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Men's grief following pregnancy loss and neonatal loss: A systematic review and emerging theoretical model

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Abstract

Background Emotional distress following pregnancy loss and neonatal loss is common, with enduring grief occurring for many parents. However, little is known about men's grief, since the majority of existing literature and subsequent bereavement care guidelines have focused on women. To develop a comprehensive understanding of men's grief, this systematic review sought to summarise and appraise the literature focusing on men's experiences of grief following pregnancy loss and neonatal loss.

Methods Systematic searches were completed across four databases (PsycINFO, PubMed, Embase and CINAHL), guided by two research questions: 1) what are men's experiences of grief following pregnancy/neonatal loss; and 2) what are the predictors of men's grief following pregnancy/neonatal loss? Eligible articles were qualitative, quantitative or mixed methods empirical studies including primary data on men's grief, published between 1998 and October 2018. Eligibility for loss type included any definition of miscarriage or stillbirth, and neonatal death up to 28 days after a live birth.

Results A final sample of 46 articles were identified, of which 26 were qualitative, 19 quantitative, and one mixed methods. Findings indicate that men's grief experiences are highly varied, and current grief measures may not capture all of the complexities of grief for men. Qualitative studies identified that in comparison to women, men may face different challenges including expectations to support female partners, and a lack of social recognition for their grief and subsequent support needs. Men may face double-disenfranchised grief in relation to the pregnancy/neonatal loss experience.

Conclusion To refine an emerging socio-ecological model of men's grief, cohort studies are needed among varied groups of bereaved men to confirm grief-predictor relationships. There remains a need to promote genuine and consistent involvement of fathers as equal partners throughout pregnancy and childbirth. Likewise, engaging men early in the grief process is essential to providing recognition and validation to their experience, and improving awareness of available support services.

Background

The loss of a pregnancy through miscarriage or stillbirth, and the death of a newborn infant within the first 28 days of life, are typically unexpected and distressing for parents. As with any loss, parents may experience a process of grief and bereavement. Both pregnancy loss and neonatal loss can be complicated due to the additional loss of hopes for raising a child, and potential ambiguity regarding status as a parent [1–4]. Especially in the case of pregnancy loss, but also following neonatal loss, grief can be described as disenfranchised [5] due to the typical lack of social recognition for the unborn baby as a living individual, along with an absence of cultural norms and widespread understanding surrounding how to mourn the death of an unborn or newborn child [2, 6]. In previous research, bereaved parents have reported feeling isolated and stigmatised by their family, friends, healthcare professionals, and society more broadly [7–9]. Especially in the case of miscarriage (i.e., before 20 weeks' completed gestation), societal norms tend to minimise the loss [10].

Background and context

Global estimates indicate that miscarriage occurs for approximately one in four recognised pregnancies, every year 2.6 million babies worldwide are stillborn, and a further 2.8 million die within the first week of life [11–14]. The majority of these losses occur in low and middle income countries [14]. However, pregnancy and infant loss remain a significant health burden in high income countries, where despite advances in medical technologies, rates of stillbirth have remained stagnant for over two decades [15–17].

Definitions for pregnancy loss according to gestational age vary considerably across countries, with over 30 different stillbirth classification systems identified across the literature [13, 18]. The World Health Organization (WHO) recommends a definition of stillbirth as a loss after 28 weeks' gestation, whereas in the United Kingdom (UK) a stillbirth is classified after 24 weeks, and in the United States of America (US), Canada and Australia, after 20 weeks [19–23]. Losses prior to these gestations are considered a miscarriage. Despite this variability in definitions, there is currently limited evidence to suggest that psychological outcomes following pregnancy loss are affected by gestational age [3, 24–28].

Terminology

This paper uses the term "baby" when referring to pregnancy/neonatal loss. This term was chosen in line with literature which indicates that parents frequently note the importance of having their loss recognised and affirming their experience of grieving for a child [2, 29, 30]. We recognise, however, that some studies on men's experiences of pregnancy loss suggest that although many participants identify themselves as fathers of an unborn baby, others do not necessarily develop this connection [24, 31]. Moreover, this term is not used to refer to any legal considerations about the status of pregnancies. Similarly, because no literature was found that met the inclusion criteria for this study including gay and/or transgender men, we use the term 'men' to refer to heterosexual men in a relationship with a female partner. However, it is acknowledged that this is not inclusive of all men's experiences of the loss of a baby, and that the experiences of gay and/or transgender fathers has been largely overlooked in the literature to date [32–34].

Previous literature on grief following pregnancy loss and neonatal loss

Growing recognition of relatively high rates of pregnancy/neonatal loss has led to increased research interest into the psychological and emotional impacts on bereaved parents and families [35–37]. In terms of grief theories more generally, there is widespread consensus that grief is a multifaceted and highly individual process, dependent on characteristics including personality and life experiences; although there may be general similarities. For example, early models of grief described common 'stages' of grief from

shock or denial through to acceptance or recovery [38, 39]. The dual process model of coping with bereavement [40] described an ongoing oscillation between 'loss-orientated' (emotional) and 'restoration-oriented' (problem solving) coping strategies. Specific to bereaved parents, an early assumption that they had to 'move on' from their loss in order to adjust back into life was challenged by the 'continuing bonds' approach, which recognises the need for ongoing connections through symbolic objects, rituals, and sharing memories [41, 42]. However, as mentioned above, parents' grief following pregnancy/neonatal loss may be amplified by a lack of social recognition, and more traditional models of grief may not be applicable to the context of pregnancy/neonatal loss.

Although the experience of grief is highly individualised, sociocultural norms such as gender roles may mean that there are patterns in experience based upon particular identity characteristics [43]. For example, research on gender and grief has found that due to social expectations surrounding how men should behave, men are generally less likely to outwardly display emotional reactions, and experience more difficulty than women in seeking or accepting help for mental health concerns, grief, and adjustment to loss [44–46]. Research pertaining to men's psychological health and wellbeing following pregnancy/neonatal loss suggests that men engage more frequently than women in compensatory behaviours (such as increased substance use), score higher on avoidance scales, and experience difficulty in approaching or accessing support services [47–51]. Despite these difficulties, the majority of previous research and subsequent pregnancy/neonatal loss bereavement care guidelines have been focused primarily on the experiences and needs of heterosexual mothers, with fewer studies and recommendations pertaining solely to men's experiences of grief and subsequent support needs [52–55].

Given the potential for detrimental health and wellbeing outcomes among men following pregnancy/neonatal loss, it is essential to further understand how men grieve, and the factors that contribute to worsened or improved outcomes, to develop appropriate and accessible support services [24, 56, 57]. To date, there have been no reviews of the literature on men's grief following pregnancy/neonatal loss. This systematic review aimed to summarise and appraise the existing literature on the grief experiences of men following pregnancy loss and neonatal loss. More specifically, the study objectives were to identify (1) how men experience grief following pregnancy loss and neonatal loss, and (2) the factors and/or predictors that contribute to men's grief. This paper presents these findings, along with a preliminary model of men's grief to inform future bereavement care guidelines, tailored intervention strategies, and support services.

Methods

Data sources and search strategy

Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [58], a systematic literature search was performed using four online databases (PubMed, PsycINFO, Embase and CINAHL), including all records until the end of October 2018. Initially, preliminary searches were undertaken across the databases to identify potential subject headings and keywords. Following

this, the final search strategies were developed in collaboration with an experienced research librarian (see Appendix 1 for search strategies).

Inclusion/eligibility criteria

Inclusion criteria were qualitative, quantitative or mixed methods studies, published between 1998 and October 2018, reporting the results of primary data on men's experiences of grief and/or predictors of men's grief following pregnancy loss or neonatal loss. By definition, this included the death of a baby at any stage in-utero, or the death of an infant up to 28 days after live birth. Exclusion criteria were articles not published in English, abstracts, editorials or opinion pieces, discussion or review articles not reporting primary data, and studies using a comparator (e.g., women) that did not present the data pertaining to men separately. Studies were also excluded if they investigated the grief experiences of men who had experienced an elective abortion or termination for viable foetal anomaly, as there is literature to suggest that these types of losses may lead to different psychological outcomes compared to other forms of pregnancy loss [59, 60].

Study yield

The database searches identified 1,529 potentially eligible studies. A further 23 articles were identified from systematic reviews and reference lists of the included articles, resulting in a total of 1,552 articles. Following removal of duplicates (n = 588) and initial eligibility screening of titles and abstracts, 216 articles were selected for full-text review. Of these, a total of 46 were selected for inclusion in the final analysis, agreed upon by all authors. A random subset (10%) of potentially eligible studies was co-screened by all authors. Interrater agreement was high (K =.72—.96, p <.05) with any discrepancies resolved through consensus group discussions. (See Figure 1 for the PRISMA flow diagram).

[Insert Figure 1 near here]

Data extraction

The findings of the included articles were extracted by the first author using a predesigned table, and the second author cross-checked this information. The table items included research setting/country, date of publication, study design, number and characteristics of participants, key findings on men's grief experiences, measures of grief, and/or predictors of grief. Study quality and risk of bias were assessed using the Critical Appraisal Skills Program (CASP) quality appraisal checklists [61] for qualitative studies, cohort studies, and randomised control trials (RCTs) where appropriate. The first author reviewed and rated all of the included studies, and the second author cross-checked a random sample (5%) of the same studies. Discrepancies between the reviewers were resolved through group discussions.

Results

Description of studies

Details of each of the 46 studies can be found in Appendix 2. Table 1 provides an overview of studies by quantitative and qualitative designs. Nineteen papers were quantitative, 26 qualitative, and one used a mixed methods design [62]. The mixed methods study was classified as qualitative, as the emphasis of reporting was clearly on this form of data. Thirty-nine studies were peer-reviewed papers, and seven were unpublished theses [63–69]. Although the studies were spread across regions, the majority were based in the US and Canada, followed by Australia, the UK, and Europe (majority Swedish). One study was based in the Middle East [31], one interviewed African-American couples [70], and another two interviewed Australian couples who were born in the Middle East [71, 72], with the ethnicities of samples in other studies primarily Caucasian. Of note, no studies were based in Asian or African regions.

[Insert Table 1 near here]

Most of the papers recruited heterosexual couples as the primary informant group, with another 16 focusing on heterosexual men only, and two including service providers (e.g., obstetricians/gynaecologists, midwives, grief counsellors and social workers) alongside bereaved men and women [68, 73]. No studies included gay or transgender men. Sample sizes varied widely, from one (an authoethnography) [9] to 131 men [74] in qualitative studies, and nine [75] to 341 men [26] in quantitative studies (see Appendix 2 for details).

The majority of studies investigated grief experiences following miscarriage (definitions ranging between ≤ 20–24 weeks' gestation), 10 following stillbirth, and 15 following a combination of miscarriage, stillbirth and/or neonatal death (commonly defined collectively as 'perinatal death'). Two papers explored experiences following termination of pregnancy for nonviable (or lethal) foetal anomalies [76, 77]. No papers focused exclusively on neonatal death. Twenty-three studies (16 quantitative and seven qualitative) focused on grief as a primary outcome; the remaining included elements of grief secondary to general explorations of experiences of loss, including 'meaning' [31], 'impact' [56] and 'emotional responses' [75] among others [26, 64–66, 70–74, 77–87]. Two qualitative [78, 79] and two quantitative [27, 88] studies also investigated grief following pregnancy loss that continued into a subsequent pregnancy or birth of a child.

All but one of the included quantitative studies were variations of cohort designs, most commonly using structured questionnaires to assess grief. The remaining study was a RCT, examining the effectiveness of nurse-care and self-care interventions on grief following miscarriage [89]. Qualitative studies predominantly used individual semi or unstructured interviews, however two studies used a postal [62] or online questionnaire [74], one used focus groups [73], and one was an autoethnography [9].

Participant characteristics

With the exception of four studies as noted above [31, 70–72], the majority of participants across studies were Caucasian, with those including mixed ethnicities providing little to no discussion on cultural or ethnic differences. Furthermore, all studies were conducted in high-income countries, and all male participants were heterosexual men who experienced pregnancy loss with a female partner. With the exception of six studies that did not specify men's marital status [73, 74, 83, 84, 90, 91], the majority of male participants across studies remained in a relationship with the partner they were with at the time they experienced the loss/es, limiting knowledge regarding the experiences of single, separated or gay men. A total of 16 of the 46 included studies recruited only men [9, 28, 56, 64, 65, 67, 68, 74, 75, 80, 84–87, 90, 92]; the remaining included men in conjunction, or as a comparison to, their female partner. Thirteen studies reported age and standard deviations for male participants [26–28, 63, 67, 68, 78, 88, 92–96]. Across these, the average age of a total of 1,052 men was 33 years (pooled *SD* = 8.74). The remaining studies either did not report male participant ages [9, 71–74, 77, 82, 83, 86, 97], combined men's ages with women's [31, 79, 81, 89, 91, 98], or provided an average age and/or range [56, 62, 64–66, 69, 70, 75, 76, 80, 84, 85, 87, 90, 99–101]; with the youngest participant being 20 years [75], and the oldest 61 years [64], at the time of study participation.

Quality of included studies

An assessment of quality was undertaken for each study using CASP checklists [61]. Study quality varied, however the overall standard was acceptable and therefore none were excluded based on poor quality. With the exception of 12 studies, whose recruitment methods were unclear or not reported [28, 99], or invited eligible bereaved parents from a certain hospital/region during a specific time period [62, 77, 85, 91, 93–95, 97, 100, 101], almost all of the studies used convenience, purposive or snowball sampling to recruit participants through social/print media or local clinics, hospitals and community settings. While ethically justified given the sensitive nature of the research, these methods may not reach men who are not linked into existing networks and may therefore be more isolated. As such, the results may not be representative of the whole population of bereaved men to pregnancy/neonatal loss (indicated by the narrow range of variability in participant characteristics). All studies adhered to appropriate ethical standards including obtaining informed consent, protecting participant confidentiality through ID numbers or pseudonyms, and offering contact details of pregnancy/neonatal loss support services to bereaved parents in case of distress. However, 10 studies did not state whether institutional ethical approval had been sought or obtained [28, 56, 83, 86, 87, 91, 92, 96, 98, 99], and two acknowledged potential conflicts of interest, relating to the first author being the developer of the intervention under investigation [89], and another being employed by the bereavement service under evaluation [97]. Otherwise, no additional conflicts were declared by study authors or identified as a result of quality rating.

Qualitative studies were generally of a high standard, with methodologies and analyses—five using content [31, 56, 62, 67, 74], four thematic [68, 71–73], three grounded theory [66, 69, 77], one autoethnographic [9], one descriptive [87] and 12 phenomenological [63–65, 70, 78–80, 82–86]—clearly reported and justified in the context of 'exploratory' or 'understanding lived experience' research aims.

Quantitative studies reported either correlational and regression analyses [27, 76, 81, 91, 93, 95, 97, 98], or group difference tests [26, 28, 81, 88, 92, 94, 96, 99–101], including significance testing of resulting relationships or differences. However, one small quantitative study reported only numbers and percentages of participants who endorsed a particular feeling relating to grief or service outcome [75], and another reported percentages of participants who had received certain support services following a loss [100].

With the exception of two studies which employed author-developed measures of grief and support service satisfaction [75, 87] the remaining quantitative studies employed standardised and validated measures for both predictors and grief [26–28, 76, 81, 88, 91–101]. However, there was an inconsistency in the use of grief measures and reporting grief. Although the majority of studies (*n* = 13) used the Perinatal Grief Scale (PGS) as a primary measure of grief, some of these reported average total grief scores [76, 93, 95, 98, 100], others average subscale scores [88, 101], both [28, 92, 96], or subscale correlations to predictor variables [27, 94]. Finally, 17 studies also grouped together different types of loss as part of the investigation of grief (e.g., miscarriage and stillbirth, stillbirth and neonatal death, or all three types together) [27, 56, 64–68, 70, 78, 84, 87, 88, 91, 93–95, 98]. As a result, outcomes specific to these different loss groups may have gone unrecognised, with only two studies discussing differences in support and subsequent grief between miscarriage and stillbirth [56, 68].

Findings relating to the grief experience

Quantitative studies

A total of 13 quantitative studies used the PGS as the primary measure of grief [27, 28, 76, 88, 92–96, 98, 100, 101]. Other grief measures used by remaining studies included the Grief Experience Inventory-Loss Version (GEI-L) [99], the Revised Impact of Miscarriage Scale (RIMS) [26, 81, 101], the Miscarriage Grief Inventory [89]; the Texas Revised Inventory of Grief (TRIG-F) [91], and, although primarily a measure of stress rather than grief, the Impact of Events Scale (IES) [76, 96, 99].

Of the 13 included quantitative studies that provided raw grief scores for men, outcomes varied considerably both between studies and within them, indicated by wide range and standard deviations [26, 28, 76, 81, 88, 92, 93, 96, 98–101]. Average total grief scores for men across studies using the PGS as a primary measure varied from 36 [98] to 133.19 [100] from a possible range of 33 to 165. However, the majority of average total PGS scores across remaining studies were between 73 and 83, with standard deviations ranging between values of 16 and 22 [28, 92, 93, 96, 98]. Population norms suggest that total grief scores above 91 for the PGS are reflective of a high degree of grief [102]. The outcomes reported across studies here (with the exception of one study [101]) indicate that men typically aren't scoring in the highly significant grief range; however, they are nevertheless scoring quite highly in general [28, 76, 88, 92, 93, 96, 98] (see Table 2 for a comparison of studies reporting total *M* and *SD* scores for the PGS).

Similarly, for three studies using the RIMS as a measure of grief, outcomes also varied with subscale scores ranging from 0–57 [101], 5–24 [81], and subscale *SD*s up to 4.08 [26].

This variation in grief scores across studies may be due to inconsistencies in the timing of grief measurement. One study assessed participants' grief scores one week following miscarriage [101], another into a subsequent pregnancy which was an average of nine months later [88], and another between one month and 32 years following the loss event [76]. Overall, there was no clear data on the effects of time since loss on grief for men (see Table 2). However, some studies also noted that even when the losses had occurred many years in the past, participants were able to recall detailed thoughts and feelings about the loss, and their grief had not necessarily diminished with time [62, 76, 83, 87].

[Insert Table 2 near here]

In nine of 10 studies which compared men and women, men's grief scores were found to be significantly lower or less intense than those of women [76, 99, 101], with approximately 20 points of difference on the PGS and IES [93, 96, 98], and 3 points of difference on the RIMS [26, 81]. Importantly, however, some studies noted that the use of existing grief measures (including the PGS and RIMS) might not be valid for measuring men's grief experiences, particularly in relation to potential differences between internal versus external grieving styles [26, 88, 94, 100]. This is supported by the fact that there were mixed findings in terms of overall scale scores across similar studies looking at grief following miscarriage, with Despair (internalised grief) scores higher in men than those for Active Grief (externalised grief) in two studies [92, 100], and lower in the remaining in two [96, 101]. Across other grief measures employed by studies, men scored highly on the Devastating Event (RIMS), Denial and Social Desirability (GEI-L), and Avoidance (IES) subscales [26, 81, 96, 99, 101], which may represent some of the more inward responses to loss involved in some men's grief experiences.

Qualitative studies

In the majority of qualitative studies (n = 14), men reported that the loss of their baby was a significant life event, regardless of gestational or infant age [9, 56, 64–69, 78, 80, 83, 85, 86, 90]. However, other men in 10 studies (some overlapping with the above 14 studies) also reported less intense reactions, including stating that their partners experienced worse grief in comparison to them [31, 63, 68, 71, 72, 78–80, 82, 83]. Regardless of grief intensity, in 15 studies, men seemed to face additional or unique tasks and challenges that complicated their experience or delayed the timing of grief. These included a sense of helplessness or powerlessness, especially during the female partner's miscarrying or labour experience in pregnancy loss [9, 31, 80, 83, 85], and additional roles and practical responsibilities such as caring for other children, completing paperwork, organising a funeral/burial, and informing family and friends [9, 56, 64, 65, 68, 69, 84–86].

Although the grief experience was highly varied, and subsequent grieving styles across qualitative studies were mixed, there was a general trend among male participants towards instrumental grieving, and the

use of active or problem-focused coping strategies [9, 62–73, 75, 78–80, 82–86]. ‘Keeping busy’ and ‘moving forward’ were common desires [62, 66, 70, 78, 82, 84], with men seeking out distractions including sporting activities or increased exercise [65, 66, 69], returning to work [64–68, 72, 79, 83, 84], completing household tasks [65, 68, 78, 85], and the use of creative, hands-on outlets such as woodworking, painting or writing [9, 64, 65]. However, men in 10 studies also reported outward emotional grief expressions such as crying, although these were frequently kept private, with many men preferring to grieve independently and alone [9, 56, 63–66, 69, 85, 86, 90].

Findings relating to predictors of men’s grief

Of the included quantitative studies, 16 included an analysis on predictors of men’s grief and/or correlations to related factors [26–28, 76, 81, 88, 91–98, 100, 101]. As part of a wider exploration of the grief experience, all of the included qualitative studies also discussed factors and/or situations that contributed (both positively and negatively) to men’s grief. Overall, a wide range of varied predictors/factors were considered by the included studies, which fell broadly into four domains or levels: (1) individual/person-level factors; (2) interpersonal factors; (3) community/sociocultural factors; and (4) public policy factors.

Individual factors

Attachment to the baby

One of the strongest factors found to impact upon grief across studies at the individual level was men’s attachment to the baby. Across 11 qualitative studies, men who had developed a bond with their baby throughout the pregnancy described more intense grief following a subsequent loss [56, 65, 67–69, 78, 80, 83, 85, 86, 90]. However, in five studies some men stated that they did not feel that they had a relationship with the developing baby [31, 68, 80, 83] (either because it was an early miscarriage or they described little involvement during the pregnancy), or made a conscious attempt during pregnancy not to get attached, due to previous experience of loss or diagnosis of a life-threatening condition [79]. In these cases, grief was reported as less intense. Actions that served to increase attachment included spending time with the baby [9, 90], and attending ultrasound appointments to ‘see’ the baby and hear the heartbeat [9, 56, 68, 69, 78, 83, 86, 90]. Although estimates of grief outcome were imprecise due to a small male sample size, one quantitative study measuring grief after seeing or holding the stillborn baby identified worsened grief for men [97]. Similarly, fathers in six qualitative studies who held or spent time with their baby following a stillbirth generally also reported high levels of grief [9, 65, 69, 70, 85, 90]. Importantly however, the cause and effect relationship here is unclear—it may be that men who spent time with their baby were already more attached, and therefore more likely to experience worsened grief.

Seven quantitative studies explored men's attachment to the developing baby including viewing an ultrasound [28], vividness of visual imagery [92], increasing gestational age [26–28, 76, 98], and holding or seeing the baby following stillbirth [97]. Men who viewed an ultrasound image had an average PGS total score 23 points higher than those who did not view any images [28], and men with a strong visual image of their baby, as measured by the Baby Vividness of Visual Imagery Questionnaire (BVVIQ; "vivid imagers"), had an average PGS total score 40 points higher than those who did not [92]. Again, however, the causal relationship here is unclear.

Attachment could also be considered in relation to gestational age, since a longer pregnancy could result in more opportunities for bonding. In five quantitative studies, increasing gestational age was associated with higher grief scores [26–28, 76, 98]. However, qualitative studies complicated this picture—in studies inclusive of multiple loss types, men who had experienced earlier losses did not describe less intense grief than those with later losses [56, 64–66, 68]. The authors of studies which focused on miscarriage also noted that men's grief responses were not dissimilar to the grief of men described in studies focused on stillbirth or neonatal death [69, 80, 86]. As such, the impact of gestational age on grief remains unclear.

Men's personality

Two studies on the same sample of bereaved parents in Australia [93, 95] investigated the relationships between perinatal grief and a general personality proneness to shame (attributing regretful actions to oneself) and guilt (considering one's actions as regretful). Overall, shame and guilt-proneness were found to explain 63% of the variance in grief outcome (as measured by the PGS) in men, with the largest contribution being shame-proneness, accounting for 56% of the variance in men's late grief (13 months following a stillbirth or neonatal death) [93]. In the follow-up study [95], which conducted analysis within the couple, women's self-conscious emotions/grief tendencies did not appear to influence men's emotions/grief tendencies (although men's impacted upon women's). Franche [27] similarly explored the predictive value of self-criticism on grief after pregnancy/neonatal loss. Considered in combination with other obstetric and demographic variables, higher levels of self-criticism were found to be significantly associated with higher scores on all subscales of the PGS in men ($p < .01$ for the Active Grief subscale, and $p < .001$ for Despair and Difficulty Coping subscales).

Demographic factors

Findings relating to the relationship between demographic factors and grief were mixed. Only one quantitative study [26] found age to be a significant predictor of grief outcome following miscarriage, with men aged <35 years scoring higher on the Devastating Event subscale of the RIMS. The remaining quantitative studies including age as a predictor did not find a significant association [27, 98, 100], and qualitative studies did not specifically explore or discuss the impact of age on grief. However, the majority

of men who participated in qualitative studies were generally aged 28 years or over, with the exception of two studies which reported minimum ages of 20 and 21 years [56, 70].

Ethnicity did not emerge as a significant predictor of grief, although it was rarely explored. One study comparing Swedish and American couples' experiences of miscarriage [81], found differences between the samples on one subscale of the RIMS (Loss of Baby); however, this difference was attributed by the authors to linguistic understanding and wording of scale questions, rather than the grief experience itself. Other quantitative studies whose samples included a small number participants identifying with cultural backgrounds other than Caucasian (e.g., African American, Asian-Australian, Hispanic, Native American) either did not comment on or examine differences [26, 93–95, 98], or did not find any significant differences in grief outcome [96]. Five qualitative studies had mixed ethnic samples (e.g., Jamaican, African-American, Hispanic/Latino), but none reported any differences in grief outcome—although, their aim was not to do so [64, 67, 69, 78, 86]. Further, in two Australian-based studies of the same sample of participants with Middle-Eastern backgrounds, culture was not discussed as impacting upon grief outcome [71, 72]. In one qualitative study based in Israel [31], high drop-out rates for participation in the study were noted due to (mostly) the husband's objection to participating in the context of a typically "closed" religious society. Finally, in a study of perinatal loss in low-income African-American parents, grief for fathers did not differ to those in other studies; however, "dealing with stressful life events", including economic hardship and other unrelated family deaths, were found to compound the perinatal loss grief experience for both parents [70].

In one quantitative study [76], involvement in organised religious activity was inversely associated with Despair subscale scores on the PGS for men ($p = 0.047$). In seven qualitative studies, men who reported religious or spiritual beliefs also found this to be a source of comfort in coping with their grief; this was both from a meaning-making perspective (e.g., "what God does, He does it for the best") [31], and from the additional social support that was received from religious/church communities [65, 66, 69, 70, 78, 85, 86]. However, the experience of loss for some men (and their partners) in two qualitative studies also led to questioning or challenging of their religious beliefs [9, 31].

Recurrent loss and living children

Findings relating to the impact of previous losses and number of living children on grief were also varied across studies. In one quantitative study which examined men who had experienced recurrent miscarriage, reported grief and stress scores were high on both the PGS ($M = 72.23$, $SD = 16.85$), and IES ($M = 26.53$, $SD = 13.76$) [96]. In contrast, men with a history of loss in nine qualitative studies [56, 68, 69, 71, 72, 77, 82, 86, 87] did not report different or increased levels of grief; yet, in four studies, men reported increased worry about future pregnancies [66, 69, 80, 82].

In two quantitative studies which included subsequent pregnancy status as an indicator of grief intensity, no significant relationships were found between a group who were currently pregnant following a loss, and a group who had not had a subsequent pregnancy or child [88, 94]. However, in three qualitative

studies examining experiences of grief into subsequent pregnancies/children, it was clear that men's grief continued, along with added concerns and vigilance due to the knowledge of potential risks [78, 79, 84]. Similarly, one of three studies examining the presence of living children at the time of loss found a relationship to worsened grief in men [26], however for the remaining two studies including this factor, it was unrelated [91, 94]. Four qualitative studies described how living children could both enhance the reality of the developing baby (thus worsening grief), *and* make coming to terms with the loss easier; either through enhanced appreciation for surviving children, reassurance about the possibility of successful future pregnancies, or providing a caring role to focus on [65, 80, 82, 85].

Interpersonal factors

Interpersonal factors identified as predictors of grief included quality of the partner relationship, the 'supporter role', and support and acknowledgement received from family, friends, and healthcare professionals.

Quality of the partner relationship

In ten qualitative studies, men noted that the relationship with their partner could be either a positive or negative contributor to the grief experience [62, 64, 66–69, 71, 75, 79, 85]. For many participants in these studies, a lack of recognition for their grief from family, friends and healthcare professionals meant their partner became their main source of interpersonal support [66, 68, 85]. Although many men reported supportive relationships with "frank and honest communication" [85] resulting in a stronger couple bond that buffered the grief experience, many also experienced conflict or relationship strain due to incongruent grieving styles [62, 64, 66, 68, 69, 75, 79, 80, 85]. Where dissonant grieving styles or conflict were present, men reported a sense of alienation or frustration that added to their grief experience [62, 67, 68, 79]. However, despite early conflict, where couples learned to effectively navigate one another's grief, the relationship was ultimately strengthened [66, 69, 79]. No quantitative studies explored relationship quality as a contributor to grief.

The supporter role

Although not a factor quantified for measurement in any of the included quantitative studies, one of the most consistently reported and important elements relating to men's grief experience across qualitative studies was that of taking on the role of being a 'supporter' to their female partner and family. A total of 23 of the 26 included qualitative studies identified an element of the supporter role from men's responses [31, 56, 62–66, 68–73, 77–80, 82–86, 90]. In 21 of these, all of the male participants reported their primary role of being the supporter to their female partner, and in the remaining two, the majority of men (five of nine [69], and 14 of 15 [80]) also reported this role. For men in five studies, the need to support their partner explicitly came from a perception that she had a more intense grief reaction in comparison

to themselves [31, 66, 68, 79, 83]. In 15 studies, men described having to suppress or put aside their own grief in order to take on this role [56, 64–66, 68–72, 77, 79, 80, 85, 86, 90]. As a result of doing so, many of these men reported a feeling of being ignored or unrecognised as grievers, rather seen merely as the 'support person' [56, 68, 84]. Although some men in three studies reported feeling as though this supporter role was helpful throughout their grief process, in that it gave them a meaningful task to focus on [31, 78, 80], for the majority of men across the remaining studies, this role ultimately served as a hindrance in allowing them to acknowledge, express and manage their grief and emotional responses [31, 56, 63–66, 68, 69, 71–73, 77, 79, 80, 83–86, 90].

Support and acknowledgement from family and friends

In sixteen studies looking at support, ten found family and/or friends to be a helpful facilitator to men's coping and healing following the loss [9, 63, 64, 66, 72, 78, 80, 83, 85, 86, 98], especially since many men explicitly reported a preference not to engage in formal counselling [82] and/or support groups [63, 68]. However, across these studies, men's experiences of support from family and friends varied greatly. In the one quantitative study that looked at family and friend support as variables, 'talking with friends' was associated with increased grief scores, along with 'timing of talking to family'; although there is no description of what is meant by this [98]. In the remaining qualitative studies, the majority of men also reported talking with either close family members or friends post-loss, and they found this meaningful and helpful most of the time [63, 64, 66, 68, 80, 83, 85, 86]. Practical support immediately following the loss (e.g., making meals) was particularly appreciated by men in three qualitative studies [68, 72, 86], and for others "subtle" gestures of care from other male friends, including sharing their own stories or scheduling time/activities post-loss, were immense comforts [9, 85, 86]. However, seven qualitative studies also reported negative—or a total absence of—interactions with family and friends [66–69, 78, 80, 84]. In two of these studies, men did not feel the need to discuss their grief with anyone other than their partners, or avoided talking to others about the loss in the hope that avoidance would reduce the impact [78, 80]. In the remaining five, men desired support from family and friends, however stated that "no one" [84] was available to them, due to a lack of understanding, avoidance and/or discomfort [66–69]. Where a lack of acknowledgement or support from family and friends was available, reported grief experiences were worsened [67, 68, 84].

Support and acknowledgement from healthcare professionals

Similar to support from family and friends, the role of healthcare professionals was recognised in one quantitative study [75] and 13 qualitative studies [56, 63, 67–69, 72–74, 77, 78, 82, 85, 86] as essential to the grief process. However, among studies that examined healthcare provider support, findings were again mixed. In 10 studies, some men reported positive experiences with healthcare staff [56, 67, 68, 74, 77, 78, 80, 82, 85, 86]. Particularly, three studies noted that providers who worked "extra hard" to provide

both medical and practical information to men were valued [85], and parents who received the support of specialist bereavement care teams, or follow-up telephone calls from care providers, commented positively on this experience [77, 82]. However, men in one quantitative study felt excluded from services, and none were satisfied with the support they received from health professionals [75]. Likewise, other men in 10 of both the same and different qualitative studies also reported negative interactions with healthcare staff, leading to sadness, anger or distress which worsened or prevented the grieving process [56, 68, 69, 72–75, 80, 83, 85, 86]. Common issues included insensitive language or confusing medical terminology [83, 85, 86], a lack of answers or explanations [68, 69], a lack of practical information on how they could care for their female partner or organise a funeral/burial [56, 69, 72], and failing to recognise their distress and role as a father [56, 73–75, 80, 83]. It should be noted that the majority of studies reporting negative experiences with healthcare providers or the hospital focused on miscarriages as opposed to later-term losses, with the exception of three which focused exclusively on stillbirth [73, 74, 85]. Two studies which explored healthcare support following both miscarriage and stillbirth also noted differences in care between these types of losses, with miscarriages receiving considerably less support in comparison to stillbirths [56, 68].

Community factors

Disenfranchisement of grief following pregnancy/neonatal loss

A lack of community acknowledgement and understanding for grief following pregnancy loss was explicitly identified by male participants in seven qualitative studies from the US [9, 65, 73, 86], Ireland [56, 82] and Australia [68], but this was not explored in quantitative studies. Across these, men discussed widespread taboo, stigma and silence surrounding miscarriage and/or stillbirth which worsened their grief. Reported experiences of disenfranchisement included questioning their identity as fathers due to confusion surrounding whether their pregnancy was understood as a baby or not [56], only discussing their loss if/when prompted by another bereaved parent [82], and hurtful comments from others which minimised their grief or encouraged them to “move on” from the loss [68, 86]. Overall, this sense of disenfranchisement due to a lack of community acknowledgement for pregnancy loss led men to experience increased distress and feelings of isolation [9, 56, 65, 68, 86].

Male role expectations and attitudes toward men’s grief

Tying in closely with the ‘supporter role’ discussed above, a pressure to conform to masculine role expectations and social attitudes toward how men should grieve, was expressed by men in 19 of the included qualitative studies based in Australia [68, 72, 90], the UK [83], the US [9, 62–67, 69, 73, 79, 84, 86], Ireland [56], Sweden [85] and Israel [31]. No quantitative studies explored this factor. In 14 studies,

male participants specifically discussed the need to be “strong”, and a perceived expectation to hide their grief [56, 63–66, 68, 69, 72, 79, 83, 84, 86, 90]. Men reported that these expectations had a direct negative impact on their grieving process, as they felt prevented from displaying their emotions in front of others, seeking support, and/or working through their grief [9, 56, 64, 68, 73, 79, 84, 86, 90]. In turn, this expectation to hide their emotions also meant that the impact of the loss on these men was frequently disguised from family, friends and healthcare professionals. This led to a generalised lack of recognition for their grief and also a further sense of disenfranchisement, above that which already exists for grief following pregnancy/neonatal loss generally [67, 68, 86].

Public policy factors

Women-focused maternity care and support services

Similarly to the data presented on men’s experiences of support from healthcare providers, a general broader focus on women-centred care in the hospital environment, and among existing support services, was identified by nine of the included qualitative studies, but not in quantitative studies, as a factor impacting upon men’s grief [9, 56, 67, 68, 74, 75, 84–86]. A general community attitude that pregnancy and subsequent loss was primarily a “women’s experience” [84] was explicitly expressed by men in three of these qualitative studies [56, 67, 84]. Men reported feeling overlooked or ignored in the context of existing healthcare and support services. For example, in the hospital environment, both following loss and during subsequent pregnancies, men felt “out of place” [85], “marginalised” [56] and sometimes, as though they “barely existed” [68]. Similar sentiments were echoed in the context of support services/groups which were delivered primarily by women and focused on “‘traditionally feminine’ modes of grieving” [9], which may not be suited to all types of grief and responses [9, 67, 68, 84]. Men in five studies expressed a desire for recognition [84–86], as well as a need for increased male involvement in care and support services [56, 68]. Indeed, in studies where other males were present and available to men, or healthcare staff sought to specifically involve and include men in services, reported grief experiences and outcomes were improved [9, 56, 67, 68, 74].

Workplace policies: bereavement leave

Another consistent theme that arose at a policy level for men was related to the workplace; particularly, surrounding the availability of paternity or bereavement leave following pregnancy/neonatal loss. Returning to work following loss was explicitly discussed by men in 11 qualitative studies [9, 64–69, 79, 83, 84, 86] and one quantitative study [91]. For the majority of men in these studies, particularly those who described a more instrumental grieving style, work provided a welcome and helpful distraction from their loss, used as a strategy to better manage and cope with their grief [64–67, 79, 83]. However, four qualitative studies which examined men’s experience of returning to work in more depth identified varied outcomes [9, 68, 84, 86]. In three of these studies, men were not provided with the same opportunities as

their female partners to take paid leave from work following their loss [9, 68, 84], leading to physical and emotional exhaustion that further added to their grief, along with difficulties in concentration and keeping up with tasks. In one quantitative study [91], men also reported difficulty returning to work. In contrast, the burden of grief was eased for male participants in two studies who were offered extended paid leave or extensions on work-related deadlines [68, 86].

The emerging model: a socio-ecological theory of men's grief

Spanning the individual, interpersonal, community and public policy realms, the factors identified in this review align with a socio-ecological approach to understanding grief. We propose a preliminary model of men's grief, adapted from Bronfenbrenner's [103] ecological systems theory (see Figure 2). The original theory (focusing more broadly on development as opposed to grief) purported that an individual's development is impacted by four interacting levels in the environment: the microsystem (the immediate environment), the mesosystem (settings in which we actively participate), the exosystem (wider social setting), and the macrosystem (culture and belief systems) [103]. Like the original theory, the model of men's grief proposed here acknowledges that the grief experience does not exist in isolation. Rather, it is shaped by a complex system of interacting factors and levels, including those relating to the individual, their relationships, the surrounding community, the wider context and governing policies. Each of these levels also interacts with one another in a bi-directional nature. For example, cultural norms and beliefs regarding men's roles—particularly in pregnancy—may play a vital role in informing the women-centred focus of perinatal healthcare and bereavement leave policies (and vice versa). These norms can also impact the ways that individuals interact with one another in response to pregnancy/neonatal loss, as do these interpersonal interactions serve to support the overarching cultural norms. At the centre, the individual, their personality, knowledge, attitudes and skills are impacted by, and continually interact with, all of these contributors.

The overarching theme of this model is the concept of "double disenfranchisement", first introduced by Cacciatore and Raffo [104] in their study on lesbian maternal bereavement. The authors argued that given an additional lack of societal recognition for their status as legitimate mothers, lesbian women can experience an added level of disenfranchisement in relation to their existing grief experience of pregnancy loss [104]. In a similar way, the lack of recognition that many men cited in this review for their position as grieving fathers indicates that they may also experience a sense of added or double disenfranchisement. Consequently, in conjunction with the factors presented above, it is imperative that men's grief following pregnancy/neonatal loss is not viewed entirely as an individual response to the event, but as part of a wider socio-ecological process.

[Insert Figure 2 near here]

Discussion

Main findings and implications

This systematic review summarised men's experiences of grief following pregnancy/neonatal loss, and identified the factors that contribute towards differences in grief. Overall, both quantitative and qualitative studies revealed the highly varied and individual nature of men's grief. Although men's grief responses were reported to be less intense compared to women's in some quantitative studies [26, 76, 81, 93, 96, 98, 99, 101], qualitative studies particularly identified the significance of the impact of loss on men. Given grief is a normal and expected process following a loss, it is unsurprising that some men experienced such significant effects. In contrast to stereotypes that men intellectualise or rationalise their grief, these studies also found that men do grieve on an emotional level, as well as oscillate between problem-focused coping and emotional expressions of grief, as reflected in the dual-process model of coping [40]. However, men's grief also appeared to be consistent with the theory of disenfranchised grief [5] with a general silence (surrounding pregnancy loss in particular) contributing to feelings of isolation and worsened grief. Compared to women overall, men may also face different challenges that can compound the grief experience. This finding is consistent with previous research on gender and grieving which suggests that grief can be impacted by, but is not dependent on, gender [43]. Evidence from this synthesis, and the proposed socio-ecological model of grief, highlights the potential for additional considerations in the ways that we might be able to support men going forward, using multi-level interventions and strategies.

At the individual level, mixed findings relating to demographic factors suggest that these have not yet been well-explored. In studies with women, findings are also inconsistent: involvement in religious activity and strength of religious faith have been inversely associated with grief in some studies [105, 106] but not others [107], and similarly, maternal age both has [26, 105], and has not [27, 108], been found to be a significant predictor of grief. Studies of Somali [109], Tanzanian [110], Taiwanese [111], Romanian [112], and African-American [113] women following pregnancy/neonatal loss highlight a range of culturally-specific understandings and practices relating to the loss of a baby that can impact upon grief. Such cultural diversity is yet to be explored in men.

In contrast to early assumptions that men only develop an attachment to the developing baby as gestation increases, results suggest that attachment at any level is an important predictor of grief. In general, a belief that the loss was the loss of a person or member of the family resulted in more intense grief [65, 69, 83, 85, 86]. Findings from studies on the relationships between personality and grief, although preliminary and based on correlational relationships rather than longitudinal mapping of predictor-outcome causalities, also suggest that personality constructs may play a key role in predicting grief [27, 93, 95]. Therefore, alongside the potential for mixed styles of grieving, individual-level supports and interventions should consider these factors to provide tailored and appropriate support options to suit men's individual needs. For example, individual counselling or support groups may not be appealing to all men; rather, previous research has recommended creative options including activity-based supports,

evidence-based online supports, opportunity for peer contact, or male support workers in hospitals [24, 56, 57].

Men's interactions with others seem to play a pivotal role in how they perceive and experience their grief. The quality of the couple relationship contributed to either a positive source of support that helped the grief process, or a negative source of added stress which compounded the impact of the loss on individuals [62, 64, 66–69, 71, 75, 79, 85]. Grief was eased when friends and family were available to men and were understanding of their loss [63, 64, 66, 68, 80, 83, 85, 86]. Overall, positive experiences with the healthcare system led to both increased support group participation and improved grief [67], whereas insensitive treatment led to psychological distress and worsened grief [74]. These findings have also been reported in studies on women's experiences of pregnancy/neonatal loss, where social support and experiences with the healthcare system have consistently been found to be key factors in determining both immediate grief and long-term psychological health [1, 114–117]. This review also identified the 'supporter role' as a consistent and important aspect of men's grief. Despite its ability to provide meaning to some, where men felt that this role took precedence over their own needs, it served as a detriment to the grief process. Taking these interpersonal factors into account, support interventions could consider the delivery of joint couple bereavement counselling where necessary, or at the least, providing explanations of incongruent grieving, and skills to navigate potential issues, to newly bereaved parents. There is an ongoing need for healthcare professionals to provide sensitive and empathetic care to both members of a couple relationship, including adopting appropriate, jargon-free language, providing explanations or answers relating to the cause of loss where these are available, and follow-up calls specifically to men in the weeks or months following a loss. Practical information on how best to support their partner, alongside recognising and managing their own grief, was also desired by men [56, 69, 72].

Community attitudes concerning the legitimacy of parents' grief following pregnancy/neonatal loss, along with gendered expectations relating to how men should behave in the face of loss and adversity, are important contextual considerations in understanding how men grieve. Experiences of a lack of recognition for grief following pregnancy/neonatal loss within society and the community resulted in disenfranchisement [5]. An added level of disenfranchisement also existed for men who frequently reported being overlooked as grieving fathers [9, 56, 65, 68, 86]. These findings imply that beyond individual and interpersonal intervention and supports, there is also a need educate the wider community about the impact of pregnancy/neonatal loss on parents and families, along with promoting the strengths of men to seek and accept—as opposed to avoid—help and support. Similar recommendations have been made in the men's physical and mental health literature more generally, where stigma surrounding male help-seeking frequently serves as a barrier to accessing appropriate health-related supports [44–46].

At the outermost layer of the socio-ecological model, policies relating to women-centred care and bereavement leave in the workplace also impacted upon men's grief. Where pregnancy was seen as an issue relating exclusively to women, and men consequently felt excluded from the loss experience at the hospital, grief was worsened [56, 68, 85]. This issue points to a need for strategies to develop father-

inclusive practices that encourage and facilitate male involvement, and promote the meaningful engagement of men as equal partners throughout pregnancy and childbirth. In the broader postnatal health context, engagement of fathers has demonstrated improved long-term physical and mental health outcomes for women, men and babies [118, 119]. Another consequence of women-focused pregnancy attitudes was that men were frequently not afforded the same amount of workplace leave to manage their grief following a loss. Recent investigations have highlighted similar potential social and economic consequences of stillbirth [36, 120]. However, given these findings about workplace practices were from a small number of studies, there remains a need to further investigate men's experiences of returning to work following pregnancy/neonatal loss. There will potentially be a need to re-examine current paternity and bereavement leave policies that may prevent men from adequately working through their grief [9, 84].

Limitations and future research

Although the inconsistencies in findings between quantitative and qualitative studies concerning grief highlight the varied nature of men's grief experience, this also led some authors to question the ecological validity of current grief measures [26, 88, 94, 100]. The PGS, for example, was initially developed and validated in a sample of mainly bereaved mothers (women n = 138 and men n = 56) [121]. As such, some of the items and subscales have been criticised for measuring more traditionally 'feminine' (or intuitive) expressions of grief, which may under-recognise more 'masculine' (or instrumental) expressions and responses. Across included studies that provided separate subscale analyses of grief, the greatest differences between men and women occurred on the Active Grief subscale; a measure of outward expressions of grief and emotions, which men have been previously reported to display less often than women [28, 96, 100, 101]. It could also be that there has been a selection bias in qualitative studies toward men with more extreme grief responses; however, men in many of the included qualitative studies also expressed less extreme reactions to the loss, indicating representation of a range of experiences [31, 63, 68, 71, 72, 78–80, 82, 83]. Given the correlational nature of findings on viewing an ultrasound [28], it also remains unclear as to whether viewing results in more intense grief, or whether men who were already more attached to their baby were more likely to attend the ultrasound appointment for viewing—this concept requires further investigation.

Overall, quantitative studies included in this synthesis seem to have captured only half of the picture about grief, focusing predominately on individual and interpersonal factors as key contributors to the grief experience. Further studies are needed to explore the unique facets of men's grief following pregnancy/neonatal loss (e.g., helplessness, marginalisation, and the expectation to 'be strong'), as well as the broader sociocultural and public policy factors which emerged from this review. This might include a more comprehensive measure of attachment (i.e., beyond ultrasound viewing) which recognises the many activities that men may engage in to increase bonding with the unborn baby; quantitative measures of marginalisation from the pregnancy experience and healthcare system; the expectation to 'be strong' and/or conformity to masculine norms; and workplace-related functioning and performance. Once these

factors are well understood, there will be scope to develop and validate a grief measure with increased sensitivity toward these elements, as well as the more instrumental-orientated grief styles [26, 84, 88].

As already noted, none of the included studies focused exclusively on fathers' grief following neonatal loss. Furthermore, those which did include fathers bereaved to neonatal loss did not specifically identify disenfranchisement as a contributing factor. This may be due to increased recognition for the baby's life, given they survived outside of the womb. However, earlier studies identified through the database searches, but not eligible for inclusion [4, 122, 123], found that following neonatal loss both men and women experienced similar feelings of loneliness and isolation from friends and family, as well as a profound "silence concerning the death" [4]. There is a need for updated research to explore men's experiences of grief following neonatal loss in more depth and to identify any factors which may be unique to this type of loss.

Finally, participants in the included studies were predominately Caucasian, heterosexual males in a relationship with their female loss partner. As ever, there is a need for research among diverse samples of men, including particularly gay/transgender men whose pregnancy and loss experiences may involve unique or added challenges [32, 34]; single and/or separated men who experience relationship breakdown following a loss; and culturally and socio-demographically diverse men.The emerging socio-ecological model of men's grief following pregnancy/neonatal loss also requires refinement and confirmation through cohort studies which include these diverse populations of men. A comprehensive longitudinal study following a large cohort of men throughout pregnancy, and in the event of loss, would also be of value to better understand the causal pathways relating to the risk and protective factors for grief, coping and long-term psychological health.

Conclusions

A socio-ecological model of men's grief implies a need for multi-level intervention and strategies, as opposed to individual bereavement intervention and supports alone. Along with interventions tailored for instrumental grievers and the unique challenges men face, additional strategies may include community campaigns to change attitudes toward grief and loss, and to promote the strengths, rather than weaknesses, of masculinity (i.e., resilience and strength to seek assistance where required). Appropriate workplace policies and health systems that validate and allow for meaningful engagement of men throughout pregnancy, childbirth and in the event of loss, are also required. A focus on men's grief and subsequent support needs does not seek to reduce the significance of the loss for their female partners. Rather, a lack of validation as equal partners in the pregnancy and loss process has led to increased difficulties in coping for men, and being afforded acknowledgement for their grief [86, 90]. This review provides a helpful synthesis on the existing literature for men's grief following pregnancy/neonatal loss, and a solid theoretical foundation from which future research and recommendations can be built.

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Competing interests

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KO undertook the literature searches, screening and analysis, and drafted the paper; all authors reviewed a subset (10%) of abstracts identified by KO; CD reviewed a random sample (5%) of data extraction and quality appraisal forms; CD, MO and PM confirmed the systematic review findings; KO wrote the paper and prepared the manuscript for journal submission; all authors edited the draft. All authors read and approved the final manuscript.

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Tables

Table 1. Overview of included studies

	Quantitative (n = 19)	Qualitative (n = 27)	Total (n = 46)
Year of publication			
1998-2002	7	5	12
2003-2007	5	6	11
2008-2012	2	7	9
2013-2018	5	9	14
Region of study			
Australia	5	5	10
United Kingdom	3	3	6
United States and Canada	8	14	22
Europe	3	4	7
The Middle East	-	1	1
Informant group			
Men	3	13	16
Men and women	15	13	28
Men and service providers	-	1	1
Men, women and service providers	-	1	1
Total study sample size*			
10 or under	1	9	10
11-50	3	16	19
51-100	3	1	4
101-200	6	1	7
201-300	2	-	2
301-500	2	-	2
500+	2	-	2
Number of male participants			
10 or under	1	18	19
11-50	6	8	14
51-100	4	-	4
101-200	4	1	5
201-300	-	-	-
301-500	3	-	3
Unspecified	1	-	1
Loss type			
Miscarriage	9	8	17
Recurrent miscarriage (3+)	1	1	2
Stillbirth	1	9	10
Neonatal death	-	-	-
Medical termination for nonviable anomaly	1	1	2
Combination (pregnancy and neonatal losses)	7	8	15
Primary outcome focus			
Grief	16	6	22
Other	3	21	24

*Numbers only report the number of participants who experienced a pregnancy loss or neonatal loss

Table 2. Comparison of total grief scores on the Perinatal Grief Scale

Scale	Study	Loss type	Time point (n)	Mean (SD)	Overall classification (degree of grief based on normative data)^
Perinatal Grief Scale (total scores)	Barr (2004)	Stillbirth (≥ 20 weeks gestation) or neonatal death (≤ 28 days from birth)	One month post-loss (n = 72)	82.7 (20.73)	Mid
			13 months post-loss (n = 69)	71.9 (24.57)	Low
	Conway & Russell (2000)	Miscarriage (losses occurred between 5 and 16 weeks of gestation)	Within 3 weeks of loss (n = 32)	133.19 (18.98)	High
			2-4 months post-loss (n = 16)	136.31 (24.11)	High
	Franche & Bulow (1999)	Perinatal loss (losses occurred between 10 to 42 weeks of gestation)	Pregnant subsequent to loss group: 1-31.5 months post-loss (n = 24)	74.66* (7.16*)	Low
			Loss group (not currently pregnant): 2-19 months post-loss (n = 18)	75.11* (5.8*)	Low
	Johnson & Puddifoot (1998)	Miscarriage (< 24 weeks of gestation)	Within 11 weeks post-loss (M = 5.5 weeks; n = 158)	78.4 (22.7)	Mid
	Puddifoot & Johnson (1999)	Miscarriage (≤ 20 weeks of gestation) or stillbirth (> 20 weeks of gestation)	NR (n = 323)	80.98 (29.08)	Mid
	Rich (2000)	Ectopic pregnancy, miscarriage or stillbirth (losses occurred between 3 and 42 weeks of gestation)	2-60 months post-loss (M = 16.5 months; n = 114)	73.99 (18.47)	Low
	Serrano & Lima (2006)	Miscarriage (≤ 24 weeks of gestation)	Up to one year post-loss (n = 30)	72.23 (16.85)	Low
	Volgsten et al. (2018)	Miscarriage (up to 21+6 weeks of gestation)	1 week post-loss (n = 64)	44.5* (SDs NR)	Low
			4 months post-loss (n = 64)	37.5* (SDs NR)	Low
	Wilson et al. (2015)#	Stillbirth (from at least 20 weeks of gestation or over 400 g in weight)	6-8 weeks post-loss (n = 9)	82.8* (7.31*)	Mid
			6 months post-loss (n = 6)	75.9* (7.02*)	Low
			13 months post-loss (n = 3)	63.9* (5.80*)	Low

*Calculated based on reported subscale mean and SD scores; ^normative data as reported in Lasker & Toedter (2000); #grief reported for fathers who held their stillborn baby after birth; NR = not reported.

Figures

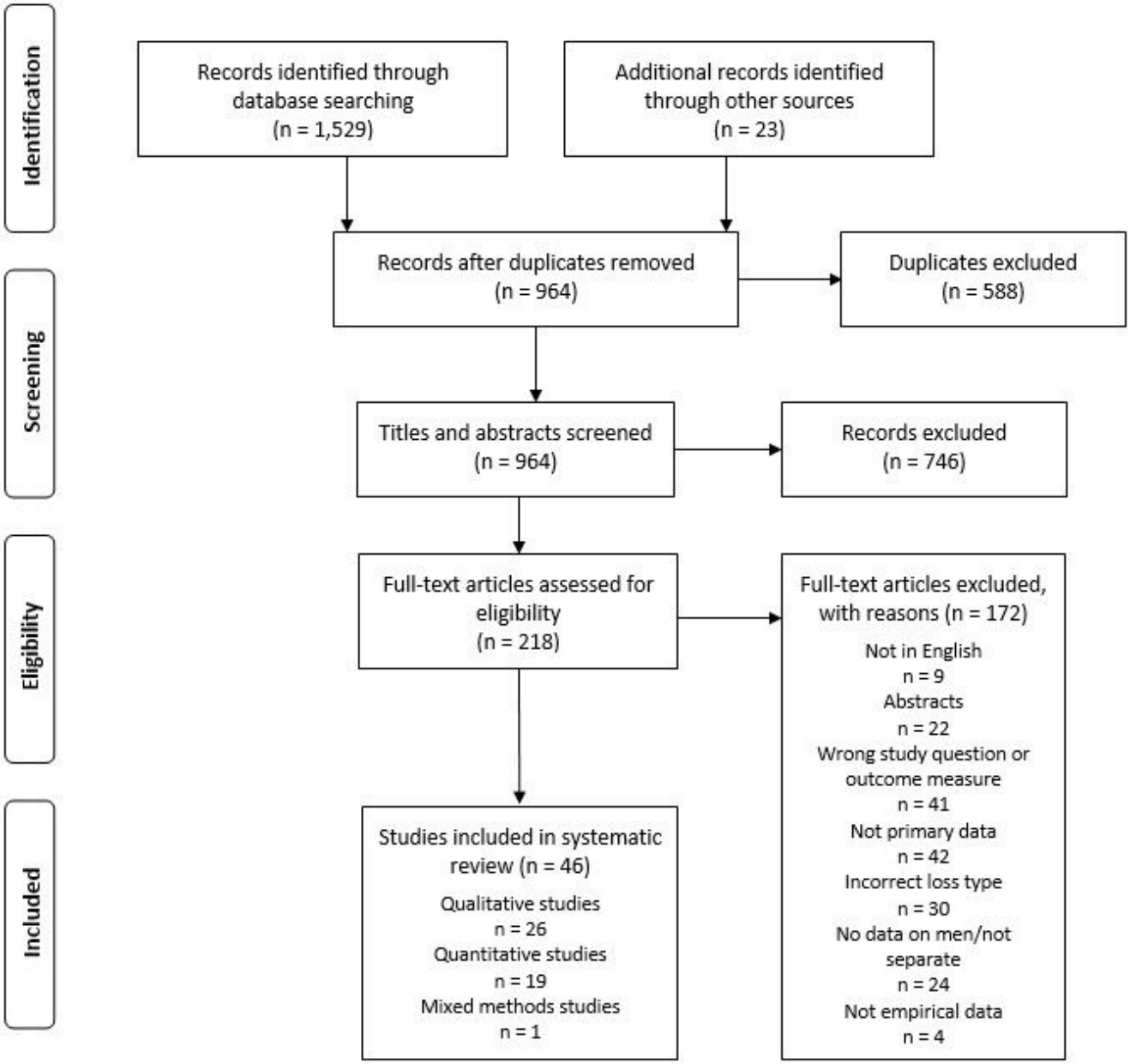

Figure 1

PRISMA flow diagram

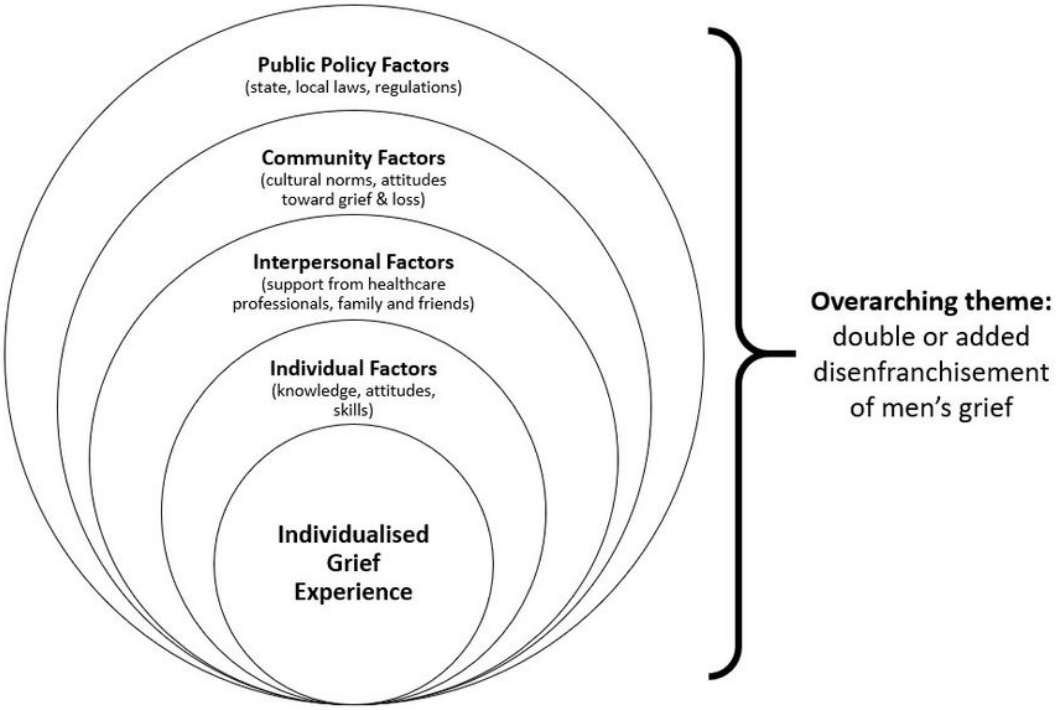

Figure 2

ecological systems theory

Supplementary Files

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