				
- some	.405	.000	.196	.614
- much	.465	.001	.183	.746
- can’t	.497	.000	.250	.743
Has a limiting long-standing illness	.206	.016	.039	.373
Region – North or remainder of UK (ref)				
- South and East	.003	.972	-.154	.159
- Midlands	.045	.636	-.142	.233
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.211	.194	-.383	-.038
-Higher than A-level	-.111	.017	-.277	.056
Age	-.008	.090	-.018	.001
Total wealth	4.513E-8	.599	-1.247E-7	2.150E-7
Total income	.000	.026	-.001	-3.647E-5

Logistic regression on dichotomised UCLA scale (lonely=1), using listwise deletion

N=4853	B	P	95% CI (Wald)	
			lower	*upper*
Constant	-.278	.546	-1.178	.623
ICR	-.120		-.143	-.097
Partners status by sex - cohabiting women (ref)				
- cohabiting men	-.274	.017	-.499	-.049
- not cohabiting and never married women	.911	.000	.468	1.353
- not cohabiting but previously married women	1.069	.000	.835	1.302
- not cohabiting and never married men	.539	.012	.116	.962
- not cohabiting but previously married men	1.216	.000	.918	1.513
Ethnicity (non-white)	.520	.032	.044	.996
Occupation status - retired (ref)				
- employed	.072	.587	-.188	.332
- Self employed	.099	.632	-.307	.505
- permanently sick/disabled	1.103	.000	.648	1.559
- Looking after home/family	.453	.018	.076	.829
- other	-.271	.447	-.968	.427
How much difficulty walking ¼ mile – none (ref)				
- some	.445	.000	.197	.693
- much	.399	.020	.062	.736
- can’t	.546	.000	.246	.846
Has a limiting long-standing illness	.166	.101	-.032	.365
Region – North or remainder of UK (ref)				
- South and East	.021	.829	-.168	.209
- Midlands	.000	.998	-.224	.225
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.146	.135	-.336	.045
-Higher than A-level	-.256	.013	-.458	-.054
Age	-.011	.065	-.023	.001
Total wealth	-8.274E-9	.926	-1.832E-7	1.667E-7
Total income	.000	.063	-.001	1.631E-5

Appendix 24. Regression model 5.4 (and remodelling of model 4 excluding people with no friends to match sample in 5.4)

Logistic regression on dichotomised UCLA scale (lonely = 1), using pooled means

N=6453.64*	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	2.609	.000	1.666	3.552
PFR	-.170	.000	-.193	-.146
Partners status by sex - cohabiting women (ref)				
- cohabiting men	-.465	.000	-.674	-.255
- not cohabiting and never married women	.898	.000	.495	1.300
- not cohabiting but previously married women	1.044	.000	.828	1.259
- not cohabiting and never married men	.655	.001	.263	1.048
- not cohabiting but previously married men	1.056	.000	.793	1.318
Ethnicity (non-white)	.230	.229	-.144	.604
Occupation status - retired (ref)				
- employed	.016	.900	-.230	.261
- Self employed	.063	.734	-.299	.424
- permanently sick/disabled	.983	.000	.569	1.398
- Looking after home/family	.214	.245	-.147	.576
- other	-.297	.382	-.964	.370
How much difficulty walking ¼ mile – none (ref)				
- some	.285	.013	.061	.509
- much	.398	.009	.100	.696
- can't	.391	.004	.127	.655
Has a limiting long-standing illness	.241	.008	.064	.419
Region – North or remainder of UK (ref)				
- South and East	.055	.529	-.117	.227
- Midlands	.027	.792	-.174	.228
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.077	.400	-.255	.102
-Higher than A-level	-.137	.141	-.320	.046
Age	-.007	.187	-.018	.003
Total wealth	-1.952E-8	.818	-1.866E-7	1.476E-7
Total income	.000	.058	-.001	9.787E-6

* mean N of each imputation. Imputed N varies as the number of people who have any friends varies across each imputation model.

Logistic regression on dichotomised UCLA scale (lonely=1), using listwise deletion

N=5316	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	2.849	.000	1.824	3.875
PFR	-.174	.000	-.199	-.148
Partners status by sex - cohabiting women (ref)				
- cohabiting men	-.482	.000	-.705	-.258
- not cohabiting and never married women	1.007	.000	.565	1.449
- not cohabiting but previously married women	1.100	.000	.876	1.324
- not cohabiting and never married men	.730	.001	.310	1.149
- not cohabiting but previously married men	1.069	.000	.784	1.355
Ethnicity (non-white)	.153	.507	-.299	.605
Occupation status - retired (ref)				
- employed	.039	.767	-.218	.295
- Self employed	.006	.975	-.396	.409
- permanently sick/disabled	1.049	.000	.583	1.515
- Looking after home/family	.293	.126	-.082	.667
- other	-.671	.077	-1.414	.073
How much difficulty walking ¼ mile – none (ref)				
- some	.240	.053	-.004	.484
- much	.296	.071	-.026	.617
- can’t	.293	.048	.003	.583
Has a limiting long-standing illness	.289	.003	.097	.482
Region – North or remainder of UK (ref)				
- South and East	.024	.800	-.161	.208
- Midlands	-.007	.950	-.224	.211
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.059	.534	-.246	.128
-Higher than A-level	-.116	.243	-.312	.079
Age	-.010	.107	-.021	.002
Total wealth	-1.369E-8	.874	-1.828E-7	1.555E-7
Total income	.000	.027	-.001	-3.843E-5

Logistic regression on dichotomised UCLA scale (lonely = 1), using pooled means. Excluding people with no friends.

N=6453.64*	B	P	95% CI (Wald)	
			lower	*upper*
Constant	-1.222	.002	-1.981	-.463
Partners status by sex - cohabiting women (ref)				
- cohabiting men	-.217	.035	-.419	-.015
- not cohabiting and never married women	.900	<.001	.510	1.289
- not cohabiting but previously married women	.958	.000	.749	1.167
- not cohabiting and never married men	.833	<.001	.458	1.208
- not cohabiting but previously married men	1.203	.000	.948	1.459
Ethnicity (non-white)	.289	.117	-.073	.652
Occupation status - retired (ref)				
- employed	.069	.569	-.169	.308
- Self employed	.095	.597	-.258	.448
- permanently sick/disabled	1.061	<.001	.657	1.464
- Looking after home/family	.301	.093	-.050	.652
- other	-.109	.738	-.750	.532
How much difficulty walking ¼ mile – none (ref)				
- some	.322	.004	.105	.539
- much	.433	.003	.146	.720
- can’t	.401	.002	.144	.657
Has a limiting long-standing illness	.282	.001	.109	.454
Region – North or remainder of UK (ref)				
- South and East	.041	.625	-.125	.208
- Midlands	.050	.618	-.146	.246
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.107	.227	-.281	.067
-Higher than A-level	-.186	.042	-.365	-.007
Age	-.010	.056	-.020	.000
Total wealth	-3.274E-8	.710	-2.060E-7	1.405E-7
Total income	.000	.054	-.001	4.702E-6
* mean N of each imputation. Imputed N varies as the number of people who have any friends varies across each imputation model.				

Logistic regression on dichotomised UCLA scale (lonely=1), using listwise deletion. Excluding people with no friends.

N=5316	B	P	95% CI (Wald)	
			lower	*upper*
Constant	-1.080	.012	-1.921	-.238
Partners status by sex - cohabiting women (ref)				
- cohabiting men	-.228	.039	-.445	-.012
- not cohabiting and never married women	1.024	<.001	.595	1.454
- not cohabiting but previously married women	1.010	.000	.791	1.230
- not cohabiting and never married men	.898	.000	.494	1.303
- not cohabiting but previously married men	1.233	<.001	.956	1.509
Ethnicity (non-white)	.249	.270	-.194	.691
Occupation status - retired (ref)				
- employed	.089	.486	-.162	.340
- Self employed	.050	.801	-.341	.442
- permanently sick/disabled	1.142	<.001	.694	1.589
- Looking after home/family	.392	.035	.027	.757
- other	-.425	.247	-1.142	.293
How much difficulty walking ¼ mile – none (ref)				
- some	.276	.023	.038	.513
- much	.334	.036	.022	.646
- can’t	.309	.032	.026	.592
Has a limiting long-standing illness	.325	<.001	.137	.512
Region – North or remainder of UK (ref)				
- South and East	.021	.818	-.159	.201
- Midlands	.022	.840	-.190	.234
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.081	.383	-.263	.101
-Higher than A-level	-.159	.104	-.350	.033
Age	-.013	.030	-.024	-.001
Total wealth	-3.564E-8	.675	-2.023E-7	1.311E-7
Total income	.000	.025	-.001	-4.224E-5

Appendix 25. Regression model 5.5.

Logistic regression on dichotomised UCLA scale (lonely=1), using pooled means

N=6936	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	-1.154	.002	-1.876	-.432
Partners status by sex by IAC - cohabiting women with at least one close relationship (ref)				
- cohabiting men with at least one close relationship	-.179	.063	-.368	.010
- not cohabiting and never married women with at least one close relationship	.921	.000	.544	1.298
- not cohabiting but previously married women with at least one close relationship	.933	.000	.734	1.132
- not cohabiting and never married men with at least one close relationship	.811	.000	.444	1.179
- not cohabiting but previously married men with at least one close relationship	1.250	.000	1.005	1.494
- cohabiting women with no other close relationships	1.266	.029	.130	2.402
- cohabiting men with no other close relationships	-.206	.705	-1.275	.863
- not cohabiting and never married women with no close relationships	2.031	.008	.521	3.541
- not cohabiting but previously married women with no close relationships	1.934	.116	-.480	4.348
- not cohabiting and never married men with no close relationships	1.146	.058	-.037	2.329
- not cohabiting but previously married men with no close relationships	1.217	.071	-.103	2.537
Ethnicity (non-white)	.287	.113	-.069	.643
Occupation status - retired (ref)				
- employed	.107	.353	-.119	.332
- Self employed	.115	.505	-.224	.454
- permanently sick/disabled	1.081	.000	.712	1.451
- Looking after home/family	.400	.016	.075	.726
- other	-.052	.853	-.604	.500
How much difficulty walking ¼ mile – none (ref)				
- some	.406	.000	.200	.611
- much	.478	.001	.200	.756
- can't	.490	.000	.248	.731
Has a limiting long-standing illness	.227	.007	.063	.390
Region – North or remainder of UK (ref)				
- South and East	.018	.827	-.140	.175
- Midlands	.055	.558	-.130	.241
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.091	.279	-.256	.074
-Higher than A-level	-.180	.037	-.349	-.011
Age	-.010	.037	-.020	-.001
Total wealth	8.337E-9	.922	-1.606E-7	1.773E-7
Total income	.000	.014	-.001	-6.746E-5

Logistic regression on dichotomised UCLA scale (lonely=1), using listwise deletion

N=4853	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	-1.041	.020	-1.917	-.164
Partners status by sex by IAC - cohabiting women with at least one close relationship (ref)				
- cohabiting men with at least one close relationship	-.181	.113	-.405	.043
- not cohabiting and never married women with at least one close relationship	.996	.000	.545	1.447
- not cohabiting but previously married women with at least one close relationship	1.003	.000	.774	1.233
- not cohabiting and never married men with at least one close relationship	.823	.000	.395	1.251
- not cohabiting but previously married men with at least one close relationship	1.265	.000	.970	1.559
- cohabiting women with no close relationships	1.121	.079	-.132	2.374
- cohabiting men with no close relationships	-.279	.658	-1.515	.957
- not cohabiting and never married women with no close relationships	2.293	.003	.776	3.810
- not cohabiting but previously married women with no close relationships	1.832	.162	-.737	4.401
- not cohabiting and never married men with no close relationships	.940	.167	-.394	2.273
- not cohabiting but previously married men with no close relationships	1.064	.135	-.331	2.458
Ethnicity (non-white)	.424	.074	-.041	.888
Occupation status - retired (ref)				
- employed	.092	.484	-.166	.349
- Self employed	.083	.685	-.317	.482
- permanently sick/disabled	1.096	.000	.656	1.537
- Looking after home/family	.427	.025	.054	.801
- other	-.224	.526	-.918	.470
How much difficulty walking ¼ mile – none (ref)				
- some	.442	.000	.198	.686
- much	.428	.011	.098	.758
- can't	.541	.000	.245	.836
Has a limiting long-standing illness	.192	.056	-.005	.390
Region – North or remainder of UK (ref)				
- South and East	.047	.622	-.140	.234
- Midlands	.027	.813	-.195	.248
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.138	.151	-.326	.050
-Higher than A-level	-.230	.024	-.429	-.030
Age	-.013	.037	-.024	-.001
Total wealth	-5.280E-8	.551	-2.264E-7	1.208E-7
Total income	.000	.040	-.001	-1.464E-5

Appendix 26. Regression model 5.6.

Logistic regression on dichotomised UCLA score (lonely=1), using pooled means

N=6936	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	-.310	.436	-1.091	.470
Effect of ICR on each sex by partner status category of people				
- cohabiting women's ICR effect	-.138	.000	-.181	-.095
- cohabiting men's ICR effect	-.115	.000	-.157	-.074
- not cohabiting and never married women's ICR effect	-.164	.008	-.284	-.043
- not cohabiting but previously married women's ICR effect	-.088	.000	-.123	-.054
- not cohabiting and never married men's ICR effect	-.092	.078	-.195	.011
- not cohabiting but previously married men's ICR effect	-.060	.009	-.106	-.015
Sex by partner status (ref - women in a cohabiting relationship)				
- cohabiting men	-.403	.052	-.809	.003
- not cohabiting and never married women	.899	.023	.122	1.676
- not cohabiting but previously married women	.663	.001	.256	1.069
- not cohabiting and never married men	.320	.306	-.293	.932
- not cohabiting but previously married men	.726	.002	.261	1.190
Ethnicity (non-white)	.372	.735	.008	.735
Occupation status - retired (ref)				
- employed	.089	.440	-.138	.316
- Self employed	.147	.403	-.197	.490
- permanently sick/disabled	1.064	.000	.681	1.446
- Looking after home/family	.412	.014	.083	.740
- other	-.091	.746	-.642	.460
How much difficulty walking ¼ mile – none (ref)				
- some	.411	.000	.202	.620
- much	.473	.001	.191	.754
- can't	.496	.000	.250	.743
Has a limiting long-standing illness	.206	.015	.040	.373
Region – North or remainder of UK (ref)				
- South and East	.008	.922	-.149	.165
- Midlands	.049	.610	-.139	.236
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.204	.213	-.376	-.031
-Higher than A-level	-.106	.021	-.273	.061
Age	-.009	.081	-.019	.001
Total wealth	4.429E-8	.595	-1.203E-7	2.089E-7
Total income	.000	.028	-.001	-3.418E-5

Logistic regression on dichotomised UCLA score (lonely=1), using listwise deletion

N=4853	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	-.162	.735	-1.099	.775
Effect of ICR on each sex by partner status category of people				
- cohabiting women's ICR effect	-.138	.000	-.183	-.093
- cohabiting men's ICR effect	-.124	.000	-.173	-.076
- not cohabiting and never married women's ICR effect	-.198	.004	-.332	-.065
- not cohabiting but previously married women's ICR effect	-.119	.000	-.160	-.077
- not cohabiting and never married men's ICR effect	-.121	.057	-.247	.004
- not cohabiting but previously married men's ICR effect	-.064	.033	-.123	-.005
Sex by partner status (ref - women in a cohabiting relationship)				
- cohabiting men	-.360	.116	-.810	.089
- not cohabiting and never married women	1.187	.005	.351	2.024
- not cohabiting but previously married women	.949	.000	.478	1.419
- not cohabiting and never married men	.434	.237	-.285	1.153
- not cohabiting but previously married men	.745	.010	.181	1.310
Ethnicity (non-white)	.527	.030	.050	1.003
Occupation status - retired (ref)				
- employed	.070	.600	-.191	.330
- Self employed	.111	.592	-.295	.517
- permanently sick/disabled	1.089	.000	.633	1.545
- Looking after home/family	.460	.017	.083	.838
- other	-.283	.428	-.983	.417
How much difficulty walking ¼ mile – none (ref)				
- some	.445	.000	.197	.693
- much	.406	.018	.069	.743
- can't	.547	.000	.247	.847
Has a limiting long-standing illness	.170	.093	-.029	.369
Region – North or remainder of UK (ref)				
- South and East	.028	.771	-.161	.217
- Midlands	.009	.939	-.216	.233
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.250	.145	-.452	-.048
-Higher than A-level	-.142	.015	-.333	.049
Age	-.012	.060	-.024	.000
Total wealth	-1.012E-8	.910	-1.863E-7	1.660E-7
Total income	.000	.064	-.001	1.750E-5

Appendix 27. Regression model 5.7.

Logistic regression on dichotomised UCLA score (lonely=1), using pooled means

N=6453.64	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	2.696	.000	1.435	3.958
Effect of PFR on each sex by partner status category of people				
- cohabiting women's PFR score	-.173	.000	-.215	-.131
- cohabiting men's PFR score	-.168	.000	-.218	-.118
- not cohabiting and never married women's PFR score	-.172	.007	-.298	-.047
- not cohabiting and never married men's PFR score	-.215	.001	-.340	-.089
- not cohabiting but previously married women's PFR score	-.174	.000	-.221	-.128
- not cohabiting but previously married men's PFR score	-.138	.000	-.206	-.070
Sex by partner status (ref - women in a cohabiting relationship)				
- cohabiting men	-.577	.441	-2.047	.892
- not cohabiting and never married women	.879	.583	-2.261	4.019
- not cohabiting but previously married women	1.076	.150	-.390	2.543
- not cohabiting and never married men	1.582	.294	-1.379	4.543
- not cohabiting but previously married men	.256	.782	-1.562	2.075
Ethnicity (non-white)	.229	.230	-.145	.603
Occupation status - retired (ref)				
- employed	.015	.904	-.231	.261
- Self employed	.068	.714	-.294	.430
- permanently sick/disabled	.983	.000	.567	1.398
- Looking after home/family	.213	.249	-.149	.575
- other	-.306	.370	-.976	.364
How much difficulty walking ¼ mile – none (ref)				
- some	.286	.012	.062	.510
- much	.402	.008	.104	.700
- can't	.393	.004	.129	.657
Has a limiting long-standing illness	.239	.008	.061	.417
Region – North or remainder of UK (ref)				
- South and East	.056	.525	-.116	.228
- Midlands	.031	.762	-.170	.232
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.078	.394	-.257	.101
-Higher than A-level	-.138	.140	-.321	.045
Age	-.007	.182	-.018	.003
Total wealth	-2.062E-8	.809	-1.887E-7	1.474E-7
Total income	.000	.060	-.001	1.163E-5
* mean N of each imputation. Imputed N varies as the number of people who have any friends varies across each imputation model.				

Logistic regression on dichotomised UCLA score (lonely=1), using listwise deletion

N=5316	**B**	**P**	**95% CI (Wald)**	
			lower	*upper*
Constant	2.945	.000	1.580	4.310
Effect of PFR on each sex by partner status category of people				
- cohabiting women's PFR score	-.178	.000	-.223	-.133
- cohabiting men's PFR score	-.159	.000	-.213	-.106
- not cohabiting and never married women's PFR score	-.189	.006	-.323	-.055
- not cohabiting and never married men's PFR score	-.257	.000	-.386	-.129
- not cohabiting but previously married women's PFR score	-.172	.000	-.221	-.123
- not cohabiting but previously married men's PFR score	-.159	.000	-.228	-.089
Sex by partner status (ref - women in a cohabiting relationship)				
- cohabiting men	-.888	.270	-2.467	.691
- not cohabiting and never married women	1.276	.450	-2.037	4.589
- not cohabiting but previously married women	.968	.230	-.612	2.548
- not cohabiting and never married men	2.510	.110	-.566	5.586
- not cohabiting but previously married men	.633	.514	-1.270	2.537
Ethnicity (non-white)	.153	.507	-.299	.605
Occupation status - retired (ref)				
- employed	-.701	.762	-1.455	.053
- Self employed	.292	.990	-.083	.667
- permanently sick/disabled	1.046	.000	.579	1.513
- Looking after home/family	.003	.127	-.401	.406
- other	.040	.068	-.217	.297
How much difficulty walking ¼ mile – none (ref)				
- some	.241	.053	-.003	.485
- much	.297	.070	-.024	.619
- can't	.294	.047	.004	.585
Has a limiting long-standing illness	.289	.003	.096	.481
Region – North or remainder of UK (ref)				
- South and East	.024	802	-.161	.208
- Midlands	-.004	.974	-.221	.214
Education – less than GCSE//foreign (ref)				
-GSCE/A-level/equivalent	-.059	.538	-.246	.128
-Higher than A-level	-.115	.249	-.311	.081
Age	-.010	.108	-.021	.002
Total wealth	-1.581E-8	.855	-1.852E-7	1.536E-7
Total income	.000	.028	-.001	-3.599E-5

Appendix 28. Leaflet requesting participants for qualitative study.

Department of Health Sciences
Seebohm Rowntree Building
Heslington
York
YO10 5DD

MEN WANTED!!!

(To be interviewed for a research project about loneliness in men)

Hello! I'm John, and I'm conducting some research with men on the topic of loneliness. Might you be able to spare 30 - 60 minutes of your time to help me out?

- You don't need to have ever experienced loneliness to take part.
- You need to be age 18 or over, able to speak English, and identify as male.
- Interviews are conducted remotely, and can be via Zoom, Google Meet, or Telephone. I'll set everything up, you'll only need to click the link I email you.
- The interviews will be anonymous, you won't have to answer anything you don't want to, and you'll be free withdraw any time you want.
- You'll get a £10 gift voucher for taking part!
- A detailed information sheet will be provided, and you can ask me about anything you are unsure of.

Still interested? Contact me using the details to the right!

Me trying to match my look with the local wildlife

Email:

jmr564@york.ac.uk

Telephone:

0738 540 4243

Appendix 29. Information sheet for qualitative study

Understanding men and loneliness in the UK - Participant Information Sheet

We would like you to invite you to take part in the following study. Before you do, please read the following information on what we're doing, and what you would be doing.

What is the purpose of this study?

Some research suggests as many as 45% of people in the UK experience loneliness, and many have pointed to significant health and mental health effects resulting from it. This study aims to better understand what people in the UK think about loneliness, their experiences of it, and their views on what is helpful and unhelpful.

Who is doing the study?

John Ratcliffe will be conducting this study as part of his PhD in the Health Sciences department at the University of York. The research is funded by the Economics and Social Research Council, and supervised by Prof. Paul Galdas and Prof. Mona Kanaan.

Why have I been asked to participate?

This study does not require you to have ever felt lonely to participate. Men aged 18+, who can speak English, are being recruited via organisations in York and Leeds. The study also aims to talk to find a diverse cross-section of men, which may have increased the chances of you being contacted.

Do I have to take part?

The research is entirely voluntary. After asking any questions you need to ask, you will need to complete and sign a consent form before participating.

What will be involved if I take part in this study?

You will take part in an interview in which we will discuss your views about, and experiences, of loneliness. You do not have to answer any question you do not wish to. Interviews usually last between 30 and 60 minutes, but you can leave at any time. The interview will take place either via an online chat function, such as Zoom or Google Hangouts (a link will be provided to your email address), or, if preferred, on the telephone.

What are the advantages or benefits of taking part?

You will be helping to improve services, and social policy, aimed at preventing/alleviating loneliness. You will receive a £10 gift voucher for taking part, and be provided with links to support groups and organisations if desired.

What are the disadvantages or risks of taking part?

Some may find the subject matter (loneliness) difficult to discuss. Please be aware you do not have to answer a question and can say as little or as much as you are comfortable with.

Can I withdraw from the study at any time?

You can withdraw from the study any time, without giving a reason. If you already conducted an interview, you can withdraw consent up to one month after your interview. If you do so, your contact details and interview will be deleted and not used in any way. You can also request specific parts of your interview to be deleted and not used for the research, or changed according to your wishes, without giving a reason, up to one month after your interview.

How will the information and personal data I give be handled?
The data collected for research purposes will be the recorded interview, plus any additions you may wish to add after the interview. The recording, and a text version of it, will be stored on a password protected University of York network private to John Ratcliffe. The text version will be anonymised, including references to specific organisations, locations, and other identifying features. Only John Ratcliffe, Prof. Paul Galdas and Prof. Mona Kanaan will have access to your data. If you request a copy of your interview, it will be emailed as text in an MS word document. Published work from the study may quote you, or relay an experience from your life, but you will not be identifiable from these. The recordings will be destroyed once the research has been published, and the transcriptions will be destroyed within 10 years of your interview. Although data are confidential, criminal activities or behaviours harmful to yourself or others revealed will be reported as required.

The following web-pages offer further details:
https://www.york.ac.uk/records-management/dp/
https://www.york.ac.uk/records-management/dp/guidance/gdprcompliantresearch/
https://www.york.ac.uk/records-management/dp/your-info/generalprivacynotice/
https://www.york.ac.uk/healthsciences/research/trials/trials-gdpr/

What will happen to the results of the study?
The results will be published in John Ratcliffe's thesis and, if successful, an academic journal. Both of these will be accessible for free. If requested, you can be sent these via the contact details you have provided.

Who has reviewed and approved this study?
University of York's Health Sciences Research Governance Committee.

Who do I contact for more information about the study?
John Ratcliffe.
Email: jmr564@york.ac.uk
Telephone: **0738 540 4243**

Who do I contact in the event of a complaint?
Paul Galdas at paul.galdas@york.ac.uk or Mona Kanaan at mona.kanaan@york.ac.uk
If you are unhappy with the way your personal data has been handled, contact the University's Data Protection Officer at dataprotection@york.ac.uk
If you have further concerns after discussing the matter with one of these contacts, you can report your complaint to the Information Commissioner's Office at www.ico.org.uk/concerns.

Thank you for taking the time to read this information sheet.

Appendix 30. Full interview schedule (used in pilot interview)

Before start, any questions?
Remind - don't have to answer, can request anything to be struck from record up to 1 month after today, will be anonymised
Can I begin recording?

Part 1
At any point, enquire further on anything related to masculinities, definition of loneliness, specific experiences of people of their identity (ethnicity, sexuality, age, etc), admitting to loneliness, alcohol, romantic relationships, or friendships relationships

1. Tell me about yourself?
- are you happy with (job/role/whatever)?
- how did you find that?

2. Is loneliness ever an issue for you?
- what caused it?
- what helped/helps?

Covid (if arises)
- how did that compare to pre-covid experiences?

3. What prevents/stops you feeling lonely (phrase according to past answers)?
- why does that work?
- are there things you don't do that might work?
- what doesn't work?
- what makes things worse?

Part 2 - frame according to previous answers
4. Do you find it easy to talk about loneliness?
- why?
- do you think other people do?

5. How important, to you, is having a romantic partner for loneliness (rephrase according to their situation)?
- why?

6. How important is having friends?
- why?
- ask about bigger friendship circles vs intimate friendships as appropriate

7. Have you ever drunk alcohol when lonely?
- why did you?
- do you think other people do?

8. Do you think men and women have different experiences of loneliness?
- do they deal with it differently
- why?

Part 3 (reflection and closing)

9. Generally, how big an issue do you think loneliness is (keep vague, if asked just say generally is it an important topic)?
- why?

10. What can be done to help with loneliness?
- why is that good?
- what is bad?

11. Towards end of interview, anything you think is important that we haven't discussed?
- probe response

12. what are you closing thoughts on loneliness?
- probe response

Appendix 31. Succinct interview schedule (used in interviews)

Any questions?
Remind

Tell me about yourself?
- happy? - How find that?

Loneliness ever an issue for you?
- cause? - helps?

- compare to pre-covid?

Stops you feeling lonely?
- why? - owt don't do? - What doesn't work? - what makes worse?

Find easy to talk?
- why? - others?

How important are friends?
- why? - bigger or smaller circles?

Alcohol when lonely?
- why? - do you think others do?

Men and women different experiences?
- deal with it different? - why?

Generally, how big an issue?
- why?

What can be done?
- What good? - what bad?

Anything important not discussed?
- probe

Any closing thoughts?
- probe

Appendix 32: Consideration of deviant cases

This appendix holds a brief discussion of deviant cases in layer one and layer two separately.

Layer 1

Layer one claims that all or most participants relayed narratives that evidenced the theme. This is theoretically plausible because the four main themes represented either core human motives (‘self-worth’, ‘being occupied’), or terms that describe something that a person can have or not have (‘social connections’, ‘capacity to connect with others’). No-one stated they do not wish to be occupied, or have low self-worth, and no-one suggested that social connections are irrelevant to loneliness, albeit many suggested it was possible to live happily without them. William, for example, suggested a person could live in ‘glorious isolation’, and Martin used the example of a ‘hermit monk’, as exemplars of a positive life without social connections. However, no-one in these interviews suggested they personally wished for it, or thought they could do this.

Almost all of the sub-themes were also constructed by everyone too, and the same sometimes notions frame this. For instance, it is difficult to see someone not wanting to be ‘cared about’, or suggesting that intimate connections cannot increase this feeling. Some sub-themes, though, are not easily placed as theoretically likely to be universal. To further emphasise how this can be the case, this sub-section will consider ‘interests and activities’ and ‘purpose’. Generally, ‘interests and activities’ would appear to be something people would suggest it not something everyone wishes for. However, as already evidenced in the main text, ‘mentally stimulated and/or focused’ was constructed as critical through the frequent employment of terms like ‘busy’, ‘occupied’, ‘not bored’, and ‘distraction’. If interests and activities are appropriately contextualised as not just representing things like sports and hobbies, but everyday activity like work, or conversation, this also consists of evidence for a highly consistent need for interests and activities as the route to mental stimulation and/or focus. ‘Purpose’, however, would still seem to be a construct that may bestow self-worth, but which may not be important. To emphasise it’s commonality in these interviews, then, a quote from all twenty participants signifying it’s importance, or latent impact, is displayed below. Some of the men, such as Jonny, Liam, and Alisdair, and Ahmad, did not place as much emphasis on this as the others, yet these quotes do show an engagement with some kind of need for constructive engagement with the social world. Jim, Martin, Faisal, Hassan, Harold, and Les, on the other hand, placed significant emphasis on this.

Though the individual themes were markedly consistently constructed, the actual figure displayed in figure 6 was not constructed in while by any single man. Rather, it is constructed as something that is *consistent* with all the interviews. Nevertheless, individual men sometimes offered constructions of loneliness that could be interpreted differently. Jim constructed a highly detailed intellectualisation of loneliness, which he defined according to 'physical' and 'mental' loneliness'. 'Physical' loneliness was defined as:

> *Jim: active physically, as in touchy touchy, but still be lonely in my head. The mask back on, and pretending I'm interested, but actually is nothing going on behind the mask*

As such, it seemed to refer to a social situation in which he could physically, to some extent, appear engaged, yet he was not truly so. On the other hand, engagement with physical acts that were not social could alleviate this, such as, in his case, walking, exercise, even eating healthily. In this way, it seemed to represent a discourse emphasising physical acts as a route to less loneliness. 'Mental' loneliness, on the other hand, was explained like so:

> *Jim: the mental one is not being active. I have quite a curious mind, I like to keep myself quite busy. And it's not necessarily doing stuff, it might be thinking stuff, or researching something. Being in a conversation that takes me out of my normal boundaries.*

This, then, was a mental stimulation, rather than a physical act. Notably, both of Jim's forms of loneliness emphasise a mental state, rather than a perception of his social networks. In this way, these two types of loneliness inspired the single theme of 'being positively occupied'. In particular, 'physical' loneliness seemed to represent a mental state of physical engagement, in which he could physically be present, yet not actual feel engaged with the context he is in. The notion of 'mental' loneliness, which emphasised learning, also began hint at a sense of self-worth as a mental state. Despite this definition of loneliness, Jim also emphasised the importance of connections, placing them as the central factor in loneliness. In the conceptualisation of loneliness in layer one, then, intellectualisations such as these were contrasted with the whole dataset, to build a more complete conceptualisation.

Table showing evidence from each participant constructing the importance of 'purpose'

Participant	Quote
Jim	a little bit of the loneliness is around having a…sense of purpose to my day

Harold	Just doing something that's fulfilling (alleviates loneliness).
Jonny	I realised that I needed to continually have something in my life that was the source of my recovery, you know?
Brian	(discussing rise in loneliness) Many of the things that have happened over the last 30 or 40 years…we've become atomized, we've become individuals, we've become homeowners, we've become less caring for each other.
Martin	once you give a man a purpose, like the Hermit, he might feel comfortable within the group.
Alisdair	(to prevent loneliness) I need to motivate myself to actually be more proactive. It's always been an issue.
Gary	(Discussing when isn't lonely) when I'm doing my, I'm in my support group, I'm in the zone and focused. I'm helping those people.
Les	I think having a purpose, feeling that you're fulfilling some kind of role (is important for not feeling lonely).
Scott	Looking at people's loneliness, if they don't…feel they have any purpose, it can lead to loneliness.
Neil	It's just about keeping busy and keep keeping active and keeping productive as best you can.
Liam	I got recommended it by jobs centre. One charity shop…give me a bucket, and I stood outside collecting money in winter, that were a bit too cold and stuff. I gave that in, and then went to another charity shop a few doors away, and I do more there (therefore it is better).
Saed	Talking to people can distract. I just want to get it over and done with, I like people to not talk to me when I'm doing work.
Adam	I always enjoy my job. It's keeping me sane at the moment.
William	my road to recovery has been travel, and it has been the use of TripAdvisor. Finding something good to write about a café, a restaurant, and it's like, I don't know if you were ever a cub scout, you get a badge for every time I'm you do something.
Nicolas	I like to help people that are wanting help, or need help. With someone lonely or fearful or something. I enjoy that and that that makes me feel good.
Sam	I've always wanted to have kids…at some point in the next 10 years. I want to get my degree, I want to get my master's degree, and I want to

	be working for a year. So in the next 10 years, that's manageable.
Harry	I'm quite happy about lockdown, and this remote working situation, because I get to, I get to show that I can do things.
Faisal	you can become miserable kind of thing, become recluse, or you can go out there and get involved. There's also concept of people who feel, we asked them to volunteer, they think volunteering is not a good idea, they want to get paid for it! You can't do that! We like to show people that volunteering can be very rewarding.
Ahmad	I joined some groups, 1990, there was a group going round on something Road, Leeds. And then they started using it as (retracted) Centre in 94/95…that's how I passed my time. I don't have any problems passing time.
Hassan	My dad was quite involved in…helping the community and everything. So it was a family kind of thing. But my personality is also the same, is trying to help people and bring the change.

Layer 2

Masculinities do not consist of universal and inherent traits or ideals, therefore layer two possessed far more potential for 'deviant cases'. Many of these related to the experiences of different groups of men, or the inherent tensions in fulfilling some masculine ideals AND less loneliness (most notably in the benefits of discussing loneliness, and the reluctance to do so). These were considered in the main text. Here, two more aspects of the data are briefly considered, and though not explicitly 'deviant' cases, they represent aspects of the data that offer potentially different viewpoints. Firstly, it is notable that several religious interviewees stated that their beliefs were vital for preventing and alleviating loneliness. This was not included in the main text, though, as despite it's vital importance, it did not appear to be gendered.

Secondly, sexual relationships were often discussed by participants, as either intimate long-term relationships or less intimate relationships, yet this is not captured in the main text. This was because they were considered to be captured within other components of both layer one and two. Less intimate sex appeared to constitute 'being positively occupied' and/or 'self-worth', particularly if it was linked to masculine ideals of 'conquest'. More intimate sexual relations, on the other hand, could involve these, as well as feeling ‘cared about’, or fulfilling normative familial social bonds. In this way, these factors represent ‘masculine-appropriate behaviours, interests, and abilities’ and/or ‘masculine social roles’, thus were not relayed in detail in lieu of other examples of these.

Appendix 33. Literal, interpretive, and reflexive readings

This appendix traces the formation of the final themes via the three readings. The section titled 'literal reading' will list the a priori codes and the post literal reading codes, and a brief discussion of how the latter coding ended up in the manner shown after the reading. The sections titled 'interpretive reading' and 'reflexive reading' will then trace the code changes following each of these steps.

Literal reading

The literal reading resulted in an extensive number of new codes. These are listed in Table A. Despite its open nature, no sub-codes for 'perceptions of masculinities' were formed. However, the more specific a priori codes, taken from the literature review and statistical analysis, all did. This helps to highlight that manifest constructions of masculinities were consistent with masculine ideals presented in past literature, rather than being particularly original. Conversely, 'perceptions of loneliness' possessed many new sub-codes. Indeed, the emphasis placed on 'busy', the marked difference between academic definitions of loneliness and those employed here, and codes such as 'validity' and 'accepting and respecting', all suggested a need for significant reconsideration of the construction of loneliness. This meant four additional considerations, on top of the main need to examine latent influences in the data, were paramount going into the interpretive reading:

- Make the coding more concise.
- Conceptualise what's going on with loneliness.
- Relate to men and masculinities.
- Ensure codes are relevant to the research question.

Table A. Codes constructed a priori and after literal reading

A priori codes	*Post-literal reading codes*	*Post-literal reading sub-codes*
perceptions of masculinities	perceptions of masculinities	

perceptions of loneliness	perceptions of loneliness	Noise and busyness, Trust, Getting outside, Isolation conflation, Digital different, Identity, Take responsibility, Lonely not alone, People can rely on, Think positive, Poverty, Alone not lonely, Anxiety of others
whether/why men may not admit to loneliness	Admit to loneliness	Use the information against you
whether/why they may be more prone to alcohol when lonely	Alcohol	Before worse loneliness, As social
whether/why they may be more reliant on spouses	Spouse/partner significance	Terminology negative, Sex Procreate, As an expectation, Bad relationships as lonely
whether/why they may feel lonely as a result of 'being' or feeling 'insufficiently masculine'	Not masculine loneliness	
whether/why they may show less loneliness than women in response to not having any friends	Friends	Good of alone, Close more important, Everyday not intimate, Connecting
	Self-worth/community worth	
	Religion	
	Accepting and respecting	
	Contact breeds perspective	
	Validity	Power as a group
	LGBT specific issues	
	Philosophy	
	Opportunities	Disabilities as reducing opportunities
	Division and conflict	Ethnicity
	Social skills and fears	
	Place in the world	Local community
		Fitting in
	Age and generation	
	Family	
	Busy	Distraction, Routine, Voluntary work, Purpose, Interests, Helping others, Bad aspects of work, Work
	Pandemic difficulties	Pandemic neutral
		Pandemic not all bad

Interpretive reading

This reading resulted in four notable actions. Firstly, the notable amount of pandemic related data was written into a separate article, which is presented in appendix 37. In this way, this thesis could focus on its research question without ignoring potentially prescient data. Secondly, as Table B shows, the extensive number of codes were amalgamated into fewer theoretically consistent codes. For instance, 15 codes and sub-codes inspired the formation of a single code and two sub-codes ('socially negotiated self-worth', 'accepted and respected', and 'purpose'. This was possible due to extensive crossover in the latent meaning of the codes. Literal reading codes such as 'voluntary work' and 'helping others' show this particularly clearly. Others, such as 'pandemic not so bad', which also influenced the formation of 'purpose', similarly represented a self-worth derived from an act of public good (see main text for details). The third and fourth actions were the introduction of 'layers', and the conceptualisation of the themes in layer one as interconnected. The latter was constructed as a result of the need to consider how the men were conceptualising loneliness, and conceptualised latent assumptions of it as a mental state built in interaction with the social world. The former was a result of the need to construct a gendered analysis in relation to this latently constructed understanding of loneliness. Further details on this are in the main text.

Table B. Displaying which codes strongly influenced the formation of the coding following the interpretive reading

Post-literal reading code or sub-code that influenced formation of codes following interpretive reading	*Post-interpretive reading codes and sub-codes*
Layer one	
Loneliness led to alcohol abuse, self-worth/community worth, accepting and respecting, contact breeds perspective, validity, division and conflict, local community, fitting in	Socially negotiated self-worth – accepted and respected
Good of alone, self-worth/community worth, place in the world, local community, voluntary work, purpose, helping others, work, pandemic not so bad	Socially negotiated self-worth – purpose
Trust, close friends more important, connecting, routine	Social connections – supportive and reliable contacts
Lonely not alone, everyday not intimate contacts, connecting, power as a group, division and conflict, local community, fitting in	Social connections – part of something
Anxiety of others, Loneliness led to alcohol abuse, social skills and fears	Capacity to connect with others – cognitive abilities
(Alcohol) as social, opportunities, disabilities as reducing opportunities, division and conflict, bad aspects of work, work, pandemic difficulties	Capacity to connect with others – opportunities
Busy, routine, interests, pandemic difficulties	Being occupied – interests and activities

Identity, busy	Being occupied – feature of identity
Busy, distraction	Being occupied – distraction
Noise and busyness, isolation conflation, Busy, routine	Being occupied – form of non-loneliness
Layer two	
Admit to loneliness, perceptions of masculinities	Reluctance to admit loneliness – non masculine display of vulnerability or weakness
Admit to loneliness, Use the information against you	Reluctance to admit loneliness – fear of the repercussions
Admit to loneliness	Reluctance to admit loneliness – promote resilience
Admit to loneliness	Reluctance to admit loneliness – not understood
Admit to loneliness	Reluctance to admit loneliness – responsibility to others
Take responsibility	Loneliness as associated with failure – personal responsibility
Bad aspects of work, place in the world, accepting and respecting	Loneliness as associated with failure – broader relationship between wider difficulties in life, social support, and social connections
Admit to loneliness	Avoiding displaying vulnerability as a barrier to forming relationships
Loneliness as not masculine enough, LGBT specific issues, age and generation, interests, division and conflict, perceptions of masculinities	Masculine appropriate behaviours, interests, and abilities – barrier to social connections
Age and generation, interests, perceptions of masculinities	Masculine appropriate behaviours, interests, and abilities – framework for social connections
Age and generation, bad aspects of work, work,	Masculine social roles – work and employment
Terminology negative (about being single), sex, procreate, as an expectation, bad relationships as lonely, LGBT specific issues, family	Masculine social roles – family structures
Article on pandemic and loneliness in men	
Getting outside, digital different, pandemic difficulties, pandemic not so bad, pandemic neutral	

Reflexive reading

The interpretive reading had constructed a detailed conceptualisation of loneliness not specifically identified by any one man. As well as consider the formations of the themes more broadly, then, a key goal of this reading was to ensure that this conceptualisation accurately and fairly represented the data. This resulted in three broad changes/conclusions. Firstly, it at this stage that the codes in layer one were noted to be remarkably widely identifiable. Secondly, one small change to a main code was employed. ‘Being occupied’ was changed to ‘being positively occupied’ as several narratives on this emphasised that one could be ‘occupied’ by thoughts of loneliness, which were negative. Lastly, several sub-themes were deconstructed and adapted to improve clarity. For instance, ‘masculine-appropriate behaviours, interests, and abilities’ initially contained two broad sub-themes, emphasising the positive and negative dimensions of this. In the final version, the negative versions were deconstructed into three specific occurrences linked to masculinity (bullying, ostracisation, competitiveness), to fully manifest what the masculine ideals were, and how they impacted loneliness. The ‘positive’ dimension, however, remained in its initial state as it was notably broader in nature, usually consisting of mundane and varied interests and activities that were constructed as ‘masculine’.

Table C. List of codes and sub-codes before and after the reflexive reading.

Post-interpretive reading codes	*Post-interpretive reading sub-codes*	*Final themes*	*Final sub-themes*
Layer one			
Socially negotiated self-worth	accepted and respected, purpose	Socially negotiated self-worth	Accepted, respected, purpose, cared about
Social connections	supportive and reliable contacts, part of something	Social connections	Intimate connections, routine connections, collectivist connections
Capacity to connect with others	cognitive abilities, opportunities	Capacity to connect with others	Ability, opportunity
Being occupied	interests and activities, feature of identity, distraction, form of non-loneliness	Being positively occupied	Positively stimulated and/or focused, interests and activities, feature of identity
Layer two			
Reluctance to admit loneliness	non masculine display of vulnerability or weakness, fear of the repercussions, promote resilience, not understood, responsibility to others	Reluctance to admit loneliness	Not masculine, negative repercussions, not understood, responsibility, promoting resilience
Loneliness as associated with failure	personal responsibility, broader relationship between wider difficulties in life, social support, and social connections	Loneliness as associated with failure	personal responsibility to maintain contact, markers of respect

Avoiding displaying vulnerability as a barrier to forming relationships	-	Avoiding displaying vulnerability as a barrier to forming relationships	-
Masculine appropriate behaviours, interests, and abilities	barrier to social connections, framework for social connections	Masculine appropriate behaviours, interests, and abilities	Bullying, ostracisation, competitiveness, framework for social connections
Masculine social roles	work and employment, family structures	Masculine social roles	work and employment, family

Appendix 34: First-person reflexive account of conducting the interviews

Originally, I had not intended to write an account of this style, as I had believed a reflexive approach, in particular when conducting the three readings of the data, would suffice. However, after completing a draft of the thesis, my supervisor pointed out that it wasn't always clear where I may have co-constructed the data *in the interviews themselves*. This account constructed to attempt to rectify this. It was derived from my notes at the time, and by rereading the interview transcripts and three readings of the data in appendix 33. In retrospect, a research diary may have allowed this to be more structured and insightful, and it is notable that writing it has not resulted in any changes to the findings. Nevertheless, it is my hope that it will better highlight where my personality and identity influenced the data.

Having conducted quite a number of interviews before, as well as a pilot interview with an acquaintance, I went in feeling confident and well prepared. The pilot, conducted with an acquaintance, suggested the interview schedule in appendix 30 was too detailed for use in the interviews. In particular, it was hard to quickly locate relevant information, lacked space for making notes, and was cumbersome due to being on more than one page. A much shorter version was therefore used, which provided concise prompts for that which is contained in the full schedule (appendix 31).

Overall, in my view, the two stages of questions in the interview schedule worked well. As designed, rather than a 'conversation with a purpose' (Burgess 1984), I didn't speak a great deal, and was able to engage in 'active listening' (Hsiung 2008). From this, I was able to ask follow-up questions, sometimes from things said to me quite a while back! The topics in the more structured questions sometimes stunted the interview flow a little, but mostly they could be introduced via something the participant had already said. Additionally, the notion that men don't seek help, or drink alcohol, are well known, which provided another route to asking these questions even if the respondent didn't bring it up.

I did encounter some issues, and/or things I could've done better. One man tended to reply in short, direct answers, and would often mimic the question if asked in a 'leading' manner. To deal with this, I turned to questions in which I listed 2-4 possible answers, then used 'why' and 'why not' questions to follow up further. Though limiting the 'free-association', this helped as he had been saying little in response to the more open questions. In analysis, I was then wary of situations where it seemed I had 'led' him. In the same interview, though, I also realised I spoke too much at times, at one point giving a personal story of my own that I'm unsure was suitable, or at others, simply asking increasingly confusing questions!

The final questions, focused on policy and practice, tended to add little as most people don't have policy recommendations ready to relay. After the first few interviews, I reworded them to represent a more 'what do you think would be good to help loneliness'. Two of the men spoke more as if they were attending therapy than an interview, which was sometimes difficult for me as I felt I had to prioritise their mental health over the research. This occasionally resulted in questions not being asked in the manner I would have solely as a knowledge-building researcher. I also noted after the interviews that loneliness and mental health were often discussed interchangeably, which partly led to the focus on mental states and neurology. Follow up questions on this might have enabled further evidence for this theory, but I didn't identify neurology as important until I had finished the interviews. However, this wasn't considered a good reason to conduct further interviews as it also seemed unlikely to be a topic people could expand on,

What Collins (1998) described as 'impression management' was likely occurring. All the men, to different degrees, distanced themselves from what could be described as 'toxic' masculine ideals. In particular, they often emphasised their past selves as masculine in a negative way, but that they had learned from it. Though this study emphasised the 'defended-subject' (Hollway and Jefferson 2008; section 4.3.2), a concept suggesting the respondent is likely to include an element of 'impression management', I didn't clearly conceptualise this until the latter stages of the interviews. This was likely because this notion of rejecting harmful and negative masculinities is something I can easily relate to. Questions probing the present masculine self may therefore have been useful. That said, many of the men did relay the continued influence of masculinities even after they had rejected them, and the analysis of 'latent' meaning further allowed for this to be deconstructed.

Conducting the studies during a Covid-19 lockdown likely had a major effect. Most of the men's narratives were often built around Covid-19, but rather than limiting their perspectives, it appeared to have allowed them time to reflect on loneliness. For this study, which encouraged 'sociological responses of why' (Hollway and Jefferson 2008), this provided a useful added reflexivity in the men's narratives. Additionally, though it meant I was going into sampling the interviews in an unfamiliar manner, with little even in the textbooks about how to go about things, it turned out to have benefits. I did not have to focus on a smaller geographical area as people were, in a sense, in my home and their home simultaneously. This gave freedom and flexibility to availability, and greater control to the participant. Most had also had time to get used to remote interaction by this stage.

There were drawbacks – interruptions were more common, the telephone interviews could not be recorded in good quality (this meant some small excepts were missing entirely, and transcribing the rest was a headache!), and sometimes people were more casual about turning up. But overall, it allowed a freedom and control to the interviewee that, in a one-to-one interview at least, had few drawbacks.

Though the sample was a diverse group of men, I am a cisgender heterosexual white man of poor/working class origins, and a history of mental health problems. This impacted different interviews differently. I had expected this to impact the interviews with the South-Asian men in particularly, in large part after reading my supervisors thesis (Galdas 2009), who experienced language and cultural reference point difficulties. However, the South Asian men in these interviews seemed comfortable stating how and where they believed their perspectives were specific to their experience. It occurred to me that this, in itself, was perhaps a phenomena of being a minority, in that difference is more easily conceptualised by those that experience it. It also occurred to me that I have spent a lot of my life around people of South-Asian origins, and conversely that they are likely to have often been around cisgender white-British northerners like me. The cultural differences that could have stunted the conversation, or led to a lack of insightful questioning, were perhaps less pronounced than they might otherwise have been because of this.

People did often frame their responses in regard to my identity though, usually via a three part process. Firstly, they would identify an issue, for instance, that heterosexual men do not talk about personal issues. Secondly, they would refer to this as stereotypical (potentially in acknowledgement of my heterosexuality, though I didn’t ask this and perhaps should have done)! Finally, they would further reflect on the nature of these identities and how they matter. As a result, though framed around me, the study’s focus on both commonalities and differences among men was largely maintained. Most men emphasised areas of relative disadvantage, for example their sexuality, social class, ethnicity, health, etc. When this was not the focus, the men tended to talk more generally of masculinities and loneliness, to which the initial design of asking ‘why’ was largely used. This also seemed sufficiently encourage a reflexive approach that could even facilitate ruminations on other groups of men who may experience matters differently, although the way in which it was arrived at differed.

I did find myself unexpectedly irritated by assumptions that I was middle class (due to being a PhD student). In two interviews, this led to me becoming temporarily distracted, particularly in the context of long periods of sitting and listening, and in one of these I allowed the man to talk at particular length without probing after experiencing this. I also wonder if I could have asked better questions in regard to people's spousal relationships. Some men lauded their wife/partner as very important, so I tried to ask to imagine a situation they did not have their wife/partner. However, this did not really get to the nub of why this mattered so much to them personally. Indeed, as my partner is important to me, I could have probed the potential negative consequences of this more deeply. Nevertheless, the negative consequences to this are clearly conceptualised in the findings (based on other men's accounts). Moreover, overall, I believe the highly open questioning technique was effective for allowing people to give perspectives and reflect on them without needing to be as influential in impacting what they said.

Appendix 35. Consent form for qualitative study.

UNIVERSITY *of York*
The Department of Health Sciences

Participant Consent Form

Title of Study: *Understanding men and loneliness in the UK*

	Please confirm agreement to each statements by putting your initials in the boxes below
I have read and understood the participant information sheet	
I have had the opportunity to ask questions and discuss this study, and received satisfactory answers to all of my questions	
I understand my participation in the study is voluntary, and that I am free to withdraw from the study, without giving a reason, anytime up to one month after my interview.	
I understand that I can contact the researcher to add, amend, or remove information from my interview any time up to one month after it took place.	
I understand that my interview will be recorded.	
I understand that any information I provide, including personal data, will be kept confidential, stored securely and only accessed by those carrying out the study, unless serious criminal or harmful behaviours or planned behaviours are disclosed.	
I understand that any information I give may be included in published documents, but all references to specific people, locations, and organisations will be anonymised.	
I understand that quotes of what I say may be published by the researchers, though I will not be identifiable from the quotes.	
I agree to take part in this study.	
Participant Signature ………………………………………………………… Date	
Name of Participant	
Researcher Signature ……………………………………………………….. Date	
Name of Researcher	

Appendix 36. Signposting sheets for groups and services.

Groups and services that might be of interest (York)

York Mind
Mental health counselling and support groups
www.yorkmind.org.uk
office@yorkmind.org.uk
01904 643364

Menfulness York
Inclusive social community for York Men. To socialise, exercise, talk and left off steam.
www.menfulness.org
yorkmenfulness@gmail.com

University of York Help and Support
A page listing various support services for students at the University of York
www.york.ac.uk/students/health/help

LiveWell York
A website with links to small scale community activities and groups around York
www.livewellyork.co.uk

Age UK York
Supporting older people to live better, including social activities aimed at older people
www.ageuk.org.uk/york
ageukyork@ageukyork.org.uk
01904 634061

York CVS
Voluntary work opportunities in and around York
www.yorkcvs.org.uk/volunteers
enquiries@yorkcvs.org.uk
01904 621133

York LGBT Forum
Social events and campaigning for LGBT people in and around York
https://www.yorklgbtforum.org.uk/
enquiry@yorklgbtforum.org
07731 852 533

Organisations in and around Hull

Hull CVS
Community and Voluntary services around Hull
http://hullcvs.org.uk/
enquiries@hull-cvs.co.uk
01482 324474

Hull Mind
We're here to make sure anyone with a mental health problem has somewhere to turn for advice and support
https://www.heymind.org.uk/
01482 240200

Hull community orchard
Community apple picking and other orchard centred activities
http://www.hullorchard.co.uk/

Hull Connect to Support
Connect to Support Hull is your local information and advice website. Use it to find information, advice and to discover local groups and activities in your area.
https://hull.connecttosupport.org/

Groups and services that might be of interest (Leeds)

Leeds Mind
Mental health counselling and support groups
www.leedsmind.org.uk
info@leedsmind.org.uk
0113 305 5800

Hamara healthy living centre
Bringing communities together through health Promotion, youth activities, older people's services, a Saturday supplementary school, learning disabilities support and work, and education and employment and training programmes.
www.hamara.org.uk
admin@hamara.co.uk
0113 277 3330

Barca
Advice and support for people struggling with housing issues, finances, physical and mental health problems.
www.barca-leeds.org
0113 279 5870

Doing Good Leeds
Online information about community groups and voluntary opportunities around Leeds
www.doinggoodleeds.org.uk/individuals

Andys Man Club
We are talking groups for men because… you've either been through a storm, currently going through a storm or have a storm brewing in your life.
info@andysmanclub.co.uk

Organisations in and around Stirling

Databases of voluntary work opportunities in Stirling (or beyond)
https://www.sventerprise.org.uk/volunteer-your-time/
https://www.volunteerscotland.net/

Steer (University of Stirling)
Pandemic Pals scheme - chat to other students while we navigate these unusual times.
https://www.stirlingstudentsunion.com/representation/studentsupport/steer/

Pakistani Social & Welfare Association
Can’t find any details for this other than a reference on here, but it must exist in some guise!
https://stirling.gov.uk/community-leisure/community-planning/area-community-planning/

Social and cultural events in Stirling
Cultural arts events, often music though not all, set up during the pandemic
https://stirlingevents.org/whats-on/

Mental health support
List of mental health support services, some of which may be able to signpost to appropriate organisations
https://stirling.gov.uk/social-care-health/mental-health/support-groups-voluntary-organisations/

Appendix 37. Published article on men's experiences of loneliness during Covid-19, using same data as qualitative study in this thesis

Men and loneliness in the Covid-19 pandemic: insights from an interview study with UK-based men

Abstract

Since the onset of the Covid-19 pandemic, the UK, like many countries, has had restrictions on social contact, and injunctions of 'social distancing'. This study aimed to generate new insights into men's experiences of loneliness during the pandemic, and consider the ramifications of these for continued/future restrictions, the easing of restrictions, and the future beyond the pandemic. Twenty qualitative interviews were conducted with men between January and March 2021. A maximum variation purpose sample frame required at least three non-white men, three LGBTQ+ men, three men with a university education, three without a university education, three 18-30 years old, and three aged 60+. Thematic analysis, focused on semantic themes, was employed as part of a 'grounded' epistemology whereby the stated perspectives of the interviewees drove the content of the study. Seven themes were constructed: i) lost and new activities and routines; ii) remote social interaction; iii) narrowed social spheres; iv) rethought and renewed recognition of what is important; v) loneliness with a purpose; vi) anxiety of social contact; and vii) easier for themselves than others. Lost routines, fewer meaningful activities, and a reduction in face-to-face interaction, were framed as challenges to preventing loneliness. Solo-living gay men seemed particularly negatively affected. However, many men displayed new, more covid-safe routines and activities. Remote forms of interaction were often utilised, and though they were imperfect, were constructed as worth engaging with, and held capacity for improvement. A moral need to reduce transmission of SARS-COV-2, and a fear of catching it, became important features of participants lives that also affected loneliness. Men at higher risk of health complications from Covid-19 were particularly likely to highlight an anxiety of social contact.

Reducing restrictions alone may not return everyone to pre-pandemic levels of loneliness, particularly if the pandemic remains a significant public health issue.

Key words: loneliness; social isolation; covid-19; coronavirus; SARS-CoV-2; men; masculinity

What is known about this topic.

- Loneliness is a public health concern, and often a gendered experience.
- Pandemic related restrictions greatly reduced opportunities for social contact.
- We have a limited understanding of whether, and how, the pandemic influenced men's experiences of loneliness

What this paper adds.

- The loss of activities and routines, and a lack of face-to-face interaction, were significant challenges to preventing loneliness, particularly among solo-living gay men.
- Remote interaction may be better when routinised or dependable, in smaller groups, and with a structure facilitating the opportunity to speak.
- Anxiety of Covid-19, and a moral need to reduce transmission, were important influences on the causes and severity of loneliness.

1 Introduction

Loneliness has been extensively linked to poor mental and physical health (Cacioppo et al., 2006; Schinka et al., 2012; Bolton, 2012; Victor and Bowling, 2012; Valtorta et al., 2016). It is often defined as a perceived lack, or loss, of meaningful social relationships, in contrast to 'social isolation', which represents an objective lack of social contact (Townsend, 1957; Perlman and Peplau, 1981; Weiss, 1982; Cattan et al., 2005). Cacioppo and Cacioppo (2018) posit loneliness as an evolutionary mechanism, priming individuals to seek out, and work for, mutual benefit. In this way, it remains a subjective emotion, but it is one based on actual relationships. Heylen (2010) conceptualises this by constructing two dimensions to loneliness. ‘Deficit’ loneliness is where an individual’s social relationships are objectively insufficient, thus represents loneliness resulting from social isolation. ‘Cognitive’ loneliness, on the other hand, is when a person’s perception of their social relationships does not meet their expectations.

For Franklin et al. (2019), this means non-loneliness refers to a feeling of ‘belonging’. Gendered cultures, then, give rise to gendered needs, expectations, and emotional language for ‘belonging’. Connell’s theory of ‘hegemonic’ masculinities (Connell, 2005; Connell and Messerschmidt, 2008) is a highly influential theoretical positioning of gendered expectations and emotional language. According to Connell, masculine ideals exist as reifications of gendered inequalities. Constructions of masculinity, therefore, often imply strength, dominance, or invulnerability, whilst some men, and masculinities, can be ‘subordinate’ or ‘marginalised’ (Connell 2005). This paradigm has been cited to explain a disinclination to acknowledge or seek help for loneliness (Rokach, 2018; De Jong-Gierveld et al., 2018). It may also frame a difficulty with forming intimate relationships (Stevens and Westerhof, 2006; McKenzie et al., 2018), that, in turn, can increase reliance on spousal relationships (Nurmi et al., 2016; McKenzie et al., 2018), or on alcohol use (Munoz-Laboy et al., 2009). Broader cultures of family, community, and work may also impact men’s subjective feelings (Franklin et al., 2019). In Ratcliffe et al.’s (2021) study of older men, for example, the instrumental help of others, often in workplaces or families, could be a source of masculine ‘social worth’ and therefore less loneliness.

Since the onset of Covid-19, several works have found evidence of aggregately increased loneliness (Killgore et al., 2020; McQuaid et al., 2021; Bu et al., 2021). McKenna-Plumley et al. (2021) suggested this may be a result of a loss of in-person interaction, and a loss of freedoms. Some scholars have suggested that the pandemic may have had a worse effect on women’s loneliness (Wickens et al., 2021; Jones et al., 2021). However, there is a paucity of research into gendered experiences of loneliness during the pandemic. McKenna-Plumley et al.'s (2021) study included just two men, and larger scale statistical studies of prevalence do not capture the context of the aggregate sex difference they present. If men are disinclined to acknowledge loneliness, how might that be understood and enacted in a pandemic situation in which loneliness has become a significantly greater concern? Moreover, if gendered cultures of work, family, and community are central to men, how might lockdowns and injunctions of social distancing have affected practices of 'belonging'?

The current study investigates and highlights where and how the Covid-19 pandemic, and its accompanying social restrictions, have impacted loneliness for men, and the ramifications of this for policy and practice. The research questions were formulated as a single research question focused on men's stated experiences, and a sub-question focused on the implications of their perspectives:

How has the Covid-19 pandemic affected men's perceptions and experiences of loneliness?

- *what are the ramifications of these for easing restrictions, future pandemic situations, and a post-pandemic world?*

2 Methods

Twenty semi-structured interviews were conducted with men across Northern England and Scotland, between January and March 2021. A relatively 'grounded' approach was taken, insofar as the content of this article was strongly driven by the interviewees (Charmaz, 1996). Thematic analysis was used to analyse the data (Braun and Clarke, 2006). The study was originally designed to explore men's experiences and perceptions of loneliness more generally, but the ongoing Covid-19 pandemic at the time of data collection meant men's accounts were frequently framed and constructed within this context.

2.1 Sample

To be eligible for the study, participants were not required to have experienced loneliness. A maximum variation purposive sampling frame was employed to ensure diversity (Guest et al., 2013). Masculinities are neither universal nor fixed identities (Connell, 2005), therefore a diverse sample was considered more likely to identify different experiences related to different masculinities. The sample required at least three non-white men, three LGBTQ+ men, three men with a university education, three without a university education, three 18-30 years old, and three aged 60+. Interviewees were sourced via gatekeepers in an LGBTQ+ group, a sports centre, a community centre, a men's activity group, an organisation promoting good health in black people, an addiction recovery support group, and organisations supporting voluntary work. In several cases, the gatekeeper advertised the study widely, resulting in participants that were not part of the organisations contacted. Table 1 lists the demographic data of the participants.

Table 1. Demographic information of participants

The study does not aim to be an exhaustive account of all men's perspectives, but to provide a selection of evidenced perspectives that may be 'transferable' to similar contexts. 'Transferability' refers to qualitative research that is applicable to other settings (Lincoln and Guba, 1985). Men constitute approximately half the world's population, therefore aiming for theoretical saturation was considered unfeasible (Low, 2019). Instead, a 'pragmatic' approach was taken to interviewee numbers (Braun and Clarke, 2021). Through the maximum variation purposive sampling frame, this aimed to provide suitably diverse perspectives. Once the minimum sampling criteria had been fulfilled, further interviews were no longer pursued.

2.2 Data collection

Interviews were conducted remotely via video call (Google hangouts, Zoom) or telephone. They lasted between 30 and 120 minutes, and were recorded then auto-transcribed, or recorded on the telephone then manually transcribed. They were conducted during the third UK ‘lockdown’, between 11th January and 12th March 2021. Seventeen took place during a period where social contact was limited to members of the same household, and only ‘essential’ shops were open, and three were conducted shortly after the first stage of ‘reopening’ on 8th March, at which point only essential shops and schools were open.

The interviews followed a semi-structured format loosely consisting of three parts. First, a less structured interview, discussing loneliness, was employed. This aimed to utilise Hollway and Jefferson’s (2000; 2008) technique of ‘free association’. This method allows participants to frame broad topics according to their own discursive associations, therefore is congruent with a ‘grounded’ epistemology. Secondly, participants were asked whether and how their perspectives had been impacted by the pandemic. Finally, the ‘free-association’ method was dropped, and questions related to maleness, masculinities, and loneliness were asked. This aimed to produce data able to manifest whether, and how, the men’s narratives were gendered.

2.3 Analysis

The analysis aimed to construct ‘semantic’ themes, i.e., ‘surface’ level themes portraying what the participants directly stated (Javadi and Zarea, 2016). These are fairly descriptive, so that the ensuing discussion can consider the ramifications of that which is described (Braun and Clarke, 2006). This helped to ensure the results had a clear ‘link’ to the data (Vindrola-Padros and Johnson, 2020), assisting the employment of a ‘grounded’ epistemology. Open coding was employed, then built and narrowed into specific and consistent themes (Moghaddam, 2006). Coding was conducted in NVivo (2020), in five stages. A form of ‘decision-trail’ (Long and Johnson, 2000), that is, a description of how the codes were formed and adapted through each stage of analysis, was created to enhance rigour. Analysis was conducted by the lead author, with the remaining authors providing feedback and validation after each stage.

1. Interviews were digitally recorded, transcribed, and uploaded to Nvivo.

2. Open coding was conducted, whereby data was assigned a large number of descriptive labels broadly related to loneliness. The decision to produce an analysis focused on the pandemic was taken after this stage.

3. A second open coding was conducted, which built a large number of new codes solely related to the pandemic and loneliness.

4. Codes were reviewed, adapted, and narrowed.

5. Themes were built, defined, and reproduced into an article suitable format.

2.4 Ethics

Participants gave written consent via email. Ethics approval was granted by the ethics committee in the Department of Health Sciences, University of York. An ethical stance influenced by Plummer's (2001) notion of 'critical humanism', a philosophy designed to balance individual well-being against justice ethics, was employed. This resulted in five actions beyond basic ethical practice:

- A list of organisations able to provide help and support were provided to participants.
- An approach showing due diligence to the interviewees mental state was taken. Practically, this required sometimes asking whether the participant is OK, whether they wanted a break, or not asking potentially relevant questions if the interviewer felt it may distress the interviewee.

- Criticising the interviewee, or accusing them of unethical beliefs/actions, was avoided. However, the information sheet stated that, if serious criminal or potentially harmful behaviour was disclosed, this would be reported.
- Participants were afforded pseudonyms, and demographic data was not linked to participant pseudonyms in table 1 (Bell, 2010; Ratcliffe et al., 2021).
- In analysis, narratives were placed within a theoretical socio-political landscape acknowledging unequal gendered relations, and the severity of the pandemic, whilst retaining a view of the participant as an emotional being who had aided the study.

3 Findings

Seven themes were constructed. ‘Lost and new activities and routines’ (3.1) summarises how the men’s activities were disrupted and reformed. ‘Remote social interaction’ (3.2) describes the men’s frequent tendency to critically consider remote forms of interaction. ‘Narrowed social spheres’ (3.3) notes that the men often relayed an increased focus on the home environment, and sometimes to local communities. ‘Rethought and renewed recognition of what is important’ (3.4) exemplifies how the pandemic led many to reconsider what about their lives and social connections is important. ‘Loneliness with a purpose’ (3.5) emphasises a moral imperative to prevent transmission of SARS-COV-2, and how that impacted their emotional experiences. ‘Anxiety of social contact’ (3.6) consisted of a fear of catching the virus, and how this impacted loneliness. Lastly, ‘easier for themselves than others’ (3.7) aimed to capture how the men often discussed other groups for whom the situation is more difficult.

3.1 Lost and new activities and routines.

Keeping *‘busy’* was frequently cited as critical to preventing loneliness, and the pandemic was presented as a challenge to this. One man, Sam, even struggled to identify whether he was *‘lonely’* or *‘bored’*. Les placed a lot of emphasis on work, travel, and general activity, describing lockdown as *‘sitting still’*. Despite these difficulties, all of the men showed signs of adapting to their circumstances. Les did this in two ways. In the lockdown in effect at the time of the interview, he had downloaded an app on his phone that encouraged him to go running:

Les: I think having a routine at the moment of some kind, has kind of saved me in that sense. because doing this every other day, the couch to 5K… I think a routine is a good thing.

In this instance, the formation of a new routine was the key to 'saving' him, and this focus on new routines was mirrored in many of the men's accounts. Ahmad, for example, described the importance of routinely going to the park, and Alisdair the importance of evening phone calls with his brother. In the lockdown of Spring 2020, Les did not have his running app. Instead, he volunteered at a hospital, and spoke of this equally positively:

Les: that was like three days, three and a half days a week. 12 hour shifts. And, yeah, I felt like I was doing my bit, you know, just kind of involved. And socially it was good because you were, I felt like I was in the world. And you had this regular interaction with people. And it was important. And even though it wasn't like, you know, not saving lives, necessarily, but was needed. And I think that's the, the key thing…it's the feeling of being needed.

As well as being a routinised activity, this example also emphasises the meaningfulness of the activity. Again, this was mirrored in other accounts. Gary, for example, spent more time on political activism, and assisting LGBTQ+ support groups, and Hassan arranged for food to be sent out to vulnerable older people via his community centre. On the other hand, many of the men humorously lamented an increase in doing mundane activities such as housework, DIY, and playing on games consoles. The pandemic, then, had led to the loss of routines, which could also lead to an uncertainty of one's social role. Much was done, though, to replace these with new roles and routines.

3.2 Remote social interaction.

The most frequently relayed adaptation was an increased utilisation of remote forms of interaction. It was often stated to be a relatively poor substitute for what many termed *'face-to-face'* interaction. A lack of physical intimacy, difficulties with understanding social context through body language, greater anxiety, a lack of equipment and/or technical ability, and difficulties with being able to get involved in conversations (because one individual would dominate), were all highlighted as problems. Some men also discussed becoming bored of it. However, most emphasised it as worth engaging with:

Jim: Zoom, Google chat, etcetera, I see the good and bad sides of them. I think it's brilliant. They're brilliant connectors, brilliant ways of being able to engage with new people. Me, I'm quite a tactile person, so I like meeting people, chatting, and going through stuff face to face. But I've learned to adapt, to use this technology. My sons would laugh at me if, you know, I have to phone them up to ask them how to switch such and such on, I'm a real technophobe if that's the right word. But I understand the value of what we have to do, so I've learnt to adapt.

Perhaps in part because of this understanding of the 'value' of restrictions on face-to-face contact, some of the men also suggested ways to improve remote interactions. Smaller groups, adequate opportunity to speak and take part, and dependable and/or routinised chats, were all extolled. Saed even put forward a design for an app, which would have pre-arranged events, with both introductions and break off groups to facilitate conversation. Remote interaction also provided some people with opportunities they had not previously had. Scott, who had a limiting physical disability, even stated that, for him, this had 'probably' led to more social interaction than prior to the pandemic.

3.3 Narrowed social spheres.

Many of the men emphasised that their social spheres had narrowed into a focus on home environments. This held difficulties for some younger participants who lived with their family, such that Jonny described it a *'pressure cooker environment'*. This was also constructed as frustrating for those seeking sexual and/or romantic partners, given that opportunities to meet people were greatly reduced. It was most openly constructed as difficult, though, by solo-living gay men who, in this study, were more likely to have built their social connections in public spheres. Neil even contrasts this against the difficulties of those who live with families:

Neil: if I want to have company, I can't really, so you know. And everyone, other people complaining about, you know, I'm fighting with my partner, or the kids are driving me up the wall and stuff, and I think, well, swap with me for a week, see what it is!

Nevertheless, for some, this narrowing of spheres facilitated stronger relationships with existing partners, family, and housemates, and several men expressed a deep gratitude for this. Some also spoke with enthusiasm for an improved 'local community'. Broadly, then, this narrowing of spheres was a common experience which could have negative and positive effects. Living alone, though, held particular problems.

3.4 Rethought and renewed recognition of what is important.

Nicolas summarised this by stating that the pandemic *'made me look at my life, and who I am'*. A similar attitude was relayed by many of the men, often by noting a renewed appreciation of good aspects of life, such as good health, close relationships, economic comfort, and outdoor spaces. It was also expressed as a process of introspective learning:

Neil: This whole period has been really cathartic because it's allowed me to figure out what it is that does make me happy. Figure out what's good about me, figure out that I am worth enough on my own, I don't need to have somebody else to validate me.

Despite this, Neil expressed more loneliness in lockdown than most of the men. The pandemic, then, seemed able to facilitate introspective learning, yet the lockdown could impede the fulfilment of what had been learnt. Adam, for example, learnt that it was important for him to attend settings outside of his house, yet his opportunities to do so were limited. Nevertheless, the learning itself, and newfound appreciation for good aspects of life in particular, were constructed as positive developments.

3.5 Loneliness with a purpose.

Most men suggested that they understood the rationale of the restrictions. For some, this significantly impacted their emotional experiences:

Alisdair: There's a friend of mine who's on the covid ward…and you think what they're going through compared to what I'm doing, basically just sitting doing nothing, I can deal with that. Couldn't deal with what he does, but my tiny little bit of help, just to do nothing really, it's not that much to ask.

Martin described this as loneliness with a 'purpose', and stated there was a positive aspect to this as it gave meaning to his life. As a result, he felt particularly lonely after being invited to attend a party:

Martin: If I get an invitation, which I got several times, I have to say like bloody hell don't you read a newspaper? There's another lockdown! And it's makes me feel sorry to explain to you it's inappropriate...

Interviewer: Is that a kind of loneliness, in effect?

Martin: Yeah. It's like a spiral down it started, and it's pushing us more and more down.

Being physically alone, then, was less lonely as it represented an act of social benefit. When others failed to share this social cause, though, Martin felt lonely, even though he was being invited to spend time with other people.

3.6 Anxiety of social contact.

Some of the participants were anxious of social contact as they were concerned about the possibility of catching Covid-19. This was particularly salient in participants who were at higher risk of health complications:

Rhys: I'm in that extremely vulnerable group because of my compromised immune system. I'm shielding up to beginning of August last year, so from March through till August you're shielding. And then you've got to keep away or you've just, you're so paranoid about going near people.

In this quote, Rhys is ‘choosing’ to avoid social contact, yet it is a choice heavily influenced by the severity of the risk to his health. Both he and other interviewees also discussed this in more emotional terms. Rhys later notes that he would feel *‘uncomfortable and vulnerable’* sitting in a restaurant, and

Martin states *'you are afraid of crowds nowadays'*. Though the anxiety is based on a specific health decision, then, it could still facilitate a lonely experience.

3.7 Easier for themselves than others.

Most of the men believed they found the situation easier than others did. Some believed the restrictions may be more difficult for younger people because, as Martin put it, it is a time where people *'develop within a social group'*. However, the younger participants in this study did not identify this. Strikingly, participants with mental health problems often believed this an advantage, as it prepared them for the situation:

Jim: People who suddenly couldn't have what they always had couldn't get their heads around why they couldn't have it anymore. But I was already on that journey before because I lost all of that before I got into my (alcohol addiction) recovery.

Hassan believed people he described as 'BME' tend to receive more attention from their children, reducing their loneliness during the pandemic. South Asian interviewees in this study all spoke of regular and intimate social contact with children and/or parents, often because they lived in fluid multi-generational housing. Ahmad and Faisal even stated that they were not lonely because of this, although they did not relate it to the pandemic. Hassan also believed 'BME' people tended to be less trusting of services, thus may be less likely to receive pandemic-related assistance. Again, this did not feature specifically in other interviews, but Faisal was critical of support services, particularly care homes, in such a way that it resonated with Hassan's perception.

4 Discussion

This study explored how the Covid-19 pandemic affected men’s perceptions and experiences loneliness. Findings demonstrated that restrictions could result in loneliness, but this only told part of the story. During restrictions, a loss of activities, and the loss of face-to-face interactions, were particularly felt. Nevertheless, new activities and routines, a sense of local community, and a clear understanding of the ‘purpose’ of the restrictions, that was understood and respected by others, could do much to alleviate loneliness. Remote forms of communication were imperfect, but they could be positive, and held capacity for improvement. Anxiety of catching Covid-19, and changes to routines in relation to that, meant loneliness could result from a fear of the pandemic. Men who are not young, South Asian men, and men who had experienced severe mental health problems, relayed reasons they experienced less loneliness than others. Solo-living gay men, and men with pre-existing health conditions that placed them at additional risk from Covid-19, sometimes showed greater pandemic-related loneliness.

Ratcliffe et al. (2021) posited that older men may place a sense of ‘social worth’ as critical to preventing loneliness, and emphasise that this does not always require social contact. Though their study refers solely to older men, ‘loneliness with a purpose’ similarly placed avoiding social contact as an act of social benefit, thus able to reduce loneliness. It may therefore represent a stark example of the importance of ‘social worth’ to men’s loneliness. Indeed, Kamin et al.’s (2021) study of solo-living women in Slovenia related a similar moral responsibility to reduce transmission, but did *not* suggest this reduced loneliness.

Participants’ social spheres were narrowed onto the home environment, and those who were married all expressed a thankfulness for their spousal relationship. Many pre-pandemic studies suggest men’s loneliness is more affected by the existence of a spouse than women’s (Pinquart and Sorensen, 2001; Bergland et al., 2016; Nowland et al., 2018), therefore these narrowed spheres may offer additional explanation for research suggesting women have been more negatively affected by the pandemic (Wicken et al., 2021; Jones et al., 2021). This may also help explain why solo-living men identifying as gay reported greater difficulties than other solo-living men. Domesticity has been treated critically as heteronormative by many LGBTQ+ commentators, in favour of a queer public identities (Gorman-Murray 2020). For solo-living gay men, then, restrictions may have undermined a more outside of the home focused social environment.

In contrast to this study, research from Mind (2020) and Gillard et al. (2021) found that people with mental health problems faced additional psychological difficulties during the pandemic. Bartholomaeus and Tarrant (2016) suggest that older men may construct a masculine identity as a ‘sage’, a man who has experience and knowledge of the world such that they negotiate it more effectively. Though this study again refers to older men, the tendency for the men to place the pandemic as ‘easier for themselves than others’ may represent a masculine discourse in which a ‘sage’ is able to protect themselves from loneliness. It may even resonate with the ‘rethought and renewed recognition of what is important’, in that this may represent the construction of an identity as a ‘sage’. A tendency to downplay personal experiences of loneliness, in favour of constructing an identity as a ‘sage’, would be consistent with work suggesting men understate mental health concerns (Yousaf et al., 2015; Rokach, 2018). Nevertheless, some of the men who had experienced past loneliness did appear to possess a genuine resilience, indicating that it could provide tools to overcome loneliness once more.

Gillard et al. (2021) also suggested that people from ethnic minorities have faced additional mental health challenges, primarily due to racism exacerbated by the pandemic. The South Asian men in this study, though, posited extended family environments as a benefit in comparison to other ethnic groups. This emphasises the different dimensions of people’s experiences, but more research is required to understand the impact of the pandemic on loneliness in men from different ethnic groups. Men with pre-existing health conditions, and older men, are known to be at higher risk of health complications from Covid-19 (Wolff et al., 2021; Chen et al., 2021). This study found that these men sometimes experienced particular anxiety of social contact, which rendered them more likely to experience loneliness, although this remained present in some less ‘at risk’ men. Time, vaccines, and lower case rates, as well as more covid-safe social interactions, may alleviate this anxiety.

As in previous infectious disease pandemics, Covid-19 appeared to have destabilised social structures (Strong, 1990; Cava et al., 2005), and this was a key element of the ‘lost activities and routines’. However, Covid-19 has lasted longer than the periods addressed by Strong (1990) and Cava et al (2005), perhaps explaining why this study found more signs of new routines and behaviours. The emphasis placed on meaningful activities may display a masculine practice, given that these often focused on helpful tasks (Franklin et al., 2019; Ratcliffe et al., 2021). New routines, along with rethought recognition of what is important, and social spheres narrowed over an extended period, may result in smaller, but closer, social networks for years, particularly if people remain anxious of social contact.

4.1 Study limitations

Constructing semantic themes may limit insight (Braun and Clarke, 2006). The original interview schedule was not designed to generate evidence specifically about the Covid-19 pandemic, potentially limiting the depth and richness of data. In particular, socio-economic status did not feature in this paper as it was not semantically related to both loneliness and the pandemic. This study cannot gauge the scale of these themes across societies (Bryman, 2016). The sample was fairly diverse, yet no-one was black, a single parent, or either under 20 or over 71 years old. Recruitment of the sample came via support groups and community groups, therefore these men may be more community orientated than average, and with greater access to social support. No participant had experienced Covid-19, and only one participant mentioned a person they knew who had. As such, the study offers limited insight to people with experience of the virus, particularly bereaved people who may be at risk of loneliness (Stroebe and Schut, 2020). Time with family in multi-generational households, and involvement in local communities, were constructed as beneficial, yet involve social contact that may increase transmission. It is impossible to derive from this data whether, when, and to what extent, anxiety of Covid-19 is a rational response, or a cognitive problem.

This study was conducted with men, but few other studies examine this topic, rendering it difficult to ascertain whether, and how, these findings are gendered. Some work has found parallel results without claiming them to be gendered. Kremers et al. (2020) conducted a qualitative study of older people in the Netherlands, and found that people stated they were less lonely because they understood the purpose of restrictions. Statistical studies have found that increases in loneliness do not return to pre-covid levels during periods of no restrictions (Killgore et al., 2020; Bu et al., 2021). The results of this study, which often emphasise the pandemic as a potential pathway to loneliness, rather than restrictions *per se*, may offer some explanation for this. It is necessary to place the findings of this study as constructed by men, and with masculine features, but which may not be specific to men.

4.2 Implications for policy and practice

While restrictions could constitute a pathway to loneliness, conceptualising the problem as ‘restrictions equal loneliness’ was insufficient. The men were aware of the health risks posed by Covid-19, and this impacted their emotional needs. During times where restrictions are being eased, it may be important to balance anxieties, and new routines, against the preference for ‘face-to-face’ interaction. This may be further complicated by a ‘fear of missing out’ (Baker et al., 2016), such that people may feel a pressure to return to face-to-face settings. An emphasis on ‘personal responsibility’ (Williams, 2021) may be difficult for some, given a complex backdrop of anxiety, and a notion of ‘loneliness with a purpose’. Community services may need to take covid-cautious approaches, and communicate with people in a manner acknowledging the possibility of these anxieties and/or moral perspectives.

During severe restrictions, the loss of face-to-face interaction was frequently cited as difficult, and solo-living gay men may be particularly prone to loneliness. This suggests support for allowing ‘support bubbles’ (HM government, 2021), i.e., a named person or household with who someone who lives alone can spend physical time with, albeit this may need to be balanced against public health risks. For services wishing to utilise remote forms of interaction, it is notable that smaller groups, where people felt involved and able to speak, and were dependable in terms of their availability, were constructed as better. The benefits of routinised activities suggests that clear and consistent government rules and advice, with less frequent changes, may be beneficial to preventing loneliness. Having safe, meaningful, and routinised activities appeared to be the ultimate arbiters of the men’s loneliness during the Covid-19 pandemic.

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Tables

Table 1. Demographic information of participants

Age	**N (% of interviewees)**
18-30	**5** (25)
31-45	**5** (25)
46-60	**7** (35)
61+	**3** (15)
Ethnicity	
White-British	**14** (70)
South-Asian	**4** (20)
Eastern-European	**1** (5)
White-African	**1** (5)
Sexual orientation	
Heterosexual	**12** (60)
Bisexual	**1** (5)
Homosexual	**7** (35)
Gender orientation	
Cisgender	**19** (95)
Transgender	**1** (5)
Attended higher education	
Yes, in the UK	**5** (25)
Yes, in another country	**2** (10)
Current student	**3** (15)
No	**10** (50)
Living situation	
Solo-living	**8** (40)
With spouse/partner (with or without children)	**7** (35)
With parents/guardians	**4** (20)
With housemates	**1** (5)

Abbreviations

ABV	Alcohol By Volume
BBC	British Broadcasting Corporation
BSRI	Bem Sex Role Inventory
CALM	Campaign Against Living Miserably
CESD	Centre for Epidemiologic Studies Depression scale
CI	Confidence Interval
CIS	Critical Interpretive Synthesis
DIY	Do It Yourself
ELSA	English Longitudinal Study of Ageing
GAMH	Global Action on Men's Health
GP	General Practitioner
HSE	Health Survey of England
HM Government	Her Majesty's Government
IAC	Indicator of Any Close Relationships (except spouse/partner)
ICR	Indicator of Close Relationships (except spouse/partner)
IMD	Index of Multiple Deprivation
ISI	Indicator of Severe Isolation (except spouse/partner)
LGBTQ+	Lesbian, Gay, Bisexual, Transgender, and Queer plus
M-F scales	Masculinity – Femininity scales
MAR	Missing At Random
MCAR	Missing Completely At Random
MICE	Multiple Imputation with Chained Equations
MMR	Mixed-Methods Research
MNAR	Missing Not At Random
ONS	Office of National Statistics
OR	Odds Ratio
PAF	Postcode Address File
PAQ	Personality Attributes Questionnaire
PFR	Perception of Friendship Relationships
PRISMA	Preferred Reporting Items for Systematic reviews and Meta-Analysis
PROSPERO	international Prospective Register of Systematic Reviews
SE	Standard Error
SPSS	Statistical Package for the Social Sciences
UCLA	University of California, Los Angeles loneliness scale
UK	United Kingdom
WHO	World Health Organisation

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