Men and loneliness in the ‘west’: A critical interpretive synthesis

CURRENT STATUS: UNDER REVIEW

John Martyn Ratcliffe
University of York

Paul Galdas
University of York

Mona Kanaan
University of York

DOI: 10.21203/rs.3.rs-17584/v1

SUBJECT AREAS
Health Economics & Outcomes Research    Health Policy

KEYWORDS
loneliness; men; masculinities; mental health; wellbeing; social isolation
Abstract
Background
Loneliness has received considerable attention in recent years, but has seldom been investigated through a gendered lens. This review aims to critically summarise research substantively related to men and loneliness.

Method
A critical interpretive synthesis, incorporating a pre-defined search strategy, was employed to analyse a broad variety of data. The searches were conducted in July 2019, across seven databases: MEDLINE; PsycINFO; Scopus; ASSIA; SSCI; Sociological Abstracts; and Social Policy and Practice. Included studies were written in English, conducted in high income nations in Western Europe, North America, and Australasia, with no date limitations. Qualitative studies required a substantive focus on sex/men or gender/masculinities and loneliness, and quantitative studies either an explicit focus on sex differences in loneliness, or data substantially relevant to loneliness and men. Seventy-nine studies met the inclusion criteria.

Results
Seven ‘synthetic constructs’ were built: i) men’s loneliness appears more associated with their social network; ii) men may be less emotionally forthright, thus both less inclined to discuss loneliness and less likely to form meaningful relationships; iii) romantic relationships may be more important for preventing loneliness in men; iv) different measurements of loneliness do not show the same sex differences in the prevalence of loneliness; v) lonely men may be more likely to engage in risky/unhealthy behaviour; vi) feeling/being ‘insufficiently masculine’ can result in loneliness; and vii) intersections of identity facilitate different gendered results.

Conclusion
These constructs offer a framework that can help inform interventions aimed at preventing/alleviating loneliness in men, and a foundation for future research. Overcoming men’s emotional reticence, and facilitating better quality social networks, appeared critical goals for interventions. Men’s emotional reticence may constitute both a barrier to discussing loneliness, and to forming loneliness preventing
relationships. It also appeared to be characterised either by the construction of a masculine persona, or a fear of the repercussions for initiating intimate conversation. When attempting to ascertain whether a man is lonely, acknowledging gendered variation in survey responses is required. However, it is unclear how generalisable these ‘synthetic constructs’ are, and their potential inter-relatedness requires further research.

**Background**

Loneliness has become widely recognised as a significant and growing public health concern. Although many definitions of loneliness exist, the predominant consensus is that it is a negative emotion representing a feeling of a lack, or loss, of meaningful social relationships (1–5). In the United Kingdom (UK), research has suggested over nine million adults are either ‘often’ or ‘always’ lonely (6). Loneliness has been associated with depression (7), compared to smoking 15 cigarettes a day (8), identified as potentially increasing the risk of cardio-vascular (9), and found to increase the risk of premature death (10).

Recognising this, in 2018, the UK government published a strategy for tackling loneliness (11). Despite personalised approaches that recognise the complex and subjective nature of loneliness being one of its guiding principles, a consideration of the distinct needs of men was absent. A growing body of evidence highlighting how gender intersects with other social, economic, environmental, political and cultural determinants of health has driven an increasing focus on men’s and women’s health (12). The importance of gender (masculinities) in men’s experience of, and help-seeking for, mental health is particularly well documented (13–15). Furthermore, failure to recognize and/or seek help for mental health problems has been associated with men’s higher rate of suicide (12). It has also been argued that gendered cultures and modes of social organisation mean men and women do not have the same conceptualisations of loneliness, nor of what is desired to prevent and alleviate it (16). To date, there has been a paucity of literature specifically focused on the influence of sex or gender on men’s constructions and/or experiences of loneliness, and its implications for policy and practice. Our review aimed to bridge this gap in the knowledge by critically examining the current literature to address the following question: What is the influence of sex or gender on men’s
constructions and/or experiences of loneliness?

Methods
The review followed the principles of critical interpretive synthesis (CIS) (17), adapted to incorporate a systematic search strategy. As this was a secondary synthesis of data, ethical approvals were not required.

Methodology
The goal of CIS is to critically examine relevant literature and data, then transform the underlying data into theoretical and conceptual ideas named ‘synthetic constructs’ (17). The approach was well suited to the current review question as it facilitates the integration of findings from diverse studies and disciplines into a ‘single, coherent framework’ (18, p2). CIS has also been recognised as a useful approach for reviewing ‘challenging’ areas of health research, such as mental health, in which people may not be as forthcoming (19).

Three deviations from Dixon-Woods et al.’s description of CIS were employed. The first was a ‘results-based convergent synthesis’ design (20), meaning that the statistical and qualitative studies were initially examined separately. The second was the use of thematic synthesis methods to identify ‘data-driven’ themes arising directly from the evidence base (21). In combination, these two adaptations allowed the review to summarise a particularly varied evidence base prior to attempting to form ‘synthetic constructs’. The final adaptation was the use of an ‘a priori’ search strategy. Dixon-Woods et al. (17) considered an ‘iterative’ and ‘flexible’ search strategy necessary for a truly ‘critical’ analysis. However, as summarising the existing evidence was an important element of this review, a ‘pre-defined sequence’ (17, p9) was considered more appropriate.

Search strategy
Electronic database searches were used to search for literature published anytime up to 30 June 2019. All searches followed a base strategy of (1) ‘loneliness or social isolation’ AND (2) ‘gender or men or masculinities (and related terms, see additional file 1)’, followed by (3) NOT ‘children or neurological or biochemical or animal (and/or related terms, see additional file 1)’. Only ‘loneliness’ and ‘social isolation’, and not related terms such as ‘social connectedness’, ‘social support’, and ‘solitude’, were employed (pilot searches revealed excessive numbers of irrelevant studies when
using additional terminology, and the review question requires the investigation of constructions of ‘loneliness’, thus a focus on the word was considered useful). To focus on studies with likely relevance to the UK, only English language studies, from high-income nations in Western Europe, North America, and Australasia, were considered for inclusion. Pilot searches included studies from all OECD nations, but this resulted in excessive numbers of results, among which some studies emphasised their difference from ‘western’ settings (22, 23). An interpretive method for identifying ‘adults’ was specified as precise age ranges resulted in less meaningful inclusions/exclusions. Searches were conducted in 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. Additional file 1 details the exact strings for each database.

Inclusion criteria
Seven points for inclusion were constructed. Separate criteria for quantitative and qualitative studies were applied when necessary. No study was excluded according to quality.

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 the social world (i.e. is not study of neurological or bio-chemical reactions to loneliness).
5. 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.
6a. Qualitative studies - sample includes adult men.
6b. Quantitative studies - sample includes adult men and women, or men and a measure of gender roles (as comparators were required).
7a. Qualitative studies - reports substantive findings on sex/gender and loneliness.
7b. Quantitative studies – has an explicit focus on sex/gender and loneliness (i.e. the study states it focuses on sex/gender and loneliness, using any variables), or compares different types of loneliness by sex/gender, or includes a test 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).

Screening
1. All records 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 seven-point criteria. This stage was conducted by one reviewer, then the final preferred reporting items for systematic reviews and meta-analyses (PRISMA) chart, and Endnote files of included/excluded articles, were checked by 2 supervisors.

Data extraction and analysis
Findings were analysed via a three-stage process. Each stage was primarily conducted by the lead researcher, with advice and input from all listed authors.
1. To begin the ‘results-based convergent synthesis’ (20), separate tables summarising the characteristics and findings of the quantitative and qualitative studies were created. For the quantitative studies, this relayed the article’s title, the details of its
sample, and summaries of its relevant variables, statistical methods, and results (additional file 2). For the qualitative studies, this presents the article’s title, the context of the study, the details of the sample, and a summary of the relevant findings as relayed by the author/s (additional file 3).

2. Two thematic analyses, aimed at summarising the content of the quantitative and qualitative separately, were conducted. These are presented as two sets of tables, in which each study with information related to that theme was displayed in the corresponding table (additional files 4 and 5). This stage aimed to identify ‘data-driven’ themes (21). It was not considered necessary to assign all articles to a theme as all articles were to be re-examined at stage 3. Sixty-four of the 79 studies were related to at least one theme.

3. The final stage involved two components. These were conducted alternately and iteratively to allow for the reinterpretation of the data into theoretical concepts not identified by the original authors. The first component was a contrasting of the themes and data from the quantitative and qualitative thematic analyses, and the second was a revisiting of all 79 articles to re-examine whether they had theoretical relevance to the synthetic constructs that were being built. Whilst conducting the above tasks, tables with all data relevant to each synthetic construct were built, which are presented as the final results. Seventeen of the 79 included articles are not cited in the main manuscript as, after going through the above steps, they were not deemed to have provided sufficiently relevant data.

Results

Study characteristics

Seventy-nine studies, published between 1978 and 2018, were included in the final review (Figure 1). Sixty-three (80%) were quantitative (additional file 2), and 16 qualitative (additional file 3). The mean
publication year was 2001 for the quantitative studies was 2001, and 2013 for the qualitative studies (rounded down to no decimal points). Twenty-six studies used University students for all or a significant portion of their sample, of which 100% were quantitative. Conversely, 23 focused on people aged 50+, of which 14 (61%) were quantitative. 141 articles were inaccessible via The University <deleted for anonymity> or open access. Following further attempts to acquire articles, 121 were excluded due to a lack of access. Figure 2 details the process undertaken for these 141 articles.

Figure 1. PRISMA flow-chart of included studies.

Figure 2. Flow-chart describing the process for articles not accessible via the University/open access.

**Synthetic constructs**

Seven ‘synthetic constructs’ were identified. These are listed table 1, then summarized narratively in the following sub-sections. The results from stage 2 of the analysis are available in additional files 4 and 5.

**Table 1. The synthetic constructs (and noted sub-constructs)**

<insert table here>

**1. 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 18 studies (table 2). Four were primarily related to social network size. Stokes and Levin (24) found social network size and type to be more strongly associated with loneliness in men, and Bell and Gonzalez (25) found ‘social integration’ a predictor of loneliness in men but not women. Bell (26), however, found no sex difference in the association between ‘network density’ and loneliness, and Dykstra and de Jong-Gierveld (27) 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 offers clearer support for this construct. Patulney and Wong (28) found that, even after controlling for people's preferences, men considered themselves to be more ‘socially disconnected’ than women. In the four
studies using the Rokach ‘causes of loneliness’ scale (29-32), three found men were more likely to state ‘social marginality’ as a cause of loneliness (30-32). Sundberg (33) found that feeling ‘alone or alienated from positive persons, places, or things’ was a more commonly selected survey item by men (although there was no difference in feelings of ‘isolation’). Lastly, Stevens and Westerhof (34) found that ‘emotional support from friends’ mediated sex differences in loneliness, in that men had less emotional support, thus were lonelier.

Several studies less clearly focused on social networks further underlines these findings. Tornstam (35) surveyed people’s views of what caused them loneliness, and men were more likely to select items related to a physical distance from people, particularly family, whereas women were more likely to select items focused on emotions, such as being ‘misunderstood’. Similarly, Juntilla et al. (36) recorded that men were more likely to select items such as having fewer ‘good friends’ or ‘nobody to talk to’, whereas women were more likely to say they were ‘shut out’ or ‘excluded by others’. Lastly, men were often found to be ‘socially’ lonelier, and women ‘emotionally’ lonelier (27, 37-39). As social loneliness refers to a perception that one does not possess adequate networks, and emotional loneliness a lack of intimacy, this seems to further place women’s loneliness as denoting an emotional experience, and men’s as a result of (perceived to be inadequate) social networks.

Table 2. Studies with data on men’s social networks

| Table 2. Studies with data on men’s social networks |

2. Men seem reluctant to discuss emotional issues (including loneliness)

Table 3 summarises 11 studies with evidence related to this construct, which comprises two ‘pairs’ of sub-constructs. Firstly, men’s reluctance to discuss emotional issues may result in not disclosing feelings of loneliness:

most of us are here alone, by ourselves. Nobody wants to talk about sad things (40, 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 (41, p1209).

On the other side of this ‘pair’ were findings indicating that this reluctance may result in loneliness:
'the imperative of “separateness” allied to masculine self-identity appears to hamper the establishment of new relationships’ (42, p39). Indeed, in surveys, Blier and Blier-Wilson (43) found men said they were less comfortable expressing numerous emotions, and Wheeler et al. (44) and Wheeless et al. (45) that women and ‘femininity’ was associated with having more open and meaningful social relationships.

The second ‘pair’ of sub-constructs relates to men’s rationale for being emotionally reticent. On the one hand, some men constructed such conversation as feminine ‘blabber’, incompatible with masculinity (46). On the other, some men suggested they would like to be more emotionally open, yet emphasised negative experiences as a psychological barrier:

*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* (46, p1253).

Indeed, among four studies surveying people’s opinions of lonely men and women, three suggested lonely men are particularly unlikely to be socially ‘accepted’ (47-49), and the other showed no significant difference (50). While the construction of a dominant masculine identity may characterise some men’s emotional reticence, they may also fear the ramifications of openly discussing emotional vulnerabilities.

**Table 3. Studies with evidence related to men’s reluctance to discuss emotions**

<insert table here>

3. Romantic relationships are more important for preventing loneliness in men.

Twenty-eight studies contributed evidence related to this construct (Table 4). Ten found a significantly larger difference in the prevalence of loneliness between single and married men than they did between single and married women (27, 28, 34, 37, 38, 51-55), and two also suggested that single men are lonelier than those in unmarried romantic relationships (51, 56). The findings from seven qualitative studies further emphasised the particular importance of romantic relationships to men (40, 42, 46, 57-60). As one man stated after the death of his wife, “all that intimacy goes and there is nothing to replace it” (59, p426). Three (61-63) also found men to be more ‘romantically’
lonely, though only one of these (62) found this to be statistically significant, and a fourth study measuring this concept found no significant difference (64). However, the survey instruments used in these 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 (61-63). As such, these studies are less effective for investigating this construct than the term ‘romantic loneliness’ implies.

Four studies refuted this construct. Spahni et al. (65) found widowhood affected men and women similarly, and Woodward et al. (66) found no significant sex differences in loneliness after divorce. Collins (60) found that only two of seven males widowers interviewed expressed a desire for a new partner, albeit only one specifically stated they did not desire one. Lastly, Dahlberg et al. (67) 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 in those seven years.

Two important sub-constructs were identified. Dykstra and Fokkema (37) found ‘partner-centeredness’ to be a statistically significant explanation of loneliness in divorced men, yet this was not significant among women, indicating men’s attitudes explain the findings related to this construct. Tornstam (35), however, noted that married women were significantly lonelier than married men, suggesting that marriage may also be less protective for women. Lastly, two perspectives on why men may be more greatly affected by partner status were identifiable. Firstly, men did seem to consider a romantic partner the first, and primary, person for meaningful social interaction: ‘we [men] do not talk like I’d talk with my wife’ (46, p1252). Secondly, men’s social networks were often found to be limited and dependent on their spouse (42, 59, 60). 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* (59, p804).

**Table 4. Studies with evidence related to men, loneliness, and romantic relationships**
4. 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 5). Three included both a direct question asking how often the respondent felt lonely, and a scale representing loneliness (39, 52, 68). 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 University of California loneliness (UCLA) scale, but that men appeared much lonelier when using the loneliness deprivation scale, and slightly lonelier using the ‘emotional/social loneliness inventory’ (69).

**Table 5. Studies including the results of multiple measurements of loneliness.**

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 6). Most studies used a significance level of .05, therefore this was adopted as the significance level for this analysis. Additional file 2 shows whether, and where, each study was placed in this table. Student populations appeared more likely to find men were lonelier, and older populations the reverse, so the number of studies conducted primarily with students was indicated in the table. Among twelve studies finding men to be ‘lonelier’, eight used student populations, and the other four the De Jong-Gierveld scale. When using the UCLA scale, over half of the studies found no significant 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.

**Table 6. Number of studies showing men/women lonelier by measurement type (stratified by student samples).**

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

Four studies contributed evidence related to this construct (table 7). Three asked men how they coped with loneliness, in which the most consistent finding was a reference to risky/unhealthy behaviours such as drinking alcohol (35, 40), substance abuse (36), visiting sex workers (40), and gambling (36). However, Botterill et al. (53), who found that loneliness was equally likely to result in problem gambling among men and women, offered some contrary evidence. Additionally, it is notable that Munoz-Laboy et al. (40) concluded the men in their study were more likely to enact these behaviours in lieu of discussing emotional issues with people who were not a romantic partner.

Table 7. Studies with evidence related to risky/unhealthy behaviour

<insert table here>

6. Feeling/being ‘insufficiently masculine’ can result in loneliness

Three studies contributed evidence related to this construct (table 8). In McAndrew and Warne’s (71) study, gay men identified a ‘loneliness of outsiderness’ in the heteronormative social spheres they inhabited, and in Rönkä et al. (72), one gay man identified something very similar. Ronkainen and Ryba’s (73) study of injured hockey players also suggested that a sense of gendered ‘outsiderness’ may be critical to men’s loneliness, as participants in this study implied they felt lonely despite remaining present at many of the same team events.

Table 8. Studies with evidence related to feeling/being ‘insufficiently masculine’

<insert table here>

7. Intersections of identity facilitate different gendered results

Across 18 studies; age, country of origin, sexuality, and involvement in sport were identified as identities that intersected with gender to influence the prevalence and experience of loneliness in men (table 9). In studies using the Rokach causes of loneliness scale, North American and South Asian men were more likely to identify ‘social marginality’ a cause of loneliness than women, yet this was not the case in West Indian or Spanish populations (29-32). As noted above, gay men discussed a
sense of loneliness arising from not fulfilling gender norms (71, 72). In sporting arenas, heroic ideals of loneliness, such as ‘suffering alone’ to avoid ‘letting the team down’ (73), or being a ‘lonely hero’ in the individual sport of running (74), were constructed by male participants. Female runners, however, lamented this ‘lone wolf’ mentality as a source of loneliness (74). Additionally, male students appeared to be lonelier than female students across the included studies (table 6), whereas older women were lonelier than older men in some studies (10, 52), possibly because of the greater number of female widows (10).

Nine of the 18 studies in table nine were qualitative studies exploring older men and loneliness (41, 42, 58-60, 75-78). Most of these acknowledged isolating life events such as widowhood, retirement, a loss of mobility (or other isolating health issue), and/or moving into specialist housing, to be more common with age (42, 58, 59, 75-77). They also constructed three suggestions for policy and practice. First, older men prefer services with a constructive goal (60, 75, 76, 78), or, as Collins (60) termed it, services that are ‘task-focused’. Secondly, several accounts suggested that older men’s lives are viewed from, or placed within, a feminine context (42, 60, 77), resulting in services that are unsuitable to older men’s wants and needs. Indeed, the assumption that the above ‘isolating events’ induced loneliness was considered part of this feminine context by some (42, 58). Lastly, several studies highlighted the importance of a supportive and non-competitive atmosphere - ‘there’s nothing to prove, and people come here in relaxed fashion doing that which they are able to do’ (75, p142).

**Table 9. Summary of the studies with important data about specific groups of men**

<insert table here>

**Discussion**

Loneliness is a pressing public health concern, and an area which may require gender-sensitive approaches and intervention. Our review has bridged an important gap in the literature by synthesising the current evidence on men and loneliness. Men’s reluctance to seek help, particularly for emotional issues, is well recognised (14), and the notion that men are hesitant to discuss loneliness would appear a parallel concept. Notably, though, a second dimension to this was
manifested in the current review; that a disinclination to discussing emotional issues may be a cause of loneliness, and not just a barrier to seeking help for it. Though this review did not find a significant body of evidence for it, the notion that feelings of loneliness are particularly likely to result in risky/unhealthy behaviour among is also consistent with a large body of research. Courtenay (13), for example, link men’s disinclination to seek help for mental health issues with higher rates of alcohol and drug abuse, Lee and Hanson (79) found loneliness to be a predictor of recidivism for sexual offences, and Hubach et al. (80) suggested that young men self-medicated loneliness with drugs and sex. Furthermore, inclusion point 7b specified that in statistical studies not explicitly focused on sex and loneliness, but including tests of sex, loneliness, and a third variable, the third variable should not be related to unhealthy behaviours such as drug or alcohol abuse. As such, this review may have missed evidence for this construct.

Both this review and some narrative literature has suggested the possibility that men are less inclined to state they are lonely in response to a direct survey question (81, 82). However, this may not mean an indirect scale is ‘better’—a recent Age UK report found many people are lonelier using a direct question, suggesting the UCLA scale also misses some people’s loneliness (83). Indeed, for Jylhä (84), 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 6), something that was largely a result of their greater ‘social’ loneliness, and Oshagan and Allen (69, p402) 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.

Though the UCLA scale appears least likely to find a sex difference in the prevalence of loneliness, Juntilla et al. (36) found many of the individual items displayed statistically significant sex differences. They even find that men seem to be emotionally lonelier, and women socially lonelier, suggesting different ways of measuring forms of loneliness may also provide markedly different results.

Sensitivity to how gender (or other factors) affect the findings, and the use of multiple tools if possible, would therefore seem more appropriate than the pursuit of a ‘best’ tool.

Franklin et al. (16) define loneliness as ‘belongingness’, and trace men’s belongingness as historically
constructed through participation in public realms, whereas women act/acted as ‘kin-keepers’, taking responsibility for family and friendship networks. In turn, men’s construction of loneliness as related to a perception of poor social networks may represent poor engagement with the public realm, and their greater reliance on romantic relationships could originate from the tendency for women to act as ‘kin-keepers’. Connell’s (85, 86) 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 the concept of a ‘loneliness of outsidership’. Indeed, Connell’s (87, p40) list of insults denoting femininity and/or homosexuality strikingly exemplifies how this may be culturally constructed. It may also offer insight on why men may not wish to discuss emotional issues, or even admit to loneliness on a survey, given that to do so may undermine a powerful re. ‘hegemonic’ persona (15, 88).

At times, the synthetic constructs identified in the current review appeared to be intertwined. Indeed, men’s reluctance to discuss emotional issues has been proposed to be the cause of men’s poorer quality social networks (46), their greater dependency on romantic relationships (46), their disinclination to state they are lonely (39, 40, 81), and their increased propensity towards risky or unhealthy behaviours (40). The notion of being/feeling insufficiently masculine as a cause of loneliness, though, would appear to suggest a complex situation where being emotionally candid can be a cause of loneliness too. Nevertheless, some studies, albeit all of which were focused on older men, have suggested this can be overcome, particularly in social settings where men can take part in ‘constructive’ activities inflected with a ‘supportive’ atmosphere (46, 75, 76, 78, 89).

Strengths and limitations
Synthetic constructs are identified inductively by examining a broad array of data, thus reviews focused specifically on researching one of these constructs would likely 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. An iterative search strategy, though, would be unable to systematically summarise the evidence base. Additionally, though the articles that could not be accessed were deemed unlikely to add important perspectives, it cannot be guaranteed.

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. Though occasionally commented on, the potential inter-relatedness of these synthetic constructs was neither widely nor thoroughly investigated. Methodological issues were present in some, such as those measuring ‘romantic’ loneliness (61–64), or those using sex-role scales, which have been noted as inherently problematic (86, 90). The use of loneliness scales may also be problematic given the findings above. The decision to not exclude articles on the basis of quality may further limit the confidence with which the constructs represent genuine trends. Lastly, if intersections of identity affect men’s constructions and experiences of loneliness, these synthetic constructs may not be equally true for all groups of men. 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. All this suggests the extent to which the synthetic constructs represent a meaningful perspective of modern Britain is unclear. Conversely, the focus on a small number of ‘western’ countries severely constrains their international relevance. Nevertheless, they are useful as a summary of important perspectives in the field of men and loneliness.

Implications for future research, policy and practice
The seven constructs, and their sub-constructs, can be used as a concise, if not exhaustive, summary of what may be important in research, policy, and practice related to men and loneliness. Partner status appeared to be a more powerful ‘risk-factor’ for men than women, suggesting that policy and practice can benefit from acknowledging this risk-factor, but also that actions to facilitate quality social networks, regardless of partner status, may work to reduce dependency on romantic relationships. Working to overcome a masculine reticence to discuss emotional issues appears central to preventing and alleviating loneliness in men. Moreover, doing so appeared to require both
challenging masculine ideals of invulnerability, and facilitating an atmosphere in which men do not fear being emotionally candid. In studies of older men, environments with a constructive focus appeared to provide meaning to a social activity, within which supportive atmospheres could be built. The synthetic constructs also provided important information on identifying whether a man is lonely. If asked in writing, using a direct question may underestimate loneliness, whereas a scale focused on ‘social’ loneliness may capture the form of loneliness a man is most likely to feel. Lastly, though details were limited, it was clear that different groups of men do not have the same views on what loneliness represents, nor the same experiences of it. Sensitivity to the cultural context, then, is paramount.

Conclusion
The current literature on loneliness points toward important sex and gender differences. Men appear to be relatively reluctant to discuss emotional issues, and this can be a barrier to both seeking help for loneliness and building loneliness preventing relationships. Furthermore, this reticence can be constructed as a method of enacting masculinities, but may also represent a fear of negative consequences for initiating emotional conversation. In statistical studies, the measurement of loneliness appears to affect the gendered prevalence of loneliness, with a ‘direct’ question generally showing women to be lonelier, the UCLA scale little difference, and the de Jong-Gierveld scale showing men to be socially lonelier, but women emotionally lonelier. As the latter helped manifest, men appeared to construct loneliness in relation to their social networks, whereas women seemed to place it as an emotional experience. Many studies found men to be comparatively more reliant on romantic partners for preventing/alleviating loneliness, and it was also identified that lonely men may be particularly likely to engage in risky/unhealthy behaviour. Lastly, qualitative research suggested feeling or being ‘insufficiently masculine’ can result in feeling a highly gendered ‘loneliness of outsiderness’, particularly among gay men. However, it is unclear how well these ‘synthetic constructs’ are applicable across culturally diverse societies, and the extent to which they interrelate is particularly under-researched and under-theorised. Nevertheless, they represent a key set of concepts for understanding men and loneliness, allowing greater context for future research, policy
and practice.

Declarations

Abbreviations

United Kingdom (UK), Critical interpretive synthesis (CIS), preferred reporting items for systematic reviews and meta-analyse (PRISMA), University of California loneliness scale (UCLA).

Ethics approval and consent to participate

Not applicable

Consent for publication

Not applicable

Availability of data and materials

All data generated or analysed during this study are included in this published article [and its supplementary information files].

Competing interests

The authors declare that they have no competing interests

Funding

This research was funded as part of a PhD by the White Rose Doctoral Training Programme (WRDTP), part of the Economics and Social Research Council (ESRC). The funding body had no influence on the manuscript.

Authors’ contributions

JR offer major contributions to the study design, conducted and analysed the research, and had a major role in writing the manuscript. PG and MK offered major contributions to the design, checked the data and analysis, and offered edits and advice on the final manuscript. All authors have read and approved the manuscript.

Acknowledgements

David Brown, librarian at the University of York, for aiding with the search strategy.

References

1. Townsend P. The family life of old people; an inquiry in East London. London: Routledge & K. Paul; 1957.

2. Perlman D, Peplau LA. Toward a social psychology of loneliness. Personal relationships. 1981;3:31-56.

3. Weiss RS. Attachment in adult life. The place of attachment in human behavior. 1982:171–84.
4. Cattan M, White M, Bond J, Learmouth A. Preventing social isolation and loneliness among older people: a systematic review of health promotion interventions. Ageing & Society. 2005;25(1):41–67.

5. Valtorta NK, Kanaan M, Gilbody S, Hanratty B. Loneliness, social isolation and social relationships: what are we measuring? A novel framework for classifying and comparing tools. BMJ open. 2016;6(4):e010799.

6. Cross BR. Trapped in a bubble: An investigation into triggers for loneliness in the UK. British Red Cross UK; 2016.

7. Cacioppo JT, Hughes ME, Waite LJ, Hawkley LC, Thisted RA. Loneliness as a specific risk factor for depressive symptoms: cross-sectional and longitudinal analyses. Psychology and aging. 2006;21(1):140.

8. Holt-Lunstad J, Smith TB, Layton JB. Social relationships and mortality risk: a meta-analytic review. PLoS med. 2010;7(7):e1000316.

9. Valtorta NK, Kanaan M, Gilbody S, Ronzi S, Hanratty B. Loneliness and social isolation as risk factors for coronary heart disease and stroke: systematic review and meta-analysis of longitudinal observational studies. Heart. 2016;102(13):1009–16.

10. Victor CR, Scambler SJ, Marston L. Older people’s experiences of loneliness in the UK. Social Policy & Society. 2006;5(1).

11. Government H. A connected society: a strategy for tackling loneliness—laying the foundations for change. HM Government London; 2018.

12. Organization WH. Strategy on the health and well-being of men in the WHO European Region. Copenhagen: WHO Regional Office for Europe; 2018.

13. Courtenay WH. Constructions of masculinity and their influence on men’s well-being: a theory of gender and health. Social science & medicine. 2000;50(10):1385–401.

14. Yousaf O, Grunfeld EA, Hunter MS. A systematic review of the factors associated with delays in medical and psychological help-seeking among men. Health psychology review. 2015;9(2):264–76.

15. Addis ME, Hoffman E. Men’s depression and help-seeking through the lenses of gender. 2017.

16. Franklin A, Barbosa Neves B, Hookway N, Patulny R, Tranter B, Jaworski K. Towards an
understanding of loneliness among Australian men: Gender cultures, embodied expression and the social bases of belonging. Journal of sociology. 2019;55(1):124–43.

17. Dixon-Woods M, Cavers D, Agarwal S, Annandale E, Arthur A, Harvey J, Hsu R, Katbamna S, Olsen R, Smith L, Riley R. Conducting a critical interpretive synthesis of the literature on access to healthcare by vulnerable groups. BMC medical research methodology. 2006;6(1):35.

18. McFerran KS, Garrido S, Saarikallio S. A critical interpretive synthesis of the literature linking music and adolescent mental health. Youth & Society. 2016;48(4):521–38.

19. Talseth AG, Gilje FL. Nurses’ responses to suicide and suicidal patients: a critical interpretive synthesis. Journal of clinical nursing. 2011;20(11-12):1651–67.

20. Noyes J, Booth A, Moore G, Flemming K, Tunçalp Ö, Shakibazadeh E. Synthesising quantitative and qualitative evidence to inform guidelines on complex interventions: clarifying the purposes, designs and outlining some methods. BMJ global health. 2019;4(Suppl 1):e000893.

21. Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. BMC medical research methodology. 2008;8(1):45.

22. Muyan M, Chang EC. Perfectionism as a Predictor of Suicidal Risk in Turkish College Students: Does Loneliness Contribute to Further Risk? Cognitive Therapy and Research. 2015;39(6):776–84.

23. Igarashi T. Development of the Japanese version of the three-item loneliness scale. BMC Psychology. 2019;7(1).

24. Stokes J, Levin I. GENDER DIFFERENCES IN PREDICTING LONELINESS FROM SOCIAL NETWORK CHARACTERISTICS. Journal of Personality and Social Psychology. 1986;51(5):1069–74.

25. Bell RA, Gonzalez MC. Loneliness, Negative Life Events, And The Provisions Of Social Relationships. Communication Quarterly. 1988;36(1):1-15.

26. Bell RA. GENDER, FRIENDSHIP NETWORK DENSITY, AND LONELINESS. Journal of Social Behavior and Personality. 1991;6(1):45-56.

27. Dykstra PA, Gierveld JD. Gender and marital-history differences in emotional and social loneliness among Dutch older adults. Canadian Journal on Aging-Revue Canadienne Du Vieillissement. 2004;23(2):141-55.
28. Patulny R, Wong M. Poor Mothers and Lonely Single Males: The ‘Essentially’ Excluded Women and Men of Australia. Social Policy and Society. 2013;12(2):221–39.

29. Rokach A, Brock H. The effects of gender, marital status, and the chronicity and immediacy of loneliness. Journal of Social Behavior & Personality. 1995;10(4):833–48.

30. Rokach A. The Relation of Cultural Background to the Causes of Loneliness. Journal of Social and Clinical Psychology. 1998;17(1):75–88.

31. Rokach A, Orzeck T, Moya MC, Exposito F. Causes of loneliness in North America and Spain. European Psychologist. 2002;7(1):70–9.

32. Rokach A. The Lonely and Homeless: Causes and Consequences. Social Indicators Research. 2004;69(1):37–50.

33. Sundberg CP. Loneliness: Sexual and racial differences in college freshmen. Journal of College Student Development. 1988;29(4):298–305.

34. Stevens N, Westerhof GJ. Marriage, Social Integration, and Loneliness in the Second Half of Life: Comparison of Dutch and German Men and Women. Research on Aging. 2006;28(6):713–29.

35. Tornstam L. Loneliness in Marriage. Journal of Social and Personal Relationships. 1992;9(2):197–217.

36. Junttila N, Kainulainen S, Saari J. Mapping the lonely landscape - assessing loneliness and its consequences. Open Psychology Journal. 2015;8(1):89–96.

37. Dykstra PA, Fokkema T. Social and emotional loneliness among divorced and married men and women: Comparing the deficit and cognitive perspectives. Basic and Applied Social Psychology. 2007;29(1):1–12.

38. Gierveld JdJ, van Groenou MB, Hoogendoorn AW, Smit JH. Quality of Marriages in Later Life and Emotional and Social Loneliness. Journals of Gerontology Series B: Psychological Sciences and Social Sciences. 2009;64B(4):497–506.

39. Nicolaisen M, Thorsen K. Who are lonely? Loneliness in different age groups (18–81 years old), using two measures of loneliness. The International Journal of Aging & Human Development. 2014;78(3):229–57.
40. Munoz-Laboy M, Hirsch JS, Quispe-Lazaro A. Loneliness as a Sexual Risk Factor for Male Mexican Migrant Workers. American Journal of Public Health. 2009;99(5):802–10.

41. Cela E, Fokkema T. Being lonely later in life. Ageing and Society. 2017;37(6).

42. Davidson K. “Why Can’t a Man Be More Like a Woman?”: Marital Status and Social Networking of Older Men. The Journal of Men’s Studies. 2004;13(1):25–43.

43. Blier MJ, Blier-Wilson LA. Gender differences in self-rated emotional expressiveness. Sex Roles. 1989;21(3–4):287–95.

44. Wheeler L, Reis H, Nezlek JB. Loneliness, social interaction, and sex roles. Journal of Personality and Social Psychology. 1983;45(4):943–53.

45. Wheeless VE, Zakahi WR, Chan MB. A Test of Self-Disclosure Based on Perceptions of a Target’s Loneliness and Gender Orientation. Communication Quarterly. 1988;36(2):109–21.

46. McKenzie SK, Collings S, Jenkin G, River J. Masculinity, social connectedness, and mental health: Men’s diverse patterns of practice. American Journal of Men’s Health. 2018;12(5):1247–61.

47. Borys S, Perlman D. GENDER DIFFERENCES IN LONELINESS. Personality and Social Psychology Bulletin. 1985;11(1):63–74.

48. Lau S, Gruen GE. The social stigma of loneliness: Effect of target person’s and perceiver’s sex. Personality and Social Psychology Bulletin. 1992;18(2):182–9.

49. Lau S, Kong CK. The acceptance of lonely others: Effects of loneliness and gender of the target person and loneliness of the perceiver. Journal of Social Psychology. 1999;139(2):229–41.

50. Rotenberg KJ, Kmill J. Perception of Lonely and Non-Lonely Persons as a Function of Individual Differences in Loneliness. Journal of Social and Personal Relationships. 1992;9(2):325–30.

51. Peters A, Liefbroer AC. Beyond Marital Status: Partner History and Well-Being in Old Age. Journal of Marriage and the Family. 1997;59(3):687–99.

52. Pinquart M, Sörensen S. Gender differences in self-concept and psychological well-being in old age: A meta-analysis. Journals of Gerontology - Series B Psychological Sciences and Social Sciences. 2001;56(4):P195-P213.

53. Botterill E, Gill PR, McLaren S, Gomez R. Marital Status and Problem Gambling Among Australian
Older Adults: The Mediating Role of Loneliness. Journal of gambling studies. 2016;32(3):1027–38.

54. Nowland R, Talbot R, Qualter P. Influence of loneliness and rejection sensitivity on threat sensitivity in romantic relationships in young and middle-aged adults. Personality and Individual Differences. 2018;131:185–90.

55. Wood LA. Loneliness, social identity and social structure. Essence: Issues in the Study of Ageing, Dying, and Death. 1978;2(4):259–70.

56. Knox D, Vail-Smith K, Zusman M. The lonely college male. International Journal of Men’s Health. 2007;6(3):273–9.

57. Gerstel N. Divorce, gender, and social integration. Gender & Society. 1988;2(3):343–67.

58. Bergland AMG, Tveit B, Gonzalez MT. Experiences of older men living alone: A qualitative study. Issues in Mental Health Nursing. 2016;37(2):113–20.

59. Nurmi A, Mackenzie CS, Roger K, Reynolds K, Urquhart J. Older men’s perceptions of the need for and access to male-focused community programmes such as Men’s Sheds. Ageing and Society. 2018;38(4):794–816.

60. Collins T. The personal communities of men experiencing later life widowhood. Health and Social Care in the Community. 2018;26(3):e422-e30.

61. Pollet TV, Saxton TK, Mitchell M. Measurement equivalence between men and women in the abbreviated social and emotional loneliness scale for adults (SELSA). Interpersona. 2018;12(2):283–92.

62. DiTommaso E, Brannen C, Burgess M. The Universality of Relationship Characteristics: A Cross-Cultural Comparison of Different Types of Attachment and Loneliness in Canadian and Visiting Chinese Students. Social Behavior and Personality. 2005;33(1):57–67.

63. Wang Q, Fink EL, Cai DA. Loneliness, gender, and parasocial interaction: A uses and gratifications approach. Communication Quarterly. 2008;56(1):87–109.

64. Schmitt J, Kurdek LA. Age and gender differences in and personality correlates of loneliness in different relationships. Journal of Personality Assessment. 1985;49(5):485–96.

65. Spahni S, Bennett KM, Perrig-Chiello P. Psychological adaptation to spousal bereavement in old
age: The role of trait resilience, marital history, and context of death. Death Studies. 2016;40(3):182–90.

66. Woodward JC, Zabel J, De Costa C. Loneliness and divorce. Journal of Divorce. 1981;4(1):73–82.

67. Dahlberg L, Andersson L, McKee KJ, Lennartsson C. Predictors of loneliness among older women and men in Sweden: A national longitudinal study. Aging & Mental Health. 2015;19(5):409–17.

68. Schultz NR, Moore D. The loneliness experience of college students: Sex differences. Personality and Social Psychology Bulletin. 1986;12(1):111–9.

69. Oshagan H, Allan RL. Three loneliness scales: An assessment of their measurement properties. Journal of Personality Assessment. 1992;59(2):380–409.

70. Helm PJ, Rothschild LG, Greenberg J, Croft A. Explaining sex differences in existential isolation research. Personality and Individual Differences. 2018;134:283–8.

71. McAndrew S, Warne T. Coming out to talk about suicide: Gay men and suicidality. International Journal of Mental Health Nursing. 2010;19(2):92-101.

72. Rönkä AR, Taanila A, Rautio A, Sunnari V. Multidimensional and fluctuating experiences of loneliness from childhood to young adulthood in Northern Finland. Advances in Life Course Research. 2018;35:87–102.

73. Ronkainen NJ, Ryba TV. Is hockey just a game? Contesting meanings of the ice hockey life projects through a career-threatening injury. Journal of Sports Sciences. 2017;35(10):923–8.

74. Ronkainen NJ, Watkins I, Ryba TV. What can gender tell us about the pre-retirement experiences of elite distance runners in Finland?: A thematic narrative analysis. Psychology of Sport and Exercise. 2016;22:37–45.

75. Milligan C, Payne S, Bingley A, Cockshott Z. Place and wellbeing: shedding light on activity interventions for older men. Ageing and Society. 2015;35(1):124–49.

76. Reynolds A, Mackenzie CS, Medved M, Roger K. The experiences of older male adults throughout their involvement in a community programme for men. Ageing and Society. 2015;35(3):531–51.

77. Robinson P. Ageing fears and concerns of gay men aged 60 and over. Quality in Ageing and Older Adults. 2016;17(1):6–15.
78. Anstiss D, Hodgetts D, Stolte O. Men’s re-placement: Social practices in a Men’s Shed. Health & Place. 2018;51:217–23.

79. Lee SC, Hanson RK. Recidivism risk factors are correlated with a history of psychiatric hospitalization among sex offenders. Psychological services. 2016;13(3):261.

80. Hubach RD, DiStefano AS, Wood MM. Understanding the influence of loneliness on HIV risk behavior in young men who have sex with men. Journal of Gay & Lesbian Social Services. 2012;24(4):371–95.

81. Gierveld JdJ, Van Tilburg TG, Dykstra PA. New ways of theorizing and conducting research in the field of loneliness and social isolation. 2018.

82. Rokach A. The effect of gender and culture on loneliness: A mini review. Emerging Science Journal. 2018;2(2):59–64.

83. Age U. All the lonely people: Loneliness in later life. London, England: Author. 2018.

84. Jylhä M. Old age and loneliness: cross-sectional and longitudinal analyses in the Tampere Longitudinal Study on Aging. Canadian Journal on Aging/La revue canadienne du vieillissement. 2004;23(2):157–68.

85. Connell RW. Masculinities. Berkeley. University of California press CA; 1995.

86. Connell RW. Masculinities: Polity; 2005.

87. Connell Reawyn W. The social organization of masculinity. W: Whitehead Stephen M., Barrett Frank J.(red.), The masculinities reader …; 2001.

88. Addis ME, Mahalik JR. Men, masculinity, and the contexts of help seeking. American psychologist. 2003;58(1):5.

89. Ratcliffe J, Wigfield A, Alden S. ‘A lonely old man’: empirical investigations of older men and loneliness, and the ramifications for policy and practice. Ageing & Society. 2019:1–21.

90. Thompson Jr EH, Langendoerfer KB. Older men’s blueprint for “being a man”. Men and Masculinities. 2016;19(2):119–47.

91. Clinton M, Anderson LR. Social and Emotional Loneliness: Gender Differences and Relationships with Self-Monitoring and Perceived Control. The Journal of Black Psychology. 1999;25(1):61–77.
92. Petersen J, Thielke S, Austin D, Kaye J. Phone behaviour and its relationship to loneliness in older adults. Aging & Mental Health. 2016;20(10):1084–91.

93. Rokach A, Matalon R, Rokach B, Safarov A. The effects of gender and marital status on loneliness of the aged. Social Behavior and Personality. 2007;35(2):243–53.

94. Ayalon L, Shiovitz-Ezra S, Palgi Y. Associations of loneliness in older married men and women. Aging & Mental Health. 2013;17(1):33–9.

Supplementary Files Legend

Additional files

Additional file 1
.doc
Detailed search strings for each database
Lists the exact search string for each database used for the literature searches, and the numbers of results in each (prior to deduplication)

Additional file 2
.doc
Quantitative studies characteristics and data
Relays each statistics focused article’s title, the details of its sample, and summaries of its relevant variables, statistical methods, and results.

Additional file 3
.doc
Qualitative studies characteristics and data
Presents the qualitative and mixed-methods article’s title, the context of the study, the details of its sample, and a summary of the relevant findings as relayed by the author/s.

Additional file 4
.doc
Results of the thematic analysis conducted on the quantitative studies
Displays eight ‘data-driven’ themes identified in the statistical studies, and the studies and data they
were identified from. The eight themes were: ‘men are more ‘hurt’ by loneliness’; ‘men’s partner status has a greater impact on the likeliness of stating they are lonely’; ‘men and women experience different types of loneliness’; ‘different measurements of loneliness facilitate different gendered results’; ‘gender roles may affect the construction and experience of loneliness’; ‘lonely men may be less socially accepted than lonely women’; ‘men act differently when faced with loneliness’; and ‘social networks, loneliness, sex and gender’.

Additional file 5

.doc

Results of the thematic analysis conducted on the qualitative and mixed-methods studies

Displays six ‘data-driven’ themes identified in the qualitative and mixed-methods studies, and the studies and data they were identified from. The six themes were: ‘romantic relationships are particularly important for preventing loneliness in men’; ‘men find it more difficult to engage in intimate conversation’; ‘not being masculine enough is a cause of loneliness’; ‘lonely men are more likely to conduct risky/unhealthy behaviours’; ‘men, loneliness, and sport’; and ‘loneliness in older men’.

Tables

Due to technical limitations, Tables 1 - 9 are only available for download from the Supplementary Files section.

Figures
Total number of records retrieved through database searching – 5,148

Records remaining after duplications removed using endnote programme – 4,080

Titles and Abstracts screened – 4,080

Records retrieved for full text screening – 1,185

Records removed after title and abstract screening – 2,895

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
Study not of adults – 1
Study sample does not meet sex/gender criteria – 40
Does not meet any of the inclusion criteria detailed in step 7 – 899
No access – 121 (see figure 2)
Duplicate dataset – 1
Duplicate study not recognised by Endnote – 1
Study not published at time of analysis - 1

Records included – 79

Figure 1

PRISMA flow-chart of included studies.

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 Research Gate 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 inter-lending service = 18
Received via University inter-lending service = 18

Records included after University provided = 13
Records excluded after University provided = 5

Stage 3: Totals

Records excluded due to no access = 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

---

1 82 of these were published before 2000. Among the 39 post 2000 articles, 5 appeared unlikely to meet the language and country criteria, 2 seemed unlikely to have been peer reviewed, 2 did not provide an abstract, and 2 did not appear to be empirical research; and 1 seemed focused on 1940’s research.
Flow-chart describing the process for articles not accessible via the University/open access.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

Tables.docx
Additional file 1.docx
additional file 5.docx
additional file 3.docx
additional file 4.docx
additional file 2.docx