Scoping review

Frailty and spousal/partner bereavement in older people

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Abstract

Introduction: As life expectancy worldwide is increasing, the prevalence of frailty is also on the rise. This scoping review aimed to identify and collate published information relating to frailty and spousal/partner bereavement in older people.

Method: A scoping review framework was used to identify papers that discussed frailty and spousal/partner bereavement. For example, the death of a life partner whether married or unmarried co-habiting, in community dwelling and individuals aged 60+ years old, were included.

Results: Four studies were included. Overall, spousal/partner bereavement was negatively associated with the incidence and level of frailty. All four studies reported that elderly widowed females had a higher prevalence of frailty compared to married females and widowed and/or married males. Males were also less likely to be widowed or living alone compared to females. Female longevity and the potential of living alone once bereaved increases the risk of frailty for this population.

Discussion: This review identifies the needs of ageing populations and the potential risk of frailty associated with spousal/partner bereavement.

Conclusion: This review helps make nurses more aware of the possible impact of bereavement on the development of frailty in older people and identify those most at risk, and/or in need of specific support/interventions.

Key Words: Frailty, ageing, aging, widowhood, bereavement, risk.

What is known and what this paper adds:

1. This review summarises the sparse but existent evidence base on frailty in bereaved spouses/partners
2. The review highlights the need to apply a clear operational definition for frailty
3. The results help nurses gain an understanding of the physical and psychological signs of frailty in older adults
4. This paper highlights the factors that may contribute to frailty following bereavement
5. More research is needed to understand the factors which may mediate the development of frailty following bereavement
6. The paucity of results highlights the need for further studies
Introduction

Life expectancy is increasing (United Nations Department of Economic and Social Affairs Population Division, 2017), as data from the World Health Organisation indicate that 900 million people are aged over 60 (12% of global population) and this is predicted to increase to 2 billion (22% of the global population) by 2050 (The World Health Organisation, 2020). Typically, older age is correlated with increased health-related problems and becoming frailer (Kojima, Liljas and Iliffe, 2019). It is estimated that one quarter of people over 85 years are frail and have significantly increased risk of falls, disability, long-term care and death (Fried et al., 2001; Song, Mitnitski and Rockwood, 2011; Buckinx et al., 2015). In the United Kingdom (UK), it is projected that by 2036, over half of all local authorities will have 25% or more of their local population aged 65 and over (Office for National Statistics, 2017). Growing interest in frailty research has attempted to provide an improved understanding of the heterogeneous factors that may contribute to the onset of frailty (Clegg et al., 2013).

Currently, there is no agreed operational definition for the syndrome known as ‘frailty’ nor agreed diagnostic criteria (Hogan, 2006; Bergman et al., 2007; Buckinx et al., 2015). Frailty is an ambiguous term; however, it commonly refers to an increased vulnerability to adverse health outcomes when exposed to stressors (either internal or external) (Clegg et al., 2013). In 2016, a WHO consortium defined frailty as “a clinically recognisable state in which the ability of older people to cope with everyday or acute stressors is compromised by an increased vulnerability brought by age-associated declines in physiological reserve and function across multiple organ systems” (WHO Clinical Consortium on Healthy Ageing, 2017). Frailty is also used as a prognostic indicator (RCP, 2020). For example, in the COVID-19 pandemic, frailty has been used to identify those at higher risk of poor outcomes (RCP, 2020).

The two most frequently used frailty definitions and assessment tools are the frailty phenotype (Kojima, Liljas and Iliffe, 2019) (also known as Fried’s definition or Cardiovascular Health Study (CHS) definition) and the frailty index (FI) (Jones, Song and Rockwood, 2004). The frailty phenotype classifies frailty as a syndrome that has three or more of five phenotypic criteria: weakness as measured by low grip strength, slowness by slowed walking speed, low level of physical activity, low energy or self-reported exhaustion, and unintentional weight loss. Pre-frailty is defined as having one or two criteria present. Non-frail older adults are classified as having none of the above five criteria. The frailty index is a measure of the number of ‘deficits’ identified during a comprehensive geriatric assessment, including diseases, physical and cognitive impairments, psychosocial risk factors, and common geriatric syndromes other than frailty (Jones, Song and Rockwood, 2004; Searle et al., 2008). Variables are identified as meeting the FI inclusion deficit criteria if the ‘deficit’ is acquired, is age-associated, is associated with an adverse outcome, and should not saturate too early (Jones, Song and Rockwood, 2004; Searle et al., 2008; Leng, Chen and Mao, 2014).

Due to the predicted increase of individuals living into older age, and the potential subsequent increase of frail older adults, it is essential that the predictive characteristics of the syndrome, including factors that may impact onset, are better understood. For example, while frailty is most commonly identified in older adults, frailty is not determined by old age (Schuurmans et al., 2012). Frailty is a spectrum syndrome that can encompass a myriad of environmental, psychological and physiological impairments (Gobbens et al., 2010). Furthermore, several sociodemographic variables have been associated with frailty, including age and gender (Grden et al., 2017). Haapanen (2018) and colleagues reported that frailty is, in part, programmed in early life and is associated with lower socio-economic status in adulthood (Haapanen et al., 2018). Regarding later life, there is extensive research demonstrating a negative impact of widowhood on health outcomes. These impacts include a higher risk of disability (Goldman, Korenman and Weinstein, 1995), higher rates of depression and psychological distress (Gove, 1975; Pearlin and Johnson, 1977) and increased mortality rates in separated individuals compared to married individuals (Gove, 1975). Research examining the relationship between marital status, specifically widowhood, and frailty is limited (Trevisan et al., 2016). Whilst a large body of research has examined the various psychological and physiological complications which may be associated with spousal loss, such as cardiovascular outcomes (e.g. Ennis and Majid, 2019), this scoping review focuses specifically on studies where a specific frailty definition was...
applied, in order to provide a more focused and clinically-informed review.

While frailty appears to affect females more than males, Trevisan and colleagues (2016) assessed a combined community dwelling and nursing home population sample, reporting that widowed or single males have a higher risk of developing frailty compared to married males, whereas widowed women carry a significantly lower risk of becoming frail compared to married women. The same authors identified unintentional weight loss, low daily energy expenditure, and exhaustion as factors associated with marital status and linked to related caring responsibilities which contributed to frailty (Trevisan et al., 2016). Studies have also identified gender-specific differences in marital-status, mortality and psychological wellbeing, showing an increased risk for divorced, single, widowed or never married males compared to females (Gove, 1975; Pearlin and Johnson, 1977; Hu and Goldman, 1990; Trevisan et al., 2016). Despite an association between marital status and healthy ageing being reported, little is known about the relationship between spousal/partner bereavement (i.e. the death of a life partner whether married or unmarried co-habiting) in community dwelling populations and frailty.

The aim of this review is to identify studies which examine the impact of partner/spousal bereavement on the development of frailty in older people living in community settings

Methods
Study design
A scoping method was used as initial searches revealed a paucity of pre-identified published studies, but nonetheless it was appropriate to identify and summarise this sparse literature (Arksey and O’Malley, 2005). It was anticipated that the current literature would be methodologically heterogenous and for this reason, the methodological framework proposed by Arksey and O’Malley (2005) and the guidelines for best practice provided by Colquhoun et al. (2014) were implemented, in addition to the PRISMA-ScR (Tricco et al., 2018) to support a more rigorous and systematic approach. The Arksey and O’Malley’s framework consists of six stages: (1) identifying the research question, (2) identifying relevant studies, (3) study selection, (4) charting the data, (5) collating, summarising and reporting results and (6) consultation with stakeholders. The optional final stage, consultation, was not included in the current scoping review, as this review was intended for publication to disseminate findings. Stages 1-5 are discussed below.

Stage 1: identifying the research question
This review aims to address the following questions:
1. Is there a relationship between spousal/partner bereavement and frailty?
2. What factors influence frailty in bereaved older adults (60+) (protective or other)?
3. What interventions are available, within the UK and internationally, that prevent any impact of spousal/partner bereavement, resulting in frailty?

Stage 2: identifying relevant studies
An initial exploratory online search using the electronic databases MEDLINE (PubMed) and CINAHL identified a paucity of articles and evaluation reports related to the topic of spousal/partner bereavement and frailty. Next, the words in the title and abstract of relevant retrieved papers were then analysed in addition to the index terms used to describe the articles. These combined terms were used to form the keywords and index terms (see Appendix 1) for the systematic search strategy that was undertaken across all specified databases. Databases were searched from their start dates to April 2020 and searches were re-ran in June 2020 to make sure no new relevant new literature was overlooked.

Databases used were CINAHL, British Nursing Index, Web of Knowledge, Cochrane library, PsychInfo, SocIndex, University of York Centre for Reviews and Dissemination (DARE, NHS EED, HTA), JBI Database of Systematic Reviews and Implementation Reports, MEDLINE, EPPI, Epistemonikos, grey literature and references of included studies. Google Scholar citations of identified reports and articles were also searched for additional studies. The inclusion and exclusion criteria are shown in Table 1. The review was international in scope; however, only English language studies were included.

Stage 3: study selection
Initial screening selection (title and abstract screening) was distributed amongst four reviewers, divided into two groups. This was undertaken to measure inter-rater reliability using Cohen’s kappa coefficient (κ) in the study selection part of the review, aiming to add a new dimension to scoping
reviews. Each group screened the full initial screening selection, with hits divided amongst both reviewers in each group. The screening selection for reviewer one from group A was paired with reviewer one from Group B and similarly for reviewer two from group A and reviewer two from Group B.

After eliminating the duplicates (studies that were identified more than once by the search engines), an initial screening of titles, abstracts, and summaries (if applicable) was undertaken to exclude records that clearly did not meet the inclusion criteria. Each record was classified as ‘include’ or ‘exclude’ to identify relevant, and exclude irrelevant, literature. The researchers were inclusive at this stage and, if uncertain about the relevance of a publication or report, it was left in. Any disagreements in studies shortlisted for full text screening were solved by consensus or by the decision of a fifth reviewer, where necessary.

Shortlisted study selection (full text screening) was then performed by four reviewers independently. Any disagreements were solved by consensus or by the decision of a fifth reviewer where necessary. The agreement between the reviewers was again assessed with Cohen’s kappa coefficient ($\kappa$), for both sets of paired reviewers. The full text was obtained for all the records that potentially met the inclusion criteria (based on the title and abstract/summary only), as agreed by all reviewers. In this second step, all the full text papers were screened against the inclusion criteria, using a standardised tool. Studies that did not meet the inclusion criteria were listed with the reasons for exclusion. Multiple publications and reports on the same interventions were linked together and compared for completeness. The record containing the most complete data on any single intervention was identified as the primary article in the review, which was usually the original study or most recent evaluation report. A total of four studies met our inclusion criteria and were included in the review.

### Stage 4: charting the data

Data (or study findings) for analysis were extracted from the included studies and managed in an Excel spreadsheet. The data extraction sheet was tested on three included papers and, where necessary, it was revised to ensure it could be reliably interpreted and would capture all relevant data from different study designs. Extracted data included authors; year of study/report; aim/purpose; type of paper (e.g. journal article, annual evaluation report etc); country/location; study population (e.g. age of participants, gender, marital status, living arrangements, health status prior to bereavement); average length of relationship (in years); average length of bereavement (in years); sample size; study design; frailty definition/criteria; frailty rate; factors that impact on frailty rate (protective and negative factors); description of any interventions/support for study population; description of the interventions/support (if any); factors that facilitate and/or hinder access to interventions/support (if any) and any key findings that related to the review questions.

### Stage 5: Collating, Summarising and Reporting the Results

A narrative synthesis was implemented to identify the main outcomes from the included studies, and findings were recorded using an Excel spreadsheet.

### Results

Initial screening (title and abstract) of 2812 records was completed independently by four reviewers (removed for review). Reviewers were divided into two groups, agreement was made between group 1 reviewers, assessed with the Cohen’s kappa ($\kappa$) = 0.25 (fair agreement). The
agreement between group 2 reviewers, assessed with the Cohen’s kappa \((k)=0.47\) (moderate agreement). A fifth reviewer (JV) screened the initial shortlist of 91 records (title and abstract) and identified 21 records for possible inclusion. A full-text review of the 21 records was completed by all four reviewers (GB, KJ, RG, AM). Cohen’s kappa was not calculated at this stage, as three of the four reviewers could not access the full text of one or more papers. A fifth reviewer (JV) made the final decision regarding inclusion/exclusion where consensus could not be met. At the end of this review stage, eight records were identified that met the inclusion criteria (see Figure 1).

The citation lists (as reported using Google Scholar) of the eight shortlisted inclusion papers were then screened by the five reviewers independently. Of these 93 records screened, seven records were identified that met the inclusion criteria, with the fifth reviewer making the final decision regarding inclusion/exclusion where consensus could not be met. At the end of this review stage, 15 further records were shortlisted for data extraction and inclusion in the review. During full-text data extraction, a further eleven papers were excluded as they did not meet the inclusion criteria when critically appraised.

The final review included four research papers (Devkota et al., 2017; Grden et al., 2017; Gross et al., 2018; Thompson et al., 2018) that met the inclusion criteria. The four studies were international in scope; Gardn et al (2017) and Gross and colleagues (2018) were conducted in Brazil, Devkota et al (2017) was undertaken in Nepal, and Thompson and colleagues (2018) was conducted in Australia. All four studies used cross-sectional designs, however, they implemented a variety of data collection methods, including survey (Gardn, et al, 2017), interviews (Gross, et al, 2018; Devkota, et al, 2017) and secondary analysis of quantitative data (Thompson, et al, 2018). All four papers had both male and female participants, although all studies had a higher number of female participants and the majority of participants were married, as opposed to being classified as a partner. Similarly, all four studies reported that the majority of participants were not living alone. The operational definition of frailty was varied across all four papers. Table 2 summarises the main characteristics and findings from the final included papers.

**Discussion**

The aim of this review was to identify studies which examine the impact of partner/spousal bereavement on the development of frailty in older people living in community settings. Specifically, the authors wanted to discern whether there was a relationship between bereavement and frailty, to identify what factors influence frailty in bereaved older adults and what interventions are available internationally (and in the UK) that may prevent the impact of partner bereavement resulting in frailty. All four studies (Devkota et al., 2017; Grden et al., 2017; Gross et al., 2018; Thompson et al., 2018) identified that older females who were widowed, divorced, never married and/or living alone were at a greater risk of frailty compared to women who were married or when compared...
to their male counterparts. Of note, Grden and colleagues (2017) reported an increased rate of frailty with female widowhood but did not report a significant association. Of course, it is known that females generally have a higher rate of frailty compared to males (Davidsson, DiGiacomo and McGrath, 2008; Collard et al., 2012; Buttery et al., 2015; Duarte and Paúl, 2015). However, caution must be applied when interpreting the relationship between frailty and bereavement as reported in the included studies for several reasons, not least due to the heterogeneous definitions of frailty used.

Further comparison in respect to spousal/partner status was also problematic, due to variance in the way the studies reported marital status. For example, Gross and colleagues (2018) categorise individuals as single/divorced/widowed compared to married, whereas Thompson and colleagues (2018) categorise individuals as divorced/widowed/never married, compared to married/living with a partner. Additionally, it is unclear if any studies identify instances whereby widowed or unmarried individuals had partners or not. Moreover, identification of specific interventions in preventing frailty was not explicit in the identified studies, however, implicit mediators were identified and are discussed later in this paper.

An important consideration when interpreting the findings is that all four studies, aforementioned, included significantly more females compared to males. However, this is a common occurrence in aging research due to women living longer than men. This phenomenon has been referred to as the feminisation of aging (Davidsson, DiGiacomo and McGrath, 2008; Gross et al., 2018) and refers to women outliving men on average for one to seven years. Yet, longevity does not always correspond to healthy life expectancy. For example, increased longevity can result in more women living alone with potentially a self-care deficit which might otherwise be counterbalanced by the encouragement of a partner.

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Inherent with the feminisation of aging is a greater prevalence of widowhood amongst women compared to men. This was reported in the studies included in the review, with more females being widowed, divorced or never married in all four studies (Devkota et al., 2017; Grden et al., 2017; Gross et al., 2018; Thompson et al., 2018). Gross and colleagues (2018) suggest that being married may have protective effects, lowering the risk of frailty. They do not provide further details. Thompson and colleagues (2018) argue that being married appears protective against the social vulnerability variables associated with frailty, however, they do not expand further on this point. Conversely, Grden and colleagues (2017) did not find a statistically significant association between marital status and frailty, but they highlighted the social and familial isolation associated with widowhood, particularly the potential for a self-care deficit which might otherwise be counterbalanced by the encouragement of a partner.

**Strengths and Limitations**

The review had several strengths. It was systematic in its approach and was international in its scope. To provide a measure of inter-
### Table 2. Summary of findings from the four papers that met the inclusion criteria.*

<table>
<thead>
<tr>
<th>Authors/ Year</th>
<th>Aim/ Purpose</th>
<th>Country</th>
<th>Study population</th>
<th>Sample size (n)</th>
<th>Study design</th>
<th>Frailty definition/criteria</th>
<th>Frailty rate</th>
<th>Factors impacting on frailty onset</th>
<th>Key Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greco et al., 2020 *</td>
<td>To verify the association between frailty in the elderly and socio-demographic characteristics</td>
<td>Brazil</td>
<td>Age: 60 years</td>
<td>350</td>
<td>Cross-sectional population-based study. Interviews were conducted to collect data. Frailty criteria were applied. Frailty was indicated by three or more frailty criteria as detailed below: Reduced hand grip strength as measured by the Bio-Trail Easy Ergometer, gait velocity in 4 m.</td>
<td>46% (17/35) individuals were classified as frail, 39% (13/35) as prefrail, and 4% (1/35) as not frail.</td>
<td>Of those that were frail (n=35), 25% were married, 29% were widowed (n=11; 32%). Female (n=15; 43%) and older than 65 (n=31; 90%)</td>
<td>Older females have a higher risk of frailty. Frail women appeared to positively influence the risk of frailty. Females lived alone or with children more frequently compared to males. This may be related to greater female longevity. Older individuals, particularly females older than 80, should receive priority in primary health care.</td>
<td></td>
</tr>
<tr>
<td>Deckota et al., 2017 *</td>
<td>To estimate the prevalence of comorbidity in older Guatemalan women in Nepal and secondary to the prevalence of frailty and identify its determinants.</td>
<td>Nepal</td>
<td>Age: 60 years</td>
<td>353</td>
<td>Cross-sectional study with a proportional stratified sample. Face-to-face interviews were conducted to collect data. Interviews were based on the Cambridge Assessment of Need for the Elderly. Frailty was assessed using the Canadian Study of Health and Aging scale. Frailty was indicated by a clinical frailty score of greater than or equal to 4.</td>
<td>15% (53/353) individuals were classified as frail, 70% (247/353) as prefrail, and 15% (53/353) as not frail.</td>
<td>Older individuals were more likely to be unmarried and living alone compared to married participants. There was a higher prevalence of frailty in females compared to males. However, the level of significance was not demonstrated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thompson et al., 2018 *</td>
<td>To examine the prevalence of older adults.</td>
<td>Australia</td>
<td>Age: 60 years</td>
<td>8864</td>
<td>A secondary cross-sectional analysis of longitudinal data. Data were from the Dynamic Analysis to Optimize Aging Project (DANA-A) and the North West Adelaide Health Study (NWABS). A modified Fried Frailty Phenotype (FFP) criteria were applied. Frailty was indicated by three or more frailty criteria as below: Reporting health limiting lifting, or carrying groceries a kit from the 31-item Short Form Survey (SF-31). Reporting that health limits walking even a few steps, or a kit from the SF-31. BMI ≥ 25.4 kg/m². Clinical measurement. Reporting the time being the past four weeks did you feel well? With a good bit of the time, most of the time or all of the time. Reporting no walking for sport, recreation or fitness for the last two weeks (indicated low activity).</td>
<td>19% (12%) individuals were classified as frail, 53% (591) as not frail, and 47% (486) as prefrail.</td>
<td>Older women had a higher rate of frailty. Older adults were associated with higher frailty for women only (p = 0.006).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Average length of relationship and average length of bereavement was not detailed in any study. No studies implemented interventions/support programmes.
rater agreement, the review reported Cohen’s kappa coefficient (k) throughout each key stage. The review also included two separate pairs of reviewers to ensure that no potential studies were missed or excluded, and a fifth reviewer was available for when consensus could not be achieved. Additionally, this is the first paper, to the authors’ knowledge, that collates literature on frailty and spousal/partner bereavement. Nevertheless, this review also has some limitations. Only a small number of papers met the inclusion criteria, suggesting that the impact of bereavement on older spouses/partners has not been given sufficient consideration in empirical research. It is recommended that future studies consider assessing widowhood in frailty studies and include widowhood or loss of a partner as an independent demographic within marital status. It is also suggested that researchers report the duration of both the relationship and time of bereavement in addition to living situation as these details should be recorded in future research. Further, matched case-controlled designs would be useful to accurately identify trends in frailty between males and females, which cannot be assessed due to the over-representation of females in this scoping review. Due to the heterogenous definitions used for frailty and partner status, consensus is required in future research. This may have resulted in papers being excluded from this review at the final ‘data extraction’ stage. Finally, no papers included in this review implemented a longitudinal methodology whereby the impact of bereavement on frailty was measured over time. This is recommended for future studies.

**Conclusion**

While there is existing research examining marital status and frailty, further research is required to better understand the association between the bereavement of a partner/spouse and the onset of frailty, including the physical and psychological dimensions. In particular, the independent contribution of bereavement to frailty still needs to be identified. Based on the findings in this review, it is recommended that nurses are aware of the characteristics of frailty in older populations and the possible factors influencing the development of frailty in same, including a spouse or partner’s bereavement. In doing so, they may be able to intervene early and prevent the condition or reduce the level of severity. Considering the potential negative association between widowhood and being an older woman, it is suggested that nurses give particular consideration to how bereavement may affect the health status of older women who are now living alone. This may include directing them to community and voluntary organisations which provide bereavement support.

**Declarations**

- Ethics approval not required.
- The authors declare that there are no competing interests.
- This review was funded by the authors’ university.

**References**


Davidson, P., DiGiacomo, M. and McGrath, S. (2008) The feminization of aging: how will this impact on health outcomes and services?


Appendix

Appendix 1: Search strategy

| Line 1: bereavement OR bereaved OR widow OR widower OR widowhood AND |
| Line 2: married OR spouse OR partner* OR companion OR couple OR conjugal OR partnership OR cohabitation* OR co-habit* OR single OR solo AND |
| Line 3: frail OR frailty |

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