



# The Role of Attachment in Perinatal Loss: A Systematic Review

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## ABSTRACT

Perinatal loss (PL) disrupts maternal-fetal attachment (MFA) and poses significant emotional challenges for parents and their future children. The attachment style of parents prior to the loss is crucial for their adjustment to PL. This systematic review examines “How does parental attachment (including prior maternal attachment and attachment to the deceased infant) affect bereavement outcomes (grief intensity, duration, and psychological well-being) in parents who have experienced PL, and the emotional development and attachment in their subsequent children?”. A bibliographic search was conducted following PRISMA guidelines in Web of Science, PubMed, and ProQuest Central. Screening through Hubmeta included 33 studies based on set criteria. Two independent evaluators conducted the search, selection, data extraction, and quality evaluation, with excellent agreement ( $\kappa$  values between 0.77 and 0.90). The sample included 6,283 women (mean age = 29.08 years), 937 men (mean age = 34.16 years), and 11,569 children. Studies assessed attachment, perinatal grief, and psychopathology (depression, anxiety, PTSD symptoms, and event impact). Individuals with insecure attachment showed poorer psychological adjustment and a higher likelihood of unresolved grief. Additionally, there is an increased tendency toward disorganized attachment, as well as behavioral issues and ADHD in one-year-old children born after pregnancies following PL. However, no differences were found in MFA to future children between mothers who have experienced PL and those who have not. This review highlights the complexity of perinatal grief, its effects on parental mental health and child development, and emphasizes the need for personalized, multi-disciplinary support for affected families.

## ARTICLE HISTORY

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## Introduction

The perinatal period refers to the time surrounding pregnancy, childbirth, and the first weeks after birth (Isobel, 2023). During this period, mothers

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develop maternal-fetal attachment (MFA), an emotional connection with the unborn child, expressed through behaviors like verbal communication with the baby, physical interactions such as touching the abdomen and considering the future child in planning (Cranley, 1981; Muller, 1993). This bi-directional relationship between unborn babies and their mothers is crucial for maternal well-being, prenatal care adherence, and optimized infant development (Brandon et al., 2009; da Rosa et al., 2021).

However, this deeply ingrained connection faces significant threats from perinatal losses (PL), which include spontaneous and induced abortions, ectopic pregnancies, selective reductions, twin deaths in gestation, fetal deaths in utero or intrapartum, premature or neonatal deaths, and children placed for adoption (Álvarez et al., 2012). PL, occurring from gestation through the infant's first year or relinquishment for adoption, affects 10–20% of all pregnancies (Delgado et al., 2023; Fenstermacher & Hupcey, 2013; Hennessy & O'Donoghue, 2024; Kersting & Wagner, 2012).

Grief itself is a multifaceted emotional response to loss, shaped by individual, social, and cultural contexts. It encompasses a range of emotional, cognitive, physical, and behavioral reactions, including sadness, anger, disbelief, longing, and physical symptoms like fatigue and sleep disturbances (Ivers et al., 2024). While Freud (1964) emphasized the importance of “grief work” in detaching from the deceased, contemporary theories such as the dual process model (Stroebe & Schut, 1999) and the construction of meaning (Neimeyer & Sands, 2011) recognize the oscillation between emotional pain and practical adaptation, as well as the importance of integrating the loss into one's life narrative.

Complicated grief or Prolonged grief disorder (American Psychiatric Association, 2022) is an intense and persistent form of emotional distress that exceeds the expected duration by social norms when a person experiences a loss. It is characterized by intense and persistent longing, desire and sadness, which are often accompanied by recurrent thoughts or images of the deceased, as well as a sense of disbelief or an inability to accept the painful reality of their death (Shear, 2015). These symptoms can last for months or even years, significantly interfering with the affected person's daily life. A substantial number of parents who experience PL go through complicated grief (Eisma & Stroebe, 2021).

Perinatal grief is defined as the emotional and adaptive process that parents and family go through when a baby is lost during pregnancy, childbirth or shortly after birth (Benavides & Guerra, 2024). In the case of PL, individuals not only experience the profound sorrow associated with the death of a desired child but also contend with a range of additional, often less recognized, losses. These include the erosion of one's sense of identity, the loss of the anticipated parental role, and profound disruption in the sense of security within the world (Côté-Arsenault & Denney-Koelsch, 2011).

These multifaceted losses complicate the grieving process, often extending its duration and emotional intensity (Kersting & Wagner, 2012).

PL represents disenfranchized grief, marked by societal negation, cultural silence, insufficient medical acknowledgment, and unrealistic societal expectations during recovery (Callister, 2006; Delgado et al., 2023). Individuals experiencing PL are at increased risk of medium and long-term psychological difficulties, including complicated grief, anxiety, depression, suicidal ideation, and PTSD, which can significantly impair daily functioning (Arditi-Arbel et al., 2022; Berry, 2022; Horsch et al., 2024). Despite this, there is a mistaken societal belief that PL is rare and emotionally insignificant (Bellhouse et al., 2018; Zhuang et al., 2023).

Bowlby's attachment theory (1969) is crucial in bereavement studies, highlighting that PL disrupts the attachment formation process between expecting parents and their baby, potentially triggering intense emotional responses and affecting future attachment dynamics with subsequent children (Bowlby, 1980). Humans have an innate biological need to seek secure emotional bonds with primary attachment figures, essential for survival, protection, and satisfaction (Bowlby, 1969). Ainsworth et al. (1978) identified three primary forms of attachment: secure, insecure-avoidant, and insecure-anxious. Main and Solomon (1986) later introduced a fourth type, disorganized-insecure attachment, based on observations of contradictory infant behaviors. Recent studies (e.g., Lacomba-Trejo et al., 2023; Trenado et al., 2009) build on this foundational work, exploring the broader implications of attachment styles for emotional regulation and mental health across the lifespan.

Secure attachment serves as a protective factor throughout life, while insecure and disorganized attachments are linked to risky behaviors and poorer health outcomes (Pace et al., 2023; Steele et al., 2020; Vowels et al., 2023). Secure attachment in mourning processes is associated with adaptive grieving and serves as a protective factor against pathological grief due to a propensity to seek support and regulate emotions effectively (Levi-Belz & Lev-Ari, 2019; Sochos & Aleem, 2022). Conversely, anxious and avoidant attachments hinder grieving and are risk factors for complicated grief (Neimeyer & Burke, 2017; Stroebe et al., 2012). Disorganized attachments is associated with prolonged grief symptoms (Sekowski & Prigerson, 2022) as they might struggle to construct a cohesive story about the loss (Shaver & Tancredy, 2001).

Adult attachment, based on John Bowlby's theory (1969), describes how early experiences with caregivers influence the emotional and behavioral patterns of significant relationships in adulthood. Hazan and Shaver (1987) extended this approach to the context of romantic relationships, identifying attachment styles that affect intimacy, conflict management, and support-seeking in attachments. The mother's attachment style can be passed

to her children, with secure attachment providing significant benefits in emotional, social, and physical development (Meredith & Strong, 2019). Securely attached children have stronger immune systems, better academic performance, cognitive outcomes, problem-solving abilities, and lower anxiety and stress levels (Fagundes et al., 2011; Fonagy et al., 2023; Kent et al., 2020; Mikulincer & Shaver, 2019; Picardi et al., 2020; Sroufe, 2005; Zayde et al., 2021). Research suggests that disruptions in parental attachment following PL may influence not only the emotional well-being of subsequent children but also their physical health outcomes, including immune system function and stress regulation (Fagundes et al., 2011; Mikulincer & Shaver, 2019). Understanding these dynamics is essential to inform interventions aimed at supporting families after a PL.

Investigating the relationship between PL and attachment is crucial due to the high incidence of PL, which affects approximately 10–20% of all pregnancies (Delgado et al., 2023; Fenstermacher & Hupcey, 2013; Hennessy & O'Donoghue, 2024; Kersting & Wagner, 2012), and the lack of research on its clinical and social impacts. Current literature shows significant consequences of attachment disruptions after PL, affecting bereaved parents, their future relationships, and the well-being of subsequent children. Despite Bowlby's (1969) identification of attachment's critical role in grief, the specific dynamics between PL and attachment remain largely unexplored, leaving a gap in evidence-based guidelines for supporting affected families. Efforts have been made to provide recommendations for practice, policy, research, and theory to prevent the consequences of PL (Ayers et al., 2024), but much work remains.

A preliminary search of the literature revealed a significant gap in a systematic exploration of the relationship between PL and attachment. Despite the recognized psychological and relational impacts of PL, no systematic or nonsystematic reviews to date have comprehensively addressed how these two constructs interact. Existing contributions have largely been limited to theoretical discussions or editorials (e.g., Browne, 2022; Nguyen et al., 2019; Robinson et al., 1999), which lack the structured approach necessary to synthesize the current evidence base. Furthermore, a search in the PROSPERO database confirmed that no ongoing systematic reviews on this topic were registered at the time this study was initiated.

This review seeks to address this critical gap by systematically examining the existing literature on PL and attachment. Understanding this relationship is particularly important given the profound emotional and relational challenges associated with PL, which can affect individuals, couples, and families (Côté-Arsenault et al., 2020; Caldwell et al., 2024). To capture the breadth of available evidence, no restrictions were placed on publication date or language, ensuring an inclusive and comprehensive approach. By

organizing and synthesizing the current knowledge, this review aims to provide a valuable foundation for advancing research and clinical understanding in this area.

The following research question, framed using the PICO/PECO strategy (Mamédio et al., 2007), guides this review (Mamédio et al., 2007): *“How does parental attachment (encompassing both prior maternal attachment and attachment to the deceased infant) affect the bereavement process outcomes (such as grief intensity, duration, and psychological well-being) in parents who have experienced perinatal loss, as well as the emotional development and attachment formation in their subsequent children?”*

## Method

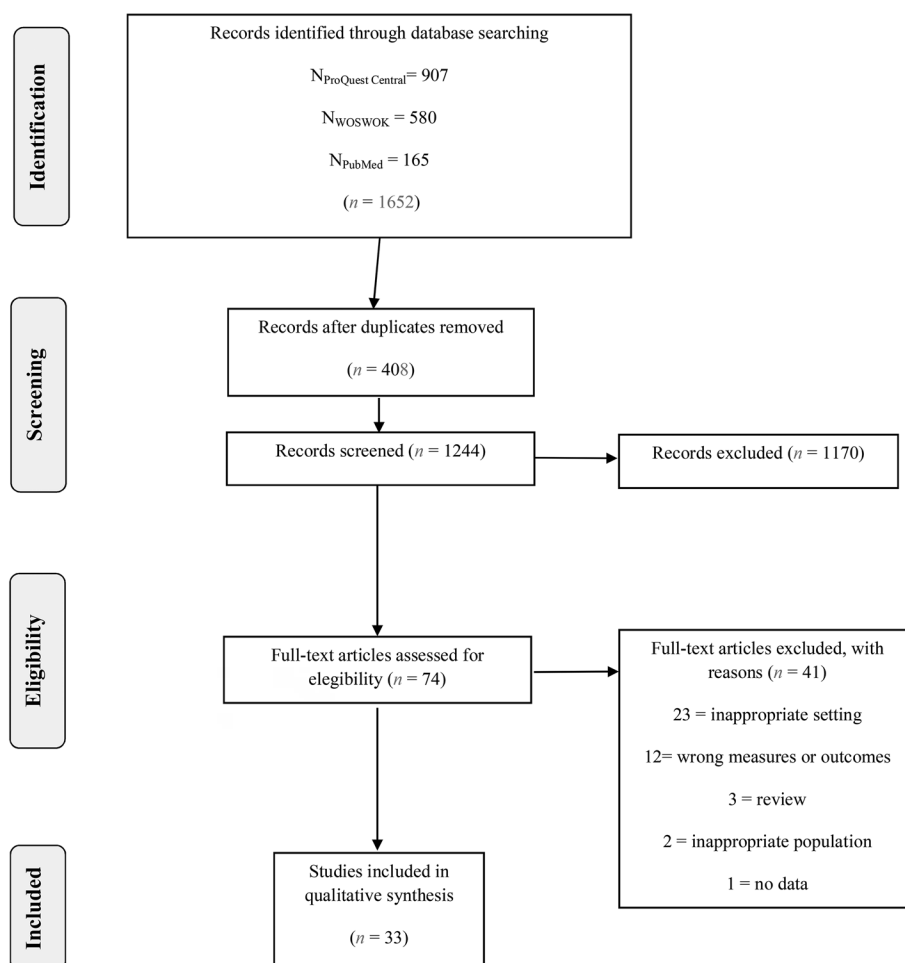
### Search strategy

The present systematic review was defined following the guidelines proposed by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Moher et al., 2016). The following databases were consulted by two independent authors (L.L-T. and R.S-G.) in February 2024: Web of Science, PubMed, and ProQuest Central. The final search combined the proposed key elements, and the following Boolean expressions (using MeSH terms) were used in the databases: (perinatal loss OR perinatal grief OR perinatal mourning OR miscarriage OR perinatal death OR neonatal loss OR stillbirth OR prenatal loss) AND (bonding OR attachment). This study did not require ethical approval, as it is a systematic review of previously published studies. No primary data collection or direct involvement of human participants was conducted. Nevertheless, this systematic review was registered in PROSPERO with code CRD42024506448.

### Eligibility criteria

To be included, articles had to meet the following inclusion criteria: (a) all languages; (b) no temporal criterion due to the lack of literature; (c) parents (both father and mother or either parent) who had lost a child due to miscarriage, stillbirth, or neonatal death as participants; (d) reference attachment and PL and grief; (e) mention attachment and its influence on the bereavement process, whether pathological or not; (f) if the article refers to bereavement in general, it was included only if it presented data on perinatal bereavement separately; and (g) include clinical studies, introductory journal articles, or comparative studies (PubMed).

As exclusion criteria, articles could not refer to: (a) topics not focused on PL or attachment; (b) case studies, systematic reviews, descriptive



**Figure 1.** Flowchart of the selection process.

articles, or narrative reviews; and (c) other types of documents such as lectures, books, chapters, dissertations, interviews, conferences or congresses, and grey literature.

### Procedure

All records were uploaded to HubMeta (Steel et al., 2023), a web-based data entry system. Duplicate articles were removed. Titles and abstracts were then reviewed, and papers that did not meet the inclusion criteria were eliminated. Articles selected by either of the two authors (L.L-T. and R.S-G.), or those with differences between their blinded decisions, were reviewed in a blinded manner and individually reassessed to ensure they met the inclusion and exclusion criteria. Disagreements between authors were resolved by discussion. Out of 1,652 articles analyzed, 33 were

included in the final study after removing duplicates and excluding articles based on criteria such as study type and relevance. The complete process can be found in [Figure 1](#).

Cohen's Kappa index ( $\kappa$ ) was used to evaluate judge agreement. Values between  $-1$  and  $0.40$  are unsatisfactory,  $0.41$  to  $0.75$  are satisfactory, and  $0.76$  or higher are excellent (Orwin, [1994](#); Hernández-Nieto, [2002](#)). Agreement among judges in the first ( $\kappa=0.77$ ) and second ( $\kappa=0.90$ ) selection was excellent. Due to the high heterogeneity of the results, specifically the differences in the variables considered and the instruments used to assess them, it was not considered appropriate to perform a subsequent meta-analysis.

## Results

[Table 1](#) shows in detail the results of the studies selected in this systematic review.

### *Characteristics of the studies: Sample and design*

The sample comprised 6,283 women (weighted mean age = 29.08 years), 937 men (weighted mean age = 34.16 years), and 11,569 living children born after a PL. Only two studies reported the mean age of children (Bakermans-Kranenburg et al., [1999](#); Price, [2008](#)). The remaining studies assessed children at one year of age, except for Pinto et al. ([2006](#)), where children were aged between 6 and 8 years, and Price ([2008](#)) and Branjerdporn et al. ([2022](#)), where children were evaluated at 9 and 18 months, respectively.

In the sample, there were a total of 33 studies, of which 55% recruited pregnant (Armstrong, [2002](#), [2004](#); Armstrong & Hutti, [1998](#); Beauquier-Maccotta et al., [2022](#); Branjerdporn et al., [2021](#), [2022](#); Caldwell et al., [2024](#); Gaudet et al., [2010](#); Hughes et al., [2001](#), [2002](#), [2004](#), [2006](#); Kelmanson, [2024](#); Kinsey et al., [2014](#); Mehran et al., [2013](#); O'Malley et al., [2020](#); Tsartsara & Johnson, [2006](#); Turton et al., [2004](#); Yilmaz & Beji, [2013](#)). Among the studies that recruited pregnant women, 21% conducted assessments during the second trimester (Caldwell et al., [2024](#); Kelmanson, [2024](#); O'Malley et al., [2020](#); Tsartsara & Johnson, [2006](#)), while 79% conducted assessments during the third trimester (Armstrong, [2002](#), [2004](#); Armstrong & Hutti, [1998](#); Beauquier-Maccotta et al., [2022](#); Branjerdporn et al., [2021](#), [2022](#); Gaudet et al., [2010](#); Hughes et al., [2001](#), [2002](#), [2004](#), [2006](#); Kinsey et al., [2014](#); Mehran et al., [2013](#); Turton et al., [2004](#); Yilmaz & Beji, [2013](#)). 18.18% of the studies were longitudinal, with children's measures taken at various time points after birth (Branjerdporn et al., [2022](#); Hughes et al., [2001](#), [2002](#), [2004](#), [2006](#); Turton et al., [2004](#)).

Table 1. Characteristics of studies included in the systematic review.

| First author and year      | Country | Sample                                                                                                                                                                                     | Variables and instruments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Design                                                                  | Main findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Al-Maharma et al. (2016)   | Jordan  | 190 mothers who experienced a PL once in their life and who subsequently had an uneventful singleton pregnancy resulting in a full-term newborn (currently, the child is 4 to 6 weeks old) | <ul style="list-style-type: none"><li>• Sociodemographic Variables: age, religion, socioeconomic status, number of children, gender of the deceased child, level of education, occupation, time between the death of the child and the birth of subsequent child, history of the lost and new child.</li><li>• Clinical Variables: patient and caregiver medical history, presence of diseases in other children.</li><li>• Psychological Variables: grief, maternal-child attachment, child behavior.</li></ul> | Cross-sectional study that utilizes a descriptive correlational design. | <ul style="list-style-type: none"><li>• Negative relationship between grief intensity and maternal attachment.</li><li>• Positive relationship between high attachment and positive neonatal perception.</li><li>• Grief intensity influenced by demographics (higher in high-risk pregnancies and unemployed mothers).</li><li>• No significant link between high grief intensity and negative neonatal perception.</li><li>• Perinatal grief is negatively related to attachment with subsequent child.</li><li>• Overall grief levels were low to moderate; attachment levels were moderate to high</li><li>• Over half had negative perceptions of the current child.</li><li>• Lower grief intensity in bereaved women with a male child in Jordanian culture.</li></ul>          |
| Armstrong and Hutti (1998) | U.S.A.  | 31 women who are in the second half of a subsequent pregnancy (15 primiparae and 16 who previously experienced a late pregnancy miscarriage, stillbirth, or neonatal death)                | <ul style="list-style-type: none"><li>• Sociodemographic Variables: age, years of education, employment, mean of hours worked per week, income, planned pregnancy.</li><li>• Psychological Variables: attachment, pregnancy-specific anxiety.</li></ul>                                                                                                                                                                                                                                                          | Non-randomized, comparative, descriptive design. Case-control.          | <ul style="list-style-type: none"><li>• Loss group had higher pregnancy-related anxiety.</li><li>• Lower prenatal attachment compared to primiparous women.</li><li>• Loss group reported increased pregnancy-specific anxiety and less prenatal attachment.</li><li>• Actions needed to reduce anxiety levels.</li><li>• Nurses should be aware of heightened anxiety and its impact on prenatal attachment.</li></ul>                                                                                                                                                                                                                                                                                                                                                                |
| Armstrong (2004)           | U.S.A.  | 40 expectant couples who experienced a prior PL.                                                                                                                                           | <ul style="list-style-type: none"><li>• Sociodemographic Variables: sex, age, race, education, marital status, annual household income, number of previous pregnancies, number of living children or stepchildren, gestational age of the current pregnancy at the time of the interview, number of previous losses, timing and gestational age at loss.</li><li>• Psychological Variables: influence of loss, depressive symptoms, pregnancy-specific anxiety, prenatal attachment.</li></ul>                   | Cross-sectional, survey design                                          | <ul style="list-style-type: none"><li>• Mothers reported higher levels of depressive symptoms, pregnancy-specific anxiety, and prenatal attachment than fathers.</li><li>• 45% of mothers and 23% of fathers were at high risk for depression. 88% of mothers and 90% of fathers reported elevated stress due to prior loss.</li><li>• Previous PL impact was moderately correlated with depressive symptoms and pregnancy-specific anxiety.</li><li>• No relationship between psychological distress in pregnancy after PL and prenatal attachment.</li><li>• Prior loss increased parents' stress and psychological distress in the current pregnancy.</li><li>• Healthcare practitioners should advise expectant couples about potential emotional distress following PL.</li></ul> |

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Table 1. Continued.

| First author and year       | Country     | Sample                                                                                    | Variables and instruments                                                                                                                                                                                                                                                                                                                                        | Design                                      | Main findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------|-------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Armstrong (2002)            | U.S.A.      | 103 couples in the 2nd trimester of the mother's pregnancy (40 couples with previous PL). | <ul style="list-style-type: none"><li>• Sociodemographic Variables: sex, age, race, marital status, educational level, household income, number of previous losses, previous successful pregnancies, gestational age at the time of the loss.</li><li>• Psychological Variables: depressive symptoms, prenatal attachment, pregnancy-specific anxiety.</li></ul> | Comparative, cross-sectional survey design. | <ul style="list-style-type: none"><li>• Couples with a PL history showed more depressive symptoms and pregnancy anxiety than those with only successful pregnancies.</li><li>• Mothers exhibited more symptoms than fathers across all groups.</li><li>• Similar levels of prenatal attachment were observed regardless of PL history.</li><li>• Previous loss experience continued to influence depressive symptoms and pregnancy-specific anxiety in subsequent pregnancies.</li><li>• Depressive symptoms and pregnancy-specific anxiety did not affect subsequent parent-infant attachment after PL.</li></ul>                                                                                                                                       |
| Bakermans-Kranenburg (1999) | Netherlands | 85 mothers of 1-year-old infants and their children (30 had experienced previous PL).     | <ul style="list-style-type: none"><li>• Sociodemographic Variables: age and sex of children, number of children, education, hospitalization of the child, hours spent away from home in employment, number of miscarriages, information about miscarriages.</li><li>• Psychological Variables: attachment, children's attachment</li></ul>                       | Comparative, cross-sectional survey design. | <ul style="list-style-type: none"><li>• Unresolved loss due to miscarriage was related to an infant's disorganized attachment behavior.</li><li>• The time since miscarriage did not affect mothers' unresolved loss.</li><li>• Insecurely attached mothers with PL showed a significant association between unresolved loss and infant disorganization, unlike securely attached mothers.</li><li>• Unresolved loss scores were higher with longer pregnancies before miscarriage.</li><li>• For insecurely attached mothers, unresolved loss due to miscarriage uniquely predicted infant disorganization.</li><li>• Securely attached mothers could prevent their unresolved loss from affecting the infant-mother attachment relationship.</li></ul> |

(Continued)

Table 1. Continued.

| First author and year            | Country | Sample                                                                                                              | Variables and instruments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Design                                                               | Main findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------|---------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Beauquier-Maccotta et al. (2022) | France  | 25 women in a subsequent pregnancy after a TOP.                                                                     | <ul style="list-style-type: none"><li>• Sociodemographic Variables: maternal age, paternal age, duration of relationship, eldest child age, second child age.</li><li>• Previous Pregnancy Characteristics: delay to diagnosis, first abnormality announcement, delay to termination of pregnancy.</li><li>• Current Pregnancy Characteristics: delay between pregnancies, first perception of fetal movement.</li><li>• Psychological Variables: anxiety, post-traumatic stress disorder, postnatal depression, prenatal attachment, perinatal grief.</li></ul> | Longitudinal study (20, 27, and 35 gestational weeks).               | <ul style="list-style-type: none"><li>• Early pregnancy showed a high prevalence of anxiety (66.7%), depression (30.4%), and PTSD symptoms (25%).</li><li>• Emotional symptoms decreased in late pregnancy, and prenatal attachment increased.</li><li>• Prenatal attachment was inversely correlated with grief intensity.</li><li>• Highlighted the need for early prenatal psychological support and special attention to prenatal attachment during late pregnancy, even if the fetus is healthy.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Kinsey et al. (2014)             | U.S.A.  | 2,798 pregnant women (449 with PL history).                                                                         | <ul style="list-style-type: none"><li>• Sociodemographic Variables: maternal age, marital status, race and ethnicity, education, poverty status, miscarriage history, fertility treatment, mode of delivery, history of depression, postpartum mental health visit, infant hospitalization.</li><li>• Psychological Variables: postpartum depression, maternal stress, social support, maternal-infant bonding.</li></ul>                                                                                                                                        | Multi-site longitudinal (1, and 12 months postpartum), cohort study. | <ul style="list-style-type: none"><li>• Women with a history of PL had similar maternal-infant bonding scores to those without such history during three postpartum moments.</li><li>• Those with a PL history were more likely to exhibit symptoms of probable postpartum depression.</li><li>• PL history was not associated with bonding scores during the three postpartum moments.</li><li>• Bonding scores increased from 1 month to 6 months postpartum, regardless of PL history.</li><li>• Clinicians should not assume that a history of PL negatively affects the mother-infant relationship.</li><li>• Higher closeness scores were observed in trimesters 2/3, with increased internalized continuing bonds.</li><li>• Internalized continuing bond scores slightly decreased by the end of the block.</li><li>• Internalized continuing bonds positively correlated with grief intensity, closeness, and externalized continuing bonds; externalized continuing bonds positively correlated with grief intensity.</li><li>• Internalized continuing bonds were predicted by higher grief intensity, externalized continuing bonds, and closeness.</li><li>• Highlights the need for loss-specific measures of continuing bonds and investigation of their functions across different types of loss.</li></ul> |
| Black et al. (2022)              | U.S.A.  | 226 parents (83 men, 142 women, and 1 other) who had experienced a miscarriage or stillbirth within the prior year. | <ul style="list-style-type: none"><li>• Sociodemographic Variables: participants' relationship to the deceased prior to death (closeness scale), feelings of blame/regret.</li><li>• Psychological Variables: continuing bonds, traumatic grief, closeness.</li></ul>                                                                                                                                                                                                                                                                                            | Cross-sectional.                                                     | <ul style="list-style-type: none"><li>• Internalized continuing bonds positively correlated with grief intensity, closeness, and externalized continuing bonds; externalized continuing bonds positively correlated with grief intensity.</li><li>• Internalized continuing bonds were predicted by higher grief intensity, externalized continuing bonds, and closeness.</li><li>• Highlights the need for loss-specific measures of continuing bonds and investigation of their functions across different types of loss.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

(Continued)

**Table 1.** Continued.

| First author and year      | Country   | Sample                                                     | Variables and instruments                                                                                                                                                                                                                                                                                                          | Design                                                                                                                 | Main findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------|-----------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Branjerdorn et al., (2021) | Australia | 108 pregnant women (41 with previous PL).                  | <ul style="list-style-type: none"> <li>Sociodemographic Variables: postal code, age, marital status, number of children, ethnicity, presence of mental health diagnosis, medical history.</li> <li>Psychological Variables: attachment, sensory patterns, mental health.</li> </ul>                                                | Cross-sectional, case-control, observational study.                                                                    | <ul style="list-style-type: none"> <li>Women with previous PL had more distress but similar levels of MFA compared to those without PL history.</li> <li>Links found between MFA and maternal sensory patterns, as well as between adult attachment and mental health in women with and without previous PL.</li> <li>Considering maternal sensory patterns, adult attachment, and mental health status antenatally may inform services to improve mother-unborn baby relationships.</li> <li>Higher quality of MFA, less anxiety, and distress during pregnancy correlated with more optimal infant behavioral outcomes after 1 year.</li> <li>Infants of women with PL had lower independent cognitive assessment scores compared to those without PL.</li> <li>No link was found between prenatal maternal distress and infant development.</li> <li>Infants of women with PL are more susceptible to suboptimal development.</li> <li>Increased support during pregnancy and infancy for women with previous PL is important to facilitate optimal infant development.</li> </ul> |
| Branjerdorn et al., (2022) | Australia | 40 pregnant women and their children (15 with PL history). | <ul style="list-style-type: none"> <li>Sociodemographic Variables: marital status, ethnicity, mental health diagnosis, date of birth, postal code.</li> <li>Psychological Variables: attachment, infant development, mental health.</li> </ul>                                                                                     | Cohort, case-control, and longitudinal study (Time 1: during pregnancy; Time 2: when infants turned 12 months of age). | <ul style="list-style-type: none"> <li>Adult attachment, shame, self-blame, and social connectedness explained significant portions of difficulty coping (74%), total grief (74%), despair (65%), and active grief (57%).</li> <li>Avoidant attachment and self-blame predicted greater difficulty coping and higher levels of despair.</li> <li>Social connectedness predicted lower active grief and mediated relationships between perinatal grief and all three attachment patterns.</li> <li>Focusing on social connectedness may help prenatal clinicians support pregnant women during subsequent pregnancies and in grief.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Caldwell et al. (2024)     | Australia | 29 pregnant women after a PL.                              | <ul style="list-style-type: none"> <li>Sociodemographic and Clinical Variables: loss variables, previous mental health history, education level, gestation at current pregnancy.</li> <li>Psychological Variables: attachment styles, shame, self-blame, social connectedness, perinatal grief, psychological distress.</li> </ul> | Cross-sectional.                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

(Continued)

Table 1. Continued.

| First author and year        | Country | Sample                                                                                                                   | Variables and instruments                                                                                                                                                                                                                                                                                                                                                                       | Design                                         | Main findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| Christiansen et al. (2013)   | Denmark | 361 mothers and 273 fathers with PL history.                                                                             | <ul style="list-style-type: none"><li>Sociodemographic Variables: age of parents, age of the child, time since loss, gestational age, number of additional losses, number of living children, type of loss, prenatal loss.</li><li>Psychological Variables: traumatization, attachment, coping style, social support.</li></ul>                                                                 | Cross-sectional.                               | <ul style="list-style-type: none"><li>PTSD prevalence was 12.30%. Type of loss (pre-, peri-, or postnatal) did not affect PTSD severity, but lower gestational age was associated with more symptoms.</li><li>Factors accounting for 42% of the variance in PTSD severity included time since loss, female sex, attachment avoidance, attachment anxiety, emotion-focused coping, rational coping, feeling let down, and social support satisfaction.</li><li>The study highlights the long-term impact of infant loss and identifies attachment, coping, and social support as key contributors to PTSD development and maintenance.</li><li>Mothers reported more PTSD symptoms, attachment anxiety, emotion-focused coping, and feeling let down, but lower attachment avoidance than fathers.</li><li>Attachment anxiety, attachment avoidance, and emotion-focused coping were more strongly associated with PTSD severity in mothers when examined alone.</li><li>No significant moderation effects of sex were found when all variables and time since loss were examined together.</li><li>Sex differences exist in PTSD severity and correlates, with some moderation effects for attachment and emotion-focused coping. However, overall associations between PTSD and covariates were more similar than different between mothers and fathers.</li><li>No differences based on PL and no moderation by maternal race or adult attachment were found.</li><li>Within the loss group, later gestational losses led to fewer positive feelings about parenting and less secure child attachment.</li><li>Multiple PLs were associated with higher depressive symptoms at 1 year postpartum and less positive attitudes about parenting, regardless of race and socioeconomic status.</li><li>Multiple and later PLs may negatively impact maternal well-being and infant attachment type.</li></ul> |
| Christiansen et al., (2014)  | Denmark | 361 mothers and 273 fathers who had lost an infant either late in pregnancy, during birth, or in the first year of life. | <ul style="list-style-type: none"><li>Sociodemographic Variables: infertility issues, prior PL, maternal race, children's gender, maternal educational level, age, income-to-needs ratio, socioeconomic status, reproductive history.</li><li>Psychological Variables: depressive symptoms, marital satisfaction, maternal sensitivity, infant-mother attachment, maternal attitudes.</li></ul> | Cross-sectional.                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Côté-Arsenault et al. (2020) | USA     | 204 women and their children (58 with previous PL).                                                                      | <ul style="list-style-type: none"><li>Sociodemographic Variables: infertility issues, prior PL, maternal race, children's gender, maternal educational level, age, income-to-needs ratio, socioeconomic status, reproductive history.</li><li>Psychological Variables: depressive symptoms, marital satisfaction, maternal sensitivity, infant-mother attachment, maternal attitudes.</li></ul> | Longitudinal (prenatal, 6 months, and 1 year). |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

(Continued)

Table 1. Continued.

| First author and year       | Country | Sample                                                                 | Variables and instruments                                                                                                                                                                                                                                                                                                                          | Design           | Main findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------|---------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Freddie and Oliveira (2024) | USA     | 244 women who had experienced PL.                                      | <ul style="list-style-type: none"><li>• Sociodemographic Variables: age, ethnicity, educational level, employment status, current income, relationship status.</li><li>• Psychological Variables: attachment security, dyadic coping, posttraumatic growth.</li></ul>                                                                              | Cross-sectional. | <ul style="list-style-type: none"><li>• PL was perceived as traumatic, especially when the pregnancy/fetus was seen as a person.</li><li>• Greater trauma was evident in women who experienced a stillbirth or miscarriage plus stillbirth, compared to miscarriage alone.</li><li>• Attachment security was related to positive couple relational functioning.</li><li>• Dyadic coping influenced the relationship between attachment anxiety, attachment avoidance, and PTG.</li><li>• Relational security and partner support after PL contribute to positive psychological change and growth.</li><li>• Mediation analysis showed dyadic coping as the pathway through which attachment anxiety and avoidance affect PTG.</li></ul> |
| Gaudet (2010)               | France  | 96 pregnant women, with PL history, and 74 women in the control group. | <ul style="list-style-type: none"><li>• Sociodemographic Variables: maternal age, marital status, employment status, number of losses, stage of current pregnancy, time since loss.</li><li>• Psychological Variables: feelings of perinatal grief, psychological distress, identification with the maternal role, perinatal attachment.</li></ul> | Case-control.    | <ul style="list-style-type: none"><li>• Women who suffered PL reported significantly higher grief and anxio-depressive symptoms compared to the control group.</li><li>• Grief and anxio-depressive symptoms were significant predictors of prenatal attachment.</li><li>• Highlights the intense psychological distress during pregnancy following a PL and the need for extended psychosocial and clinical care up to the birth of the subsequent child</li></ul>                                                                                                                                                                                                                                                                     |

(Continued)

Table 1. Continued.

| First author and year    | Country | Sample                                                                  | Variables and instruments                                                                                                                                                                                                                                                                                                                                                                                    | Design                                                                                   | Main findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------|---------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Güçlü et al. (2021)      | Turkey  | 46 women who decided to terminate their pregnancy due to fetal anomaly. | <ul style="list-style-type: none"><li>• Sociodemographic Variables: medical and obstetric history, factors affecting the women's decisions to terminate the pregnancy, number of living children at the termination of pregnancy (TOP).</li><li>• Psychological Variables: perinatal grief, impact of the event, anxiety, postnatal depression symptoms, intimate relationships, adult attachment.</li></ul> | Longitudinal (6 weeks, 6 and 12 months after PL).                                        | <ul style="list-style-type: none"><li>• No relationship was found between the severity of grief symptoms and socio-demographic or clinical characteristics.</li><li>• Perinatal grief symptoms gradually decrease from termination of pregnancy to 6 months but can persist for up to 1 year.</li><li>• Positive correlation between perinatal grief, anxiety symptoms, and hyperarousal.</li><li>• Significant changes in mean perinatal grief scores from 6 weeks to 6 months and from 6 weeks to 12 months.</li><li>• Diagnosis of fetal anomaly and TOP can be traumatic and disruptive.</li><li>• Perinatal grief is a unique bereavement experience; specific interventions are needed to detect and treat severe perinatal grief.</li></ul>                              |
| Heller and Zeanah (1999) | USA     | 19 mothers with a stillbirth history and their 20 infants.              | <ul style="list-style-type: none"><li>• Sociodemographic Variables: maternal age, maternal education, ethnicity, marital status, maternal medical history, medical complications, number of previous losses, infant gender, birth information, and gestational age of the deceased infant.</li><li>• Psychological Variables: perinatal grief, infant attachment.</li></ul>                                  | Longitudinal (two months after the loss and one year after the birth of the next child). | <ul style="list-style-type: none"><li>• Maternal responsibility for emotional well-being 2 months after PL predicted disorganized attachment in subsequent infants.</li><li>• 55% of infants were securely attached; 45% were insecure/disorganized. Securely attached infants' mothers were more likely autonomous, while insecure/disorganized infants' mothers were more likely dependent.</li><li>• No significant differences in infant attachment were based on mothers' descriptions of support experience.</li><li>• Mothers of disorganized infants felt overwhelmed by grief and out of control.</li><li>• Identifying disorganized/insecure dyads is important for prevention, as mothers may expect the next pregnancy to resolve their unresolved grief.</li></ul> |

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Table 1. Continued.

| First author and year | Country | Sample                                                                      | Variables and instruments                                                                                                                                                                                                                                                                                                                                                                                                                                               | Design                                                                                        | Main findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------|---------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hughes et al. (2001)  | UK      | 53 women with PL history and their next-born infants; and 53 control dyads. | <ul style="list-style-type: none"><li>• Sociodemographic Variables: education, self and partner's employment, income, housing, previous physical and mental illness.</li><li>• Psychological Variables: attachment, depression, PTSD symptoms, anxiety, infant attachment.</li></ul>                                                                                                                                                                                    | Cohort study, case-control, follow-up (3rd trimester of pregnancy and 12 months after birth). | <ul style="list-style-type: none"><li>• Women who held their stillborn infants were more depressed than those who only saw them; those who did not see the infant were the least likely to be depressed.</li><li>• Seeing stillborn infants was associated with greater anxiety, higher PTSD symptoms, and a higher likelihood of disorganized attachment in subsequent infants.</li><li>• Having a funeral and keeping mementos did not show associations with additional adverse outcomes.</li><li>• The study suggests that parents should not be encouraged to see and hold their stillborn baby if they are reluctant, as it may not make mourning more difficult.</li></ul> |
| Hughes et al. (2002)  | UK      | 64 mothers with previous PL history and 60 without it.                      | <ul style="list-style-type: none"><li>• Sociodemographic Variables: education, self and partner's employment, income, housing, previous physical and mental illness.</li><li>• Details of the Loss: gestation of a stillborn infant, time since loss, contact with the deceased infant, whether the family had a funeral, family, and partner support, bereavement counseling after loss.</li><li>• Psychological Variables: attachment, depression, anxiety.</li></ul> | Case-control, cross-sectional.                                                                | <ul style="list-style-type: none"><li>• Women who suffered PL were more likely to be unresolved compared to control women.</li><li>• Although similar numbers of PL and control women experienced childhood trauma, only PL women were unresolved regarding this trauma.</li><li>• Higher unresolved scores related to PL were predicted by childhood trauma, poor family support after the loss, and having a funeral for the infant.</li><li>• The prevalence of unresolved grief among women with previous PL history is high and can be triggered or retriggered by subsequent traumatic loss.</li></ul>                                                                      |

(Continued)

Table 1. Continued.

| First author and year | Country | Sample                                                                      | Variables and instruments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Design                                                                                                          | Main findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------|---------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hughes et al. (2004)  | UK      | 53 women with PL history and their next-born infants; and 62 control dyads. | <ul style="list-style-type: none"><li>Sociodemographic Variables: ethnic group, age, years with partner, education, years of education, self and partner's work, income, housing, sex of child, previous serious physical illness, previous mental illness, previous miscarriage, same father as stillborn child, duration of stillborn pregnancy, time between stillbirth and infant's birth.</li><li>Psychological Variables: adult attachment, postnatal depression symptoms, anxiety, infant attachment.</li></ul> | Longitudinal (third trimester of pregnancy, 6 weeks, 26 weeks, and 12 months after the birth).<br>Case-control. | <ul style="list-style-type: none"><li>Infants born after stillbirth had higher rates of attachment disorganization compared to controls, independent of psychiatric symptoms or demographic factors.</li><li>Maternal unresolved loss strongly predicted increased attachment disorganization. Elective termination of pregnancy and seeing the stillborn infant also contributed, but less significantly.</li><li>Higher disorganized attachment prevalence in children born after PL, especially in mothers with elective TOP or who saw their stillborn child.</li><li>Subsequent pregnancies can evoke thoughts of the lost child, affecting attachment with the current child.</li><li>PL's impact on attachment is influenced by maternal unresolved grief, suggesting a potential causal role in intergenerational difficulties.</li></ul> |
| Hughes et al. (2006)  | UK      | 31 mothers who showed unresolved state of mind about PL and their children. | <ul style="list-style-type: none"><li>Sociodemographic Variables: education, self and partner's employment, income, housing, previous physical and mental illness.</li><li>Details of the Loss: gestation of a stillborn infant, time since PL, contact with the deceased infant, funeral, family and partner support, and bereavement counseling.</li><li>Psychological Variables: attachment, depression, PTSD symptoms, anxiety, infant attachment.</li></ul>                                                       | Longitudinal (third trimester of pregnancy and 12 months after the loss).                                       | <ul style="list-style-type: none"><li>55% of infants in the loss group exhibited disorganized attachment at age 1.</li><li>Social and attachment factors did not predict infant disorganization among mothers with unresolved mourning.</li><li>Mothers of non-disorganized infants had higher levels of depression and intrusive thoughts during pregnancy and at the infant's 1-year mark.</li><li>No demographic, social, or stillbirth management differences were associated with disorganized attachment.</li><li>Attachment variables did not predict mothers' unresolved state of mind.</li><li>Depression and intrusive thoughts during pregnancy were higher in mothers whose infants did not exhibit disorganized attachment.</li></ul>                                                                                                |

(Continued)

Table 1. Continued.

| First author and year   | Country | Sample                                                                           | Variables and instruments                                                                                                                                                                                                                                                                                                                                                                   | Design                         | Main findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|---------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kelmanson, (2024)       | Russia  | 100 pregnant women with PL history and having uncomplicated singleton pregnancy. | <ul style="list-style-type: none"><li>• Sociodemographic Variables: maternal age, gestational age, trimester, previous abortions, number of children, marital status, level of education.</li><li>• Psychological Variables: maternal attachment, anxiety</li></ul>                                                                                                                         | Cross-sectional.               | <ul style="list-style-type: none"><li>• Maternal antenatal attachment quality and strength were predicted by maternal age, gestational age, previous PL, parity, maternal education, marital status, and low manifest anxiety.</li><li>• Women with higher anxiety levels tended to have insecure attachment models.</li><li>• To prevent negative consequences of poor MFA in women with previous PL, early screening for manifest anxiety is recommended.</li></ul>                  |
| Mehran et al. (2013)    | Iran    | 100 pregnant women with (n = 50) and without (n = 50) a history of PL.           | <ul style="list-style-type: none"><li>• Sociodemographic and Fertility-Related Variables: educational status, occupation, accommodation, income, age.</li><li>• Fertility History: number of fetal losses, number of infant losses, pregnancies parturitions, and abortions.</li><li>• Psychological Variables: attachment.</li></ul>                                                       | Case-control.                  | <ul style="list-style-type: none"><li>• No differences in MFA behaviors between mothers with or without PL history.</li><li>• Mothers with PL history exhibited less "differentiation of self from the fetus."</li><li>• PL history was associated only with disturbances in MFA behaviors related to "differentiation of self from fetus" in subsequent pregnancies.</li></ul>                                                                                                        |
| O'Malley et al., (2020) | Ireland | 80 pregnant women with PL history.                                               | <ul style="list-style-type: none"><li>• Sociodemographic Variables: age, body mass index, Irish-born, married, nulliparous, smoker, age of completion of education, professional occupation, gestational age at the time of ultrasound, planned pregnancy, preconceptional folic acid.</li><li>• Psychological Variables: MFA, attachment, nicotine addiction, stress perception.</li></ul> | Cross-sectional observational. | <ul style="list-style-type: none"><li>• MFA showed no association with maternal age, parity, education, marital status, previous pregnancy loss, or smoking behavior.</li><li>• Unplanned pregnancy was linked to lower MFA scores and higher stress levels, consistent in multiple regression analysis controlling for maternal age and parity.</li><li>• In early pregnancy, unplanned pregnancy is associated with lower maternal antenatal attachment and higher stress.</li></ul> |

(Continued)

Table 1. Continued.

| First author and year | Country   | Sample                                                                                               | Variables and instruments                                                                                                                                                                                                                                                                                                                                                                                       | Design              | Main findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------|-----------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Obst et al., (2021)   | Australia | 228 men whose partner had experienced within the last 20 years.                                      | <ul style="list-style-type: none"><li>• Sociodemographic Variables: age, ethnicity, education, occupation, sexual orientation, marital status, religion, postcode.</li><li>• Pregnancy and Loss History: time since loss, previous losses, loss type.</li><li>• Psychological Variables: antenatal attachment, grief pattern, perinatal social support, gender role conformity, masculinity ideology.</li></ul> | Cross-sectional.    | <ul style="list-style-type: none"><li>• Men experienced profound grief across various losses, often surpassing high grief thresholds.</li><li>• Grief scores were correlated with loss history, marital satisfaction, social support, acknowledgment from family/friends, bonding during pregnancy, and conflicting supporter roles.</li><li>• Grief styles varied: intuitive grief was linked to healthcare professional support, while instrumental grief was associated with bonding time, social support, acknowledgment from partners, conflicting supporter roles, and self-reliance tendencies.</li><li>• Men need validation and support after pregnancy loss and neonatal death, with tailored strategies addressing their unique needs and balancing support roles. Father-inclusive practices should align with their grief styles.</li></ul> |
| Pinto et al., (2006)  | UK        | 104 children-mother dyads (49 PL-group and 51 control-group) and their teachers.                     | <ul style="list-style-type: none"><li>• Sociodemographic Variables: economic status.</li><li>• Psychological Variables: psychiatric symptoms, adult attachment, ADHD symptoms, infant attachment.</li></ul>                                                                                                                                                                                                     | Case-control study. | <ul style="list-style-type: none"><li>• Probable ADHD cases in children were linked to mothers' self-rated retrospective ADHD scores and unresolved mourning.</li><li>• Mother-rated ADHD in children was associated with low overall maternal psychosocial functioning.</li><li>• The relationship between unresolved mourning and ADHD symptoms suggests that infant disorganized attachment might be the pathway from a mother's unresolved mourning to ADHD in children.</li></ul>                                                                                                                                                                                                                                                                                                                                                                   |
| Price, (2008)         | USA       | 10,688 parents of children enrolled in the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B). | <ul style="list-style-type: none"><li>• Sociodemographic Variables: PL history, family members, socioeconomic data, race-ethnicity, age.</li><li>• Psychological Variables: depression, mother-infant interaction, parenting perceptions and involvement.</li></ul>                                                                                                                                             | Cohort study.       | <ul style="list-style-type: none"><li>• 25.07% of U.S. mothers have experienced PL.</li><li>• Multiple loss history contributes to depressive symptoms.</li><li>• No differences in maternal sensitivity or parenting style based on PL history.</li><li>• Women with PL history showed more depressive symptoms but demonstrated high resilience and few negative effects.</li><li>• A large sample study found no differences in parenting styles between families with and without PL.</li></ul>                                                                                                                                                                                                                                                                                                                                                      |

(Continued)

**Table 1.** Continued.

| First author and year        | Country | Sample                                                                    | Variables and instruments                                                                                                                                                                                                                                                           | Design                                                                                                                                                                | Main findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------|---------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scheidt et al. (2012)        | Germany | 31 mothers with a previous PL history.                                    | <ul style="list-style-type: none"> <li>Sociodemographic Variables: marital status, employment status, education, age, type of PL.</li> <li>Psychological Variables: attachment, PL, social support, quality of current partnership, grief, psychological distress, PTSD.</li> </ul> | Longitudinal (T1: time of hospital admission within 2 weeks following PL; T2: four weeks later; T3: 4 months later; T4: 9-month follow-up), prospective cohort study. | <ul style="list-style-type: none"> <li>All outcome measures showed significant improvement over time.</li> <li>Initial psychological distress scores predicted follow-up outcomes.</li> <li>Preoccupied attachment predicted somatization and PTSD at 9 months follow-up.</li> <li>Social support, quality of partnership, and secure attachment correlated inversely with grief, anxiety, depression, somatization, psychological distress, and PTSD symptoms. Insecure preoccupied attachment correlated positively with these symptoms.</li> <li>Attachment, social support, and partnership quality impact bereavement course after PL.</li> <li>Secondary prevention should focus on these factors for specific counseling and support.</li> </ul> |
| Tsartsara and Johnson (2006) | UK      | 35 expectant mothers (10 with PL history).                                | <ul style="list-style-type: none"> <li>Sociodemographic Variables: reproductive history information, age, marital status, obstetric history, experience with the ultrasound scan.</li> <li>Psychological Variables: pregnancy concerns, MFA.</li> </ul>                             | Naturalistic follow-up (1st and 3rd trimester of pregnancy), case-control.                                                                                            | <ul style="list-style-type: none"> <li>Women who experienced a miscarriage exhibited higher pregnancy-specific anxiety compared to those without any loss, which decreased after the first trimester.</li> <li>By the 3rd trimester, prenatal MFA feelings significantly increased for the overall group but remained stable for women with PL history.</li> <li>PL history may not have a long-lasting adverse effect on psychological adaptation during a subsequent pregnancy, but it may intensify pregnancy-specific anxiety and uncertainty in the early stages.</li> </ul>                                                                                                                                                                       |
| Turton et al. (2004)         | UK      | 60 dyads of mothers in the pregnancy after PL-children born subsequently. | <ul style="list-style-type: none"> <li>Sociodemographic Variables: age, occupational status, ethnicity, marital status.</li> <li>Psychological Variables: PTSD, attachment, infant attachment.</li> </ul>                                                                           | Cohort study, follow-up, longitudinal (3rd trimester and 12 months-postpartum).                                                                                       | <ul style="list-style-type: none"> <li>There was no association observed between maternal PTSD and infant disorganization of attachment.</li> <li>Very little evidence was found to support the hypothesis of correspondence between unresolved grief state and PTSD.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

*(Continued)*

Table 1. Continued.

| First author and year   | Country   | Sample                                                                     | Variables and instruments                                                                                                                                                                                                                                                                                                                                                                            | Design                              | Main findings and conclusions                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------|-----------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Uren and Wastell (2002) | Australia | 109 women (78 with stillbirth history and 31 with neonatal death history). | <ul style="list-style-type: none"><li>• Sociodemographic Variables: age, type of PL, marital status, level of education, number of months post-loss.</li><li>• Psychological Variables: attachment, sense of coherence, spiritual beliefs, impact of events, psychopathology symptoms, perinatal grief.</li></ul>                                                                                    | Cross-sectional                     | <ul style="list-style-type: none"><li>• Participants who experienced losses underwent perinatal grief.</li><li>• A higher sense of coherence and the search for meaning were significant predictors of grief after adjusting for confounding variables.</li><li>• These findings suggest grief as an interpretive response to losing a primary attachment figure, disrupting core life purposes and emphasizing the need to regain meaning.</li></ul>           |
| Yilmaz and Beji (2013)  | Turkey    | 128 pregnant women with PL history and 214 without it.                     | <ul style="list-style-type: none"><li>• Sociodemographic and Obstetric Variables: education, employment, economic status, type of family, offspring from previous marriage, pregnancies, gestational age, living children, planned pregnancy, consideration of termination of pregnancy.</li><li>• Psychological Variables: antenatal attachment, depression symptoms, coping with stress.</li></ul> | Cross-sectional, descriptive study. | <ul style="list-style-type: none"><li>• Women with a history of PL had higher depression levels and more frequent medical service contacts than those without PL history.</li><li>• No differences were found between groups regarding stress coping and antenatal attachment.</li><li>• It's crucial to assess depression, antenatal attachment, and stress coping carefully in women with PL history and provide targeted prevention interventions.</li></ul> |

Note. PL: Perinatal Loss; TOP: Termination of Pregnancy; PTSD: Post-Traumatic Stress Disorder; MFA: Maternal-Fetal Attachment; ADHD: Attention Deficit/Hyperactivity Disorder.

One study (3.03%) focused exclusively on fathers (Obst et al., 2021), one included measure collected by teachers (Price, 2008), and five studies examined the mother-child dyad (Al-Maharma et al., 2016; Bakermans-Kranenburg et al., 1999; Côté-Arsenault et al., 2020; Heller & Zeanah, 1999; Pinto et al., 2006).

About 9.09% studies did not report explicit inclusion and exclusion criteria (Heller & Zeanah, 1999; Price, 2008; Uren & Wastell, 2002). In 12.12% of cases (Hughes et al., 2001, 2002, 2004; Tsartsara & Johnson, 2006), PLs due to pregnancy termination for fetal abnormality were excluded. In 27.3%, participants with severe physical or mental illnesses or those undergoing treatment were excluded (Beauquier-Maccotta et al., 2022; Branjerdporn et al., 2022; Güçlü et al., 2021; Hughes et al., 2001, 2002, 2004; Mehran et al., 2013; Scheidt et al., 2012; Yilmaz & Beji, 2013). In 9.09% studies (Bakermans-Kranenburg et al., 1999; Branjerdporn et al., 2022; Hughes et al., 2001) children who had been hospitalized for long periods or had serious illnesses or developmental disabilities were excluded. 6.06% studies (Kelmanson, 2024; Tsartsara & Johnson, 2006) required that the present pregnancy be conceived spontaneously.

Nine studies did not explicitly provide information regarding ethnicity, socioeconomic status, employment, or educational background (Beauquier-Maccotta et al., 2022; Christiansen et al., 2013, 2014; Hughes et al., 2002, 2006; Pinto et al., 2006; Price, 2008; Tsartsara & Johnson, 2006; Turton et al., 2004). However, Hughes et al. (2001, 2002, 2004, 2006) noted that their sample was paired on a case-control basis for age, ethnicity, and education.

In relation to ethnicity, the majority of studies reported that over 80% of their sample identified as White or Caucasian (Armstrong, 2002, 2004; Kinsey et al., 2014; Black et al., 2022; Branjerdporn et al., 2021, 2022; Caldwell et al., 2024; Côté-Arsenault et al., 2020; Freedle & Oliveira, 2024; Heller & Zeanah, 1999; Hughes et al., 2001; Obst et al., 2021). An exception is noted in Côté-Arsenault et al. (2020), where the sample consisted of 50% European American and 50% African American participants.

In terms of educational level, variable figures are reported, ranging from 8.7% to 89.9% of people graduated from college (Black et al., 2022; Caldwell et al., 2024; Côté-Arsenault et al., 2020; Güçlü et al., 2021; Hughes et al., 2001; Kinsey et al., 2014; Obst et al., 2021; Uren & Wastell, 2002; Yilmaz & Beji, 2013). Other studies report average years of education between 12 and 20.5 years (Armstrong, 2004; Armstrong & Hutti, 1998; Bakermans-Kranenburg et al., 1999; O'Malley et al., 2020).

Regarding employment, reported rates varied between 56% and 81%. Lower rates, ranging from 2% to 26%, were observed in studies conducted in Arab countries, potentially reflecting the sociocultural and policy-related barriers to women's workforce participation in these regions (Al-Maharma et al., 2016; Güçlü et al., 2021; O'Malley et al., 2020; Yilmaz & Beji, 2013;

Mehran et al., 2013). Across studies, participants were typically described as having a middle socioeconomic status.

Regarding study design, 45% were longitudinal (Beauquier-Maccotta et al., 2022; Branjerdporn et al., 2022; Côté-Arsenault et al., 2020; Güçlü et al., 2021; Heller & Zeanah, 1999; Hughes et al., 2001, 2002, 2004, 2006; Kinsey et al., 2014; Price, 2008; Scheidt et al., 2012; Tsartsara & Johnson, 2006; Turton et al., 2004), including five case-control studies (15.15%) (Branjerdporn et al., 2022; Hughes et al., 2001, 2002, 2004; Tsartsara & Johnson, 2006). The remaining studies (55%) were cross-sectional (Al-Maharma et al., 2016; Armstrong, 2002, 2004; Armstrong & Hutt, 1998; Bakermans-Kranenburg et al., 1999; Black et al., 2022; Branjerdporn et al., 2021; Caldwell et al., 2024; Christiansen et al., 2013, 2014; Freedle & Oliveira, 2024; Gaudet et al., 2010; Kelmanson, 2024; Mehran et al., 2013; Obst et al., 2021; O'Malley et al., 2020; Pinto et al., 2006; Uren & Wastell, 2002; Yilmaz & Beji, 2013), and 21.21% of the studies included a control group (Armstrong, 2004; Armstrong & Hutt, 1998; Bakermans-Kranenburg et al., 1999; Branjerdporn et al., 2021; Gaudet et al., 2010; Mehran et al., 2013; Pinto et al., 2006). Dropout rates in longitudinal studies ranged from 1.89% to 46%, with an average of 21%.

The studies were conducted between 1998 and 2023. Notably, 42.42% of studies were conducted in the last 10 years, reflecting a growing interest in perinatal mental health (Al-Maharma et al., 2016; Beauquier-Maccotta et al., 2022; Black et al., 2022; Branjerdporn et al., 2021, 2022; Caldwell et al., 2024; Christiansen et al., 2014; Côté-Arsenault et al., 2020; Freedle & Oliveira, 2024; Güçlü et al., 2021; Kelmanson, 2024; Kinsey et al., 2014; Obst et al., 2021; O'Malley et al., 2020). 50% of the studies were conducted in Europe, primarily in the UK (21.21%; Hughes et al., 2001, 2002, 2004, 2006; Pinto et al., 2006; Tsartsara & Johnson, 2006; Turton et al., 2004), followed by Denmark (6.06%; Christiansen et al., 2013, 2014), France (6.06%; Beauquier-Maccotta et al., 2022; Gaudet et al., 2010), and Turkey (6.06%; Güçlü et al., 2021; Yilmaz & Beji, 2013). The remaining studies were conducted in the USA (27.27%; Armstrong, 2002, 2004; Armstrong & Hutt, 1998; Black et al., 2022; Côté-Arsenault et al., 2020; Freedle & Oliveira, 2024; Heller & Zeanah, 1999; Kinsey et al., 2014; Price, 2008), Australia (15.15%; Branjerdporn et al., 2021, 2022; Caldwell et al., 2024; Obst et al., 2021; Uren & Wastell, 2002), Iran (3.03%; Mehran et al., 2013), and Jordan (3.03%; Al-Maharma et al., 2016).

## ***Variables assessed***

### ***Attachment***

In terms of attachment variables, assessments included adult attachment and prenatal or postnatal measures. Adult attachment was assessed using

the following scales, from most to least used: Adult Attachment Interview (AAI) (Bakermans-Kranenburg et al., 1999; Hughes et al., 2001, 2002, 2004, 2006; Pinto et al., 2006; Scheidt et al., 2012; Turton et al., 2004), Revised Adult Attachment Scale (RAAS) (Christiansen et al., 2013, 2014), Adult Attachment Scale (AAS) in its short version (Güçlü et al., 2021), Experiences in Close Relationships (ECR) (Freedle & Oliveira, 2024), and Attachment Style Questionnaire (ASQ) in its long version (Branjerdporn et al., 2022; Caldwell et al., 2024). Of the studies that used the AAI, only Hughes et al. (2006) employed a validated coding system. Studies employing the RAAS used either the maternal self-report version (Güçlü et al., 2021; Kinsey et al., 2014) or the mother-child interaction version (Caldwell et al., 2024). The ECR was employed with both self-report (Freedle & Oliveira, 2024) and interview formats (Al-Maharma et al., 2016).

Prenatal and postnatal attachment measures included various types of scales. The most frequently used scales were the Maternal-Fetal Attachment Scale (MFA) (Armstrong, 2002, 2004; Armstrong & Hutti, 1998; Beauquier-Maccotta et al., 2022; Gaudet et al., 2010; Hughes et al., 2001, 2002, 2004; Pinto et al., 2006), the Maternal Antenatal Attachment Scale (MAAS) (Branjerdporn et al., 2021, 2022; Turton et al., 2004), and the Postnatal Bonding Scale (PBS) (Beauquier-Maccotta et al., 2022; Branjerdporn et al., 2021, 2022; Gaudet et al., 2010; Pinto et al., 2006). Other measures used less frequently included the Perinatal Bonding Questionnaire (PBQ) (Branjerdporn et al., 2021, 2022; Kinsey et al., 2014; Pinto et al., 2006), the Bonding Inventory (BI) (Hughes et al., 2002), and the Postnatal Maternal Bonding Scale (PMBS) (Yilmaz & Beji, 2013). The MFA was administered through both self-report (Armstrong, 2002, 2004; Armstrong & Hutti, 1998; Beauquier-Maccotta et al., 2022; Gaudet et al., 2010; Hughes et al., 2001, 2002, 2004; Pinto et al., 2006) and interviews (Hughes et al., 2006). The MAAS was employed in its complete (Branjerdporn et al., 2021, 2022) and short forms (Turton et al., 2004). The PBQ and BI were also assessed using self-report and interview formats, while the PMBS was employed in its long format (Yilmaz & Beji, 2013).

### ***Other variables***

Regarding psychopathology, depression, anxiety, and PTSD symptoms were assessed in 42%, 39%, and 27% of the studies, respectively (Armstrong, 2002, 2004; Armstrong & Hutti, 1998; Beauquier-Maccotta et al., 2022; Côté-Arsenault et al., 2020; Gaudet et al., 2010; Güçlü et al., 2021; Hughes et al., 2001, 2002, 2004, 2006; Kinsey et al., 2014; Price, 2008; Scheidt et al., 2012; Yilmaz & Beji, 2013; Kelmanson, 2024; Tsartsara & Johnson, 2006; Christiansen et al., 2013, 2014; Turton et al., 2004). Fewer studies examined general psychopathology (18%; Branjerdporn et al., 2021,

2022; Caldwell et al., 2024; Pinto et al., 2006; Uren & Wastell, 2002) or the impact of the event (9%; Armstrong, 2002; Güçlü et al., 2021; Uren & Wastell, 2002).

The most common tools for assessing depression were the Center for Epidemiological Studies Depression Scale (CES-D) (Armstrong, 2002, 2004; Côté-Arsenault et al., 2020; Price, 2008; Yilmaz & Beji, 2013) and the Edinburgh Postnatal Depression Scale (EPDS) (Beauquier-Maccotta et al., 2022; Güçlü et al., 2021; Hughes et al., 2004, 2006; Kinsey et al., 2014), both used in 15% of the studies. Anxiety was primarily assessed with the STAI scale (Beauquier-Maccotta et al., 2022; Hughes et al., 2001, 2002, 2004, 2006), and PTSD symptoms with the PTSD-I scale (Hughes et al., 2001, 2002, 2004, 2006; Scheidt et al., 2012; Turton et al., 2004), both in 15–18% of the studies. Additionally, one study (3.03%) assessed children with ADHD using the ADHD-RS (Pinto et al., 2006).

Perinatal grief was assessed in 27.27% of the studies, with the PGS-33 (Al-Maharma et al., 2016; Beauquier-Maccotta et al., 2022; Caldwell et al., 2024; Gaudet et al., 2010; Güçlü et al., 2021; Obst et al., 2021; Uren & Wastell, 2002). Protective factors such as social support were examined in 15% of the studies (Caldwell et al., 2024; Christiansen et al., 2013, 2014; Kinsey et al., 2014; Obst et al., 2021), and coping strategies were considered in 12% of the studies (Christiansen et al., 2013, 2014; Freedle & Oliveira, 2024; Yilmaz & Beji, 2013).

### *Main results of psychological variables*

Individuals who have experienced PL exhibit elevated levels of depressive, anxious, and PTSD symptoms compared to control groups (Armstrong, 2002; Beauquier-Maccotta et al., 2022; Branjerdporn et al., 2021; Gaudet et al., 2010; Price, 2008; Tsartsara & Johnson, 2006; Yilmaz & Beji, 2013), with women showing higher levels of distress compared to their partners (Christiansen et al., 2014). These increased symptoms are associated with lower levels of secure attachment. Greater bereavement intensity correlates with decreased prenatal attachment, particularly noticeable in early pregnancy compared to later stages among women who have experienced previous PL (Al-Maharma et al., 2016; Beauquier-Maccotta et al., 2022). Notably, higher quality MFA in subsequent pregnancies following PL is linked to positive behavioral outcomes in children at age one (Branjerdporn et al., 2022).

However, no significant differences in prenatal attachment were observed between women who have endured PL in subsequent pregnancies and those who have not (Armstrong, 2002; Branjerdporn et al., 2021; Kinsey et al., 2014; Mehran et al., 2013; Price, 2008; Yilmaz & Beji, 2013).

Nonetheless, research suggests that women who have experienced PL often display greater resilience (Price, 2008). Social support, quality of partnership, and secure attachment are inversely correlated with psychological distress and play a crucial role in the perinatal grief process (Caldwell et al., 2024).

Most studies (15.15%) indicate that unresolved loss is associated with an avoidant attachment style in children born after PL, particularly at one year of age (Bakermans-Kranenburg et al., 1999; Heller & Zeanah, 1999; Hughes et al., 2002, 2004, 2006). However, some studies, such as Turton et al. (2004), found no discernible association between unresolved grief and PTSD symptoms, nor between PTSD symptoms and infant attachment disorganization.

### ***Perinatal loss information***

More than half of the studies (57.58%; Al-Maharma et al., 2016; Armstrong, 2004; Beauquier-Maccotta et al., 2022; Black et al., 2022; Caldwell et al., 2024; Christiansen et al., 2013; Côté-Arsenault et al., 2020; Freedle & Oliveira, 2024; Gaudet et al., 2010; Güçlü et al., 2021; Heller & Zeanah, 1999; Hughes et al., 2002, 2004, 2006; Mehran et al., 2013; Obst et al., 2021; O'Malley et al., 2020; Tsartsara & Johnson, 2006; Uren & Wastell, 2002) collected multiple pieces of information regarding pregnancy history and PL. The most frequently collected information included the gestational week at the time of loss (42.42%; Al-Maharma et al., 2016; Armstrong, 2004; Black et al., 2022; Caldwell et al., 2024; Christiansen et al., 2013; Côté-Arsenault et al., 2020; Gaudet et al., 2010; Güçlü et al., 2021; Heller & Zeanah, 1999; Hughes et al., 2001, 2004, 2006; O'Malley et al., 2020; Tsartsara & Johnson, 2006), followed by the time elapsed since the loss (30.30%; Black et al., 2022; Caldwell et al., 2024; Christiansen et al., 2013; Freedle & Oliveira, 2024; Gaudet et al., 2010; Heller & Zeanah, 1999; Hughes et al., 2004, 2006; Obst et al., 2021; Uren & Wastell, 2002), the number of losses (30.30%; Armstrong, 2004; Bakermans-Kranenburg et al., 1999; Caldwell et al., 2024; Christiansen et al., 2013; Freedle & Oliveira, 2024; Gaudet et al., 2010; Heller & Zeanah, 1999; Mehran et al., 2013; Tsartsara & Johnson, 2006; Yilmaz & Beji, 2013), and the type of loss (24.24%; Côté-Arsenault et al., 2020; Freedle & Oliveira, 2024; Gaudet et al., 2010; Hughes et al., 2002; Mehran et al., 2013; Obst et al., 2021; Scheidt et al., 2012; Turton et al., 2004). Some studies also collected data on whether any psychological intervention had been attended after the loss (6.06%; Armstrong, 2002; Hughes et al., 2004), as well as information on fertility issues or fertility treatments (6.06%; Côté-Arsenault et al., 2020; Güçlü et al., 2021; Freedle & Oliveira, 2024; Kinsey et al., 2014). Five studies (15%; Branjerdporn et al., 2021; Kelmanson, 2024; Pinto et al.,

Table 2. Article quality assessment.

| First author         | Study design | Blinding | Selection bias (representativeness) | Withdrawals and dropouts (representativeness) | Confounders | Data collection methods | Overall quality assessment |
|----------------------|--------------|----------|-------------------------------------|-----------------------------------------------|-------------|-------------------------|----------------------------|
| Al-Maharma           | 3            | 3        | 3                                   | Not applicable                                | 3           | 1                       | Weak                       |
| Armstrong            | 3            | 3        | 3                                   | Not applicable                                | 3           | 1                       | Weak                       |
| Armstrong            | 3            | 3        | 3                                   | Not applicable                                | 3           | 1                       | Weak                       |
| Armstrong            | 3            | 3        | 3                                   | Not applicable                                | 2           | 1                       | Weak                       |
| Bakermans-Kranenburg | 3            | 3        | 3                                   | Not applicable                                | 2           | 2                       | Weak                       |
| Beauquier-Maccott    | 3            | 3        | 3                                   | 1                                             | 2           | 1                       | Weak                       |
| Black                | 3            | 3        | 3                                   | Not applicable                                | 3           | 1                       | Weak                       |
| Branjerdporn         | 3            | 3        | 3                                   | Not applicable                                | 3           | 1                       | Weak                       |
| Branjerdporn         | 3            | 3        | 3                                   | 1                                             | 3           | 1                       | Weak                       |
| Caldwell             | 3            | 3        | 3                                   | Not applicable                                | 3           | 1                       | Weak                       |
| Christiansen         | 3            | 3        | 3                                   | Not applicable                                | 3           | 1                       | Weak                       |
| Christiansen         | 3            | 3        | 3                                   | Not applicable                                | 2           | 1                       | Weak                       |
| Côté-Arsenault       | 3            | 3        | 3                                   | 2                                             | 2           | 1                       | Weak                       |
| Freedle              | 3            | 3        | 3                                   | Not applicable                                | 2           | 2                       | Weak                       |
| Gaudet               | 3            | 3        | 3                                   | Not applicable                                | 3           | 1                       | Weak                       |
| Güçlü                | 3            | 3        | 3                                   | 1                                             | 2           | 1                       | Weak                       |
| Heller               | 3            | 1        | 3                                   | 2                                             | 3           | 1                       | Weak                       |
| Hughes               | 3            | 3        | 3                                   | 1                                             | 1           | 1                       | Weak                       |
| Hughes               | 3            | 2        | 3                                   | Not applicable                                | 1           | 1                       | Weak                       |
| Hughes               | 3            | 3        | 3                                   | Not applicable                                | 3           | 1                       | Weak                       |
| Hughes               | 3            | 2        | 3                                   | 2                                             | 3           | 1                       | Weak                       |
| Kinsey               | 3            | 3        | 3                                   | 3                                             | 1           | 1                       | Weak                       |
| Mehran               | 3            | 3        | 3                                   | Not applicable                                | 3           | 1                       | Weak                       |
| O'Malley             | 3            | 3        | 3                                   | Not applicable                                | 1           | 1                       | Weak                       |
| Orbst                | 3            | 3        | 3                                   | Not applicable                                | 3           | 1                       | Weak                       |
| Pinto                | 3            | 3        | 3                                   | Not applicable                                | 3           | 1                       | Weak                       |
| Price                | 3            | 3        | 4                                   | 2                                             | 1           | 1                       | Weak                       |
| Scheidt              | 3            | 3        | 1                                   | 1                                             | 1           | 1                       | Weak                       |
| Tsartara             | 3            | 3        | 1                                   | 1                                             | 1           | 1                       | Weak                       |
| Turton               | 3            | 3        | 2                                   | 2                                             | 1           | 1                       | Weak                       |
| Uren                 | 3            | 3        | Not applicable                      | 1                                             | 1           | 1                       | Weak                       |
| Yilmaz               | 3            | 3        | Not applicable                      | 3                                             | 1           | 1                       | Weak                       |

2006; Price, 2008; Uren & Wastell, 2002) did not report information on PL beyond its presence or absence.

### **Confounding factors**

Only 21.21% of the studies explicitly controlled for certain confounding variables. For instance, Kinsey et al. (2014) accounted for maternal age, probable postpartum depression, and fertility issues. Kelmanson (2024) considered major demographic and obstetric factors, Hughes et al. (2004) controlled for social disadvantage, Price (2008) adjusted for maternal age, and Mehran (2013) addressed socio-cultural variables.

### **Quality assessment**

Table 2 shows the scores obtained in relation to the quality of the included studies. The quality scores are in the range 1 to 5, with 1 being the highest score (lowest risk of bias and highest quality) and 5 the lowest score (highest risk of bias and lowest quality).

## **Discussion**

The present systematic review aimed to determine whether attachment can be a fundamental variable in the face of PL. Specifically, it sought results regarding the relevance of the adult attachment of the pregnant person or their partner for emotional or physical adjustment to perinatal grief. Additionally, it aimed to understand the implications of the type of attachment of the pregnant person or their partner in the development of affective bonds following PL, as well as for the physical or mental health outcomes of subsequent children. Moreover, the repercussions of the construct of MFA are discussed.

Following an exhaustive literature search conducted according to PRISMA standards (Moher et al., 2016) with two blinded evaluators, this review included results from 33 studies involving more than 6,000 women, fewer than 1,000 men, and more than 11,000 children. The main findings highlight the relevance of adult attachment for adjusting to perinatal grief. Additionally, they reveal how the bond established with the future baby can aid in coping with PL. Furthermore, the significance of adult attachment for predicting physical and mental health outcomes in children born after PL is evident.

The results point to a greater presence of psychological distress in the mother during pregnancy (Heller & Zeanah, 1999) and a greater tendency to disorganized attachment, behavioral problems and ADHD in one-year-old children born after pregnancies subsequent PL if the grief is not resolved (Heller & Zeanah, 1999; Hughes et al., 2004, 2006; Pinto et al.,

2006). Mental health outcomes are directly influenced by the type of attachment exhibited by the individual, with insecure or disorganized attachment predicting poorer adjustment to perinatal grief (Levi-Belz & Lev-Ari, 2019; Sochos & Aleem, 2022). However, it is noteworthy that only a small portion of studies evaluate perinatal grief using standardized questionnaires (Al-Maharma et al., 2016; Beauquier-Maccotta et al., 2022; Caldwell et al., 2024; Gaudet et al., 2010; Güçlü et al., 2021; Obst et al., 2021; Uren & Wastell, 2002).

Although having experienced PL tends to be associated with increased psychological symptoms during pregnancy (Beauquier-Maccotta et al., 2022; Kinsey et al., 2014; Tsartsara & Johnson, 2006; Yilmaz & Beji, 2013), this distress does not appear to affect MFA levels in subsequent pregnancies compared with mothers who have not experienced PL (Armstrong, 2004; Branjerdporn et al., 2022; Mehran et al., 2013; Yilmaz & Beji, 2013). In addition, MFA appears to be protective in the development of attachment and behavioral problems in 1-year-old children born after the loss (Branjerdporn et al., 2022). In adults, previous secure attachment was associated with lower levels of grief and distress symptoms (Freedle & Oliveira, 2024). Moreover, secure attachment was linked to healthier couple relational functioning and overall partnership quality (Scheidt et al., 2012).

Regarding the impact of perinatal grief on future attachment to subsequent children, it has been observed that greater intensity of perinatal grief is associated with less bonding with the unborn baby. This association is especially relevant in the early stages of pregnancy (Al-Maharma et al., 2016; Beauquier-Maccotta et al., 2022). These results could be due to a greater fear of future losses after a PL (Donegan et al., 2023), leading to conscious avoidance of bonding with the next baby, which can even be adaptive at first. Not connecting with the future baby could provide emotional protection against the possibility of a future loss (Grabow & Becker-Blease, 2023). As is known, dissociation is a symptom that can be useful and adaptive in temporary stress situations, but it could become problematic if it persists over time or if symptoms increase drastically (Snyder et al., 2023). However, low bonding with the baby can have consequences for the baby's subsequent development (Branjerdporn et al., 2022). Nonetheless, other studies indicate that when comparing individuals who have experienced PL with those who have not, no differences are found in the quality of prenatal attachment (Armstrong, 2002; Branjerdporn et al., 2021; Kinsey et al., 2014; Mehran et al., 2013; Price, 2008; Yilmaz & Beji, 2013).

Additionally, this review highlights how higher quality MFA during pregnancies following PL is associated with better emotional and behavioral outcomes in future children (Branjerdporn et al., 2022). Consistently,

unresolved loss is associated with an avoidant attachment style in children born after a PL (Bakermans-Kranenburg et al., 1999; Heller & Zeanah, 1999; Hughes et al., 2002, 2004, 2006). The findings suggest that there are no significant differences in MFA levels between individuals who have experienced previous PL and those who have not (Branjerdporn et al., 2022; Kelmanson, 2024; Mehran et al., 2013; O'Malley et al., 2020; Tsartsara & Johnson, 2006). Kelmanson (2024) raises the possibility that MFA remains intact due to increased emotional and affective involvement during pregnancy following the loss. However, Mehran et al. (2013) stress that variables such as cultural context, sociodemographic characteristics and the stage of the grieving process could act as confounding factors that may affect the interpretation of these results.

For this reason, it is necessary to attend to individuals who have experienced PL, helping them process their loss, promoting healthy bonds with their subsequent babies during pregnancy, and raising awareness of the process. Understanding that this can also have consequences for the optimal development of future children (Caldwell et al., 2024). Psychological care should include strategies to reduce pregnancy-specific anxiety and depression, as observed in Armstrong (2004), where it is suggested that reducing anxiety can favor the development of healthier prenatal attachment.

Despite MFA being a well-established construct in the literature, it is pertinent to discuss whether it should be termed “bonding” instead of “attachment.” According to Bowlby’s attachment theory (1969), the mother cannot establish an attachment with the baby, as this concept implies a bidirectional relationship in which both parties seek mutual security and comfort, as well as asymmetry, where theoretically the attachment figure seeks comfort in the other person. Instead, the mother establishes an affective bond during pregnancy, characterized by behaviors and emotions directed toward the unborn baby (Cranley, 1981; Muller, 1993). For this reason, we believe it is pertinent to reflect on this issue.

Despite the strengths of this systematic review, several limitations must be considered when interpreting its results. The studies mostly have convenience samples, selected non-randomly, which could be prone to sampling bias. Therefore, it would be beneficial to increase future research in this regard by conducting longitudinal, multicentric studies with random sample selection and larger samples, as most studies have small and unrepresentative samples. Furthermore, the heterogeneity of the evaluation measures used prevents performing a meta-analysis, which would be relevant in the future. Additionally, the cross-sectional design of most studies does not allow to establish causal relationships between PL and future consequences. However, most studies have two informants and perform robust analyses, which can increase data validity.

Moreover, a significant majority of studies do not report key information about the PL experienced, which could act as a confounding factor. For example, whether the PL is voluntary or involuntary, the number of PLs, the timing of the PL, the time elapsed since the PL and the subsequent pregnancy, or whether the PL occurred in the context of assisted reproduction. Although we recognize the complexity of evaluating these variables in the context of PL, they are fundamental to truly understanding the perinatal grief process and affective bonds during and after pregnancy (Kinsey et al., 2014). It is also crucial to evaluate protective factors in studies on PL and attachment, as research mainly focuses on the negative consequences of PL (Ayers et al., 2024), often neglecting variables that could mitigate its impact. Protective factors such as dyadic coping, resilience, or post-traumatic growth have been highlighted in theoretical frameworks and isolated studies (Beauquier-Maccotta et al., 2022; Freedle & Oliveira, 2024; Price, 2008), but their systematic exploration remains limited. Understanding these variables could not only enhance our theoretical knowledge but also inform the design of interventions aimed at preventing or mitigating the psychological effects of PL. For instance, fostering secure attachment, which serves as a well-documented protective factor, could be a central component of such interventions, promoting better emotional regulation and psychological adjustment for parents and their subsequent children.

Although the review includes a wide variety of studies involving participants from different countries and time periods, some countries are not represented in this research. Additionally, the participants are mostly heterosexual individuals or their sexual orientation is unknown, so the LGBTBIQ+ community is underrepresented in this review. Cultural, emotional, and socioeconomic differences significantly influence the experience of PL and attachment formation, highlighting the importance of continuing research on these issues and increasing research in countries where it is still emerging. Considering diversity is crucial to design sensitive interventions tailored to the specific needs of each family.

To the best of our knowledge, this is the first systematic review on attachment and PL. The findings of this review suggest the need to implement policies and practices that recognize and validate perinatal grief, providing specific and continuous support at both clinical and social levels. Healthcare professionals need to conduct detailed assessments of attachment and grief in parents who have experienced PL and tailor interventions to individual needs (Freedle & Oliveira, 2024). Training and raising awareness among professionals about the importance of recognizing and adequately managing perinatal grief are also crucial to improving long-term mental health outcomes. Similarly, the inclusion of prevention programs that can foster coping strategies for potential PL is necessary.

In summary, this systematic review underscores the complexity of perinatal grief and its multifaceted impact on the mental health of parents and the development of their children. It advocates for a comprehensive and personalized approach to supporting affected families by fostering healthy attachment bonds and a preventive and multidisciplinary training approach for healthcare professionals in contact with pregnant individuals and families.

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## Authors' contributions

R.S-G and L.L-T initially conceived the manuscript, conducted the systematic search, and wrote the first draft. R.S-G, F.G-S and L.L-T reviewed the initial version of the manuscript and contributed to writing the subsequent versions, and L.L-T is the coordinator and manager of the project. All authors have contributed equally to the writing of the manuscript. All authors read and approved the final manuscript.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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## References

- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Lawrence Erlbaum Associates.
- Al-Maharma, D. Y., Abujaradeh, H., Mahmoud, K. F., & Jarrad, R. A. (2016). Maternal grieving and the perception of and attachment to children born subsequent to a perinatal loss. *Infant Mental Health Journal*, 37(4), 411–423. <https://doi.org/10.1002/imhj.21570>
- Álvarez, M., Claramunt, M. A., Carrascosa, L. G., & Silvente, C. (2012). *Las voces olvidadas: Pérdidas gestacionales tempranas*. Obstore.
- American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). American Psychiatric Publishing.
- Arditi-Arbel, B., Hamdan, S., Winterman, M., & Gvion, Y. (2022). Suicidal ideation and behavior among perinatal women and their association with sleep disturbances, medical conditions, and known risk factors. *Frontiers in Psychiatry*, 13, 987673. <https://doi.org/10.3389/fpsy.2022.987673>
- Armstrong, D., & Hutti, M. (1998). Pregnancy after perinatal loss: The relationship between anxiety and prenatal attachment. *Journal of Obstetric, Gynecologic, and Neonatal Nursing: JOGNN*, 27(2), 183–189. <https://doi.org/10.1111/j.1552-6909.1998.tb02609.x>
- Armstrong, D. S. (2002). Emotional distress and prenatal attachment in pregnancy after perinatal loss. *Journal of Nursing Scholarship*, 34(4), 339–345. <https://doi.org/10.1111/j.1547-5069.2002.00339.x>
- Armstrong, D. S. (2004). Impact of prior perinatal loss on subsequent pregnancies. *Journal of Obstetric, Gynecologic, and Neonatal Nursing: JOGNN*, 33(6), 765–773. <https://doi.org/10.1177/0884217504270714>
- Ayers, S., Horsch, A., Garthus-Niegel, S., Nieuwenhuijze, M., Bogaerts, A., Hartmann, K., Karlsdottir, S. I., Oosterman, M., Tecirli, G., Turner, J. D., & Lalor, J. (2024). Traumatic birth and childbirth-related post-traumatic stress disorder: International expert consensus recommendations for practice, policy, and research. *Women and Birth*, 37(2), 362–367. <https://doi.org/10.1016/j.wombi.2023.11.006>
- Bakermans-Kranenburg, M. J., Schuengel, C., & Van Ijzendoorn, M. H. (1999). Unresolved loss due to miscarriage: An addition to the adult attachment interview. *Attachment & Human Development*, 1(2), 157–170. <https://doi.org/10.1080/14616739900134211>
- Beauquier-Maccotta, B., Shulz, J., De Wailly, D., Meriot, M. E., Soubieux, M. J., Lisa, O., Grosmaître, C., Salomon, L. J., Golse, B., Ville, Y., & Missonnier, S. (2022). Prenatal attachment, anxiety and grief during subsequent pregnancy after medical termination of pregnancy. Attachment to which child? *Journal of Gynecology Obstetrics and Human Reproduction*, 51(4), 102353. <https://doi.org/10.1016/j.jogoh.2022.102353>
- Bellhouse, C., Temple-Smith, M. J., & Bilardi, J. E. (2018). “It’s just one of those things people don’t seem to talk about.” Women’s experiences of social support following miscarriage: A qualitative study. *BMC Women’s Health*, 18(1), 176. <https://doi.org/10.1186/s12905-018-0672-3>
- Benavides, M. T., & Guerra, C. A. (2024). El duelo perinatal. Un estudio fenomenológico sobre la percepción y el significado desde la perspectiva de los padres. *Enfermería Investiga*, 9(4), 22–30. <https://doi.org/10.31243/ei.uta.v9i4.2661.2024>
- Berry, S. N. (2022). The trauma of perinatal loss: A scoping review. *Trauma Care*, 2(3), 392–407. <https://doi.org/10.3390/traumacare2030032>
- Black, J., Belicki, K., Emberley-Ralph, J., & McCann, A. (2022). Internalized versus externalized continuing bonds: Relations to grief, trauma, attachment, openness to experience,

- and posttraumatic growth. *Death Studies*, 46(2), 399–414. <https://doi.org/10.1080/07481187.2020.1737274>
- Bowlby, J. (1969). *Attachment. Attachment and loss: Vol. 1. Loss* (Vol. 1). Basic Books.
- Bowlby, J. (1980). *Attachment and loss; Sadness and depression* (Vol. 3). Hogarth Press.
- Brandon, A. R., Pitts, S., Denton, W. H., Stringer, C. A., & Evans, H. M. (2009). A history of the theory of prenatal attachment. *Journal of Prenatal & Perinatal Psychology & Health*, 23(4), 201–222.
- Branjerdporn, G., Meredith, P., Wilson, T., & Strong, J. (2021). Maternal–fetal attachment: Associations with maternal sensory processing, adult attachment, distress and perinatal loss. *Journal of Child and Family Studies*, 30(2), 528–541. <https://doi.org/10.1007/s10826-020-01876-1>
- Branjerdporn, G., Meredith, P., Wilson, T., & Strong, J. (2022). Infant developmental outcomes: Influence of prenatal maternal–fetal attachment, adult attachment, maternal well-being, and perinatal loss. *International Journal of Environmental Research and Public Health*, 19(4), 2433. <https://doi.org/10.3390/ijerph19042433>
- Browne, V. (2022). A pregnant pause: Pregnancy, miscarriage, and suspended time. *Hypatia*, 37(2), 447–468. <https://doi.org/10.1017/hyp.2022.5>
- Caldwell, J. M., Meredith, P. J., Whittingham, K., Ziviani, J., & Wilson, T. (2024). Women pregnant after previous perinatal loss: Relationships between adult attachment, shame, and prenatal psychological outcomes. *Journal of Reproductive and Infant Psychology*, 42(4), 653–667. <https://doi.org/10.1080/02646838.2023.2180142>
- Callister, L. C. (2006). Perinatal loss: A family perspective. *The Journal of Perinatal & Neonatal Nursing*, 20(3), 227–234. <https://doi.org/10.1097/00005237-200607000-00009>
- Christiansen, D. M., Elklit, A., & Olff, M. (2013). Parents bereaved by infant death: PTSD symptoms up to 18 years after the loss. *General Hospital Psychiatry*, 35(6), 605–611. <https://doi.org/10.1016/j.genhosppsych.2013.06.006>
- Christiansen, D. M., Olff, M., & Elklit, A. (2014). Parents bereaved by infant death: Sex differences and moderation in PTSD, attachment, coping and social support. *General Hospital Psychiatry*, 36(6), 655–661. <https://doi.org/10.1016/j.genhosppsych.2014.07.012>
- Côté-Arsenault, D., & Denney-Koelsch, E. (2011). “My baby is a person”: Parents’ experiences with life-threatening fetal diagnosis. *Journal of Palliative Medicine*, 14(12), 1302–1308. <https://doi.org/10.1089/jpm.2011.0165>
- Côté-Arsenault, D., Leerkes, E. M., & Zhou, N. (2020). Individual differences in maternal, marital, parenting and child outcomes following perinatal loss: A longitudinal study. *Journal of Reproductive and Infant Psychology*, 38(1), 3–15. <https://doi.org/10.1080/02646838.2019.1579897>
- Cranley, M. S. (1981). Development of a tool for the measurement of maternal attachment during pregnancy. *Nursing Research*, 30(5), 281–284. <https://doi.org/10.1097/00006199-198109000-00008>
- da Rosa, K. M., Scholl, C. C., Ferreira, L. A., Trettim, J. P., da Cunha, G. K., Rubin, B. B., Martins, R. D L., Motta, J. V. D S., Fogaça, T. B., Ghisleni, G., Pinheiro, K. A. T., Pinheiro, R. T., Quevedo, L. D A., & de Matos, M. B. (2021). Maternal-fetal attachment and perceived parental bonds of pregnant women. *Early Human Development*, 154, 105310. <https://doi.org/10.1016/j.earlhumdev.2021.105310>
- Delgado, L., Cobo, J., Giménez, C., Fucho-Rius, G. F., Sammut, S., Martí, L., Lesmes, C., Puig, S., Obregón, N., Canet, Y., & Palao, D. J. (2023). Initial impact of perinatal loss on mothers and their partners. *International Journal of Environmental Research and Public Health*, 20(2), 1304. <https://doi.org/10.3390/ijerph20021304>

- Donegan, G., Noonan, M., & Bradshaw, C. (2023). Parents experiences of pregnancy following perinatal loss: An integrative review. *Midwifery*, 121, 103673. <https://doi.org/10.1016/j.midw.2023.103673>
- Eisma, M. C., & Stroebe, M. S. (2021). Emotion regulatory strategies in complicated grief: A Systematic Review. *Behavior Therapy*, 52(1), 234–249. <https://doi.org/10.1016/j.beth.2020.04.004>
- Fagundes, C. P., Bennett, J. M., Derry, H. M., & Kiecolt-Glaser, J. K. (2011). Relationships and inflammation across the lifespan: Social developmental pathways to disease. *Social and Personality Psychology Compass*, 5(11), 891–903. <https://doi.org/10.1111/j.1751-9004.2011.00392.x>
- Fenstermacher, K., & Hupcey, J. E. (2013). Perinatal bereavement: A principle-based concept analysis. *Journal of Advanced Nursing*, 69(11), 2389–2400. <https://doi.org/10.1111/jan.12119>
- Fonagy, P., Campbell, C., & Luyten, P. (2023). Attachment, mentalizing and trauma: Then (1992) and now (2022). *Brain Sciences*, 13(3), 459. <https://doi.org/10.3390/brain-sci13030459>
- Freedle, A., & Oliveira, E. (2024). Interpersonal and Intrapersonal Factors Contributing to Women's Posttraumatic Growth Following Perinatal Loss. *Psychological Trauma: Theory, Research, Practice and Policy*, 16(2), 193–200. <https://doi.org/10.1037/tra0001395>
- Freud, S. (1964). *The standard edition of the complete psychological works of Sigmund Freud* (J. Strachey, Ed.). Macmillan.
- Gaudet, C., Séjourné, N., Camborieux, L., Rogers, R., & Chabrol, H. (2010). Pregnancy after perinatal loss: Association of grief, anxiety and attachment. *Journal of Reproductive and Infant Psychology*, 28(3), 240–251. <https://doi.org/10.1080/02646830903487342>
- Grabow, A., & Becker-Blease, K. (2023). Acquiring psychopathy and callousness traits: Examining the influence of childhood betrayal trauma and adult dissociative experiences in a community sample. *Journal of Trauma & Dissociation*, 24(2), 268–283. <https://doi.org/10.1080/15299732.2023.2168827>
- Güçlü, O., Şenormanci, G., Tüten, A., Gök, K., & Şenormanci, Ö. (2021). Perinatal grief and related factors after termination of pregnancy for fetal anomaly: One-year follow-up study. *Noro Psikiyatri Arsivi*, 58(3), 221–227. <https://doi.org/10.29399/npa.25110>
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52(3), 511–524. <https://doi.org/10.1037//0022-3514.52.3.511>
- Heller, S. S., & Zeanah, C. H. (1999). Attachment disturbances in infants born subsequent to perinatal loss: A pilot study. *Infant Mental Health Journal*, 20(2), 188–199. [https://doi.org/10.1002/\(SICI\)1097-0355\(199922\)20:2<188::AID-IMHJ6>3.0.CO;2-H](https://doi.org/10.1002/(SICI)1097-0355(199922)20:2<188::AID-IMHJ6>3.0.CO;2-H)
- Hennessy, M., & O'Donoghue, K. (2024). Bridging the gap between pregnancy loss research and policy and practice: Insights from a qualitative survey with knowledge users. *Health Research Policy and Systems*, 22(1), 15. <https://doi.org/10.1186/s12961-024-01103-z>
- Hernández-Nieto, R. (2002). *Contribuciones al análisis estadístico: sensibilidad estabilidad y consistencia de varios coeficientes de variabilidad relativa y el coeficiente de variación proporcional cvp el coeficiente*. CreateSpace Independent Publishing Platform.
- Horsch, A., Garthus-Niegel, S., Ayers, S., Chandra, P., Hartmann, K., Vaisbuch, E., & Lalor, J. (2024). Childbirth-related posttraumatic stress disorder: Definition, risk factors, pathophysiology, diagnosis, prevention, and treatment. *American Journal of Obstetrics and Gynecology*, 230(3S), S1116–S1127. <https://doi.org/10.1016/j.ajog.2023.09.089>
- Hughes, P., Turton, P., Hopper, E., & Evans, C. D. (2002). Assessment of guidelines for good practice in psychosocial care of mothers after stillbirth: A cohort study. *Lancet*, 360(9327), 114–118. [https://doi.org/10.1016/s0140-6736\(02\)09410-2](https://doi.org/10.1016/s0140-6736(02)09410-2)
- Hughes, P., Turton, P., Hopper, E., McGauley, G. A., & Fonagy, P. (2001). Disorganised attachment behaviour among infants born subsequent to stillbirth. *Journal of Child*

- Psychology and Psychiatry, and Allied Disciplines*, 42(6), 791–801. <https://doi.org/10.1111/1469-7610.00776>
- Hughes, P., Turton, P., Hopper, E., McGauley, G. A., & Fonagy, P. (2004). Factors associated with the unresolved classification of the Adult Attachment Interview in women who have suffered stillbirth. *Development and Psychopathology*, 16(1), 215–230. <https://doi.org/10.1017/s0954579404044487>
- Hughes, P., Turton, P., McGauley, G. A., & Fonagy, P. (2006). Factors that predict infant disorganization in mothers classified as U in pregnancy. *Attachment & Human Development*, 8(2), 113–122. <https://doi.org/10.1080/14616730600785660>
- Isobel, S. (2023). Trauma and the perinatal period: A review of the theory and practice of trauma-sensitive interactions for nurses and midwives. *Nursing Open*, 10(12), 7585–7595. <https://doi.org/10.1002/nop2.2017>
- Ivers, N. N., Johnson, D. A., Casares, D. R., Lonn, M. R., Duffey, T., & Haberstroh, S. (2024). Understanding prolonged grief from an existential counseling perspective. *Journal of Counseling & Development*, 102(3), 370–381. <https://doi.org/10.1002/jcad.1251>
- Kelmanson, I. A. (2024). Manifest anxiety and maternal–fetal attachment in pregnant women with previous fetal losses. *Journal of Reproductive and Infant Psychology*, 42(1), 45–61. <https://doi.org/10.1080/02646838.2022.2056882>
- Kent, G., Pitsia, V., & Colton, G. (2020). Cognitive development during early childhood: Insights from families living in areas of socio-economic disadvantage. *Early Child Development and Care*, 190(12), 1863–1877. <https://doi.org/10.1080/03004430.2018.1543665>
- Kersting, A., & Wagner, B. (2012). Complicated grief after perinatal loss. *Dialogues in Clinical Neuroscience*, 14(2), 187–194. <https://doi.org/10.31887/dcns.2012.14.2/akersting>
- Kinsey, C. B., Baptiste-Roberts, K., Zhu, J., & Kjerulff, K. H. (2014). Effect of miscarriage history on maternal-infant bonding during the first year postpartum in the First Baby Study: A longitudinal cohort study. *BMC Women's Health*, 14(1), 83. <https://doi.org/10.1186/1472-6874-14-83>
- Lacomba-Trejo, L., Valero-Moreno, S., Montoya-Castilla, I., & Pérez-Marín, M. (2023). Adolescents with and without chronic disease: Emotional skills and emotional distress. *Revista de Psicología de La Salud*, 11(1), 36–47. <https://doi.org/10.21134/pssa.v11i1.315>
- Levi-Belz, Y., & Lev-Ari, L. (2019). Is there anybody out there? Attachment style and interpersonal facilitators as protective factors against complicated grief among suicide-loss survivors. *The Journal of Nervous and Mental Disease*, 207(3), 131–136. <https://doi.org/10.1097/NMD.0000000000000940>
- Main, M., & Solomon, J. (1986). Discovery of an insecure-disorganized/disoriented attachment pattern. In T. B. Brazelton & M. W. Yogman (Eds.), *Affective development in infancy* (pp. 95–124). Ablex Publishing.
- Mamédio, C., Santos, C., Andruccioli De Mattos Pimenta, C., Roberto, M., & Nobre, C. (2007). The pico strategy for the research question construction and evidence search a estratégia pico para a construção da pergunta de pesquisa e busca de evidências. *Revista Latino-Americana de Enfermagem*, 15(3), 508–511. <https://doi.org/10.1590/S0104-11692007000300023>
- Mehran, P., Simbar, M., Shams, J., Ramezani-Tehrani, F., & Nasiri, N. (2013). History of perinatal loss and maternal-fetal attachment behaviors. *Women and Birth: Journal of the Australian College of Midwives*, 26(3), 185–189. <https://doi.org/10.1016/j.wombi.2013.04.005>
- Meredith, P. J., & Strong, J. (2019). Attachment and chronic illness. *Current Opinion in Psychology*, 25, 132–138. <https://doi.org/10.1016/j.copsyc.2018.04.018>

- Mikulincer, M., & Shaver, P. R. (2019). A behavioral systems approach to romantic love relationships: Attachment, caregiving, and sex. In R. J. Sternberg & K. Sternberg (Eds.), *The new psychology of love* (2nd ed., pp. 259–279). Cambridge University Press.
- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., Stewart, L. A., Estarli, M., Barrera, E. S. A., Martínez-Rodríguez, R., Baladia, E., Agüero, S. D., Camacho, S., Buhning, K., Herrero-López, A., Gil-González, D. M., Altman, D. G., Booth, A., ... Whitlock, E. (2016). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Revista Espanola de Nutricion Humana y Dietetica*, 20(2), 148–160. <https://doi.org/10.1186/2046-4053-4-1>
- Muller, M. (1993). Development of the PRENATAL ATTACHMENT INVENTORY. *Western Journal of Nursing Research*, 15(2), 199–215. <https://doi.org/10.1177/019394599301500205>
- Neimeyer, R. A., & Burke, L. A. (2017). Spiritual distress and depression in bereavement: A meaning-oriented contribution. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 35(1), 38–59. <https://doi.org/10.1007/s10942-017-0262-6>
- Neimeyer, R. A., & Sands, D. C. (2011). Meaning reconstruction in bereavement: From principles to practice. In R. A. Neimeyer, D. L. Harris, H. R. Winokuer, & G. F. Thornton (Eds.), *Grief and bereavement in contemporary society: Bridging research and practice* (pp. 9–22). Routledge/Taylor & Francis Group. <https://doi.org/10.4324/9780203840863>
- Nguyen, V., Temple-Smith, M., & Bilardi, J. (2019). Men's lived experiences of perinatal loss: A review of the literature. *The Australian & New Zealand Journal of Obstetrics & Gynaecology*, 59(6), 757–766. <https://doi.org/10.1111/ajo.13041>
- Obst, K. L., Oxlad, M., Due, C., & Middleton, P. (2021). Factors contributing to men's grief following pregnancy loss and neonatal death: Further development of an emerging model in an Australian sample. *BMC Pregnancy and Childbirth*, 21(1), 29. <https://doi.org/10.1186/s12884-020-03514-6>
- O'Malley, E. G., Walsh, M. C., Reynolds, C. M., Kennelly, M., Sheehan, S. R., & Turner, M. J. (2020). A cross-sectional study of maternal-fetal attachment and perceived stress at the first antenatal visit. *Journal of Reproductive and Infant Psychology*, 38(3), 271–280. <https://doi.org/10.1080/02646838.2019.1637516>
- Orwin, R. (1994). Evaluating coding decisions. In H. Cooper & L. Hedges (Eds.), *The handbook of research synthesis* (pp. 139–162). Russell Sage Foundation.
- Pace, C. S., Muzi, S., Morganti, W., & Steele, H. (2023). Attachment Stability and longitudinal prediction of psychotic-like symptoms in community adolescents over four months of COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, 20(16), 6562. <https://doi.org/10.3390/ijerph20166562>
- Picardi, A., Giuliani, E., & Gigantesco, A. (2020). Genes and environment in attachment. *Neuroscience and Biobehavioral Reviews*, 112, 254–269. <https://doi.org/10.1016/j.neubiorev.2020.01.038>
- Pinto, C., Turton, P., Hughes, P., White, S., & Gillberg, C. (2006). ADHD and infant disorganized attachment: A prospective study of children next-born after stillbirth. *Journal of Attention Disorders*, 10(1), 83–91. <https://doi.org/10.1177/1087054705286058>
- Price, S. K. (2008). Stepping back to gain perspective: Pregnancy loss history, depression, and parenting capacity in the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B). *Death Studies*, 32(2), 97–122. <https://doi.org/10.1080/07481180701801170>
- Robinson, L., Baker, L., & Nackerud, M. (1999). The relationship of attachment theory and perinatal loss. *Death Studies*, 23(3), 257–270. <https://doi.org/10.1080/074811899201073>
- Scheidt, C. E., Hasenburg, A., Kunze, M., Waller, E., Pfeifer, R., Zimmermann, P., Hartmann, A., & Waller, N. (2012). Are individual differences of attachment predicting

- bereavement outcome after perinatal loss? A prospective cohort study. *Journal of Psychosomatic Research*, 73(5), 375–382. <https://doi.org/10.1016/j.jpsychores.2012.08.017>
- Sekowski, M., & Prigerson, H. G. (2022). Associations between symptoms of prolonged grief disorder and depression and suicidal ideation. *The British Journal of Clinical Psychology*, 61(4), 1211–1218. <https://doi.org/10.1111/bjc.12381>
- Shaver, P. R., & Tancredy, C. M. (2001). Emotion, attachment, and bereavement: A conceptual commentary. In M. S. Stroebe, R. O. Hansson, W. Stroebe, & H. Schut (Eds.), *Handbook of bereavement research: Consequences, coping, and care* (pp. 63–88). American Psychological Association. <https://doi.org/10.1037/10436-003>
- Shear, M. K. (2015). Complicated grief. *New England Journal of Medicine*, 372(2), 153–160. <https://doi.org/10.1056/NEJMcp1315618>
- Snyder, K. S., Luchner, A. F., & Tantleff-Dunn, S. (2023). Adverse childhood experiences and insecure attachment: The indirect effects of dissociation and emotion regulation difficulties. *Psychological Trauma: Theory, Research, Practice and Policy*, 16(Suppl 1), S20–S27. <https://doi.org/10.1037/tra0001532>
- Sochos, A., & Aleem, S. (2022). Parental attachment style and young persons' adjustment to bereavement. *Child & Youth Care Forum*, 51(1), 161–179. <https://doi.org/10.1007/s10566-021-09621-5>
- Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. *Attachment & Human Development*, 7(4), 349–367. <https://doi.org/10.1080/14616730500365928>
- Steel, P., Fariborzi, H., & Hendijani, R. (2023). An application of modern literature review methodology: Finding needles in ever-growing haystacks. In *Sage research methods: Business*. SAGE Publications, Ltd.
- Steele, H., Steele, M., & Fonagy, P. (2020). Infant attachment and adult attachment: A key protective factor. In *The Routledge handbook of attachment: Implications and interventions* (pp. 109–124). Routledge.
- Stroebe, M. S., Abakoumkin, G., Stroebe, W., & Schut, H. (2012). Continuing bonds in adjustment to bereavement: Impact of abrupt versus gradual separation. *Personal Relationships*, 19(2), 255–266. <https://doi.org/10.1111/j.1475-6811.2011.01352.x>
- Stroebe, M., & Schut, H. (1999). The dual process model of coping with bereavement: Rationale and description. *Death Studies*, 23(3), 197–224. <https://doi.org/10.1080/074811899201046>
- Trenado, R., Pons-Salvador, G., & Cerezo, M. A. (2009). Protecting the family: Support and assistance for family. *Papeles Del Psicólogo*, 30(1), 24–32.
- Tsartsara, E., & Johnson, M. P. (2006). The impact of miscarriage on women's pregnancy-specific anxiety and feelings of prenatal maternal–fetal attachment during the course of a subsequent pregnancy: An exploratory follow-up study. *Journal of Psychosomatic Obstetrics and Gynaecology*, 27(3), 173–182. <https://doi.org/10.1080/01674820600646198>
- Turton, P., Hughes, P., Fonagy, P., & Fainman, D. (2004). An investigation into the possible overlap between PTSD and unresolved responses following stillbirth: An absence of linkage with only unresolved status predicting infant disorganization. *Attachment & Human Development*, 6(3), 241–253. <https://doi.org/10.1080/14616730412331281575>
- Uren, T. H., & Wastell, C. A. (2002). Attachment and meaning-making in perinatal bereavement. *Death Studies*, 26(4), 279–308. <https://doi.org/10.1080/074811802753594682>
- Vowels, L. M., Vowels, M. J., Carnelley, K. B., Millings, A., & Gibson-Miller, J. (2023). Toward a causal link between attachment styles and mental health during the COVID-19 pandemic. *The British Journal of Clinical Psychology*, 62(3), 605–620. <https://doi.org/10.1111/bjc.12428>

- Yilmaz, S. D., & Beji, N. K. (2013). Effects of perinatal loss on current pregnancy in Turkey. *Midwifery*, 29(11), 1272–1277. <https://doi.org/10.1016/j.midw.2012.11.015>
- Zayde, A., Prout, T. A., Kilbride, A., & Kufferath-Lin, T. (2021). The Connecting and Reflecting Experience (CARE): Theoretical foundation and development of mentalizing-focused parenting groups. *Attachment & Human Development*, 23(3), 293–309. <https://doi.org/10.1080/14616734.2020.1729213>
- Zhuang, S., Chen, M., Ma, X., Jiang, J., Xiao, G., Zhao, Y., Hou, J., & Wang, Y. (2023). The needs of women experiencing perinatal loss: A qualitative systematic review and meta-synthesis. *Women and Birth: Journal of the Australian College of Midwives*, 36(5), 409–420. <https://doi.org/10.1016/j.wombi.2023.03.007>

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