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Social support, depression, and anxiety in the perinatal period: a mixed methods study

by Francieli Sufredini

Thesis submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy (Health)

Under the supervision of A/Prof. Christine Catling, Dr. Sungwon Chang and Dr. Joel Zugai

University of Technology Sydney

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CERTIFICATE OF ORIGINAL AUTHORSHIP

I, Francieli Sufredini, declare that this thesis is submitted in fulfilment of the requirements for the award of Doctor of Philosophy (Health), in the Faculty of Health at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This document has not been submitted for qualifications at any other academic institution.

This research is supported by the Australian Government Research Training Program.

Signature: Production Note:
Signature removed prior to publication.

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Terms and Abbreviations

ADHD   Attention-Deficit/Hyperactivity Disorder

EDS   Edinburgh Depression Scale

MCoC   Midwifery Continuity of Care

MHC   Mental Health Concern(s)

PICSS   Perinatal Infant Care Social Support Scale

PIMH   Perinatal and Infant Mental Health

PNDA   Perinatal Depression and Anxiety

PPD   Postpartum Depression

REDCap   Research Electronic Data Capture

STAI   State-Trait Anxiety Inventory

Publications and presentations related to this research

Peer-reviewed publication

Sufredini, F., Catling, C., Zugai, J., & Chang, S. (2022). The effects of social support on depression and anxiety in the perinatal period: A mixed-methods systematic review. *Journal of affective disorders*, 319, 119–141. https://doi.org/10.1016/j.jad.2022.09.005

I was responsible for all tasks relating to searches, screening, data extraction and quality appraisal of studies. With assistance of my supervisors, I also analysed the data and interpreted the review findings. I wrote the first draft of the paper, and responded to comments from my supervisors on subsequent drafts. I was responsible for the final version, the response to reviewer comments and the final copy-editing with the journal.

Presentations

The presentations listed below are in addition to the annual UTS Faculty of Health Research Student Forum presentations given throughout my PhD candidature.

Sufredini, F., Catling, C., Zugai, J., & Chang, S. (2023). Social support, depression, and anxiety in the perinatal period: a mixed methods study (poster presentation). *33rd ICM Triennial Congress,* Bali Nusa Dua Convention Center, Bali, Indonesia, June, 2023.

Sufredini, F. (2023). Social support, depression, and anxiety in the perinatal period: a mixed methods study (oral presentation). *Interdisciplinary Academic Research Symposium,* University of Technology Sydney, Ultimo, New South Wales, March, 2023.

About the PhD Candidate

For the last fifteen years, I have worked with families going through major life transitions, such as becoming parents. As a psychologist, I have had the privilege of closely following women's varied experiences of the perinatal period. Feelings of joy, gratitude and excitement were often simultaneously accompanied by feelings of uncertainty, melancholy and worry. Even for those families experiencing a planned pregnancy, the addition of a new family member usually results in some form of grief. New parents often grieve the loss of liberty and autonomy as they come to terms with being responsible for a human being that – at least at the beginning – depends solely on them to survive. Learning a completely different role, assuming new tasks and doing it all in the midst of sleep deprivation, hormonal fluctuation and body changes is no small task. It is not surprising that one in every five women and one in every ten men will develop symptoms of depression or anxiety during pregnancy and the postpartum period.

My work also gave me the opportunity to listen to these women about their own needs during this period. Lots of attention is given to their beautiful new human beings, but not always to the new mothers (the absence of consideration is made all the more likely if this is your second or third baby, as this is prima facie evidence of preparedness and coping ability). When I had my first son, he received such an abundance of presents and I felt obliged to take photos of each gift to remember who gifted each item. Whilst the gifts were appreciated, I have no memory of them. What I do remember are the people who helped me: I remember my dear and incredibly sensitive friend who brought me cake in my postpartum period; I remember my partner waking up in the middle of the night, helping my boy to breastfeed; I remember the embraces and the honest conversations with my friends who were also mothers, and the shared bitter sweetness of our experiences. These experiences were meaningful to me, and an important source of support.

Would every woman benefit from cake and hugs as well? Would they rather receive support from their families, or friends? What kind of experience of support

can improve their emotional well-being throughout the perinatal period and buffer against common mental health concerns, such as depression and anxiety? These questions have drawn me to this PhD.

Outline of thesis

Chapter One establishes the background and context of this study. This chapter also provides relevant information about perinatal mental health, such as the prevalence and predictors of depression and anxiety in the perinatal period, and the economic impact of common mental health concerns. Key concepts about social support are defined. The conceptual framework undergirding the thesis is also described.

Chapter Two is a comprehensive mixed methods systematic review of quantitative and qualitative studies. This systematic review examined the relationship between structural and functional support, depression, and anxiety in the perinatal period, and identified the literature gap on this topic. This review was published in the Journal of Affective Disorders in 2022.

Chapter Three describes the methodology used to conduct this study, outlining the rationale for the adoption of a pragmatist worldview and the mixed-methods approach. The research questions and study design are established. The procedures such as recruitment and data collection are described. The instruments and means of data collection for this study are explained and the process of analysis is outlined. The ethical integrity of this study is also demonstrated.

Chapter Four discusses the quantitative findings of this study, addressing the first research question. A flowchart with the complete scheme of phase 1 (online survey) participants is outlined. A detailed description of the cohort, their demographic characteristics, and information about health care accessed is provided. Results of the bivariate analysis that investigated the maternal characteristics associated with depression and anxiety are presented. Details about the relationship between structural and functional support, depression, and anxiety are also reported.

Chapter Five explores women's narratives, addressing the study's second research question. A detailed description of the six themes and sub-themes that were developed from the analysis of women's narratives is provided.

Chapter Six discusses the results of this study in relation to current literature, establishing greater insight into the relationship between social support, depression and anxiety in the perinatal period. The quantitative and qualitative findings of this study are integrated on a concept-by-concept basis. Limitations of the study are established. Final conclusions and implications for practice are outlined, as well as future directions for research.

This thesis does not aim to engrain social norms and concepts, although it does work within very standard conventions. It does not intend to exclude in its use of gender binary pronouns such as he/him and she/her, and the use of woman/women.

"It takes a village to raise a child".

(African proverb)

Abstract

Introduction and aims: The perinatal period is a time of vulnerability for women and between 10 - 20% of them experience some type of mental health concern, most commonly depression or anxiety. The social support offered to women in the perinatal period can buffer against mental health concerns and promote well-being. This mixed-methods research investigated the effects of structural and functional support on depression and anxiety in women in the perinatal period and explored their experiences of support during this time.

Method: This study involved perinatal women living in Australia and had an explanatory sequential mixed methods design, divided into two phases. The first phase was a cross-sectional study, where 443 participants responded to an online survey with their sociodemographic data, the Perinatal Infant Care Social Support Scale, the Edinburgh Depression Scale, and a shorter version of the Spielberger State Trait Anxiety Inventory. Data were analysed using descriptive, correlational, and multiple logistic regression analyses. For phase two, 16 women were interviewed via Zoom, and interviews were analysed thematically.

Findings: Receiving informational support from mothers significantly reduced the odds of depression and anxiety during the perinatal period. Similarly, emotional support from both mothers and friends who were mothers also lowered the odds of experiencing perinatal depression. Appraisal support from mothers-in-law demonstrated similar protective effects against depression and anxiety perinatally. Among pregnant women, receiving support from mothers, particularly in the form of informational and emotional support significantly reduced the likelihood of depression. Appraisal support from mothers-in-law also offered protection for depression. Emotional and appraisal support from partners significantly reduced anxiety during pregnancy. Additionally, informational support from midwives played a similar protective role against anxiety for pregnant women. Friends who were mothers emerged as a crucial source of protective support, with three support types – informational, emotional, and appraisal, significantly reducing the likelihood of depression postnatally. Mothers' informational support and partners' emotional

support emerged as significantly protective for postnatal anxiety. Six overarching themes emerged from phase two: Counting on the presence of others, Being cared for as an individual, Having affirmational support, Trusting the provided information, Enhancing mental health, and Being impacted by COVID-19. Women highlighted the importance of receiving humanised, individual, attentive, and considerate care from health professionals.

Conclusion: This study contributes to the enhanced practice of health professionals, providing practical information about how to support women during the perinatal period, ensuring their well-being, and assuring their infants' optimal development.

Keywords: depression, anxiety, perinatal, pregnancy, postpartum, social support.

Chapter 1: Introduction

Childbirth is usually experienced with joy and happiness (Sawyer et al., 2011). However, the perinatal period[1] is also a time of vulnerability for women, with significant social, emotional, physical, and financial implications (Braveman et al., 2010; Chojenta et al., 2012; Coates et al., 2018). Between 10 - 20% of women experience some type of mental health concern, most commonly depression or anxiety (Bauer et al., 2014).

The prevalence of mental health concerns during the perinatal period has been thoroughly investigated. During pregnancy, 10 - 22% of women experience symptoms of depression, while 16 - 20% experience anxiety (Fairbrother et al., 2016; Giardinelli et al., 2012; Takehara et al., 2018). In the postpartum period the prevalence of these two mental health concerns is similar: 11 - 25% of mothers experience depressive symptoms and 12 - 17% experience symptoms of anxiety (Cruise et al., 2018; Fairbrother et al., 2016; Giardinelli et al., 2012; Takehara et al., 2018; Yelland et al., 2010). In Australia, a recent study (Bertram et al., 2023) observed a significant increase in the rates of anxiety (from 7.4% to 18.4%), depression (from 13.6% to 16.3%), and anxiety and/or depression (from 16.5% to 22.6%), in a major tertiary obstetric centre over ten years (2013-2022). Importantly, these figures may be underestimated as many women experiencing the perinatal period do not reveal symptoms of mental health issues (Klan, 2015; Pinar et al., 2022). Reasons for not disclosing include the stigma surrounding perinatal mental health, fear of judgment from others, inadequate screening methods, and concerns about legal consequences, such as losing custody of their child (Klan, 2015; Negron et al., 2013; Pinar et al., 2022; Slade et al., 2010).

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[1] Perinatal period is considered the time from conception until twelve months after the birth (Highet, 2023).

During the perinatal period, symptoms of depression typically include a persistent low mood and/or feeling emotionally numb, as feelings of inadequacy such as failure, guilt, shame, worthlessness, and hopelessness. Women might experience a loss of interest in previously enjoyable activities, tearfulness, and difficulty feeling motivated and managing daily tasks. Sleep disturbances like insomnia or excessive sleep are also usual, and thoughts of self-harm or suicide might be present (Highet, 2023).

Symptoms of anxiety during the perinatal period can manifest as persistent fears that disrupt thoughts and interfere with daily activities, or outbursts of extreme fear and panic that feel overwhelming and hard to manage. Women may experience recurring worries that are difficult to stop or control, alongside feelings of irritability, restlessness, or being constantly on edge. Physical symptoms may include tense muscles, a tight chest, and heart palpitations. Additionally, they may find it challenging to relax or experience prolonged difficulty falling asleep at night. Some women may also experience anxiety or fear that prevents them from going out with their baby, or leads them to frequently check on their baby (Highet, 2023).

According to the Australian Clinical Practice Guideline for Mental Health Care in the Perinatal Period, depressive disorders during the perinatal period present similarly to those outside this period, varying from mild to severe (Highet, 2023). Additionally, anxiety disorders during this time encompass conditions such as generalised anxiety disorder, panic disorder, social phobia, and specific phobia. In addition, the Australian Clinical Practice Guideline also includes post-traumatic stress disorder, a trauma and stressor-related disorder (as in the Diagnostic and Statistical Manual of Mental Disorders, or "DSM-5"), as a type of anxiety disorder[2] (Highet, 2023).

According to the DSM-5, a diagnosis of Major Depressive Disorder during the perinatal period requires the patient to be experiencing at least five out of nine

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[2] Possibly because Post-Traumatic Stress Disorder (PTSD) was classified as an anxiety disorder in earlier versions of the DSM, such as the DSM-III and DSM-IV.

possible symptoms. Consequently, a woman exhibiting only four symptoms (such as sadness, low energy, insomnia, and suicidal thoughts) would not meet the criteria for a Major Depression diagnosis, despite being at significant risk and experiencing considerable suffering. Given that several women experience symptoms of anxiety and depression during the perinatal period but do not meet the criteria for a formal diagnosis, this thesis has chosen to focus on symptomatology rather than specific diagnoses such as Major Depressive Episode, Generalised Anxiety Disorder, or Panic Disorder. Throughout this study, any mention of mental health issues as "depression", "depressed", "anxiety", or "anxious", refers specifically to symptoms rather than formal diagnoses. This approach aims to ensure that the findings of this research are applicable not only to perinatal women diagnosed with these conditions, but also to those experiencing symptoms of these mental health concerns during the perinatal period.

Perinatal anxiety and depression have significant implications for women, their babies, and families. Pregnant women diagnosed with depression are at an increased risk for preterm birth, low birth weight, and having a caesarean (X.-N. Chen et al., 2021; Yedid Sion et al., 2016). Furthermore, perinatal anxiety and depression are associated with delays in children's communication, motor, problem-solving, and social skills (Mughal et al., 2019; Rogers et al., 2023). Children born to mothers with prenatal depression and anxiety exhibit higher social-emotional problems and reduced cognitive scores (Shuffrey et al., 2022), and these two mental health concerns are also predictive of challenges in children's social and emotional development (Porter et al., 2019).

Another detrimental aspect of perinatal anxiety and depression involves the maternal risk of death. Perinatal suicidality, encompassing completed suicides, suicide attempts, suicidal ideation, and thoughts of self-harm, is recognised as a significant contributor to maternal mortality within the first 12 months after childbirth (Orsolini et al., 2016). Importantly, suicide was one of the most frequent causes of maternal death reported in Australia between 2012 and 2021 (Australian Institute of Health and Welfare, 2022).

The estimated cost of perinatal depression and anxiety (PNDA) in Australia is $877 million yearly, considering health-related expenses linked to PNDA, productivity losses, and monetised impacts on social and overall well-being. In addition to these immediate costs, there are estimated long-term impacts totalling $5.2 billion attributed to the heightened risk of depression, anxiety, and ADHD in children born to parents with PNDA (Gidget Foundation, PANDA, Peach Tree Perinatal Wellness, and Perinatal Wellbeing Centre, 2019). Considering the substantial economic and societal costs associated with PNDA in Australia, addressing the predictors and support mechanisms for maternal mental health is imperative.

Many factors influence the mental health of women in the perinatal period. Predictors of perinatal depression and anxiety include a young maternal age (25 years old or less) (Australian Institute of Health and Welfare, [AIHW], 2012; Golbasi et al., 2010; Lin & Hung, 2015), economic adversity (AIHW, 2012; Prady et al., 2013), lower education levels (Prady et al., 2013), having a caesarean section (AIHW, 2012; Barbadoro et al., 2012), history of childhood trauma (Galbally et al., 2019), lack of social support (Dennis et al., 2019; Golbasi et al., 2010; Mori et al., 2018a; Navarrete et al., 2012) and history of prenatal mental health concerns (Schmied et al., 2013; Witt et al., 2011). Unlike most variables that affect maternal mental health, the support offered to women in the perinatal period is readily modifiable, and should therefore be thoroughly investigated and understood. Social support plays a crucial role in both the development and treatment of common mental health concerns in the perinatal period (Gjerdingen et al., 2014).

Historically[3], the term social support refers to an exchange of resources between at least two persons, perceived by the provider or the recipient to be intended to enhance the well-being of the recipient (Shumaker & Brownell, 1984). The positive correlation between social support and mental wellbeing in the perinatal period is well established in the literature: depression and anxiety are less likely to be

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[3] A thorough historical retrieval of the literature about social support and motherhood can be seen in Leahy-Warren and colleagues' work (2016, 2018).

experienced by a woman who perceives a higher degree of social support (Aktan, 2012; Bayrampour et al., 2015; de Carvalho & de Lima Salum e Morais, 2014; Dennis et al., 2012; Hain et al., 2016; Makara-Studzińska et al., 2013; Mori et al., 2018b; Ngai & Ngu, 2015; Shwartz et al., 2019; Verreault et al., 2014).

The concept of social support encompasses two dimensions: structural support and functional support. Structural support is delivered from the people in a woman's social network (Leahy-Warren et al., 2011). Sources of structural support can be formal, such as health professionals and services, or informal, like friends, family members, colleagues, co-workers, neighbours and significant others (Branquinho et al., 2020; Ganann et al., 2020; Leahy-Warren et al., 2011; Shiba et al., 2016; Streeter & Franklin, 1992).

Functional support is related to the nature of the activities where social support occurs (Leahy-Warren et al., 2011), and several classification schemes have been developed for distinguishing between these different types of support (Streeter & Franklin, 1992). In this study, the functional output of relationships has been assigned into the four broad types of supportive behaviours or acts according to House's theory of social support: emotional, instrumental, informational or appraisal support (House, 1981; Langford et al., 1997). Emotional support encompasses the provision of care, empathy, love and trust. This form of support establishes the opportunity for women to express worries and concerns. Instrumental support refers to the provision of tangible goods, services, assistance (including financial) and is usually related to child-care and housework in the context of the postpartum period. Informational support is associated with information provided to another during a time of stress, such as child-care and well-being information. Finally, appraisal support is defined as the communication of information which is relevant to self-evaluation, rather than problem-solving. Support of this kind assists a woman in perceiving herself as respected or admirable (House, 1981; Langford et al., 1997). The description of the dimensions of social support is presented below in Table 1:

Table 1. Dimensions of social support, based on House (1981) and Leahy-Warren et al. (2011)

	Dimensions of social support		Description
Structural support	People from the social network of the woman	Formal	Support from health professionals and services
		Informal	Support from friends and family
Functional support	Related to the nature of the activities where the social support occurs	Emotional	Provision of care, empathy, love and trust
		Instrumental	Provision of tangible goods, services, assistance
		Informational	Provision of helpful information
		Appraisal	Communication that acknowledges, praises and respects the woman

Figure 1 is a conceptual framework establishing the need for this study. The predictors of mental health concerns (MHC) in the perinatal period are well-established. Unlike most predictors of MHC (young maternal age, economic adversity, low educational level, mode of birth, history of MHC, or history of childhood trauma) the social support offered to women in the perinatal period is readily modifiable, and is the focus of this study.

The inverse relationship between social support, depression, and anxiety in the perinatal period has also been thoroughly investigated. However, analysis of the literature about social support in the perinatal period revealed that most studies investigated the relationship between MHC and social support by analysing total support scores only. A nuanced understanding of social support for women in the perinatal period is yet to be established: Do all types of support buffer against MHC? Must support come from specific people? If yes, from whom? What kind of support do women appreciate? What do they find unhelpful? What are women's experiences of support provided by health professionals? Importantly, these questions have implications for clinicians' practice and policy. Upon examination of the literature, two dimensions of social support were determined to be of particular focus: structural support and functional support. Analysis of the current literature around structural and functional support led to the research questions and subsequent aims.
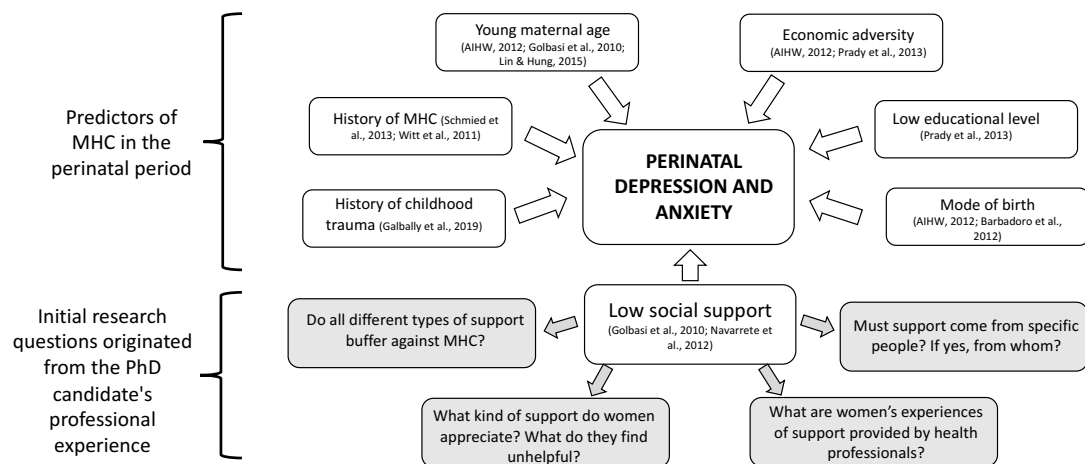
Figure 1. Conceptual framework of the thesis

Summary

The prevalence of depression and anxiety in the perinatal period is a substantive public health issue. There is a well-established association between low social support and mental health concerns in pregnancy and the postpartum period. Yet, the structural and functional dimensions of social support remain relatively unknown. An in-depth analysis of these dimensions will clarify who should provide social support to perinatal women and how, in order to reduce levels of depression and anxiety.

Chapter 2: Literature Review

A comprehensive mixed methods systematic review of quantitative and qualitative studies was undertaken, with the purpose of understanding the relationship between structural and functional support, depression, and anxiety in the perinatal period, and identifying the literature gap on this topic. This mixed methods systematic review was published in the Journal of Affective Disorders in 2022. The manuscript can be seen in **Error! Reference source not found.**.

Abstract

Background: The social support offered to women in the perinatal period can buffer against depression and anxiety. The sources and types of support that reduce maternal levels of depression and anxiety are not well understood.

Aims: To investigate the effects of structural and functional support on depression and anxiety in women in the perinatal period, and to explore the experiences of women around support during the perinatal period.

Method: A comprehensive search of six electronic databases was undertaken. Relevant studies published from January 2010 to April 2020 were included (PROSPERO reference number: CRD42020194228). Quantitative and qualitative studies were eligible if they reported the effects of, or had themes related to receiving functional or structural support in the perinatal period on women's levels of depression or anxiety. Qualitative data was synthesised using a thematic synthesis method. Quantitative data could not be pooled due to the lack of comparable RCTs or cohort studies and was thus presented in a narrative form.

Results: Fifty-one articles (41 quantitative and 10 qualitative studies) were included. Analysis of quantitative studies demonstrated that insufficient support from partner, friends and family was associated with greater risk of symptoms of depression and anxiety. Distance-delivered interventions (via internet or telephone) diminished levels of depression and anxiety. Qualitative data revealed three overarching themes: appreciating all forms of support in the perinatal period, recognising

appropriate and inappropriate support from health professionals and services, and having barriers to mobilising functional and structural support.

Limitations: Grey literature was not explored and search strategies only included English, Spanish and Portuguese language articles. The reviewed studies were heterogeneous and for this reason, quantitative assessments were not feasible.

Conclusion: Support from specific sources such as family members, friends who are also mothers, health professionals, neighbours, supervisors, co-workers and online communities still need to be further investigated. Implications for health professionals involved in the care of women in the perinatal period are discussed.

Keywords: depression, anxiety, perinatal, systematic review, social support.

Introduction

Childbirth is usually experienced with joy and happiness (Sawyer et al., 2011). However, the perinatal period is also a time of vulnerability for women, with significant social, emotional, physical and financial implications (Braveman et al., 2010; Chojenta et al., 2012; Coates et al., 2018). Between 10 - 20% of women experience some type of mental health concern, most commonly depression or anxiety (Bauer et al., 2014).

The prevalence of mental health concerns during the perinatal period has been thoroughly investigated. During pregnancy, 10 - 22% of women experience symptoms of depression, while 16 - 20% experience anxiety (Fairbrother et al., 2016; Giardinelli et al., 2012; Takehara et al., 2018). In the postpartum period the prevalence of these two mental health concerns is similar: 11 - 25% of mothers experience depressive symptoms and 12 - 17% experience symptoms of anxiety (Cruise et al., 2018; Fairbrother et al., 2016; Giardinelli et al., 2012; Takehara et al., 2018; Yelland et al., 2010). The reported variation in prevalence may be attributable to differences in the studies' definition of depression or anxiety, the timing of

assessment, country sample origin and cut-off point of the instruments used to measure depression and anxiety.

Many factors influence the mental health of women in the perinatal period. Predictors of perinatal depression and anxiety include a young maternal age (25 years old or less) (Australian Institute of Health and Welfare, [AIHW], 2012; Golbasi et al., 2010; Lin & Hung, 2015), economic adversity (AIHW, 2012; Prady et al., 2013), lower education levels (Prady et al., 2013), having a caesarean section (AIHW, 2012), history of childhood trauma (Galbally et al., 2019), lack of social support (Golbasi et al., 2010; Navarrete et al., 2012) and history of prenatal mental health concerns (Schmied et al., 2013; Witt et al., 2011). Unlike most variables that affect maternal mental health, the support offered to women in the perinatal period is readily modifiable, and should therefore be thoroughly investigated and understood. Social support plays a crucial role in both the development and treatment of common mental health concerns in the perinatal period (Gjerdingen et al., 2014). Historically, the term social support refers to an exchange of resources between at least two persons, perceived by the provider or the recipient to be intended to enhance the well-being of the recipient (Shumaker & Brownell, 1984). The positive correlation between social support and mental well-being in the perinatal period is well established in the literature: depression and anxiety are less likely to be experienced by a woman who perceives a higher degree of social support (Aktan, 2012; Bayrampour et al., 2015; de Carvalho & de Lima Salum e Morais, 2014; Dennis et al., 2012; Hain et al., 2016; Makara-Studzińska et al., 2013; Mori et al., 2018b; Ngai & Ngu, 2015; Shwartz et al., 2019; Verreault et al., 2014).

The concept of social support encompasses two dimensions: structural support and functional support. Structural support is delivered from the people in a woman's social network (Leahy-Warren et al., 2011). Sources of structural support can be formal, such as health professionals and services, or informal, like friends, family members, colleagues, co-workers, neighbours and significant others (Branquinho et al., 2020; Ganann et al., 2020; Leahy-Warren et al., 2011; Shiba et al., 2016; Streeter & Franklin, 1992). Since interventions can provide different types of support (e.g., emotional, informational, or instrumental support), and in consequence,

reduce psychological or general health symptoms (Hogan et al., 2002), they were considered to be a formal source of support in this mixed-methods systematic review.

Functional support is related to the nature of the activities where social support occurs (Leahy-Warren et al., 2011), and several classification schemes have been developed for distinguishing between these different types of support (Streeter & Franklin, 1992). In this systematic review, the functional output of relationships have been assigned into the four broad types of supportive behaviours or acts according to House's theory of social support: emotional, instrumental, informational or appraisal support (House, 1981; Langford et al., 1997). Emotional support encompasses the provision of care, empathy, love and trust. This form of support establishes the opportunity for women to express worries and concerns. Instrumental support refers to the provision of tangible goods, services, assistance (including financial) and is usually related to child-care and housework in the context of the postpartum period. Informational support is associated with information provided to another during a time of stress, such as child-care and well-being information. Finally, appraisal support is defined as the communication of information which is relevant to self-evaluation, rather than problem-solving. Support of this kind assists a woman in perceiving herself as respected or admirable (House, 1981; Langford et al., 1997).

A number of systematic reviews have explored the effects of formal support during the postpartum period. In an analysis of the effectiveness of postnatal support programs to improve maternal mental health (Shaw et al., 2006), of ten randomised controlled trials, only one reported a statistically significant benefit from supportive postpartum strategies on depression and anxiety. A subsequent systematic review assessed the effect of diverse psychosocial and psychological interventions to reduce the risk of developing postpartum depression (Dennis & Dowswell, 2013). This study found that women who received either intervention were significantly less likely to develop postpartum depression compared with those receiving standard care. Some promising interventions were highlighted, such as (1) the provision of intensive, individualised postpartum home visits provided by public health nurses or

midwives; (2) lay (peer)-based telephone support; and (3) interpersonal psychotherapy (Dennis & Dowswell, 2013). A single systematic review of systematic reviews and meta-analyses investigated the effectiveness of psychological interventions in treating depression throughout the perinatal period, including pregnancy. Seven systematic reviews were included and CBT was found to be the most effective intervention, regardless of the treatment format (Branquinho et al., 2021).

The informal support provided by family (including partners) and friends and its potential for enhancing the well-being of postpartum women has also been studied in a systematic review (Ni & Siew Lin, 2011). Overall, support from family and friends diminishes the risk of postnatal depression, although the results could not be pooled in a meta-analysis. A meta-synthesis of the qualitative findings suggested that social support offered by these two sources has both positive and negative implications. While the authors aimed to identify and describe the various types of social support provided by family and friends, only one study within the review described such support in detail. Support from colleagues, work supervisors and neighbours were not examined in this systematic review nor any other.

Whilst most of the systematic reviews discussed above were related to support in the postpartum period, these reviews were focused on depressive symptoms leaving anxiety relatively under examined. Furthermore, most of these reviews did not specify the sample's pregnancy period. Likewise, detailed information about structural and functional dimensions of support were not appraised, since most of the systematic reviews have focused on interventions. The aims of this mixed methods review are to systematically 1) investigate the effects of structural and functional support on depression and anxiety in women in the perinatal period, and 2) explore the experiences of women around support during the perinatal period.

Method

A systematic mixed methods review was performed based on the Joanna Briggs Institute (JBI) convergent segregated approach to synthesis and integration of

quantitative and qualitative evidence (Kavanagh et al., 2012; Lizarondo et al., 2020). The PRISMA statement and checklist for systematic reviews were also followed (Page et al., 2021). A systematic review protocol was developed and registered with the International prospective register of systematic reviews PROSPERO (reference number: CRD42020194228).

Sources and search strategy

Six databases (Medline (Ebsco), CINAHL (Ebsco), APA PsycINFO, Scopus, Embase/Pubmed and Maternity and Infant Care) were searched in April 2020. The search was restricted to studies published between 1 January 2010 and 17 April 2020. The following terms were used to search for items relating to support in the perinatal period and mental health concerns, following the PICO model: ["pregnant" OR "pregnancy" OR "prenatal" OR "postpartum" OR "postnatal" OR "perinatal"] AND ["formal support" OR "formal assistance" OR "professional support" OR "perinatal care" OR "prenatal care" OR "postnatal care" OR "social support" OR "informal support" OR "social network"] AND ["depression" OR "anxiety"], including the respective medical subject headings (MeSH) terms when available. Search strategies and results for each electronic database can be seen in the Supplementary Material published in the Journal of Affective Disorders.

Criteria for inclusion and exclusion

The studies' participants were women in the perinatal period, of any parity. For this study, the perinatal period is considered to begin in early pregnancy and end 12 months after childbirth (Austin et al., 2012). Studies focusing on fathers, grandparents, other relatives, midwives, nurses and other professionals as participants were excluded if these studies did not directly represent the lived experiences of women in the perinatal period. However, if a study was conducted with mixed types of participants (e. g. midwives and fathers), and had women's results separately reported, the results specifically related to women's experiences were included in this review. Studies of women who had any co-morbidities or high-level risk conditions (such as migrants, refugees, adolescents, women with severe

mental illness, overweight, cardiovascular diseases, diabetes, HIV, hepatitis, disabilities, previous miscarriages, pre-eclampsia or eclampsia, experience of violence, among other vulnerabilities), as stated in the Clinical Practice Guidelines for pregnancy care (Australian Government Department of Health, 2009), were excluded. This was because the experiences of support of these participants may not be representative of the general population, and some of them may be already receiving a higher level of support from health care professionals. Studies from low and middle-income countries (according to the World Bank classification) were excluded, since the health care system and available support would be considerably different compared to high-income countries.

The mental health concerns under study (depression and anxiety) could be either diagnosed by a mental health professional, measured by an instrument, or self-reported by the participants.

All articles included in this review were primary studies, peer reviewed and the full-text was available for analysis. Articles written in English, Spanish and Portuguese were included in this review. Guidelines, projects, protocols, book chapters, reviews, theses, letters, interviews and comments about support and mental health concerns in the perinatal period were excluded.

Quantitative observational (cross-sectional or longitudinal) studies were eligible if they reported the effects of receiving support in the perinatal period on women's levels of depression or anxiety. Functional or structural aspects of support needed to be investigated and reported in the results. Since the correlation between support and mental health concerns is already well established in the literature, studies were excluded if they had simply provided an estimate of this correlation factor, without any further information about the different types of support that was provided or who the persons responsible for offering it were.

Experimental studies were included, when reporting results of an intervention to provide support in the perinatal period. Randomised control trials and studies with a control and an experimental group were also included. Reviews (narrative,

systematic or meta-analysis) and case studies were excluded. Qualitative studies were eligible if reported themes were related to support received during pregnancy or the postpartum period.

Quality appraisal and risk of bias assessment

The JBI Critical Appraisal Checklists for Cohort, Analytical cross-sectional studies, Qualitative research and Randomised Controlled Trials were used for quality assessment. Each checklist is made up of eight to thirteen items, depending on study design. The possible answers to the items are yes, no, unclear or not applicable. A scoring system was used: studies that answered "yes" to a question from the checklist scored 2, "unclear" scored 1 and "no" or "not applicable" scored 0. Each score was then converted into a percentage to harmonise the scoring system, similar to Jud and colleagues' study (Jud et al., 2020). The critical appraisal was undertaken by one of the authors and a second author reviewed 10% of all studies. Any disagreements were resolved by discussion, until a consensus was reached.

Data extraction, analysis and synthesis

Quantitative and qualitative data were extracted from included studies by the lead author using the relevant JBI data extraction tool. For quantitative studies, data extracted included specific details about the population, study aim and methods, health outcome, tool used for measuring depression, anxiety, support and time points, information about structural and functional support, study outcome and summary of support effect. For qualitative studies, data obtained included information about the population, context, culture, geographical location, study aim and methods, health outcome, information about structural and functional support and summary of findings.

In this review, the thematic synthesis method by Thomas and Harden (2008) was employed to analyse the qualitative studies. This type of meta-synthesis enabled an understanding and interpretation of themes across multiple qualitative studies by going through three stages: the coding of text 'line-by-line'; the development of

'descriptive themes'; and the generation of 'analytical themes'. Firstly, codes derived from each article were created, according to the review question regarding women's experiences around structural and functional support during the perinatal period. Then, the codes were grouped into similar areas and descriptive themes were developed. Finally, in the third stage, new interpretive constructs, explanations, or hypotheses were generated, creating analytical themes. NVivo software was used for managing data of the qualitative studies.

Results

A total of 3267 records were identified through searching the six selected databases. After the removal of duplicates with Covidence (Covidence systematic review software, 2020), 1384 records were screened by title and abstract with Rayyan for Systematic Reviews (Ouzzani et al., 2016). Out of these, 1317 were excluded, according to the inclusion and exclusion criteria. The full text of 67 papers qualified for full paper review. After exclusion of a further 16 articles for not meeting the criteria, 51 studies were included in this review (see Figure 2). Although the inclusion criteria allowed for articles written in English, Spanish or Portuguese, all included articles were published in English. Tables with detailed description of the studies, such as authors, year, country, study aim and design, health outcome, tool used for measuring depression or anxiety and time points, source, type and tool used for measuring support, study outcome, summary of support effect, and quality appraisal of quantitative and qualitative studies, can be found in the published article.

Studies characteristics

Forty-one quantitative studies were included in this review, most of which were observational studies (n=31). Of these, 16 were prospective cohort studies, 14 were cross-sectional studies and two were retrospective cohort studies. Of nine experimental studies, eight were randomised controlled trials, and one was a pragmatic trial. A total of ten qualitative studies were included. Most of the studies were focused on depression only (n=37), four studies focused on anxiety only and ten on both mental health concerns.

Of the 51 studies, 45 explored the structural dimension of support. Interventions were categorised as a source of formal support, inside the structural dimension of support, comparing depression and anxiety scores before and after participation, or depression scores only. The functional dimension of support was reported in 18 of the 51 included studies, and included the emotional, informational, instrumental, appraisal and affirmational type (a combination of emotional and informational support). In total, 12 studies investigated both functional and structural dimensions of support.

Measurement tools used and assessment time points

The Edinburgh Depression Scale[4] (EDS) was the instrument most frequently used to measure depressive symptoms (n=28), and the Spielberger State and Trait Anxiety Inventory (STAI) was the most frequently used to measure anxiety (n=7). The EDS cut off score varied significantly, from 9 to 13 points, whilst some studies did not state any cut-off score at all. A wide range of cut-off scores was also observed within studies that used the STAI (40, >40, or no cut-off mentioned). Social support was measured in several different ways, and most studies utilised their own questionnaire (n=12).

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[4] Although originally named "The Edinburgh Postnatal Depression Scale" (Cox, et al., 1987), this tool has been largely used for detecting depressive symptoms during the whole perinatal period and have been validated for use in pregnancy by Murray and Cox (1990). Hence, we opted to cite this instrument without the term "postnatal", similarly to other studies (Matthey et al.,2006; Agostini et al., 2015).
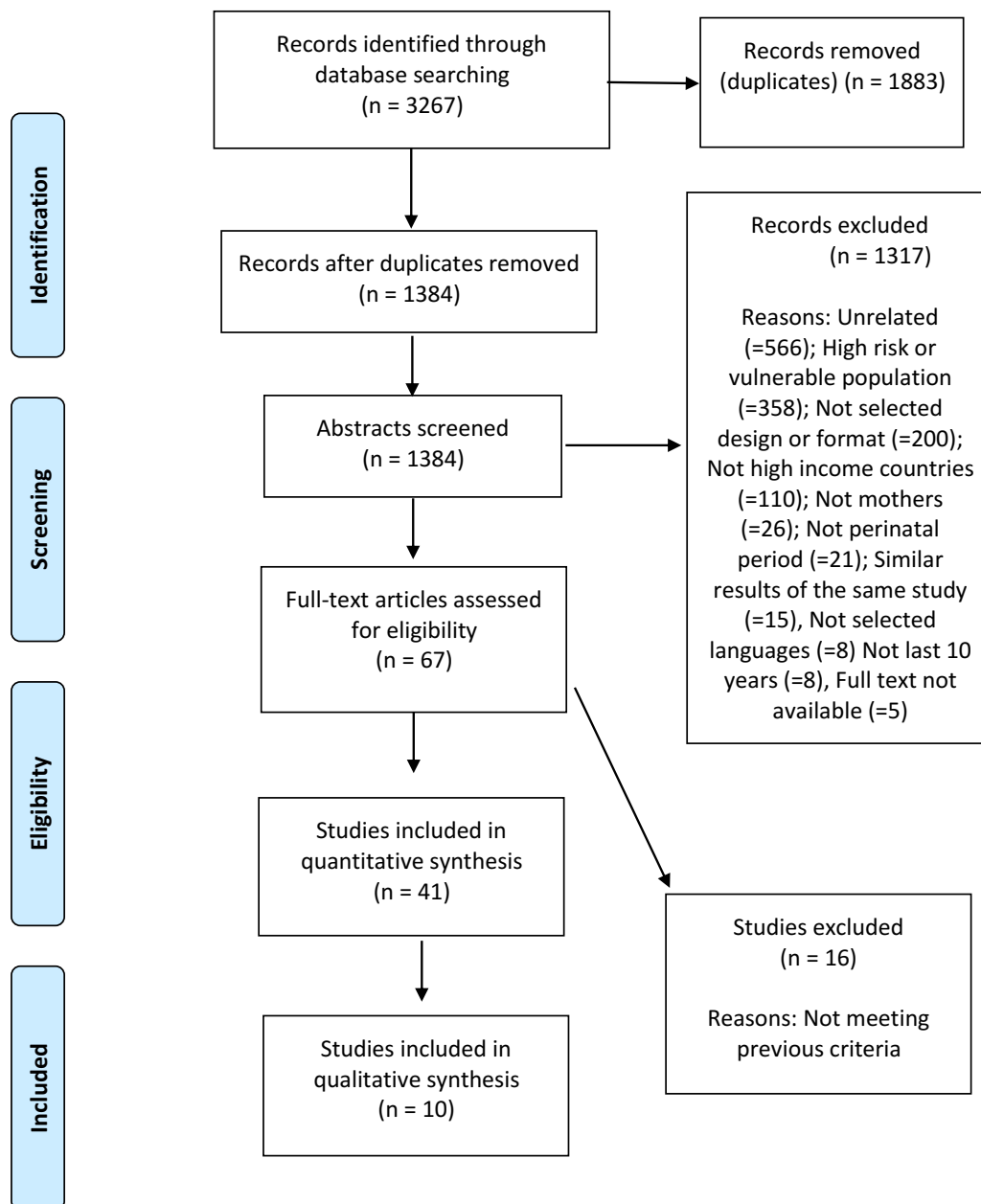
Figure 2. The PRISMA Flow Diagram

The majority of studies were focused on depression in the post-natal period (n=23). Ten studies were about depression during pregnancy, and four studies focussed on depression during the perinatal period (either having two or more data collection points, or having a mix of participants – pregnant and postpartum women). Anxiety was relatively less explored: only two studies during the postpartum period, one

during pregnancy and another one during the perinatal period. Ten studies investigated both mental health concerns during the perinatal period.

Quality appraisal and risk of bias assessment

A quality assessment process was conducted on all 51 studies. The 41 quantitative studies were categorised by evidence for effectiveness and the ten qualitative studies by evidence for meaningfulness (according to JBI levels of evidence) (The Joanna Briggs Institute, 2014). The percentage representing the score of each study can be seen in the Appendices published with the article.

Among the quantitative studies, there were eight randomised controlled trials (level 1C of evidence) with an average score 84% (range 77–100%). The 11 analytical observational longitudinal studies (level 3E of evidence) and the 18 analytical cross-sectional studies (level 4A of evidence) also scored high: an average score of 96% (range 89% - 100%) and 92% (range 69% - 100%), respectively (although a more significant heterogeneity was observed regarding the last). The four cohort studies (level 3C of evidence) scored the lowest: an average of 60% (55 – 64%). The qualitative studies (level 3 of evidence) presented adequate quality (average score of 80%) and homogeneousness (range 75% - 95%).

Quantitative evidence

Findings of the experimental and observational (both longitudinal and cross-sectional) studies were included in this section, describing the effect of structural and functional support on depression and anxiety in women in the perinatal period. Quantitative data could not be pooled due to the lack of comparable RCTs or cohort studies and was thus presented in a narrative form.

Depression

The relationship between structural support and depression was investigated by 32 studies. Informal sources of support included the partner, family, friends, mother, co-workers, supervisors and church members. The most investigated source of support was the partner, and 11 out of 12 studies reported that support from a

partner attenuated depressive symptoms during pregnancy (Agostini et al., 2015; Cheng et al., 2016; Dudas et al., 2012; Jeong et al., 2013), the postpartum (Al Dallal & Grant, 2012; Almutairi et al., 2017; Faleschini et al., 2019; Iles et al., 2011; Pao et al., 2019; Reid & Taylor, 2015) and the perinatal period (Kruse et al., 2014; Stapleton, Schetter, Westling, Rini, Glynn, Hobel, & Sandman, 2012).

Support from friends also attenuated depressive symptoms in most of the studies that examined this association through the pregnancy (Agostini et al., 2015), postpartum (Dagher et al., 2011; Faleschini et al., 2019; Reid & Taylor, 2015) and perinatal period (Hughes et al., 2020). Corresponding with these findings, a lack of family support was consistently predictive of depression (Agostini et al., 2015; Dagher et al., 2011; Dudas et al., 2012; Faleschini et al., 2019; Reid & Taylor, 2015). Support provided by a specific family member was described in two studies, both examining the support from the participant's mother. Support from grandmothers was found to significantly reduce the likelihood of depression during pregnancy (Jeong et al., 2013), but not during the postpartum period (Al Dallal & Grant, 2012).

Lower degrees of support from co-workers and supervisors was significantly associated with higher risk of antenatal depressive symptoms (Tsai, 2019; Yeh et al., 2018). In contrast, the social support provided by co-workers and supervisors during the postpartum period was not associated with the likelihood of depressive symptoms (Dagher et al., 2011; Schwab-Reese et al., 2017). Only one study explored women's experiences of community support and depressive symptoms, investigating support from members of the church women attended (Giurgescu & Murn, 2016). This study found there were no differences in depressive symptoms among women who received support from church members and those who did not.

Formal sources of support were investigated in three observational and nine experimental studies. Two of the observational studies (Kruse et al., 2014; Leahy-Warren et al., 2011) did not specify the specific type of health professionals under investigation, while one observational study investigated the support provided by nurses and midwives (Salonen et al., 2014). A lower perception of social support from a health care professional was predictive of depression in the postpartum

period (Kruse et al., 2014; Leahy-Warren et al., 2011). However, depressive symptoms were diminished with a higher degree of support provided by nurses and midwives for multiparas, but not for primiparas (Salonen et al., 2014).

The relationship between structural support and depression was also explored in nine experimental studies and one prospective cohort study, all of which examined the effectiveness of an intervention during pregnancy or the postpartum period. The interventions were: 1) supportive counselling provided by public health nurses in the postpartum period (Glavin et al., 2010), 2) a web-based and home-based postnatal psychoeducational interventions for first-time mothers (Jiao et al., 2019), 3) a brief preventive group intervention for postpartum depression utilising interpersonal psychotherapy and cognitive-behavioural therapy elements (Kozinszky et al., 2012), 4) an antenatal intervention containing a self-help workbook and weekly telephone support sessions (Milgrom et al., 2011), 5) an interpersonal psychotherapy group for postnatal depression (Mulcahy et al., 2010), 6) the "NetmumsHWD", an online behavioural activation treatment course combined with weekly phone call support (O'Mahen et al., 2014), 7) a nurse/midwife telephone-administered interpersonal psychotherapy (Posmontier et al., 2016), 8) a technology-based peer-support intervention program (Shorey et al., 2019), 9) 'Home-but not Alone', a postnatal psychoeducational program delivered via a mobile-health application for parents (Shorey et al., 2017), and 10) the "Strongest Families™ Managing Our Mood (MOM)", a distance-delivered cognitive-behavioural based 12-session intervention (Wozney et al., 2017). All ten studies measured depression scores before and after participation.

When compared to the control group, some intervention groups had reduced prenatal and postnatal depression scores. These were: the supportive counselling provided by public health nurses (Glavin et al., 2010), the web-based intervention (Jiao et al., 2019) , the brief preventive group intervention (Kozinszky et al., 2012), the antenatal intervention combining a workbook and telephone support sessions (Milgrom et al., 2011), the interpersonal psychotherapy group (Mulcahy et al., 2010), the online behavioural activation treatment course (O'Mahen et al., 2014), the nurse/midwife telephone-administered interpersonal psychotherapy (Posmontier et

al., 2016), the technology-based peer-support intervention program (Shorey et al., 2019), and the distance-delivered cognitive-behavioural based intervention (Wozney et al., 2017). The home-based intervention (Jiao et al., 2019) did not show a significant effect on depression at all post-test time points, neither did the mobile-health application (Shorey et al., 2017).

The functional dimension of support and its association with depression was explored in 12 studies. Considering the pregnancy period (investigated in two studies), an Australian study measured both instrumental and emotional support (Kohlhoff et al., 2016), and a Korean study only measured emotional support (Jeong et al., 2013). The study by Kohlhoff reported that poor instrumental support was a significant predictor of antenatal depression, and antenatal depression was also associated with lack of emotional support (Kohlhoff et al., 2016). Similarly, findings of the study by Jeong (2013) stated that emotional support significantly decreased depression during pregnancy.

The relationship between depression and functional support during the postpartum period was evaluated by nine studies. Low emotional and appraisal support were significantly related to a higher risk of postpartum depression (Chojenta et al., 2012; Eastwood et al., 2012; Iwata et al., 2016; Leahy-Warren et al., 2011). Another study reported that higher levels of social support diminished the likelihood and severity of postnatal depression and symptom, regardless of type (Pao et al., 2019). Similarly, a statistically significant inverse relationship was found between informational, instrumental, emotional support, appraisal support and postnatal depression (Leahy-Warren et al., 2012).

Postpartum support was also assessed by two other studies. One of them (Reid & Taylor, 2015), measured only the instrumental support and found this support (provided by intimate partner, friends and family) was independently associated with a significantly lower risk of postpartum depression for women. The second mentioned study explored the emotional, affirmational and instrumental support provided by nurses and midwives (Salonen et al., 2014). However, the study did not investigate the association between depression scores and these types of support.

Of three studies that collected data during pregnancy and postpartum, two emphasised the importance of emotional support in the perinatal period. Of the various types of support measured in an American study (instrumental, informational and emotional support), emotional support loaded the highest latent factor (Stapleton, Schetter, Westling, Rini, Glynn, Hobel, & Sandman, 2012). Furthermore, a Spanish study reported that women with a lack of emotional support were more likely to experience postpartum depression during the first year after birth (Escribà-Agüir et al., 2013). A third Canadian study found that no type of support during pregnancy appeared to be associated with depressive symptoms at four months postpartum (Hetherington et al., 2018).

<u>Anxiety</u>

Anxiety and its relationship with structural support was investigated by seven observational studies. During pregnancy, anxiety has been associated with low levels of support from family, friends and partners (Akiki et al., 2016; Cheng et al., 2016). Postnatally, low social support from partners, mothers-in-law and from other women with children was a statistically significant factor for anxiety (Dennis et al., 2017). Increased social support provided by co-workers and supervisors was also associated with reduced anxiety symptoms during the postpartum period (Schwab-Reese et al., 2017).

Three longitudinal studies investigated the correlation between anxiety and structural social support during both pregnancy and the postpartum period: one focused on friends and family support (Hughes et al., 2020), one focused on partner support (Stapleton, Schetter, Westling, Rini, Glynn, Hobel, & Sandman, 2012) and the third on all mentioned sources of informal support (partner, friends and family) (Racine et al., 2019). Hughes (2020) found that support from friends attenuated maternal anxiety, whereas family support did not. Stapleton (2012) reported that mothers who perceived stronger social support from their partners mid-pregnancy had lower emotional distress (mainly depressive and anxious symptoms) postpartum. Finally, Racine (2019) reports that only early partner and family support diminished subsequent anxiety.

Formal sources of support were investigated by four randomised controlled trials that examined the effectiveness of an intervention during pregnancy (Milgrom et al., 2011), or the postpartum period (Jiao et al., 2019; O'Mahen et al., 2014; Shorey et al., 2019). They were: 1) an antenatal intervention containing a self-help workbook and weekly telephone support sessions (Milgrom et al., 2011), 2) a web-based and home-based postnatal psychoeducational interventions for first-time mothers (Jiao et al., 2019), 3) an online behavioural activation treatment course combined with weekly phone call support (O'Mahen et al., 2014), and 4) a technology-based peer-support intervention program (Shorey et al., 2019). There were differences in anxiety scores among the control and intervention groups before and after the participation only in the antenatal intervention (Milgrom et al., 2011) and the online behavioural activation treatment course (O'Mahen et al., 2014).

The functional dimension of support and its association with anxiety was explored in only one study, which had four different time points of data collection (Hetherington et al., 2018). For anxiety at four months postpartum, only low affirmational (emotional + informational) support during pregnancy was associated with an increased risk of anxiety in women.

Qualitative evidence

Ten qualitative studies were examined in this review. Two studies explored women's experiences of accessing formal sources of support (health services and professionals) in the perinatal period (Myors et al., 2014; Slade et al., 2010) and two studies investigated women's views of different types of support they received from online communities during the postnatal period (Evans et al., 2012; Stana & Miller, 2019). Three studies explored perinatal and postpartum women's views and experiences of support, detailing different aspects of functional and structural support (Negron et al., 2013; O'Mahen et al., 2012; Slomian et al., 2017). The other three studies examined different types of support groups for women with postpartum depression (Anderson, 2013), assessed a peer support intervention for women with antenatal depression (Carter et al., 2019), and explored women's experience of

anxiety in pregnancy and views on the use of anxiety instruments in antenatal care (Evans et al., 2017).

The ten studies represented the experiences of 252 women from the United Kingdom, USA, Canada, Australia and Belgium. The average sample size of the studies was 25, ranging from 11 to 64 participants. Most studies did not collect or present participants' demographic data such as age, marital status, socioeconomic status or educational level, except for Myors (2014), Negron (2013), and Slomian (2017). Most studies used purposive sampling and recruited from maternity hospitals or health care providers. Other recruitment sites were postpartum support groups, mental health clinics, a previous study/trial, the author's professional network, social networks and snowballing.

The thematic synthesis revealed three overarching themes: Appreciating all forms of support in the perinatal period, Recognising appropriate and inappropriate support from health professionals and services, and Having barriers to mobilising functional and structural support. Further information about themes, concepts and raw data of qualitative studies can be found in the Supplementary Material published on the Journal of Affective Disorders.

<u>Theme I: Appreciating all forms of support in the perinatal period</u>

Concerning the functional dimension of support, women's narratives highlighted the importance of all four support types: emotional, appraisal, informational and instrumental. Women described emotional support as having the ability to talk to someone about their experiences and receiving encouragement and reassurance in making decisions (Negron et al., 2013; O'Mahen et al., 2012). They preferred to receive this type of support from those they had a close relationship with, in particular partners (Negron et al., 2013) and other mothers (O'Mahen et al., 2012). Most mothers – especially primiparas – felt the need to be reassured that they were doing well and that they were 'good' mothers, which were examples of appraisal support (Slomian et al., 2017).

Informational support was highly valued. Participants explained they would have preferred to receive information about the postpartum period while still pregnant. Women felt overwhelmed and wished they knew what being a mother really was like prior to becoming one. They expected to receive more information from health professionals about services, the well-being of their babies and themselves (Slomian et al., 2017).

Instrumental support was considered an essential component for the physical and emotional well-being of women in the perinatal period. The participants in the study by Negron et al. (2013) attributed depressive symptoms to a lack of this type of support. Instrumental support during pregnancy was described as having assistance with physical mobility and prenatal care (O'Mahen et al., 2012). During the postpartum period, this type of support involved assistance with management of the household (cleaning, ironing, cooking and shopping) and taking care of the baby (O'Mahen et al., 2012; Slomian et al., 2017). Whilst some women preferred someone else taking care of the baby so they could sleep for a few hours, other women preferred assistance with household duties, so that they could focus on the relationship with their new baby (Slomian et al., 2017). A study that explored support received by different groups of women (Hispanic/Latina, black/African American, white and other non-black, non-Hispanic women) revealed that the major challenge for mothers of all racial/ethnic groups during the postpartum period was the household duties, along with meeting basic personal care needs and having enough sleep (Negron et al., 2013).

Sources of structural support were family and friends, such as partner/husband, mother, father, sister, brother, aunt, grandmother, mother-in-law, godmother, cousin and friends. Women reaffirmed the significance of receiving support from these persons and, at the same time, the narratives showed that this support was sometimes inadequate or unwanted (O'Mahen et al., 2012).

Participants reported they assigned their partners the role of managing unwanted help from family members (Negron et al., 2013). The partner was an essential source of support in several studies (Negron et al., 2013; O'Mahen et al., 2012;

Slade et al., 2010; Slomian et al., 2017), and when this was absent or minimal, women expressed profound disappointment (Negron et al., 2013).

Different cultural backgrounds need to be considered, since the phenomenon of social support can vary significantly depending on the sample. An analysis of three groups of postpartum women (Negron et al., 2013) revealed the majority of women in the African American and Latina groups felt that support should come naturally from the family and that they should not have to ask for help. Results from the white/other non-black, non-Hispanic women indicated that family members of these groups seemed to be less involved in the direct care, and mothers did not mention feeling frustrated with any lack of provision of support from relatives (Negron et al., 2013).

The importance of receiving support from other mothers was established by participants in several studies (Anderson, 2013; Evans et al., 2017; O'Mahen et al., 2012; Slomian et al., 2017). Women needed to feel understood by someone with similar experiences. By sharing parenting experiences, participants had the opportunity to analyse whether their experiences were normal or not (Slomian et al., 2017). It also gave them a sense of how to overcome difficulties (O'Mahen et al., 2012). Support from other women who also have children was noteworthy for both depressed and non-depressed women. However, for women with postpartum depression, support from other women who also had experienced postpartum depression was particularly helpful (Anderson, 2013).

Other relevant sources of support were mothers' groups. In a study that compared three types of support groups for women with postpartum depression (PPD) (local mothers' group, working mothers' group, and PPD support groups), findings showed that PPD support groups were perceived as the safest place for disclosure of PPD symptoms and feelings of resentment, fear, and guilt. These support groups encouraged reciprocal counselling relationships, enhanced self-esteem and self-worth, and improved overall health of their members. Conversely, local mother's and working mothers groups' support was often inadequate or non-existent for depressed women (Anderson, 2013).

An analysis of the narratives about online support revealed this often enabled typical types of support such as emotional, instrumental and informational, similar to that received from family and friends (Evans et al., 2012; Stana & Miller, 2019). Other types of support provided by online groups and forums were network/community support, esteem support and unique support communication (Stana & Miller, 2019). Network/community support includes welcoming messages and displays of gratitude. Esteem support happens through messages aiming to boost participants' sense of worth and esteem with compliments, validating messages and relief of blame. Unique online support communication is characterised by prayer/religious expression, poetry/quotations and humour (Stana & Miller, 2019).

Findings suggest that participation in online support groups provided relief and comfort for women who were suffering postpartum depressive symptoms through obtaining support and creating connection with other mothers. Virtually anonymous, the participants expressed appreciation for being able to reveal their inner-most thoughts. To overcome the physical distance, participants made 'virtual' physical connections by sending 'hugs' to each other (Evans et al., 2012).

Online support was especially important for women who were the first to have a child among people around them, and for those who were isolated. Likewise, the possibility of being anonymous lessened the social stigma for treatment for postpartum depression. Online communities were available at all hours, were cost-free and because of this ease of access, were considered valuable to mothers (Stana & Miller, 2019).

Theme II: Recognising appropriate and inappropriate support from health professionals and services

The following qualitative literature describes the social support provided by health professionals and services that promoted well-being and reduced mental health concerns of women in the perinatal period. The studies also show evidence of unhelpful professional conduct and gaps in services.

The desire for continuity in follow-up care after giving birth emerged in different studies (Myors et al., 2014; Slomian et al., 2017). Participants highlighted that continuity of care promoted a feeling of safety by having a reference person who they could trust and to whom they could refer to (Myors et al., 2014; Slomian et al., 2017). Women also expressed the wish for and satisfaction when visited by the health professionals involved in their care (Slade et al., 2010; Slomian et al., 2017).

A type of support that was mentioned in many studies was the emotional support from health professionals. By making time for women, listening to them without judgment or criticism, encouraging them to speak about their emotions and adopting a supportive posture, a relationship of trust was created (Myors et al., 2014; Slade et al., 2010) which may have been effective at reducing depressive symptoms (Slade et al., 2010).

In line with that, participants stressed the importance of health professionals having 'people skills' and being 'person-centred'. They mentioned that the development of a 'rapport' was essential, as well as having a calm voice tone, being gentle and maintaining contact with them. A nonjudgmental approach, combined with a specific knowledge and the ability to 'ask the right questions' was mentioned (Myors et al., 2014; Slade et al., 2010). Women said that a posture of 'advocacy' was also crucial for them, as women felt that they could not always speak up for themselves, especially when talking to other professionals (Myors et al., 2014).

The analysis of the narratives also indicated a range of aspects of formal support that could be improved to promote well-being and reduce mental health concerns of women in the perinatal period. Participants stated that there were a lack of services for mild and moderate cases of depression and anxiety. The amount of support for those who were not 'suicidal' or 'psychotic' was limited, despite pregnant and postpartum women desperately needing that support (Carter et al., 2019; Evans et al., 2017). Women were also critical of services that initiated discharge prior to their perceived readiness. Due to the limited capacity of teams and the services, women were discharged despite feeling under prepared (Myors et al., 2014).

A cluster of narratives reported inappropriate care and support from health professionals. These included a lack of empathy, the feeling of being negatively judged, inadequate emotional support, little understanding of mental health concerns and minimising or dismissing women's feelings when they disclosed how they were feeling (Carter et al., 2019; Evans et al., 2017; Slade et al., 2010; Stana & Miller, 2019). Women explained that the lack of continuity of care and midwives' busy schedules could be reasons why they had not been able to develop a good relationship with their midwife. Concomitantly, participants complained that there was a lot of time spent 'form filling', within a relatively short appointment time (Carter et al., 2019; Evans et al., 2017).

The factors that promoted well-being (when health care professionals were able to provide emotional support and show interpersonal skills) were cited in studies from Australia, UK and Belgium. Unhelpful professional conduct and gaps in services were cited in studies from the USA, Canada, and also UK and Australia. These showed that even in high income countries with well established maternity services, care and support for women's mental health concerns can be inadequate.

Theme III: Having barriers to mobilising functional and structural support

Some factors inhibited the mobilisation of social support. Many mothers were afraid of judgement when asking for help, since this could indicate their lack of capacity to take care of their household and children (Negron et al., 2013). Some mothers were fearful that others might determine they were not capable mothers, and take their baby away from them (Negron et al., 2013; Slade et al., 2010).

Women also shared the struggles they had experienced during the perinatal period when trying to elicit appropriate support from others, since sometimes they were recipients of unwanted advice. Unwanted advice was often perceived as a negative judgment, both isolating and contributing to their depressive symptoms (O'Mahen et al., 2012). Perceived criticism from others was also a barrier to support (Negron et al., 2013).

Some women were dissatisfied with the type of support they received, but decided not to talk to their families about their frustration or disappointment and not to ask for help because they thought it may hurt their family's feelings (Negron et al., 2013). Other factors that complicated the process of help seeking was the experience of feeling like a burden to the family (O'Mahen et al., 2012) and the possible appearance of being 'ungrateful', since the birth of babies was meant to be a happy experience for everyone (Negron et al., 2013).

Another hindrance to seeking help for some women was when they perceived an extra pressure from other mothers who appeared to be having no problems in the early parenting period (Slade et al., 2010). Some women did not have other mothers around to ask for help and advice and felt under-supported as a result. They felt that if women had not had a baby then they could not relate to their postpartum experiences, and therefore, could not help them (Negron et al., 2013).

Population-specific considerations should be addressed when analysing possible barriers to mobilise support. One study investigating participants' demographic data revealed that African American women struggled with shame and the fear of being judged negatively by others more than Caucasian women. Considering socioeconomic status (SES), women from low SES backgrounds expressed concern about loss of independence (e.g., transportation, housing) as a result of having a new child, whilst women from high SES backgrounds reported worries about adapting to higher costs and a lack of independence as a result of leaving work (O'Mahen et al., 2012).

Discussion

Despite the lack of quantitative evidence investigating the relationship between depression, anxiety and the support offered by friends who are also mothers, the narratives explored in the qualitative findings have highlighted the importance of this source of support (Anderson, 2013; Evans et al., 2017; O'Mahen et al., 2012; Slomian et al., 2017). The opportunity to share feelings and experiences typical of this unique lifespan transition with others that are going through or have been

through the same seems to be of great relevance for women in the perinatal period. Importantly, for those clinically depressed, support from other women who also had experienced postpartum depression is especially significant (Anderson, 2013).

The social support provided by co-workers and supervisors was significantly associated with diminished symptoms of depression during pregnancy (Tsai, 2019; Yeh et al., 2018) and with diminished anxiety symptoms during the postpartum period (Schwab-Reese et al., 2017). However, workplace support during the postpartum period was not influential over depressive symptoms (Dagher et al., 2011; Schwab-Reese et al., 2017). Dagher and colleagues (2011) also underlined that worse depression scores were associated with higher total workload, lower job flexibility, an infant with sleep problems, and breastfeeding. Although social support seems to play an important role buffering against depression and anxiety, these findings suggest that women's wellbeing is a multifaceted phenomenon and other variables must be considered.

Support from health professionals was investigated through quantitative (observational and experimental) and qualitative studies. Whilst the observational studies did not specify to which professional category these professionals belonged to, or what type of support was associated with lower levels of mental health concerns, less perceived social support from a health care professional was a predictor of depression in the postpartum period in all studies (Kruse et al., 2014; Leahy-Warren et al., 2011; Salonen et al., 2014). Analysing the experimental studies, distance-delivered interventions (via internet or telephone) appear to diminish risk of depression and anxiety (Jiao et al., 2019; Milgrom et al., 2011; O'Mahen et al., 2014; Posmontier et al., 2016; Shorey et al., 2019; Wozney et al., 2017). These findings could be of special relevance considering the global COVID-19 scenario and the provision of health care in the perinatal period.

Except for some interventions that were classified as experimental studies, online support was investigated only by qualitative studies, and have revealed important aspects relevant to a post pandemic world. This communication and support method seem to be essential in a period when perinatal women are feeling vulnerable but

cannot leave their homes to socialise and seek help. Online communities have created alternatives for face-to-face interaction and can provide a sense of warmth and welcome. This technology allows women to engage and share at a level much deeper than they would in "real life", and these communities can be helpful to overcome isolation and form supportive friendships (Gleeson et al., 2021).

Although formal support is usually associated with informational support in the literature (Aston et al., 2018; Barimani & Vikström, 2015; Shorey et al., 2014), emotional support was also repeatedly mentioned in the included studies (Myors et al., 2014; Slade et al., 2010). This type of support was not only considered to be valuable by most participants, but might have been effective at reducing depressive symptoms to some (Slade et al., 2010). Likewise, receiving inappropriate care from health professionals in the perinatal period can be devastating (Carter et al., 2019; Evans et al., 2017; Slade et al., 2010; Stana & Miller, 2019).

Quantitative findings demonstrated that, whilst support from grandmothers was found to significantly reduce the likelihood of depression during pregnancy (Jeong et al., 2013), that was not the case in the postpartum period, according to a Bahraini study (Al Dallal & Grant, 2012). These results may be affected by the reporting of different cut-off scores (scores 10 and 12 from the EDS, respectively). The substantial variation of EDS cut-off scores among published studies is a concern previously reported by Matthey and colleagues (2006), and indicates that these scores are not derived from validation studies. The use of validated scores ensure that correct interpretations are made regarding the overall rate of probable depression in perinatal women (Matthey et al., 2006). Moreover, the cultural differences between the study samples are considerable (despite excluding studies from low and middle-income countries), and likely contributed to this finding. In Al Dallal and Grant study (2012), participants may have followed the traditions of the Bahraini culture, where new mothers often live with their own mother for 40 days before returning to their home (Al Dallal & Grant, 2012). The necessity of confinement during a specific period of time after giving birth is common among non-western cultures, where family members (especially female relatives) provide strong social support to the new mothers (Yeoun, 2003). In the Middle East, resting for 40

days after having a baby is also the tradition, and usually someone comes to the house or stays with the new mother to take care of the baby, the house, and the other children (Yeoun, 2003). However, these findings could indicate that, in this setting, women do not necessarily benefit by support from their own mothers if they are away from their own home and new family.

The functional dimension of support has been investigated by both quantitative and qualitative studies, and evidence indicated that all the four different types of support are associated with lower levels of depression (Chojenta et al., 2012; Eastwood et al., 2012; Escribà-Agüir et al., 2013; Iwata et al., 2016; Jeong et al., 2013; Kohlhoff et al., 2016; Leahy-Warren et al., 2011; Leahy-Warren et al., 2012; Negron et al., 2013; O'Mahen et al., 2012; Pao et al., 2019; Reid & Taylor, 2015; Slomian et al., 2017; Stapleton, Schetter, Westling, Rini, Glynn, Hobel, & Sandman, 2012). Regarding anxiety, this association was explored in only one study, and only low emotional/informational support during pregnancy was associated with an increased risk of anxiety in women at four months postpartum (Hetherington et al., 2018).

Importantly, most quantitative studies have not investigated the four types of social support categories at the same time (e.g., they only investigated one or two types of support), and/or not provided by the same person, which makes it challenging to compare the results and emphasise what type is more effective at reducing levels of depression. Similarly, anxiety has been poorly investigated, as only four studies focused on this mental health concern (whilst depression was examined in 37 studies). Although there is evidence that anxiety is as common, or more common, than depression during pregnancy, perinatal anxiety remains significantly less researched (Dikmen-Yildiz et al., 2017).

Limitations and strengths

Despite the relevant findings, this mixed-methods systematic review has some limitations. First, grey literature was not included, which may have resulted in publication and reporting bias. Search strategies only included English, Spanish and Portuguese language articles. Another important aspect to be considered is that

social support is a broad term, so the search terms may not have captured some studies investigating structural or functional support if the authors used different terms for these dimensions of support. With these limitations, important studies may have been excluded from this review. Similarly, only studies from high income countries were included, so findings regarding social support - especially when provided by health professionals and services - may not be globally generalisable. Also, the reviewed studies were heterogeneous in terms of design, interventions, method of assessment of depression or anxiety and outcome measures. For this reason, quantitative assessments were not feasible. Importantly, this literature review included both studies where depression or anxiety was diagnosed, as well as those measured by screening tools or self-report. It would be helpful for future reviews of this literature to distinguish studies with symptomatic measurement versus those with diagnosed disorders, as this has implications for treatment recommendations. Finally, only studies published by April 2020 were included, omitting social support experienced during COVID-19 lockdowns. Therefore, a new review should address specifically the pandemic implications on this phenomenon.

The main strengths of this review are the inclusion of different and culturally heterogeneous populations and the rigorous synthesis methods used. Since studies were not excluded based on the quality assessment, and both quantitative and qualitative research were included, the methodology of this systematic review permitted a comprehensive analysis of literature published in the last decade about social support during pregnancy and the postpartum period.

Conclusions and implications for practice

The current findings have implications for health professionals involved in the care of women experiencing the perinatal period. Identifying structural and functional aspects of social support associated with diminished levels of depression and anxiety in the perinatal period can improve maternal well-being and professional practice. This evidence is particularly relevant for maternity health care providers, so they may have meaningful discussions with women about the importance of their support network. Future investigations should seek to investigate specific sources

of support such as family members, friends who are also mothers, health professionals, neighbours, supervisors, co-workers and online communities and their association with women's levels of depression and anxiety in the perinatal period.

Main findings of the literature review

The effects of different types and sources of social support on depression and anxiety during pregnancy and the postpartum period were summarised in Figures 3 and 4. Interventions and treatments were not included on this model, since they were not investigated in this thesis.

As illustrated in Figure 3, different types of functional support during pregnancy have not been thoroughly examined, and there are no studies investigating the relationship between anxiety and functional support. In comparison, there is considerable research investigating structural support, especially from partners of pregnant women, establishing the association between this source of support and diminished levels of depression. Few studies have investigated other sources of support.

The relationship between social support, depression, and anxiety during the postpartum period remains uncertain, as illustrated in Figure 3. There is conflicting information about the relationship between functional types of support and depression. Once again, anxiety and its relationship with functional support has not been investigated. Support from partners, friends and family (without distinction of family members) is inversely associated with depression.
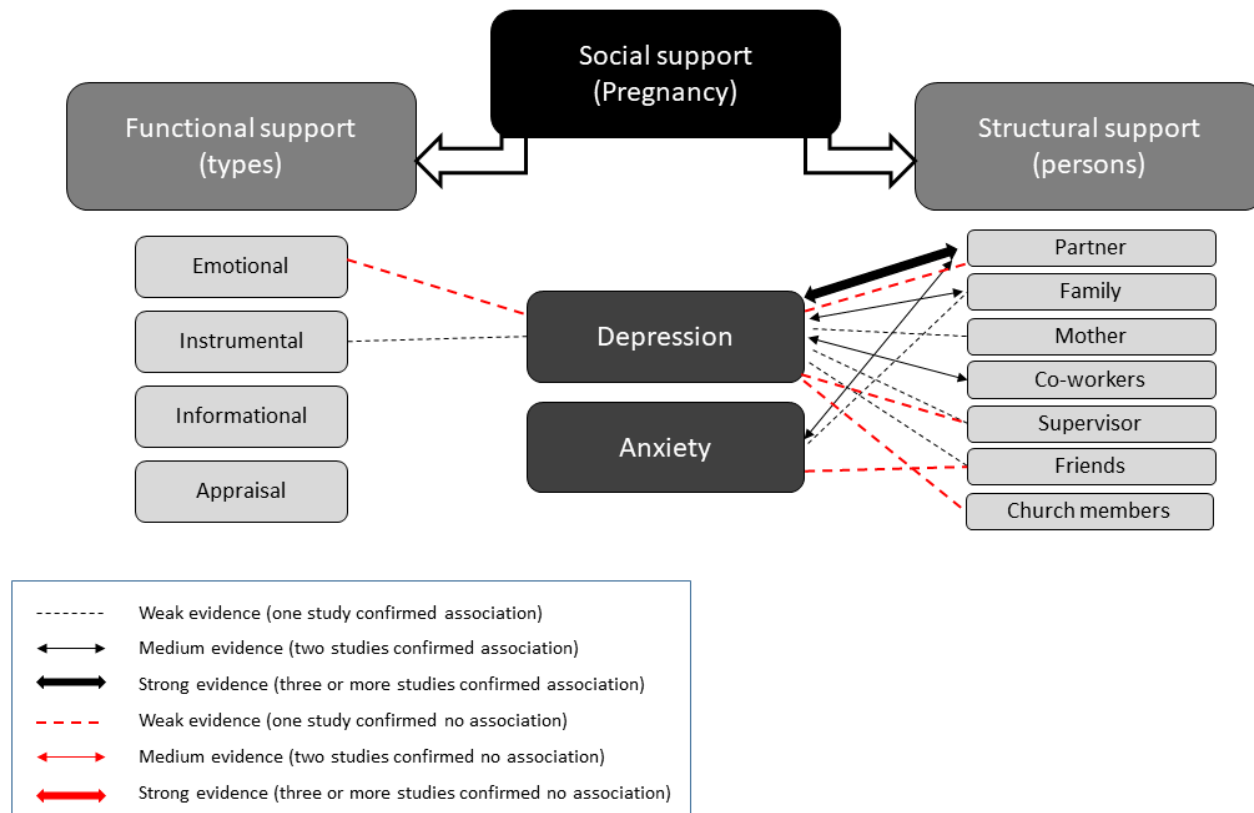
Figure 3. Summary of the relationship between social support, depression, and anxiety during pregnancy, according to the systematic literature review findings.
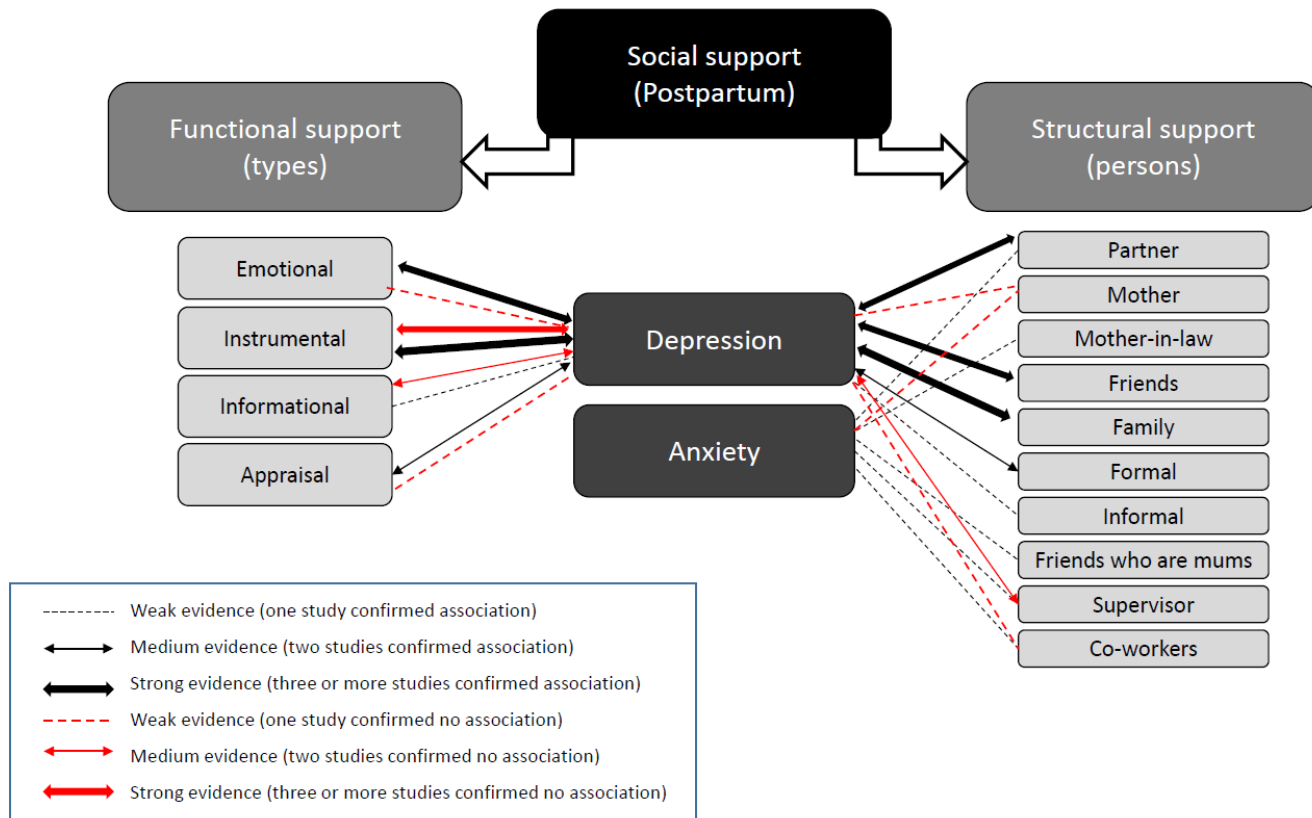
Figure 4. Summary of the relationship between social support, depression, and anxiety in the postpartum period, according to the systematic literature review findings

The conceptual framework of the thesis has been updated to include research questions that emerged after the completion of the systematic literature review (Figure 5).
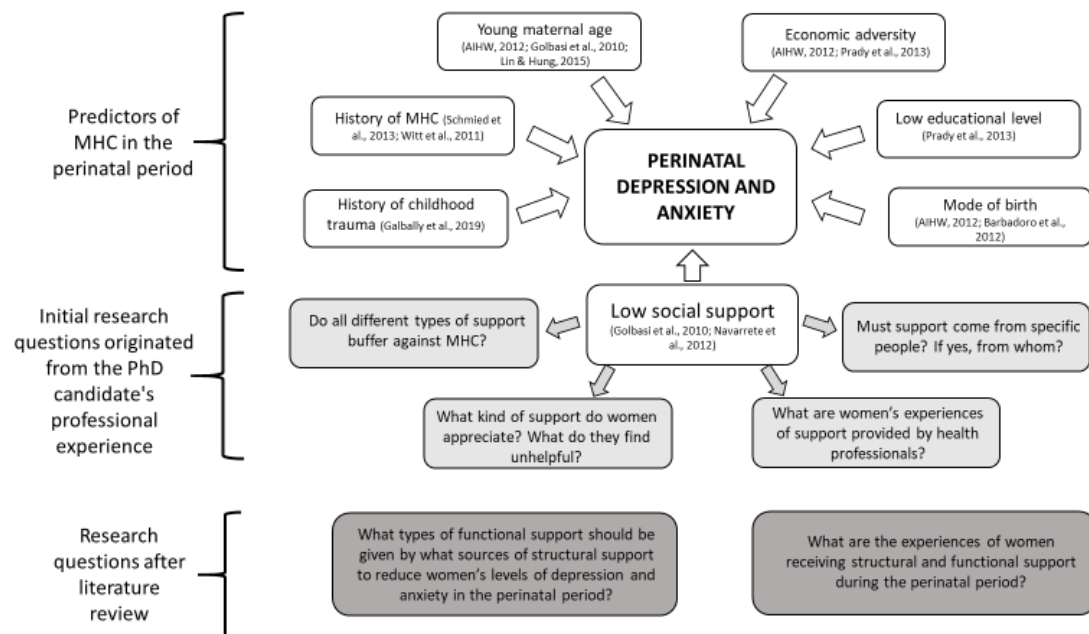
Figure 5. Conceptual framework of the thesis after the literature review

Summary

This chapter described the methodology and findings of a mixed-methods systematic review which investigated the effects of structural and functional support on depression and anxiety in women in the perinatal period, and explored the experiences of women around support during the perinatal period.

Low social support from friends and family was associated with higher levels of depression during pregnancy and postpartum. There is robust evidence indicating that low partner support is associated with depression throughout the perinatal period. Support provided by a specific family member was described in only two studies, both examining the support from the participant's mother, and results were contradictory. Only a few studies attempted to investigate other sources of support, or the functional dimension of support during pregnancy. Only one study explored women's experiences of community support and depressive symptoms. Formal sources of support were investigated in only three observational studies, and two of them did not specify the type of health professionals under investigation. Only a few studies investigated the relationship between social support and anxiety, and findings were inconsistent.

Qualitative evidence indicated that online support and support from other women who are mothers (individually or from mothers' groups) are important to promote well-being among pregnant and postpartum women. Besides informational support, women also expected to receive emotional support from health professionals. Women's narratives highlighted the type of care they wished to receive from health professionals, and inappropriate support from them could lead to barriers in help-seeking. There was only one qualitative study with an Australian sample in this mixed-methods literature review, which aimed to report on women's experiences of accessing the support of specialist PIMH (perinatal and infant mental health) services.

Based on these findings, this thesis will address the limitations in the literature. Two dependent variables – depression and anxiety – will be investigated. Thirteen sources of support will be cross-examined according to the four types of support previously

listed. Other sources of support that have not been previously investigated and measured (online and mothers' groups) will also be examined. The interviews will explore the experiences of women living in Australia around social support. The next chapter will describe in detail the research aims and methodology used.

Chapter 3: Research Design and Method

This chapter outlines the rationale for the adoption of a pragmatist worldview and the mixed-methods approach used to conduct this study. The research questions and study design are also established. The procedures such as recruitment and data collection are described. The instruments and means of data collection for this study are explained and the process of analysis is outlined. The ethical integrity of this study is also demonstrated. Relevant documents such as letters of approval and instruments are included as appendices.

Worldview

A diversity of worldviews suggested by John W. Creswell (2014) were considered for this study in relation to their strengths and limitations and the aims of this study. The postpositivist assumption (also called "the scientific method") holds a deterministic philosophy, in which causes determine effects or outcomes. This worldview would suitably address the first research question (quantitative), but not the second (qualitative). Similarly, the second worldview described by Creswell - the constructivist worldview - is predicated on the assumption that individuals seek understanding of the world they live and work, developing subjective meanings of their experiences. This worldview is appropriate for the qualitative aspect of the study, but not the quantitative aspect. A third perspective, known as the transformative worldview, acknowledges how postpositivist assumptions often impose rigid structural laws and theories that do not adequately account for the experiences of marginalised individuals in society. The transformative stance in research facilitates the development of action plans to address the specific concerns of marginalised communities in ways that the constructivist stance cannot. The transformative approach is aptly utilised for research focused on addressing crucial contemporary social issues, including empowerment, inequality, oppression, domination, suppression, and alienation (Creswell, 2014). It is appropriate for conducting research focused on assisting marginalised groups, such as people with disabilities, those with a lower socio-economic status, people experiencing homelessness, incarceration, and Aboriginal and Indigenous peoples, but not necessarily women in the perinatal period.

The pragmatic worldview is a suitable philosophical foundation for mixed methods studies, concerned with finding solutions to problems (Creswell, 2014). When adopting this worldview, the researcher uses multiple approaches to understand and address a research problem, which involves a pluralist employment of methods. Pragmatists do not see the world as an absolute unity and understand that research occurs in a specific social, historical and political context that needs to be considered. The traditional duality between the "reality independent of the mind" or "within the mind" is not deliberated when assuming a pragmatic worldview, since investigators know that different worldviews and different assumptions are valid, and "truth is what works at the time" (Creswell, 2014, p. 39). In this way, different forms of data collection and analysis are reasonable, and there is sound rationale for mixing quantitative and qualitative data. The pragmatic worldview addresses both quantitative and qualitative research questions presented in this study.

Method approach

This study employed a mixed methods approach, collecting both quantitative and qualitative data. This is necessary to provide a complete understanding of a research problem, which could not be sufficiently addressed through either approach alone (Creswell, 2014); neither quantitative or qualitative data is sufficient to capture the nature and dynamics the complex phenomena under study. Mixed methods allow for a more robust analysis, exploiting the strengths of both qualitative and quantitative assumptions (Ivankova et al., 2006).

As previously described in Chapter Two, a mixed-methods systematic review revealed the sources of social support that required further investigation from a quantitative perspective, such as specific family members, friends who are also mothers, health professionals, neighbours, online communities, and mothers' groups. Moreover, there was a notable absence of a thorough investigation into the qualitative experiences of perinatal Australian women receiving social support. Analysis of the literature gaps about social support in the perinatal period warranted a study that included a mixed methods approach, to address the distinct research questions:

Question 1:

What types of functional support should be given by what sources of structural support to reduce women's levels of depression and anxiety in the perinatal period?

Question 2:

What are the experiences of women receiving structural and functional support during the perinatal period?

Study Design

This study employed an explanatory sequential mixed methods design to address the two research questions. In this design, quantitative data were collected and analysed in an initial phase. In a subsequent phase, qualitative data were collected and analysed. The qualitative investigation had a discrete purpose, whilst it also followed-up on findings from the quantitative results obtained in the first phase. While the quantitative data and subsequent analysis provided useful insight of the research problem, the qualitative data and analysis refined and explained the statistical results by exploring participants' views in greater depth (Ivankova et al., 2006). This mixed-methods design had advantages that included straightforwardness and opportunities for the exploration of the quantitative results in more detail, especially when unexpected results arise from the quantitative phase (Ivankova et al., 2006). The study design is outlined in Figure 6.

- Phase One: Quantitative data collection (online survey, comprising women's demographic data, the PICSS, the EDS, and the STAI scores).

- Analysis of quantitative data.

- Identification of findings from the quantitative phase that could benefit from further qualitative clarification.

- Phase Two: Qualitative data collection (semi-structured online interviews).

- Analysis of qualitative data.

- Quantitative results and qualitative results are compared, synthesised, and discussed in relation to current literature.

Figure 6. Visual Model of Study Design

Research Phase 1 – *The relationship between support and depression and anxiety*

The first phase was an observational and cross-sectional study that aimed to investigate the relationship between structural and functional social support, depression and anxiety in women in the perinatal period. Furthermore, this phase provided information on the relationship between depression, anxiety and demographic variables, and a comparison between depression and anxiety scores in women receiving public or private care.

In this phase, participants were invited to respond to an online survey (details can be seen in "Data Collection" section). Results were analysed before the qualitative phase commenced, and matters warranting qualitative investigation were identified.

Research Phase 2 – *Women's experiences of perinatal support*

This phase consisted of a qualitative cross-sectional descriptive study that explored women's experiences of structural and functional support during the perinatal period. A sample of the participants of phase 1 was purposely selected and invited to

participate in an interview (more information is provided on "Recruitment" and "Data Collection"). Results obtained in this phase expanded on and provided clarification of phase 1 results, by exploring participants' views in depth.

Participant Recruitment

This study was conducted with women living in Australia throughout their perinatal period. Participants could be at any stage of their pregnancy. Postpartum women were considered those who had already given birth and their baby was less than one year old. Participants could be receiving care from public or private hospitals, either as a primiparous or multiparous expectant mother. Eligibility requirements were fluency in English (reading for phase 1 and speaking for phase 2), and age ≥18 years at recruitment.

Pregnant and postpartum women were recruited to the study's phase 1 via paid advertisements strategically placed on the social media site "Facebook", in a convenience sampling method (Allen, 2017). Advertisements published by Facebook aimed to reach women between 18 to 50 years old, living in Australia and interested on the topics "Birth", "Infant", "Childbirth" and/or "Pregnancy". Paid advertisements were also published on popular Australian Facebook groups for mothers of the franchise "MumsGroup". The study advertisement can be seen in **Error! Reference source not found.**.

Possible participants of phase 1 and 2 were informed that the investigators were interested in learning more about the relationship between social support and mental health concerns, to better understand how to improve health services for new mothers, as demonstrated by the appendices titled: "Advertisement for Facebook", "Participant information sheet (interview)" and "Information sheet and consent form for online surveys" (respectively Appendices **Error! Reference source not found.**, Appendix E, and D).

Participants were also encouraged to share the survey link to other pregnant/postpartum friends currently living in Australia. At the end of the survey,

participants were able to flag their willingness to participate in the second phase of the study, by providing their email for further contact.

For phase 2, participants with a range of support scores from phase 1 were selectively recruited, so both experiences of receiving or not receiving support could be explored. To this end, women's social support scores from phase one were classified into tertiles, and were randomly drawn to select participants from both the upper and lower tertiles, representing mothers receiving low and high levels of social support (Leahy-Warren et al., 2011). From these two groups, those who flagged their willingness to participate in the second phase of the study were invited to participate in a semi structured interview.

Recruitment of participants through social media is a valid and well-established means of recruitment, as other studies with similar cohorts also recruited participants through social media (Afolabi et al., 2017; Clout, 2015; Fonseca & Canavarro, 2017). Additionally, findings of the mixed-methods systematic review (Chapter Two) revealed that perinatal women rely on online support and communities for support. With that in mind, recruitment via social media was considered to be strategically apt, as well as considerate of COVID-19 social distancing safety measures.

Data Collection Procedures

Data Collection of Research Phase 1

In this phase the participants were invited to respond to an online survey distributed via the Research Electronic Data Capture (REDCap®), which remained open for four months (from May until August 2021). This survey (Appendix G) contained questions in simple, clear and appropriate language, regarding 1) demographic variables such as age, marital and socioeconomic status, occupation, parity, type and model of care received during pregnancy (e.g. public or private hospital, continuity of midwifery/GP/obstetrician care), history of mental health concerns; and 2) valid and reliable tools to measure social support, depression and anxiety. These constructs were measured by:

Social Support: The Perinatal Infant Care Social Support Scale (PICSS) (Leahy-Warren et al., 2019) is a validated and reliable tool that measures both structural and functional domains of social support for mothers in the postnatal period (Leahy-Warren et al., 2019). For this study, part of this instrument's text has been modified to ensure appropriateness for both pregnant and postpartum women (the original version was directed to pregnant women only). All proposed changes were revised and approved by the author of the PICSS[5]. The structural social support measure includes 14 items that identify the individuals who provide support to mothers: partner, maternal parents (mother and father), in-laws (mother and father), sisters, brothers, friends with or without children, neighbours, midwives, local doctor (GP), nurses and others. Participants responded to whether they received informational, instrumental, emotional or appraisal support from any of the aforementioned sources, using a tick box, in a total of 19 items ranging in values from 19 to 76, measuring functional support. The first factor 'Supporting Presence' (which reflects the dimensions of emotional and appraisal support) has nine items with possible scores ranging from 9 to 36 (Cronbach's alpha=0.90). The second factor 'Practical Support' (reflects informational and instrumental support) has ten items with possible scores ranging from 10 to 40 (Cronbach's alpha=0.86). Each item is rated on a four-point Likert scale, from 'strongly disagree' to 'strongly agree'. The total score was calculated by summing the responses to all items, with higher scores indicating greater perceived social support. Factor (subscale) scores were also computed by summing the relevant items for each subscale.

Depression: The Edinburgh Depression Scale (EDS) (Cox, et al., 1987) is the recommended instrument for routine use throughout the perinatal care in Australia (NSW Department of Health, 2009). In the aforementioned mixed-methods systematic

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[5] Regarding the Structural Support Scale: the item "Friend(s) who also have children" was included, considering the systematic review findings (Chapter Two) and the importance of friends who are also mothers. The original item ("Midwife/nurse(s)") was replaced by "Midwife" only and the item "Public Health Nurse(s)" was replaced by "Nurse" only. The item "Practice nurse (s)" was removed. These changes have been made considering the Australian health care system context.

review (Chapter Two), the EDS was the instrument most frequently used to measure depressive symptoms. This ten-item tool was validated for use in an Australian population (Boyce et al., 1993) and includes items that were specifically formulated for the perinatal period. For example, sleeping disturbance is a common symptom of depression and is usually explored in items such as: "I don't sleep as well as I used to", as can be seem in Beck's Depression Inventory (Beck, 1996). Sleep disturbance, however, is applicable to most woman that have a newborn; it does not necessarily indicate depression. The EDS' comparable item is "I have been so unhappy that I have had difficulty sleeping", which is more appropriate for the perinatal period. This 10-item scale includes responses scored from 0 (least severe) to 3 (most severe), with the total score ranging from 0 to 30. Items 1, 2, and 4 are reverse scored. The EDS has demonstrated good internal scale reliability in different Australian samples, with Cronbach's alpha co-efficients ranging from 0.80–0.87) (Small et al., 2007). A validated cut-off score of 13 or more was used in this study, which is suggestive of major depression (Cox et al., 1987; Matthey et al., 2006).

Anxiety: To measure anxiety (as a state and not a trait), the five item abbreviated state version of the Spielberger State Trait Anxiety Inventory (STAI) was used (Zsido et al., 2020), with an Cronbach's alpha of 0.90. This tool is scored on a four point Likert scale, and each item asks participants to rate how they have been feeling during the past week, with four possible responses: 4 ("very much so"), 3 ("moderately so"), 2 ("somewhat") and 1 ("not at all"). Total scores for anxiety range from 5 to 20, with higher scores indicating greater anxiety. The abbreviated state version of the STAI has demonstrated reliability and validity and has been used widely in pregnancy and postpartum studies (Dennis et al., 2013). In this study a cut-off of 10 was used, since someone scoring ≥10 on the STAIS-5 can be considered potentially clinically anxious (Zsido et al., 2020). The STAI was the most frequently used tool to measure anxiety, according to the comprehensive mixed-methods systematic review described in Chapter Two.

Sample size

The primary aim of the quantitative study was to investigate the relationship between social support, depression and anxiety in women in the perinatal period, analysing the

association between these variables. Assuming the prevalence of depression or anxiety during pregnancy and the postnatal period is 20%, a sample size of 228 (assuming that roughly were 190 not depressed and 38 were depressed) was required to achieve 80.003% power to detect a medium effect size (Cohen's d= 0.5) with a significance level of 0.05, using a two-sided independent sample t-test.

Data Collection of Research Phase 2

As aforementioned, the researcher invited participants from the first phase who flagged their willingness to participate in the second phase of the study and shared their email (n = 116). Participants in the lower and upper tertiles of social support scores were assigned a random interview order. Participants from the middle tertile were excluded (n = 39). Prospective participants were invited four at a time (two from each tertile). The interview invitation was sent to the email provided. After three days a follow-up email was sent if there was no response. Whenever they declined or did not respond after three days from the follow-up message, other volunteers were invited. The email of invitation contained the "Participant Information sheet", so participants could understand what was required from them, ask any questions and decide if they wanted to participate. The researcher and participant established a mutually acceptable time, and the researcher sent a Zoom link via email. Verbal consent was obtained from the participant before the interview commenced (as can be seen in "Verbal Consent Script", Appendix H). A total of 40 participants were invited: 22 women did not reply to the invitation email, and two declined to participate (one due to a miscarriage, and one due to a busy agenda). Overall, 16 women were interviewed, eight from the upper tertile and eight from lower tertile. Fourteen interviews were conducted in English and two in Portuguese, according to participant's preference.

A semi-structured interview script was used (Appendix I) to explore the participants' narrative whilst maintaining focus on the aims of the investigation (Moré, 2015). The interview questions were grounded in the findings of the literature review and aimed to further elucidate aspects highlighted in the quantitative studies (as indicated in Appendix G). Questions were written and delivered in plain, non-medical language. All interviews were audio recorded and took place online, taking COVID-19 restrictions

into consideration and the diversity of participants' location (anywhere in Australia). The interviews were conducted during October and November 2021. Each interview lasted between 13 and 54 minutes, with an average length of 30 minutes.

It was expected that eight to twelve interviews would be needed to reach data saturation and develop a rich understanding of the codes and the topic (Guest et al., 2006). Theoretical saturation refers to the stage in data collection where no further issues or insights arise from the data, and all pertinent conceptual categories have been recognised and thoroughly investigated (Hennink et al., 2017). By the 16th interview (or 8th considering each subgroup of low or high social support), no new themes were observed emerging.

After deidentification of all personal or site related information, the interviews were transcribed through a transcription service during December 2021 and January 2022. The two interviews conducted in Portuguese were translated to English by a certified translator service prior to transcription. When reporting the results, pseudonyms were used for each participant, as well as their family members, friends, and professionals. With all qualitative data collection and analysis processes it is also necessary to understand the importance of reflexivity.

Reflexivity

In order to safeguard the fidelity of research operations, reflexivity in research involves redirecting the researcher's focus inward to acknowledge and assume responsibility for one's own position within the research process. Reflexivity encompasses an awareness of how one's perspective influences the research setting, the individuals under study, the formulation of research questions, the data collection process, and the subsequent interpretation of findings (Berger, 2015). As described in "About the PhD candidate", both my professional and personal experiences have drawn me to this PhD and contributed to the initial research questions.

I was pregnant during both quantitative and qualitative data collection and in the postpartum period during qualitative data analysis. Another pertinent personal aspect to consider is my immigrant status, as I experienced the perinatal period with notably

constrained social support due to COVID-19 restrictions. This scenario was similarly applicable to many participants from both the quantitative and qualitative phases, as they also had immediate family members residing overseas or in different states within Australia. These unique circumstances positioned me as an 'insider,' signifying that the women and I shared a common identity, language, and experience. I anticipated that my status as an 'insider' would enhance the ease of conducting interviews and analysing data to some degree, given my familiarity with perinatal subjects and experiences. Nonetheless, occupying an insider's position and possessing a degree of familiarity with the subject matter carries the inherent risks of compromising boundaries, potentially imposing the researcher's own values, beliefs, and perceptions, and projecting biases onto the research process (Drake, 2010).

To balance the risks of being an 'insider', some strategies were put in place. Firstly, I involved 'outsiders' in the analysis process, namely my supervisors (two are women with experience in the perinatal period and one is a male), to ensure that my own biases were less operative. I kept a personal journal to record my thoughts, feelings, and reactions, later debriefing about it in peer supervisions. Additionally, I had regular meetings and sessions with my academic and clinical supervisors (psychologists from the organisation where I work with perinatal women). I also applied distinct techniques and exercises rooted in Polyvagal Theory (Dana, 2020) and Acceptance and Commitment Therapy (Harris, 2018), drawing upon my background as a psychologist. Further reflection upon reflexivity and its implications during data collection and analysis can be seen in "Interview process and considerations".

Ethical considerations

Prior to data collection, an application to the UTS Human Research Ethics Committee (HREC) was submitted for approval, including a copy of the flyer for Facebook, participant information sheet, consent form (online survey), verbal consent script (interview), distress and safety protocol, online survey questions, interview questions and research data management plans. Every stage of this study strictly followed the Australian Code for the Responsible Conduct of Research (2018), the UTS Research Ethics and Integrity Policy, the UTS Guidelines for human research ethics and the

National Statement on Ethical Conduct in Human Research 2023, continuously considering the values of respect, research merit and integrity, justice and beneficence. Ethical approval was attained from the UTS Human Research Ethics Committee (HREC) in 12/05/2021 (ETH21-5848) (Appendix J).

Informed consent

Before the online survey questions appeared during the study's phase one, participants had access to sufficient information to allow them to understand both the proposed research and the implications of participation. The participant information sheet was written in a way that assured each participant was fully informed of the purpose of research, the data collection procedures, and participants' rights during the research process. At the end of this section on the online form, the participants could voluntarily take part in the research after ticking a box, which led to the commencement of the online survey. In this way, the participant gave informed consent before data collection (the online survey) commenced.

For the interviews, an invitation email was sent to those who shared their emails and were interested in participating in the study's phase two. This email contained the "Participant Information sheet", so participants could understand what was required from them, ask any questions and decide if they wanted to participate in the interviews. Verbal consent was obtained from each participant before the interview commenced (as can be seen in "Verbal Consent Script", Appendix F).

Risk, Benefits and Management

The potential research benefits and risks, such as emotional distress, were stated in the "participant information sheet" and in the "verbal consent script" that respectively were used before the online survey and the interview commenced. The right to withdraw at any stage without any consequences (and procedures in relation to data after withdrawal) was explained verbally, and also within the participant information sheet.

Understanding that pregnant and postpartum women are vulnerable participants (according to the literature and the National Statement on Ethical Conduct in Human

Research), on four occasions throughout the online survey the following opt-out option was provided: "If you feel any distress answering these questions and do not want to proceed, please click on this box to leave this survey". If the participants ticked this box, the survey closed and the following statement appeared: "If you want to have a chat with someone right now, please call one of these numbers: Mental Health Line (1800 011 511) or PANDA National Helpline (1300 726 306). Please, also consider discussing your feelings with your healthcare provider (midwife, obstetrician, GP, perinatal service or mental health care professional), a family member or a friend. You can also contact the researcher by email: Francieli.Sufredini@student.uts.edu.au". The statement about exiting the survey if needed was included after sensitive questions, such as Q4) (some women may have experienced previous miscarriages and remember this when asked about how many children they have); Q14 and Q15 (experience of mental health concerns and screening for depression), social support experiences (The PICCSS, Q16 and Q17), and depression and anxiety experiences (EDS and STAI).

During the interviews, ethical procedures were strictly adhered to at all times and women were engaged in a professional, respectful, and caring manner, consistent with the principal researcher's background as a psychologist. The distress and safety protocol (Appendix K) was initiated once, when one of the participants became teary. The interviewer paused the interview, assessed the participant's mental status and behaviours[6], and asked the interviewee if she wished to continue, to which the participant replied affirmatively. No additional or ongoing assistance was required, according to this participant.

Ethical considerations regarding the use of social media

Since this study recruited participants through social media, ethical considerations were duly customised. Although data or information may be publicly available, this does not automatically mean that the individuals with whom this data or information is

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[6] Grieving mood, congruent affect, logical and coherent thoughts, adequate consciousness and orientation.

associated have necessarily granted permission for its use in research. This study did not collect any information about the participants from the social media site (data were solely from the mentioned online survey and interviews). Terms and conditions applicable to social media platforms were confirmed and permission from the Facebook groups owners and moderators was sought before recruitment and data collection. A brief outline of the study, including the student affiliation with UTS, ethics approval number and HREC contact details were provided (**Error! Reference source not found.**). A conclusion date for the study was identified (29/07/2021) and every possible effort was made to remove all flyers and invitations to join the study following this date.

Data Management and Storage

The management of data was in accordance with the Australian Code of Responsible Conduct of Research and Management of Data and Information in Research (National Health and Medical Research Council, 2018 and 2019), which anticipates that all collected data will be retained for at least five years. A research data management plan was created using STASH in accordance with UTS protocol. Raw data for the survey was collected and stored on the REDCap® system. All responses were anonymous, with the exception of those who shared their email, indicating willing to participate in phase 2. These data were de-identified to remain confidential. The interview data was also de-identified prior to transcription and stored and coded in NVivo on a password protected computer. All data were kept in a secure password protected cloud-based environment (STASH) and each participant was assigned a pseudonym to ensure confidentiality. Pseudonyms were stored in a password protected file. Only the PhD candidate and her supervisors had access to the data.

Data Analysis

Quantitative data included participants' demographic data and social support measures using the Perinatal Infant Care Social Support Scale (PICCS) as the independent variable. Depression and anxiety were assessed using the Edinburgh Depression Scale (EDS) and the State-Trait Anxiety Inventory (STAI), respectively, as

dependent variables. Participants were classified as depressed if their EDS score was 13 or higher, and as anxious if their STAI score was 10 or higher. The participants' characteristics were summarised using mean with SD for continuous normally distributed data and median with interquartile range for data deviating from normal distribution. Categorical variables were expressed as frequencies and percentages.. For any comparisons between women with and without depression/anxiety, an independent Student's T-test was used for normally distributed data and Mann-Whitney test for non-normally distributed data. Categorical data was analysed using the Chi-Square test or Fisher's exact test. All comparisons were two-sided, and p values < 0.05 were considered to be statistically significant.

Multiple logistic regression analyses were employed, adjusting for significant sociodemographic covariates, to explore the independent associations between structural support, functional support, and the presence of depression and anxiety among women in the perinatal period. Sociodemographic characteristics linked to depression and anxiety in bivariate analysis were included in the model if they demonstrated significance at p<0.1. Variables deemed statistically significant in the analysis were incorporated into the multivariable model, excluding those with >10% missing values or variables closely related to other clinical variables. The final model was derived through a consideration of both the statistical significance and assumptions, as well as the theoretical relevance of the included variables.

Odds ratios (OR) and 95% confidence intervals (CI) were calculated to quantify the strength and direction of the associations, providing valuable insights into the relative importance of each functional and structural support. The subanalysis of pregnant and postpartum women followed the same methods employed for the overall study population of perinatal women, ensuring consistency in the approach. To comprehensively understand any additional social support that may impact depression and anxiety in perinatal women, posthoc analyses were carried out, examining the influence of other supports. Multiple logistic regression was used, adjusting for the same covariates applied to the final models for the study population of perinatal women. This approach aimed to provide a holistic perspective on the various aspects of social support contributing to mental health outcomes during the

perinatal period. All statistical procedures, covariate adjustments, and analytical strategies remained consistent with those applied to the total population of perinatal women. Data analyses were conducted using IBM SPSS Statistics v 27.0 (IBM Corp., Armonk, NY, USA).

Missing data

In this study, missing data were not replaced or imputed to preserve the authenticity of participants' responses. Given the sensitive nature of the survey targeting perinatal women, allowing participants to skip uncomfortable questions was essential. Imputing missing data could introduce bias, especially since non-responses might relate to depression or anxiety levels. This approach ensured our analysis accurately reflected the collected data without distortion.

Qualitative data, originating from interviews, underwent a rigorous thematic analysis to identify common themes. The whole process followed these six steps: Familiarising with data; Generating initial codes; Searching for themes; Reviewing themes; Defining and naming themes; Producing the report (Braun & Clarke, 2012). The NVivo software (version 12) facilitated this process (QSR International, 2018). To assure trustworthiness, the principles of credibility, dependability, conformability, transferability, and authenticity were followed. To establish credibility, the researchers prioritised the precise identification and accurate portrayal of research participants. Dependability was achieved preserving the consistency of data over various timeframes and conditions. Conformability was obtained with the agreement among multiple independent individuals regarding the accuracy, significance, or interpretation of the data. Transferability (the ability to extend findings), relied on the assumption that these results can be applied or extended to different contexts or groups. Finally, authenticity was attained considering the extent to which researchers faithfully and impartially presented a spectrum of realities (Elo et al., 2014; Lincoln & Guba, 2007).

The individual operations of the selected methodology were rigorously adhered to, with detailed description of the process of data collection and analysis. Throughout the study, the principal researcher regularly consulted her supervisors to discuss progress and issues of relevance, until consensus amongst all authors was reached.

Audit trails (an example can be seen on Table 2) were created during data collection and analysis, to contextualise interviews, offer additional details about the participants, and document any emerging thoughts, ideas, or questions for potential investigation. These audit trails demonstrated the validity of decisions made by the researcher during data collection, analysis and interpretation. Finally, findings were analysed in relation to the broader context of literature, with reference to the checklist proposed by Elo and colleagues for enhancing the trustworthiness of a content analysis (Elo et al., 2014).

For achieving the integration of quantitative and qualitative data, a systemic approach was used (Maxwell et al., 2015). Unlike typological approaches that focus on the initial decision about the sequence and priority of the qualitative and quantitative components of the study, a systemic approach considers prior intentions of the researchers, but also the actual relationships among the components as the study develops, which may differ substantially from the original plans (Maxwell et al., 2015). Findings were integrated through a narrative form and contiguous approach (Fetters et al., 2013). This involved the presentation of qualitative and quantitative findings in different chapters. Later, in the following chapter (discussion), the main concepts were created and data were integrated.

Table 2. Example of an audit trail

THEME	CONCEPTS	RAW DATA	NOTES
Support from health professionals and services	Consistent care Advocating for the woman	So as soon as I found out I was pregnant, I requested a midwifery student. The reason I did that, besides the fact that I work in health and love supporting learning, is that I wanted someone consistent. (…) My most recent appointment, she really stepped up and advocated for me, so that was really reassuring, so I feel very comfortable with her. I had a student midwife that followed me through the pregnancy, so it was good to have that continuous care from her. Every midwife appointment she was always there regardless of whatever other midwife I saw.	Women have been talking mostly about midwives when mentioning "continuity of care"… how about medical practitioners? Aren't they relevant as well?
Appraisal support	Being available	I'm not really into praises. So, I don't feel comfortable with complements or praises. I suppose I do whatever I can, but then I don't need to be praised [laughs]. Sometimes it helps. It just gives me that boost.	Women saying that praise is not important, but: - In fact, it seems to be! - "Encouragement" is important… - Could some have self-esteem issues?
COVID-19 impact	Benefits	So, I think, somehow there was an excuse for me to stay at home. Like I don't feel so bad and guilty having to stay at home because we have to be staying at home [laughs]. So, it had - it given me the excuse not to feel bad on things and not to be too depressed about missing out on playgroups and catching up with friends and blah-blah. Because everyone's staying at home anyway.	Is she talking about not feeling bad about having depression symptoms? So, is this really a benefit? Or is it a negative impact (although she is talking positively about her experience!?)
Parenthood/ motherhood impressions	First impressions	But that all stems - because it turns out once you have a baby, a lot of feelings and stuff [unclear] that you don't think about until you have a baby. He's a lot better sleeper than my first son, so the sleeping has certainly helped – sort of helped with my mental health because I know that lack of sleep is a big trigger for me. So, he sleeps very well. He's – yeah, for the most part I've been very good.	Interesting narratives, however are not really about social support in the perinatal period. After meeting with supervisors: delete theme/concept.

Summary

This study utilised a mixed methods approach, where a quantitative phase preceded a qualitative phase. By employing a sequential approach, the initial quantitative results provided valuable insights that enriched the subsequent qualitative phase. Research Phase 1 investigated the relationship between social support and depression and anxiety, whilst Research Phase 2 explored women's experiences of perinatal support. Participants were pregnant and postpartum women living in Australia. Women were recruited to the study's phase 1 via paid advertisements strategically placed on the social media site "Facebook", in a convenience sampling method. During study's Phase 1, participants responded to an online survey with their sociodemographic data, the Perinatal Infant Care Social Support Scale, the Edinburgh Depression Scale, and a shorter version of the Spielberger State Trait Anxiety Inventory. For phase 2, participants with a range of support scores from phase 1 were selectively recruited and invited via email, so both experiences of receiving or not receiving support could be explored. Women were interviewed via Zoom. Data were analysed using descriptive and bivariate analysis for quantitative findings, and a thematic analysis approach for qualitative data. With increased vulnerability in the participant sample, this study was conducted with meticulous attention to ethical integrity. Informed consent was diligently obtained from all participants, and protective measures were put in place to ensure the safety and well-being of women. The next chapter will present the findings from study's phase one: "the relationship between social support and depression and anxiety".

Chapter 4: The relationship between social support and depression and anxiety – quantitative findings

This chapter aims to examine the relationship between social support and depression and anxiety in the perinatal period using quantitative methods, presenting the study's phase one findings. An analysis of maternal characteristics and their relationship with depression and anxiety is provided. The types and sources of social support that are associated with depression and anxiety in the perinatal period are examined. In addition to full analysis of the perinatal period, subgroup analyses of pregnant and postpartum women were conducted to explore distinct patterns in the relationship between social support and mental health outcomes, enhancing accessibility and informing tailored interventions across the perinatal period.

Participant engagement and attrition

A total of 509 women clicked on the survey link and 494 (97%) gave their consent to participate. However, 51 (51/494; 10.3%) did not respond to any questions after giving consent. A complete scheme of phase 1 participants is outlined in Figure 6. At the close of the survey, a total of 443 women responded to at least one question (328 complete[7] and 115 incomplete).

An examination of the 115 incomplete records revealed that 41 (35.6%) were pregnant women, while 74 (64.4%) were in the postpartum period. These percentages closely mirrored those of the completed surveys (33.3% pregnant and 66.7% postpartum). Two women (0.5%) did not disclose their perinatal status and were excluded from the analysis, leaving a cohort of 441 women. No significant differences were observed between the two aforementioned groups.

As previously explained, women could leave the survey anytime they wanted to, and four times throughout the online survey they were provided with the following option:

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[7] A record was considered as "complete" when the participant provided her demographic data and completed the PICSS, the EDS and the STAI, enabling the correlation analysis between the independent and dependent variables.

"If you feel any distress answering these questions and do not want to proceed, please click on this box to leave this survey". One woman clicked on this box and left the survey soon after the question "During this pregnancy, were you screened for depression or other mental health concerns?".

At the end of the survey, 116 women (26.8%) shared their email, willing to participate in an interview (41 pregnant (35%) and 74 (63%) postpartum women). Below is a flowchart of the participation process for phase 1 (Figure 6).

Description of the women in the study

Demographic characteristics

In the analysis, all women who responded to at least one question were included. Out of the 441 women included in the study, the majority were in the postpartum period (66.7%), while 33.3% were pregnant. Additionally, two women (0.5%) were both pregnant and in the postpartum period and these women were classified as pregnant for analysis purposes.

On average, pregnant participants were in their 26th week of gestation (Mean = 26.0; Median = 28; SD = 10.2; range: 4 - 40 weeks) and more than half of the pregnant women were in their third trimester during data collection (59.9%). For postpartum women, the mean time since birth was four months (SD=3.1).

Most women were in a relationship during data collection (90.9%), were first time mothers (55.3%) and were born in Australia (66.4%). The mean age of women was 33.20 (SD=4.52) years old, ranging from 18 to 50 years old. More than half (59.2%) of women in this study had high household annual income ($100,000 or more), and were highly educated (45.8% had a Bachelor or Honours degree and 22.9% had a Master or Doctorate degree). Almost half of them were on maternity leave (44.2%). Only eight women identified themselves as Aboriginal and/or Torres Strait Islander (Table 3).
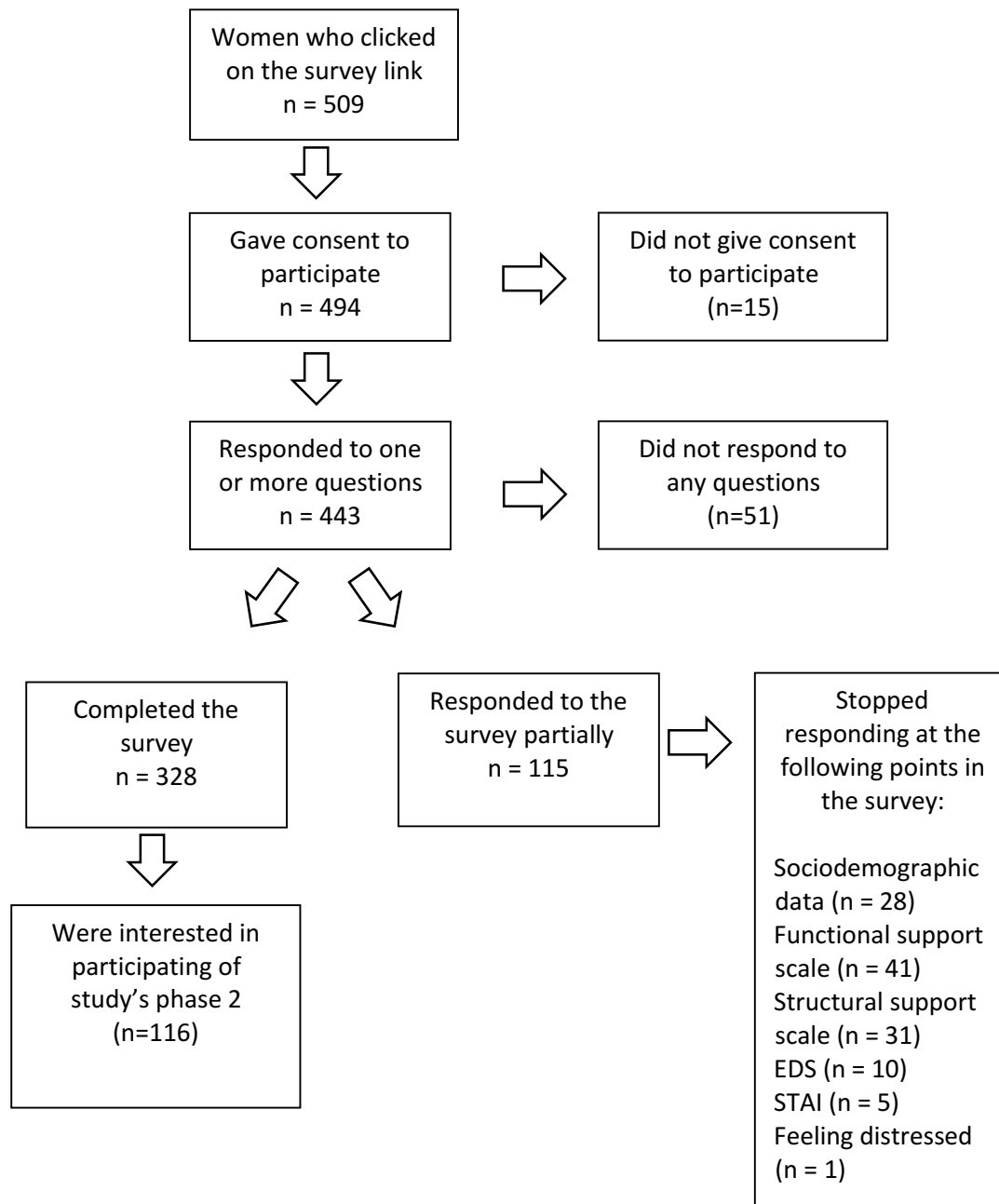
Figure 6: Flowchart of participants of phase 1 (online survey).

Table 3. Demographic characteristics of the sample (n = 441)

Maternal characteristics (categorical)		n (%)
Perinatal status	Pregnant[8]	147 (33.3)
	Postpartum	294 (66.7)
Marital status	In a relationship (married)	277 (62.8)
	In a relationship (de facto)	124 (28.1)
	Not in a relationship (single/widowed/ divorced/separated)	11 (2.5)
	Prefer not to say	1 (0.2)
	Missing	28 (6.3)
Parity	0	244 (55.3)
	≥1	197 (44.7)
Type of birth (of postpartum women only)	Vaginal birth	117 (39.5)
	Vaginal assisted (suction device)	33 (11.1)
	Vaginal assisted (forceps)	17 (5.7)
	Vaginal after caesarean (VBAC)	9 (3)
	Scheduled caesarean	59 (19.9)
	Unplanned caesarean	61 (20.6)
Complications during pregnancy	Yes	201 (45.6)
	No	236 (53.5)
	Rather not answer	4 (0.9)
Previous mental health concerns	No	153 (34.7)
	Yes, diagnosed by a professional	178 (40.4)
	Yes, undiagnosed	81 (18.4)
	Missing	29 (6.6)
Residency status	Lifetime (born in Australia)	293 (66.4)
	< 5 years	26 (6.1)

[8] Includes two women who were both pregnant and in the postpartum period.

	5-10 years	43 (10)
	≥ 11	46 (11.1)
	Missing	28 (6.3)
Income	$0 - $49 999	22 (5)
	$50 000 - $99 999	101 (22.9)
	$100 000 or more	261 (59.2)
	Rather not answer	29 (6.6)
	Missing	28 (6.3)
Education	Primary or high school	33 (7.5)
	Trade/Vocational/TAFE/Graduate certificate	72 (16.3)
	Bachelor or Honours degree	202 (45.8)
	Master or doctorate degree	101 (22.9)
	Other	5 (1.1)
	Missing	28 (6.3)
Employment status	Part time	54 (13.1)
	Full time	84 (20.4)
	Casual	19 (4.6)
	Maternity leave	182 (44.2)
	No paid employment	69 (16.7)
	Other	4 (1)
Total social support	Low support	135 (36.5)
	Medium support	113 (30.5)
	High support	122 (33)
Online support	Yes	228 (66.9)
	No	113 (33.1)
Mothers' group support	Yes	138 (40.5)
	No	203 (59.5)
Depressed (EDS ≥ 13)	Yes	103 (31.1)
	No	228 (68.9)

Answer for EDS' 10th question[9]	Yes ("Yes, quite often", "Sometimes" or "Hardly ever")	71 (21.5)
	No ("Never")	260 (78.5)
Anxious (STAI ≥ 10)	Yes	62 (19)
	No	264 (81)
Screened for mental health concerns during pregnancy	Yes	324 (73.5)
	No	81 (18.4)
	Not sure	7 (1.6)
	Missing	29 (6.6)
Maternal characteristics (continuous)		**Mean (SD)**
	Maternal age (years)	33.20 (4.52)
	Gestational age (weeks)	25.99 (10.25)
	Postpartum age (months)	4.191 (3.08)
	Married/de facto time (years)	8.131 (4.21)
	Time living in Australia (years, for immigrants only)	10.887 (8.14)
	Total social support*	61.80 (10.19)
	Supporting presence (emotional and appraisal support) from PICSS	30.00 (5.29)
	Practical support (informational and instrumental support) from PICSS	31.80 (5.82)

TAFE: Technical and Further Education
EDS: Edinburgh Depression Scale
STAI: State-Trait Anxiety Inventory
* The sum of all item scores on the Perinatal Infant Care Social Support Scale (PICCS)

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[9] "The thought of harming myself has occurred to me" (Cox, et al., 1987)

Experiences of complications during pregnancy

Almost half of the participants (45.6%) reported having a pregnancy complication, or another medical issue that was present before pregnancy (including physical/hormonal/mental health concerns/family problems). The most common category was "pregnancy complications" (25.4% of all complications), such as gestational diabetes mellitus, hypertension, hyperemesis gravidarum, bleeding and blood problems, placenta praevia, intrauterine growth restriction and infections. Depression and/or anxiety were also commonly reported (16.3%), followed by pre-existing medical conditions (11.9%) such as type 1 diabetes, thyroid conditions, auto-immune/genetic conditions, respiratory issues, polycystic ovary syndrome, infertility, endometriosis, fibromyalgia, reflux, scoliosis, among others.

Mental health concerns

The majority of women had a mental health concern in the past (58.8%), with 40.4% diagnosed by a health professional, while 18.4% were not formally diagnosed. For those with a formal diagnosis, 27.1% of women had both a depressive and an anxiety disorder, 24.9% had a diagnosis of an anxiety disorder (anxiety, social anxiety, panic disorder/attack, agoraphobia, generalised anxiety disorder, postnatal anxiety) and 23.2% had a depressive disorder (major depressive episode, premenstrual dysphoric disorder, depression, mild depression and postnatal depression). Trauma and stressor-related disorders (including posttraumatic stress disorder, complex trauma, adjustment disorder, and stress) and a combination of depressive, anxiety and trauma disorders were diagnosed at 8.5% and 3.4% respectively. Undiagnosed mental health concerns[10] commonly experienced by the participants were anxiety (48.1%), depression (24.1%), depression and anxiety combined (15.2%), and trauma and stressor related disorders (including abusive relationships) (7.6%).

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[10] These responses from participants were within an open text-box and some would not be classified as a mental health concern as in the DSM-5 (e.g., "abusive relationships"), but were included since these represent women's understanding of mental health concerns.

In this study we assessed depression and anxiety using standardised measures. We categorised women as having depression or not based on their score on the Edinburgh Depression Scale (EDS). Using a cut-off score of 13 within the EDS, 31.1% of all women were showing symptoms of depression. A total of 21.5% answered "Yes, quite often", "Sometimes" or "Hardly ever" to the question "The thought of harming myself has occurred to me" (EDS' 10th question). We evaluated state anxiety, by using a short form of the State-Trait Anxiety Inventory (STAI) subscale. Analysing STAI/state scores (cut-off score at 10), 19% could be considered anxious at the time of data collection. Considering pregnant women only, 33.6% were depressed and 25.2% were anxious. In the postpartum period, 27.2% of participants were depressed and 15.6% were anxious. Most women (73.5%) were screened for depression or other mental health concerns by a health professional during their current or last pregnancy.

Birthing experience (postpartum women)

The most common mode of birth for participants was via a caesarean (40.5% in total; unplanned caesarean 20.6% and scheduled caesarean 19.9%), followed by vaginal birth (39.5%). More than a third of all births (36.7%) had an unexpected event warranting some form of assistance: with a suction device (ventouse) (11.1%), forceps (5.7%) or unplanned surgery, as previously mentioned (caesarean).

Maternity care accessed

The two most common types of maternity care received was from public hospital maternity care services (hospital doctors and/or midwives) (27.9%), and by private obstetrician (and/or other specialist) care (26.8%). The majority of women had Medicare[11] and solely accessed public health services (59.6%) (Table 4).

Table 4. Information about maternity care provided (n = 441)

Maternity care accessed	n (%)
Type of maternity care	
Private obstetrician (and/or other specialist) care	118 (26)

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[11] Medicare is Australia's universal healthcare insurance scheme funded by Australian taxpayers.

Private midwifery care	10 (2.3)
Continuity of care by midwives	28 (6.3)
GP/obstetrician care (shared care with the hospital)	73 (16.6)
Public hospital maternity care (by hospital doctors and/or midwives)	123 (27.9)
Public hospital high risk care	35 (7.9)
Remote area maternity care	3 (.7)
Private obstetrician and midwifery care	12 (2.7)
Combination of public and private care	12 (2.7)
I am not sure	6 (1.4)
Another	21 (4.8)
Public or private services during pregnancy/birth	
Has Medicare, only using/used public health services	263 (59.6)
Has Medicare, using/used private insurance for examinations/professionals	56 (12.7)
Has Medicare, using/used private insurance for birth	47 (10.7)
Has Medicare, using/used private insurance for examinations/professionals AND birth	57 (12.9)
No Medicare, using/used private insurance for public healthcare	10 (2.3)
No Medicare, using/used private insurance for private healthcare	5 (1.1)
Another combination	3 (0.7)

Support received

Over a third (36.5%) of the participants were classified as receiving low social support, followed by 33% and 30.5% receiving high and medium support, respectively (Table 3). The majority of women (66.9%) stated that they were receiving or have received online support. Support provided by mothers' groups was not as prevalent, with 59.5% of all participants reporting that they were either not currently receiving this kind of support, or had not received this kind of support at all.

An analysis of informal and formal support (respectively Table 5 and Table 6) shows women's perceived type and source of support. Among informal sources of structural support, participants reported receiving instrumental and emotional support, with 80.1% and 79.2% of participants, respectively, indicating their partner as the primary source. Mothers were also identified as a significant source of informational and appraisal support, with 48% and 59.6% of participants reporting them as the main source, respectively. Other close family members, such as fathers, sisters, and brothers, were also utilised for various types of support, albeit to a lesser extent than partners and mothers. Interestingly, friends who were also mothers emerged as a

valuable source of informational and emotional support, with 55.5% and 55% of participants receiving support from them, respectively.

While informal support networks primarily comprised family and friends, a small percentage of participants mentioned utilising "others," including random people, mothers' groups, internet/Facebook, colleagues, and extended family. The reliance on these non-traditional sources was significantly lower compared to the core family and friend network.

Table 5. Description of types of social support received from informal sources (n = 371)

Informal source of Structural Support*	Functional Support**			
	Informational n (%)	Instrumental n (%)	Emotional n (%)	Appraisal n (%)
Partner	103 (27.8)	297 (80.1)	294 (79.2)	267 (72)
Mother	178 (48)	147 (39.6)	229 (61.7)	221 (59.6)
Father	46 (12.4)	55 (14.8)	185 (49.9)	164 (44.2)
Partners' mother	94 (25.3)	91 (24.5)	147 (39.6)	150 (40.4)
Partners' father	18 (4.9)	37 (10)	109 (29.4)	104 (28)
Sister(s)	73 (19.7)	66 (17.8)	121 (32.6)	118 (31.8)
Brother(s)	16 (4.3)	19 (5.1)	92 (24.8)	80 (21.6)
Friend(s)	75 (20.2)	52 (14)	185 (49.9)	188 (50.7)
Friends(s) who are also mothers	206 (55.5)	89 (24)	204 (55)	219 (59)
Neighbour(s)	23 (6.2)	9 (2.4)	38 (10.2)	47 (12.7)
Others				
Random people	1 (0.2)	0 (0)	0 (0)	0 (0)
Mothers group	3 (0.8)	0 (0)	0 (0)	2 (0.5)
Internet/Facebook	3 (0.8)	1 (0.2)	0 (0)	0 (0)
Colleagues	1 (0.2)	0 (0)	1 (0.2)	1 (0.2)
Stepmother	0 (0)	0 (0)	1 (0.2)	0 (0)
Extended family	1 (0.2)	1 (0.2)	2 (0.5)	1 (0.2)

*Persons who provided informal support or are expected to (if pregnant)
**Respondents had the option to select multiple types of support from a single source

Table 6. Description of types of social support received from formal sources (n = 371)

Formal source of Structural Support*	Functional Support**			
	Informational n (%)	Instrumental n (%)	Emotional n (%)	Appraisal n (%)
Midwife	203 (54.7)	42 (11.3)	46 (12.4)	95 (25.6)
Local doctor (GP)	197 (53.1)	21 (5.7)	45 (12.1)	103 (27.8)

Nurse	134 (36.1)	14 (3.8)	20 (5.4)	63 (17)
Others				
Lactation Consultant	1 (0.2)	0 (0)	0 (0)	0 (0)
Maternal and Child Health Nurse	2 (0.5)	1 (0.2)	0 (0)	0 (0)
Psychologist/counsellor	1 (0.2)	0 (0)	0 (0)	3 (0.8)
Obstetrician	1 (0.2)	1 (0.2)	0 (0)	0 (0)
Golden month program	1 (0.2)	1 (0.2)	0 (0)	0 (0)

*Persons who provided support or are expected to (if pregnant)
**Respondents had the option to select multiple types of support from a single source
***Golden month program: based on the 40-day 'doing the month' culture, commonly seen in Asia

Formal sources were primarily represented by healthcare professionals. Midwives emerged as the most frequently accessed or expected resource, with over half (54.7%) of participants reporting receiving informational support from them. Notably, midwives were also seen as a valuable source of appraisal support (25.6%), suggesting their role extends beyond information to providing reassurance and validation. Local doctors (GPs) were similarly utilised for informational (53.1%) and appraisal (27.8%) needs, although to a slightly lesser extent. Nurses played a more limited role, with only 36.1% of participants receiving informational support from them, and an even lower perception of other functional support types.

Among other formal sources, specialists like lactation consultants, maternal and child health nurses, and psychologists/counsellors were accessed by a very small percentage of participants, suggesting infrequent utilisation of these resources. Interestingly, some participants reported turning to non-healthcare-related support programs like the "Golden month program" for both informational and functional support.

Association between social support, depression, and anxiety

Women with depression reported significantly lower levels of both supporting presence and practical support compared to those who were not classified as depressed. The mean score for supporting presence was 26.25 (SD=5.41) for women with depression compared to 31.48 (SD=4.48) for those without depression (p<0.001). Similarly, practical support was significantly lower in the depression group (M=28.41, SD=5.86) compared to non-depressed women (M=32.92, SD=5.37) (p<0.001).

The same pattern was observed for anxiety. Women with anxiety reported significantly lower levels of both supporting presence and practical support compared to those without anxiety. The mean score for supporting presence was 26.98 (SD=5.99) for women with anxiety compared to 30.68 (SD=4.93) for those without anxiety (p<0.001). Similarly, practical support was significantly lower in the anxious women (M=28.24, SD=6.50) compared to the non-anxious women (M=32.44, SD=5.47) (p<0.001).

A strong positive relationship was found between depression and anxiety (phi=0.58, p<0.001), suggesting that these conditions often co-occur and may amplify the experience of reduced social support.

Depression

The maternal characteristics that were associated with depression during the perinatal period are described in this section. Findings from the bivariate and multiple logistic regression analyses are also presented. For reference, "perinatal women" refers to the entire sample (n = 331), while pregnant and postpartum women comprised respectively 107 and 224 participants.

Maternal characteristics that were associated with depression during the perinatal period

The potential relationship between depression during the whole perinatal period and various maternal characteristics was examined (**Table 7**). Although more depressed women were in the postpartum group (62.9%) compared to the pregnant group (37.1%), the difference was not statistically significant (p=0.247). No significant differences were observed between groups in terms of marital status, parity (first-time vs. experienced mothers), or type of birth (vaginal, assisted, caesarean).

Considering all perinatal women, those classified as "depressed" reported a significantly higher prevalence of complications during pregnancy compared to those without depression (61.9% vs. 41.9%, p = 0.004). Furthermore, a past diagnosis of any mental health condition was significantly more common among perinatal women with depression than those without (81.4% vs. 55.5%, p < 0.001). No significant differences were observed in marital status or parity between the two groups. Women

with depression reported significantly lower income levels (p < 0.001) and were less likely to be employed full-time compared to those without depression (p = 0.025). Interestingly, no significant differences were found in residency status, education level, or type of maternity care chosen between the groups. However, depressed women reported significantly lower levels of high social support compared to non-depressed women (9.0% vs. 4.06%, p < 0.001). They were also more likely to utilise online support (44.3% vs. 28.6%, p = 0.007) and mothers' group support (71.1% vs. 55.1%, p = 0.007) compared to the non-depressed group.

For pregnant women, while some differences were observed between women with and without depression, most characteristics did not significantly differ between the group. Women with depression reported significantly higher rates of complications during pregnancy (63.9% vs. 39.4%, p=.041), lower educational attainment (p=.037), lower levels of total social support (p<.001), and were less likely to rely on online support (50% vs. 70.4%, p = 0.038) compared to women without depression.

While some differences were observed between the postpartum women with and without depression, most characteristics did not significantly differ. The postpartum women with depression reported significantly higher prevalence of previous mental health concerns (80.3% vs. 51.5%, p<.001), were more likely to be immigrants (39.3% vs. 22.7%, p = 0.013), had a lower income (p = 0.006), and lower levels of total social support (p<.001), compared to those without depression. In addition, postpartum women with depression were less likely to use private insurance for private healthcare (p=.042).

Table 7. Comparison of maternal characteristics of perinatal women according to depression status (EDS ≥ 13)

Maternal characteristics (categorical)	Perinatal women			Pregnant women			Postpartum women		
	EDS ≥ 13 (n=97)	EDS < 13 (n=234)	p value	EDS ≥ 13 (n=36)	EDS < 13 (n=71)	p value	EDS ≥ 13 (n=61)	EDS < 13 (n=163)	p value
Perinatal status			.247						
Pregnant	36 (37.1)	71 (30.3)							
Postpartum	61 (62.9)	163 (69.7)							
Marital status			.250			.531			.229
In a relationship (married)	59 (60.8)	160 (68.4)		23 (63.9)	45 (63.4)		36 (59)	115 (70.6)	
In a relationship (de facto)	33 (34)	68 (29.1)		9 (25)	21 (29.6)		24 (39.3)	47 (28.8)	
Not in a relationship (single/widowed/ divorced/separated)	4 (4.1)	6 (2.6)		3 (8.3)	5 (7)		1 (1.6)	1 (0.6)	
Prefer not to say	1 (1)	0 (0)		1 (2.8)	0 (0)		0 (0)	0 (0)	
Parity			.546			.455	61 (100)	163 (100)	1
0	52 (53.6)	134 (57.3)		15 (41.7)	35 (49.3)		37 (60.7)	99 (60.7)	
≥1	45 (46.4)	100 (42.7)		21 (58.3)	36 (50.7)		24 (39.3)	64 (39.3)	
Type of birth			.464			N/A			.476
Vaginal birth	21 (21.6)	66 (28.2)					21 (34.4)	65 (39.9)	
Vaginal assisted (suction device)	7 (7.2)	20 (8.5)					7 (11.5)	20 (12.3)	
Vaginal assisted (forceps)	3 (3.1)	12 (5.1)					3 (4.9)	12 (7.4)	
Vaginal after caesarean (VBAC)	2 (2.1)	3 (1.3)					2 (3.3)	3 (1.8)	
Scheduled caesarean	10 (10.3)	34 (14.5)					10 (16.4)	34 (20.9)	
Unplanned caesarean	18 (18.6)	29 (12.4)					18 (29.5)	29 (17.8)	
Complications during pregnancy			**.004**			**.041**			.055
Yes	60 (61.9)	98 (41.9)		23 (63.9)	28 (39.4)		37 (60.7)	70 (42.9)	
No	36 (37.1)	134 (57.3)		12 (33.3)	42 (59.2)		24 (39.3)	92 (56.4)	
Rather not answer	1 (1)	2 (0.9)		1 (2.8)	1 (1.4)		0 (0)	1 (0.6)	
Previous mental health concerns			**<.001**			.070			**<.001**
No	18 (18.6)	104 (44.5)		6 (16.7)	25 (35.2)		12 (19.7)	79 (48.5)	
Yes	79 (81.4)	130 (55.5)		30 (83.3)	46 (64.8)		49 (80.3)	84 (51.5)	
Residency status			.104			.519			**.013**

Maternal characteristics (categorical)	Perinatal women			Pregnant women			Postpartum women		
	EDS ≥ 13 (n=97)	EDS < 13 (n=234)	p value	EDS ≥ 13 (n=36)	EDS < 13 (n=71)	p value	EDS ≥ 13 (n=61)	EDS < 13 (n=163)	p value
Born in Australia	64 (66)	175 (74.8)		27 (75)	49 (69)		37 (60.7)	126 (77.3)	
Immigrant	33 (34)	59 (25.2)		9 (25)	22 (31)		24 (39.3)	37 (22.7)	
Income			**.003**			.479			**.006**
$0 - $49 999	11 (11.3)	7 (3)		3 (8.3)	3 (4.2)		8 (13.1)	4 (2.5)	
$50 000 - $99 999	29 (29.9)	49 (20.9)		13 (36.1)	18 (25.4)		16 (26.2)	31 (19)	
$100 000 or more	52 (53.6)	161 (68.8)		18 (50)	45 (63.4)		34 (55.7)	116 (71.2)	
Rather not answer	5 (5.2)	17 (7.3)		2 (5.6)	5 (7)		3 (4.9)	12 (7.4)	
Education			.121			**.037**			.287
Primary or high school	8 (8.2)	16 (6.8)		4 (11.1)	3 (4.2)		4 (6.6)	13 (8)	
Trade/Vocational/TAFE/Graduate certificate	20 (20.6)	33 (14.1)		10 (27.8)	7 (9.9)		10 (16.4)	26 (16)	
Bachelor or Honours degree	46 (47.4)	122 (52.1)		15 (41.7)	40 (56.3)		31 (50.8)	82 (50.3)	
Master or doctorate degree	20 (20.6)	62 (26.5)		7 (19.4)	21 (29.6)		13 (21.3)	41 (25.2)	
Other	3 (3.1)	1 (0.4)					3 (4.9)	1 (0.6)	
Employment status			**.050**			.662			.080
Part time	16 (16.5)	25 (10.7)		9 (25)	18 (25.4)		7 (11.5)	7 (4.3)	
Full time	16 (16.5)	46 (19.7)		10 (27.8)	26 (36.6)		6 (9.8)	20 (12.3)	
Casual	7 (7.2)	9 (3.8)		4 (11.1)	5 (7)		3 (4.9)	4 (2.5)	
Maternity leave	35 (36.1)	120 (51.3)		4 (11.1)	9 (12.7)		31 (50.8)	111 (68.1)	
No paid employment	22 (22.7)	31 (13.2)		9 (25)	11 (15.5)		13 (21.3)	20 (12.3)	
Other	1 (1)	3 (1.3)		0 (0)	2 (2.8)		1 (1.6)	1 (0.6)	
Total social support			**<.001**			**<.001**			**<.001**
Low support	64 (66)	54 (23.1)		25 (69.4)	15 (21.1)		39 (63.9)	39 (23.9)	
Medium support	24 (24.7)	85 (36.3)		8 (22.2)	25 (35.2)		16 (26.2)	60 (36.8)	
High support	9 (9.3)	95 (40.6)		3 (8.3)	31 (43.7)		6 (9.8)	64 (39.3)	
Online support			**.007**			**.038**			.077
Yes	43 (44.3)	67 (28.6)		18 (50)	50 (70.4)		36 (59)	117 (71.8)	
No	54 (55.7)	167 (71.4)		18 (50)	21 (29.6)		25 (41)	46 (28.2)	
Mothers' group support			**.007**			.273			.072
Yes	69 (71.1)	129 (55.1)		8 (22.2)	23 (32.4)		19 (31.1)	132 (81)	
No	28 (28.9)	105 (44.9)		28 (77.8)	48 (67.6)		16 (26.2)	53 (32.5)	

Maternal characteristics (categorical)	Perinatal women			Pregnant women			Postpartum women		
	EDS ≥ 13 (n=97)	EDS < 13 (n=234)	p value	EDS ≥ 13 (n=36)	EDS < 13 (n=71)	p value	EDS ≥ 13 (n=61)	EDS < 13 (n=163)	p value
Type of maternity care			.363			.503			.640
Private obstetrician (and/or other specialist) care	27 (27.8)	61 (26.1)		11 (30.6)	18 (25.4)		16 (26.2)	43 (26.4)	
Private midwifery care	1 (1)	7 (3)		0 (0)	5 (7)		1 (1.6)	2 (1.2)	
Continuity of care by midwives	7 (7.2)	17 (7.3)		3 (8.3)	6 (8.5)		4 (6.6)	11 (6.7)	
GP/obstetrician care (shared care with the hospital)	15 (15.5)	39 (16.7)		6 (16.7)	14 (19.7)		9 (14.8)	25 (15.3)	
Public hospital maternity care (by hospital doctors and/or midwives)	24 (24.7)	66 (28.2)		7 (19.4)	20 (28.2)		17 (27.9)	46 (28.2)	
Public hospital high risk care	13 (13.4)	13 (5.6)		5 (13.9)	3 (4.2)		8 (13.1)	10 (6.1)	
Remote area maternity care	0 (0)	3 (1.3)		0 (0)	0 (0)		0 (0)	3 (1.8)	
Private obstetrician and midwifery care	1 (1)	8 (3.4)		1 (2.8)	1 (1.4)		0 (0)	7 (4.3)	
Combination of public and private care	1 (1)	5 (2.1)		0 (0)	0 (0)		1 (1.6)	5 (3.1)	
I am not sure	2 (2.1)	2 (0.9)		2 (5.6)	2 (2.8)		0 (0)	0 (0)	
Another	6 (6.2)	13 (5.6)		1 (2.8)	2 (2.8)		5 (8.2)	11 (6.7)	
Public or private services during pregnancy/birth			.172			.777			**.042**
Has Medicare, only using/used public health services	61 (62.9)	137 (58.5)		19 (52.8)	42 (59.2)		42 (68.9)	95 (58.3)	
Has Medicare, using/used private insurance for examinations/professionals	18 (18.6)	26 (11.1)		10 (27.8)	16 (22.5)		8 (13.1)	10 (6.1)	
Has Medicare, using/used private insurance for birth	8 (8.2)	28 (12)		6 (16.7)	8 (11.3)		2 (3.3)	20 (12.3)	
Has Medicare, using/used private insurance for examinations/professionals AND birth	7 (7.2)	34 (14.5)		0 (0)	2 (2.8)		7 (11.5)	32 (19.6)	
No Medicare, using/used private insurance for public healthcare	1 (1)	5 (2.1)		1 (2.8)	2 (2.8)		0 (0)	3 (1.8)	

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Maternal characteristics (categorical)	Perinatal women			Pregnant women			Postpartum women		
	EDS ≥ 13 (n=97)	EDS < 13 (n=234)	p value	EDS ≥ 13 (n=36)	EDS < 13 (n=71)	p value	EDS ≥ 13 (n=61)	EDS < 13 (n=163)	p value
No Medicare, using/used private insurance for private healthcare	2 (2.1)	2 (0.9)		0 (0)	1 (1.4)		2 (3.3)	1 (0.6)	
Another combination	0 (0)	2 (0.9)		0 (0)	0 (0)		0 (0)	2 (1.2)	

The relationship between social support and depression during the perinatal period using bivariate analysis

<u>Informational support</u>

This study examined the association between perceived informational support from various sources and depression in a sample of 331 women (103 with a score of ≥13 on EDS and 228 with a score of <13) (Table 8). Perinatal women with depression (score of ≥13) reported significantly less informational support from their mothers (36.9% vs. 59.2%, $p < 0.01$) and friends who are also mothers (51.5% vs. 64.5%, $p = 0.03$) compared to non-depressed women. A trend towards lower support from the partner's mother was observed in the perinatal depressed group (20.4% vs. 31.1%, $p = 0.04$) and from midwives (52.4% vs. 64.0%, $p = 0.05$). While not statistically significant, trends towards reduced perceived support from GPs (50.5% vs. 61.0%, $p = 0.09$) were present among women with depression. No significant differences were found in the perceived support from other sources between the depressed and non-depressed perinatal groups.

The association between perceived informational support from different sources and depression in a sample of 107 pregnant women was also examined. Women with a score of 13 or more on the EDS (n=39) reported significantly less informational support from their mothers (33.3% vs. 55.9%, p=0.03) and mothers-in-law (20.5% vs. 42.6%, p=0.02), compared to non-depressed women (n=68). A trend towards lower support from the women's friends was observed in the depressed group (17.9% vs. 38.2%, $p = 0.03$). Informational support from midwives was also less frequent (56.4% vs. 75.0%, $p = 0.05$) in depressed women.

Postnatally, women with depression (score of ≥13) reported significantly less informational support from their mothers (39.1% vs. 60.6%, p=0.005) and friends who are also mothers (48.4% vs. 64.4%, p=0.03) compared to non-depressed women.

Table 8. Relationship between structural, functional support, and depression during the perinatal period

Sources of support	Period	Informational			Instrumental			Emotional			Appraisal		
		EDS ≥ 13	EDS < 13	p-value	EDS ≥ 13	EDS < 13	p-value	EDS ≥ 13	EDS < 13	p-value	EDS ≥ 13	EDS < 13	p-value
Partner	Perinatal	26 (25.2)	73 (32.0)	0.24	84 (81.6)	204 (89.5)	**0.05**	79 (76.7)	205 (89.9)	**0.002**	70 (68.0)	188 (82.5)	**0.004**
	Pregnancy	7 (17.9)	19 (27.9)	0.35	33 (84.6)	61 (89.7)	0.54	29 (74.4)	59 (86.8)	0.12	23 (59)	54 (79.4)	**0.03**
	Postpartum	19 (29.7)	54 (33.8)	0.64	51 (79.7)	143 (89.4)	0.08	50 (78.1)	146 (91.3)	**0.01**	47 (73.4)	134 (83.8)	0.09
Mother	Perinatal	38 (36.9)	135 (59.2)	**<0.001**	40 (38.8)	103 (45.2)	0.33	57 (55.3)	165 (72.4)	**0.004**	53 (51.5)	162 (71.1)	**0.001**
	Pregnancy	13 (33.3)	38 (55.9)	**0.03**	14 (35.9)	32 (47.1)	0.31	19 (48.7)	49 (72.1)	**0.02**	16 (41)	44 (64.7)	**0.03**
	Postpartum	25 (39.1)	97 (60.6)	**0.005**	26 (40.6)	71 (44.4)	0.66	38 (59.4)	116 (72.5)	0.08	37 (57.8)	118 (73.8)	**0.02**
Father	Perinatal	12 (11.7)	33 (14.5)	0.60	18 (17.5)	36 (15.8)	0.74	44 (42.7)	136 (59.6)	**0.006**	37 (35.9)	122 (53.5)	**0.004**
	Pregnancy	5 (12.8)	12 (17.6)	0.59	5 (12.8)	11 (16.2)	0.78	15 (38.5)	39 (57.4)	0.07	10 (25.6)	32 (47.1)	**0.04**
	Postpartum	7 (10.9)	21 (13.1)	0.82	13 (20.3)	25 (15.6)	0.43	29 (45.3)	97 (60.6)	**0.05**	27 (42.2)	90 (56.3)	0.07
Partners' mother	Perinatal	21 (20.4)	71 (31.1)	**0.04**	21 (20.4)	65 (28.5)	0.13	35 (34.0)	110 (48.2)	**0.017**	29 (28.2)	119 (52.2)	**<0.001**
	Pregnancy	8 (20.5)	29 (42.6)	**0.02**	7 (17.9)	24 (35.3)	0.08	11 (28.2)	30 (44.1)	0.15	8 (20.5)	37 (54.4)	**<0.001**
	Postpartum	13 (20.3)	42 (26.3)	0.39	14 (21.9)	41 (25.6)	0.61	24 (37.5)	80 (50)	0.10	21 (32.8)	82 (51.3)	**0.02**
Partners' father	Perinatal	6 (5.8)	12 (5.3)	0.79	8 (7.8)	29 (12.7)	0.258	25 (24.3)	80 (35.1)	0.056	25 (24.3)	76 (33.3)	0.12
	Pregnancy	2 (5.1)	5 (7.4)	1.00	3 (7.7)	13 (19.1)	0.16	7 (17.9)	20 (29.4)	0.25	7 (17.9)	19 (27.9)	0.35
	Postpartum	4 (6.3)	7 (4.4)	0.51	5 (7.8)	16 (10)	0.80	18 (28.1)	60 (37.5)	0.21	18 (28.1)	57 (35.6)	0.35
Sister(s)	Perinatal	19 (18.4)	51 (22.4)	0.46	21 (20.4)	44 (19.3)	0.88	29 (28.2)	89 (39.0)	0.06	27 (26.2)	87 (38.2)	**0.03**
	Pregnancy	8 (20.5)	16 (23.5)	0.81	10 (25.6)	6 (8.8)	**0.02**	14 (35.9)	24 (35.3)	1.00	9 (23.1)	25 (36.8)	0.20
	Postpartum	11 (17.2)	35 (21.9)	0.47	11 (17.2)	38 (23.8)	0.37	15 (23.4)	65 (40.6)	**0.02**	18 (28.1)	62 (38.8)	0.16
Brother(s)	Perinatal	3 (2.9)	13 (5.7)	0.40	5 (4.9)	14 (6.1)	0.80	15 (14.6)	75 (32.9)	**<0.001**	13 (12.6)	65 (28.5)	**0.001**
	Pregnancy	0 (0)	5 (7.4)	0.16	2 (5.1)	4 (5.9)	1.00	6 (15.4)	18 (26.5)	0.23	2 (5.1)	19 (27.9)	**0.005**
	Postpartum	3 (4.7)	8 (5)	1.00	3 (4.7)	10 (6.3)	0.76	9 (14.1)	57 (35.6)	**0.001**	11 (17.2)	46 (28.8)	0.09

Sources of support	Period	Informational			Instrumental			Emotional			Appraisal		
		EDS ≥ 13	EDS < 13	p-value	EDS ≥ 13	EDS < 13	p-value	EDS ≥ 13	EDS < 13	p-value	EDS ≥ 13	EDS < 13	p-value
Friend(s)	Perinatal	18 (17.5)	55 (24.1)	0.19	12 (11.7)	39 (17.1)	0.25	44 (42.7)	134 (58.8)	**0.009**	46 (44.7)	135 (59.2)	**0.017**
	Pregnancy	7 (17.9)	26 (38.2)	**0.03**	6 (15.4)	16 (23.5)	0.46	18 (46.2)	43 (63.2)	0.11	16 (41)	47 (69.1)	**0.008**
	Postpartum	11 (17.2)	29 (18.1)	1.00	6 (9.4)	23 (14.4)	0.38	26 (40.6)	91 (56.9)	**0.04**	30 (46.9)	88 (55)	0.30
Friends(s) also mothers	Perinatal	53 (51.5)	147 (64.5)	**0.03**	22 (21.4)	65 (28.5)	0.18	53 (51.5)	159 (69.7)	**0.002**	45 (43.7)	154 (67.5)	**<0.001**
	Pregnancy	22 (56.4)	44 (64.7)	0.42	11 (28.2)	19 (27.9)	1.00	22 (56.4)	44 (64.7)	0.31	20 (51.3)	42 (61.8)	0.42
	Postpartum	31 (48.4)	103 (64.4)	**0.03**	11 (17.2)	46 (28.8)	0.09	31 (48.4)	115 (71.9)	**0.001**	25 (39.1)	112 (70)	**<0.001**
Neighbour(s)	Perinatal	6 (5.8)	17 (7.5)	0.65	1 (1.0)	8 (3.5)	0.28	7 (6.8)	31 (13.6)	0.09	12 (11.7)	35 (15.4)	0.40
	Pregnancy	3 (7.7)	6 (8.8)	1.00	0 (0)	0 (0)	_	2 (5.1)	9 (13.2)	0.32	4 (10.3)	11 (16.2)	0.56
	Postpartum	3 (4.7)	11 (6.9)	0.76	1 (1.6)	8 (5)	0.45	5 (7.8)	22 (13.8)	0.26	8 (12.5)	24 (15)	0.83
Midwives	Perinatal	54 (52.4)	146 (64.0)	**0.05**	8 (7.8)	34 (14.9)	0.07	11 (10.7)	34 (14.9)	0.38	21 (20.4)	73 (32.0)	**0.03**
	Pregnancy	22 (56.4)	51 (75)	**0.05**	5 (12.8)	15 (22.1)	0.31	4 (10.3)	13 (19.1)	0.28	6 (15.4)	24 (35.3)	**0.04**
	Postpartum	32 (50)	95 (59.4)	0.23	3 (4.7)	19 (11.9)	0.14	7 (10.9)	21 (13.1)	0.82	15 (23.4)	49 (30.6)	0.33
GP	Perinatal	52 (50.5)	139 (61.0)	0.09	5 (4.9)	15 (6.6)	0.62	13 (12.6)	30 (13.2)	1	29 (28.2)	70 (30.7)	0.69
	Pregnancy	20 (51.3)	42 (61.8)	0.31	3 (7.7)	4 (5.9)	0.70	4 (10.3)	8 (11.8)	1.00	7 (17.9)	18 (26.5)	0.35
	Postpartum	32 (50)	97 (60.6)	0.18	2 (3.1)	11 (6.9)	0.36	9 (14.1)	22 (13.8)	1.00	22 (34.4)	52 (32.5)	0.87
Nurses	Perinatal	39 (37.9)	91 (39.9)	0.80	1 (1.0)	12 (5.3)	0.07	5 (4.9%)	13 (5.7)	1	14 (13.6)	46 (20.2)	0.16
	Pregnancy	13 (33.3)	27 (39.7)	0.54	0 (0)	3 (4.4)	0.30	0 (0)	6 (8.8)	0.08	0 (0)	12 (17.6)	**0.004**
	Postpartum	26 (40.6)	64 (40)	1.00	1 (1.6)	9 (5.6)	0.29	5 (7.8)	7 (4.4)	0.33	14 (21.9)	34 (21.3)	1.00

<u>Instrumental support</u>

A trend towards lower instrumental support from partners was observed among perinatal women with depression (81.6% vs. 89.5%, p = 0.05). However, no other significant differences were observed from any other source for all perinatal women.

During pregnancy, the only direct association between social support and depression was observed when analysing instrumental support. Depressed women were more likely to rely on support from their sister(s) (25.6% vs. 8.8%, p=0.02) than non-depressed women. No significant association was observed from any source of social support on depression during the postpartum period.

<u>Emotional support</u>

Perinatal women with depression reported significantly lower levels of emotional support from their partners (76.7% vs. 89.9%, p = 0.002), mothers (55.3% vs. 72.4%, p = 0.004), fathers (42.7% vs. 59.6%, p = 0.006), partners' mothers (34.0% vs. 48.2%, p = 0.017), brothers (14.6% vs. 32.9%, p < 0.001) friends (42.7% vs. 58.8%, p = 0.009), and friends who are also mothers (51.5% vs. 69.7%, p = 0.002) compared to non-depressed perinatal women.

Pregnant women experiencing depression reported significantly lower levels of emotional support from their mother (48.7% vs. 72.1%, p=0.02), compared to non-depressed pregnant women. Postpartum women with depression reported significantly lower levels of emotional support from their partner (78.1% vs. 91.3%, p=0.01), father (45.3% vs. 60.6%, p=0.05), (23.4% vs. 40.6%, p=0.02), brother (14.1% vs. 35.6%, p=0.001), friends (40.6% vs. 56.9%, p=0.04), and friends who are also mothers (48.4% vs. 71.9%, p=0.001).

In the postpartum period, women with depression reported significantly lower levels of emotional support from their partner (78.1% vs. 91.3%, p=0.01), father (45.3% vs. 60.6%, p=0.05), sister (23.4% vs. 40.6%, p=0.02), brother (14.1% vs. 35.6%, p=0.001), friends (40.6% vs. 56.9%, p=0.04), and friends who are also mothers (48.4% vs. 71.9%, p=0.001).

<u>Appraisal support</u>

Perinatal women with depression reported significantly lower levels of appraisal support from their partners (68.0% vs. 82.5%, p = 0.004), mothers (51.5% vs. 71.1%, p = 0.001), fathers (35.9% vs. 53.5%, p = 0.004), partners' mothers (28.2% vs. 52.2%, p < 0.001), brothers (12.6% vs. 28.5%, p = 0.001), friends (44.7% vs. 59.2%, p = 0.017), and friends who are also mothers (43.7% vs. 67.5%, p < 0.001), sisters (26.2% vs. 38.2%, p = 0.03) and midwives (20.4% vs. 32.0%, p = 0.03) compared to non-depressed perinatal women.

Pregnant women who scored 13 or more on the EDS reported significantly lower levels of appraisal support from informal sources of support, such as partner (59.0% vs 79.4%, p=0.03), mother (41.0% vs. 64.7%, p=0.03), father (25.6% vs. 47.1%, p=0.04), partner's mother (20.5% and 54.4%, p<0.001), brother (5.1% vs. 27.9%, p=0.005), and friends (41.0% vs. 69.1%, p=0.008).

Formal sources of appraisal support were also inversely associated with depression during pregnancy. A trend towards lower support from the women's midwives and nurses was observed in the depressed group (15.4% vs. 35.3%, p=0.04, and 0.0% vs. 17.6%, p=0.004, respectively).

Postpartum women with depression reported significantly lower levels of appraisal support from their mother (57.8% vs. 73.8%, p=0.02), mother-in-law (32.8% vs. 51.3%, p=0.02), and friends who are also mothers (39.1% vs. 70%, p<0.001).

The relationship between social support and depression during the perinatal period using multiple logistic regression analysis

To examine the independent effects of each type of functional social support (informational, instrumental, emotional, appraisal) from different sources on depression, a multiple logistic regression analysis was conducted, adjusting for covariates of maternal age, education level, income, and mental health history. Receiving informational support from mothers significantly reduced the odds of depression across the perinatal period (AOR = 0.32, 95% CI = (0.18, 0.56), p < 0.001).

Similarly, emotional support from both mothers (AOR = 0.53, 95% CI = (0.30, 0.93), p = 0.03) and friends who are mothers (AOR = 0.52, 95% CI = (0.30, 0.89), p = 0.02) also lowered the odds perinatally. Interestingly, appraisal support from mothers-in-law (AOR = 0.41, 95% CI = (0.23, 0.73), p = 0.002) and friends who are mothers (AOR = 0.41, 95% CI = (0.24, 0.70) demonstrated similar protective effects during the entire perinatal period.

Among pregnant women, receiving social support from mothers, particularly in the form of informational (AOR = 0.40, 95% CI = (0.17, 0.94), p < 0.04) and emotional support (AOR = 0.41, 95% CI = (0.17, 0.96), p = 0.04), significantly reduced the likelihood of depression, controlling for pregnancy complications. Interestingly, appraisal support from mothers-in-law also offered protection during pregnancy (AOR = 0.25, 95% CI = (0.10, 0.64), p = 0.004). No significant associations were found between depression and instrumental support from any sources.

This study also investigated the independent effects of various social support types on depression in postnatal women, controlling for place of birth (Australia or overseas) and mental health history. Friends who were mothers emerged as a crucial source of protective support in the postpartum period, with three support types – informational (AOR = 0.42, 95% CI = (0.22, 0.80), p < 0.01), emotional (AOR = 0.48, 95% CI = (0.24, 0.94), p = 0.03), and appraisal (AOR = 0.32, 95% CI = (0.16, 0.62), p = 0.001) – significantly reducing the likelihood of depression. Interestingly, while not statistically significant, emotional support from partners also showed a trend toward lowering risk of depression (AOR = 0.42, 95% CI = (0.16, 1.01), p = 0.07).

Anxiety

The maternal characteristics that were associated with anxiety during the perinatal period are described in this section. Findings from the bivariate and multiple logistic regression analyses are also presented. For reference, "perinatal women" refers to the entire sample (n = 326), while pregnant and postpartum women comprised respectively 106 and 220 participants.

Maternal characteristics that were associated with anxiety during the perinatal period

This study investigated the relationship between anxiety and various maternal characteristics in a sample of perinatal women. The analyses compared women with elevated anxiety scores (STAI ≥ 10) to those without (STAI < 10) across demographics, pregnancy-related experiences, and social support factors (Table 9). Anxious women were more likely to be postpartum (56.5% vs. 70.1%, p = 0.050), suggesting potential persistence of anxiety after childbirth. Women with anxiety reported significantly more complications during pregnancy (62.9% vs. 44.7%, p=.024), history of previous mental health concerns (81.1% vs. 58.7%, p=.005), lower income levels (p<.001), and significantly lower levels of total social support (p<.001) compared to non-anxious women. They were also more likely to rely on online support (50% vs. 28.8%, p = 0.002) and participated in mothers' groups (80.6% vs. 54.9%, p<.001) across the perinatal period. No significant differences were observed in marital status, parity, type of birth (postpartum only), residency status, education, employment status, or type of maternity care received.

Analysing the antenatal period, anxious pregnant women reported significantly lower income levels (p=.003) and lower levels of total social support (p=.004) compared to non-anxious pregnant women. They were also more likely to rely on online support (44.4% vs. 70.9%, p = 0.013) and less likely to participate in mothers' groups (11.1% vs. 35.4%, p = 0.016). No significant differences were observed in marital status, parity, complications during pregnancy, residency status, education, employment status, or type of maternity care received. Additionally, the use of public or private services during pregnancy/birth did not differ significantly between the groups.

The analyses also compared women with elevated anxiety scores (STAI ≥ 10) to those without (STAI < 10) across demographics, pregnancy-related experiences, and social support factors for women in the postpartum period. In the postpartum period, anxious women were more likely to have a history of mental health concerns (77.1% vs. 55.7%, p=.024), were more likely to experience low total support (62.9% vs. 28.6%, p<.001), relied less on online support (54.3% vs. 71.4%, p=.046), and were less likely to

participate in mothers' groups (25.7% vs. 49.2%, p=.011). No significant differences were found in marital status, parity, type of birth, residency status, income, education, employment status, or type of maternity care received. Additionally, the use of public or private services during pregnancy/birth did not differ significantly between the groups. Further details of these associations can be seen in Table 9.

Table 9. Comparison of maternal characteristics of perinatal women according to anxiety status (STAI ≥ 10)

Maternal characteristics (categorical)	Perinatal women			Pregnant women			Postpartum women		
	STAI ≥ 10 (n=62)	STAI < 10 (n=264)	p value	STAI ≥ 10 (n=27)	STAI < 10 (n=79)	p value	STAI ≥ 10 (n=35)	STAI < 10 (n=185)	p value
Perinatal status			.050						
Pregnant	27 (43.5)	79 (29.9)							
Postpartum	35 (56.5)	185 (70.1)							
Marital status			.105			.268			.272
In a relationship (married)	34 (54.8)	181 (68.6)		14 (51.9)	53 (67.1)		20 (57.1)	128 (69.2)	
In a relationship (de facto)	24 (38.7)	76 (28.8)		9 (33.3)	21 (26.6)		15 (42.9)	55 (29.7)	
Not in a relationship (single/widowed/ divorced/separated)	4 (6.5)	6 (2.3)		4 (14.8)	4 (5.1)		0 (0)	2 (1.1)	
Prefer not to say	0 (0)	1 (0.4)		0 (0)	1 (1.3)		0 (0)	0 (0)	
Parity			.398	27 (100)	79 (100)	.827			.351
0	32 (51.6)	152 (57.6)		13 (48.1)	36 (45.6)		19 (54.3)	116 (62.7)	
≥1	30 (48.4)	112 (42.4)		14 (51.9)	43 (54.4)		16 (45.7)	69 (37.3)	
Type of birth			.118			N/A	(0)	(0)	.118
Vaginal birth	15 (24.2)	72 (27.3)					15 (42.9)	71 (38.4)	
Vaginal assisted (suction device)	3 (4.8)	24 (9.1)					3 (8.6)	24 (13)	
Vaginal assisted (forceps)	2 (3.2)	13 (4.9)					2 (5.7)	13 (7)	
Vaginal after caesarean (VBAC)	2 (3.2)	3 (1.1)					2 (5.7)	3 (1.6)	
Scheduled caesarean	2 (3.2)	39 (14.8)					2 (5.7)	39 (21.1)	
Unplanned caesarean	11 (17.7)	35 (13.3)					11 (31.4)	35 (18.9)	
Complications during pregnancy			.024			.248			.074
Yes	39 (62.9)	118 (44.7)		16 (59.3)	35 (44.3)		23 (65.7)	83 (44.9)	
No	22 (35.5)	144 (54.5)		10 (37)	43 (54.4)		12 (34.3)	101 (54.6)	
Rather not answer	1 (1.6)	2 (0.8)		1 (3.7)	1 (1.3)		0 (0)	1 (0.5)	
Previous mental health concerns			.005			.056			.024
No	12 (19.4)	109 (41.3)		4 (14.8)	27 (34.2)		8 (22.9)	82 (44.3)	

Maternal characteristics (categorical)	Perinatal women			Pregnant women			Postpartum women		
	STAI ≥ 10 (n=62)	STAI < 10 (n=264)	p value	STAI ≥ 10 (n=27)	STAI < 10 (n=79)	p value	STAI ≥ 10 (n=35)	STAI < 10 (n=185)	p value
Yes	50 (80.6)	155 (58.7)		23 (85.2)	52 (65.8)		27 (77.1)	103 (55.7)	
Residency status			.638			.221			.096
Born in Australia	19 (30.6)	72 (27.3)		22 (81.5)	53 (67.1)		21 (60)	139 (75.1)	
Immigrant	43 (69.4)	192 (72.7)		5 (18.5)	26 (32.9)		14 (40)	46 (24.9)	
Income			**<.001**			**.003**			.163
$0 - $49 999	9 (14.5)	9 (3.4)		5 (18.5)	1 (1.3)		4 (11.4)	8 (4.3)	
$50 000 - $99 999	20 (32.3)	57 (21.6)		10 (37)	20 (25.3)		10 (28.6)	37 (20)	
$100 000 or more	31 (50)	179 (67.8)		11 (40.7)	52 (65.8)		20 (57.1)	127 (68.6)	
Rather not answer	2 (3.2)	19 (7.2)		1 (3.7)	6 (7.6)		1 (2.9)	13 (7)	
Education			.239			.230			.343
Primary or high school	5 (8.1)	19 (7.2)		3 (11.1)	4 (5.1)		2 (5.7)	15 (8.1)	
Trade/Vocational/TAFE/Graduate certificate	14 (22.6)	39 (14.8)		7 (25.9)	10 (12.7)		7 (20)	29 (15.7)	
Bachelor or Honours degree	26 (41.9)	138 (52.3)		11 (40.7)	43 (54.4)		15 (42.9)	95 (51.4)	
Master or doctorate degree	15 (24.2)	66 (25)		6 (22.2)	22 (27.8)		9 (25.7)	44 (23.8)	
Other	2 (3.2)	2 (0.8)		0 (0)	0 (0)		2 (5.7)	2 (1.1)	
Employment status			.076			.087			.551
Part time	7 (11.3)	33 (12.5)		4 (14.8)	22 (27.8)		3 (8.6)	11 (5.9)	
Full time	13 (21)	48 (18.2)		8 (29.6)	28 (35.4)		5 (14.3)	20 (10.8)	
Casual	4 (6.5)	12 (4.5)		3 (11.1)	6 (7.6)		1 (2.9)	6 (3.2)	
Maternity leave	20 (32.3)	132 (50)		2 (7.4)	11 (13.9)		18 (51.4)	121 (65.4)	
No paid employment	17 (27.4)	36 (13.6)		10 (37)	10 (12.7)		7 (20)	26 (14.1)	
Other	1 (1.6)	3 (1.1)		0 (0)	2 (2.5)		1 (2.9)	1 (0.5)	
Total social support			**<.001**			**.004**			**<.001**
Low support	39 (62.9)	75 (28.4)		17 (63)	22 (27.8)		22 (62.9)	53 (28.6)	
Medium support	14 (22.6)	95 (36)		6 (22.2)	27 (34.2)		8 (22.9)	68 (36.8)	
High support	9 (14.5)	94 (35.6)		4 (14.8)	30 (38)		5 (14.3)	64 (34.6)	
Online support			.002			.013			.046
Yes	31 (50)	76 (28.8)		12 (44.4)	56 (70.9)		19 (54.3)	132 (71.4)	
No	31 (50)	188 (71.2)		15 (55.6)	23 (29.1)		16 (45.7)	53 (28.6)	

Maternal characteristics (categorical)	Perinatal women			Pregnant women			Postpartum women		
	STAI ≥ 10 (n=62)	STAI < 10 (n=264)	p value	STAI ≥ 10 (n=27)	STAI < 10 (n=79)	p value	STAI ≥ 10 (n=35)	STAI < 10 (n=185)	p value
Mothers' group support			**<.001**			**.016**			**.011**
Yes	50 (80.6)	145 (54.9)		3 (11.1)	28 (35.4)		9 (25.7)	91 (49.2)	
No	12 (19.4)	119 (45.1)		24 (88.9)	51 (64.6)		26 (74.3)	94 (50.8)	
Type of maternity care			.649			.402			.865
Private obstetrician (and/or other specialist) care	19 (30.6)	69 (26.1)		10 (37)	19 (24.1)		9 (25.7)	50 (27)	
Private midwifery care	1 (1.6)	7 (2.7)		0 (0)	5 (6.3)		1 (2.9)	2 (1.1)	
Continuity of care by midwives	4 (6.5)	19 (7.2)		1 (3.7)	8 (10.1)		3 (8.6)	11 (5.9)	
GP/obstetrician care (shared care with the hospital)	9 (14.5)	44 (16.7)		5 (18.5)	14 (17.7)		4 (11.4)	30 (16.2)	
Public hospital maternity care (by hospital doctors and/or midwives)	17 (27.4)	72 (27.3)		6 (22.2)	21 (26.6)		11 (31.4)	51 (27.6)	
Public hospital high risk care	8 (12.9)	16 (6.1)		4 (14.8)	4 (5.1)		4 (11.4)	12 (6.5)	
Remote area maternity care	0 (0)	3 (1.1)		0 (0)	0 (0)		0 (0)	3 (1.6)	
Private obstetrician and midwifery care	0 (0)	9 (3.4)		0 (0)	2 (2.5)		0 (0)	7 (3.8)	
Combination of public and private care	1 (1.6)	5 (1.9)		0 (0)	0 (0)		1 (2.9)	5 (2.7)	
I am not sure	1 (1.6)	3 (1.1)		1 (3.7)	3 (3.8)		2 (5.7)	14 (7.6)	
Another	2 (3.2)	17 (6.4)		0 (0)	3 (3.8)				
Public or private services during pregnancy/birth			.369			.872			.655
Has Medicare, only using/used public health services	38 (61.3)	156 (59.1)		15 (55.6)	46 (58.2)		23 (65.7)	110 (59.5)	
Has Medicare, using/used private insurance for examinations/professionals	12 (19.4)	31 (11.7)		8 (29.6)	17 (21.5)		4 (11.4)	14 (7.6)	
Has Medicare, using/used private insurance for birth	5 (8.1)	31 (11.7)		3 (11.1)	11 (13.9)		2 (5.7)	20 (10.8)	
Has Medicare, using/used private insurance for	4 (6.5)	37 (14)		0 (0)	2 (2.5)		4 (11.4)	35 (18.9)	

Maternal characteristics (categorical)	Perinatal women			Pregnant women			Postpartum women		
	STAI ≥ 10 (n=62)	STAI < 10 (n=264)	p value	STAI ≥ 10 (n=27)	STAI < 10 (n=79)	p value	STAI ≥ 10 (n=35)	STAI < 10 (n=185)	p value
examinations/professionals AND birth									
No Medicare, using/used private insurance for public healthcare	2 (3.2)	4 (1.5)		1 (3.7)	2 (2.5)		1 (2.9)	2 (1.1)	
No Medicare, using/used private insurance for private healthcare	1 (1.6)	3 (1.1)		0 (0)	1 (1.3)		1 (2.9)	2 (1.1)	
Another combination	0 (0)	2 (0.8)		0 (0)	0 (0)		0 (0)	2 (1.1)	

The relationship between social support and anxiety during the perinatal period using bivariate analysis

<u>Informational</u>

The relationship between perceived informational support from various sources and anxiety was investigated across the perinatal period. Perinatal women with a score of 10 or more on STAI reported significantly less informational support from their mothers (35.5% vs. 56.1%, p = 0.005), compared to non-anxious women. Lower support from the partner's mother was also observed in the anxious group, when considering all participants (16.1% vs. 30.7%, p = 0.03).

Pregnant women with a score of 10 or more on STAI reported significantly less frequent informational support from midwives (44.8% vs. 74.7%, p = 0.02), compared to non-anxious pregnant women. Postnatally, women with anxiety (score of ≥10 on STAI) reported significantly less frequent informational support from their mothers (34.3% vs. 58.4%, p=0.01), compared to non-anxious postpartum women (Table 10).

<u>Instrumental</u>

There was a tendency toward lower instrumental support from partners among perinatal women experiencing anxiety (77.4% vs. 90.2%, p = 0.009). No other differences were noted from any other source. Anxious pregnant women were more likely to rely on support from their sister(s) (27.6% vs. 10.1%, p=0.03) than non-anxious women. Pregnant women with a score of 10 or more on STAI reported significantly less instrumental support from their partners (69.0% vs. 92.4%, p=0.02). No significant association was observed from any source of instrumental support on anxiety during the postpartum period.

Table 10. Relationship between structural, functional support, and anxiety during the perinatal period

Sources of support	Period	Informational			Instrumental			Emotional			Appraisal		
		STAI ≥ 10	STAI < 10	p-value	STAI ≥ 10	STAI < 10	p-value	STAI ≥ 10	STAI < 10	p-value	STAI ≥ 10	STAI < 10	p-value
Partner	Perinatal	15 (24.2)	82 (31.1)	0.35	48 (77.4)	238 (90.2)	**0.009**	44 (71)	237 (89.8)	**<0.001**	43 (69.4)	213 (80.7)	0.06
	Pregnancy	4 (13.8)	22 (27.8)	0.20	20 (69)	73 (92.4)	**0.02**	17 (58.6)	70 (88.6)	**0.007**	14 (48.3)	63 (79.7)	**0.01**
	Postpartum	11 (31.4)	60 (32.4)	1.00	28 (80)	165 (89.2)	0.15	27 (77.1)	167 (90.3)	**0.04**	29 (82.9)	150 (81.1)	1.00
Mother	Perinatal	22 (35.5)	148 (56.1)	**0.005**	24 (38.7)	117 (44.3)	0.48	37 (59.7)	182 (68.9)	0.18	32 (51.6)	180 (68.2)	**0.02**
	Pregnancy	10 (34.5)	40 (50.6)	0.27	9 (31)	36 (45.6)	0.37	14 (48.3)	53 (67.1)	0.17	10 (34.5)	49 (62)	**0.03**
	Postpartum	12 (34.3)	108 (58.4)	**0.01**	15 (42.9)	81 (43.8)	1.00	23 (65.7)	129 (69.7)	0.69	22 (62.9)	131 (70.8)	0.42
Father	Perinatal	8 (12.9)	36 (13.6)	1.00	13 (21)	41 (15.5)	0.34	26 (41.9)	153 (58)	**0.02**	24 (38.7)	134 (50.8)	0.09
	Pregnancy	5 (17.2)	12 (15.2)	0.76	4 (13.8)	12 (15.2)	1.00	11 (37.9)	43 (54.4)	0.27	6 (20.7)	36 (45.6)	**0.04**
	Postpartum	3 (8.6)	24 (13)	0.58	9 (25.7)	29 (15.7)	0.15	15 (42.9)	110 (59.5)	0.09	18 (51.4)	98 (53)	1.00
Partners' mother	Perinatal	10 (16.1)	81 (30.7)	**0.03**	16 (25.8)	70 (26.5)	1.00	25 (40.3)	120 (45.5)	0.48	21 (33.9)	127 (48.1)	**0.05**
	Pregnancy	5 (17.2)	31 (39.2)	0.06	6 (20.7)	25 (31.6)	0.46	9 (31)	32 (40.5)	0.65	8 (27.6)	37 (46.8)	0.17
	Postpartum	5 (14.3)	50 (27)	0.14	10 (28.6)	45 (24.3)	0.67	16 (45.7)	88 (47.6)	0.86	13 (37.1)	90 (48.6)	0.27
Partners' father	Perinatal	4 (6.5)	14 (5.3)	0.76	7 (11.3)	30 (11.4)	1.00	19 (30.6)	86 (32.6)	0.88	20 (32.3)	81 (30.7)	0.88
	Pregnancy	2 (6.9)	5 (6.3)	1.00	3 (10.3)	13 (16.5)	0.76	6 (20.7)	21 (26.6)	0.80	7 (24.1)	19 (24.1)	1.00
	Postpartum	2 (5.7)	9 (4.9)	0.69	4 (11.4)	17 (9.2)	0.75	13 (37.1)	65 (35.1)	0.85	13 (37.1)	62 (33.5)	0.70
Sister(s)	Perinatal	11 (17.7)	59 (22.3)	0.49	12 (19.4)	52 (19.7)	1.00	17 (27.4)	100 (37.9)	0.14	18 (29)	96 (36.4)	0.30
	Pregnancy	6 (20.7)	18 (22.8)	1.00	8 (27.6)	8 (10.1)	**0.03**	10 (34.5)	28 (35.4)	1.00	6 (20.7)	28 (35.4)	0.24
	Postpartum	5 (14.3)	41 (22.2)	0.37	4 (11.4)	44 (23.8)	0.12	7 (20)	72 (38.9)	**0.03**	12 (34.3)	68 (36.8)	0.85
Brother(s)	Perinatal	1 (1.6)	15 (5.7)	0.32	3 (4.8)	16 (6.1)	1.00	8 (12.9)	82 (31.1)	**0.004**	9 (14.5)	69 (26.1)	0.07
	Pregnancy	0 (0)	5 (6.3)	0.33	2 (6.9)	4 (5.1)	0.64	3 (10.3)	21 (26.6)	0.12	2 (6.9)	19 (24.1)	0.09
	Postpartum	1 (2.9)	10 (5.4)	1.00	1 (2.9)	12 (6.5)	0.70	5 (14.3)	61 (33)	**0.03**	7 (20)	50 (27)	0.53

Sources of support	Period	Informational			Instrumental			Emotional			Appraisal		
		STAI ≥ 10	STAI < 10	p-value	STAI ≥ 10	STAI < 10	p-value	STAI ≥ 10	STAI < 10	p-value	STAI ≥ 10	STAI < 10	p-value
Friend(s)	Perinatal	14 (22.6)	58 (22)	1.00	11 (17.7)	40 (15.2)	0.70	30 (48.4)	147 (55.7)	0.32	33 (53.2)	147 (55.7)	0.78
	Pregnancy	7 (24.1)	26 (32.9)	0.63	6 (20.7)	16 (20.3)	0.79	13 (44.8)	48 (60.8)	0.27	13 (44.8)	50 (63.3)	0.18
	Postpartum	7 (20)	32 (17.3)	0.64	5 (14.3)	24 (13)	0.79	17 (48.6)	99 (53.5)	0.71	20 (57.1)	97 (52.4)	0.71
Friends(s) also mothers	Perinatal	31 (50)	167 (63.3)	0.06	17 (27.4)	69 (26.1)	0.87	38 (61.3)	173 (65.5)	0.56	30 (48.4)	167 (63.3)	**0.04**
	Pregnancy	15 (51.7)	50 (63.3)	0.50	7 (24.1)	23 (29.1)	0.81	14 (48.3)	52 (65.8)	0.25	12 (41.4)	49 (62)	0.12
	Postpartum	16 (45.7)	117 (63.2)	0.06	10 (28.6)	46 (24.9)	0.67	24 (68.6)	121 (65.4)	0.85	18 (51.4)	118 (63.8)	0.19
Neighbour(s)	Perinatal	5 (8.1)	18 (6.8)	1.00	1 (1.6)	8 (3)	1.00	5 (8.1)	33 (12.5)	0.39	8 (12.9)	39 (14.8)	0.84
	Pregnancy	3 (10.3)	6 (7.6)	0.69	0 (0)	0 (0))	-	2 (6.9)	9 (11.4)	0.72	2 (6.9)	13 (16.5)	0.34
	Postpartum	2 (5.7)	12 (6.5)	1.00	1 (2.9)	8 (4.3)	1.00	3 (8.6)	24 (13)	0.58	6 (17.1)	26 (14.1)	0.61
Midwives	Perinatal	32 (51.6)	166 (62.9)	0.11	6 (9.7)	35 (13.3)	0.53	7 (11.3)	37 (14)	0.68	15 (24.2)	78 (29.5)	0.44
	Pregnancy	13 (44.8)	59 (74.7)	**0.02**	1 (3.4)	6 (7.6)	0.78	2 (6.9)	15 (19)	0.23	4 (13.8)	26 (32.9)	0.09
	Postpartum	19 (54.3)	107 (57.8)	0.71	2 (5.7)	19 (10.3)	0.54	5 (14.3)	22 (11.9)	0.78	11 (31.4)	52 (28.1)	0.69
GP	Perinatal	32 (51.6)	156 (59.1)	0.32	4 (6.5)	14 (5.3)	0.76	10 (16.1)	31 (11.7)	0.39	20 (32.3)	77 (29.2)	0.64
	Pregnancy	12 (41.4)	49 (62)	0.12	0 (0)	3 (3.8)	0.67	2 (6.9)	10 (12.7)	0.73	4 (13.8)	21 (26.6)	0.30
	Postpartum	20 (57.1)	107 (57.8)	1.00	3 (8.6)	8 (4.3)	0.39	8 (22.9)	21 (11.4)	0.10	16 (45.7)	56 (30.3)	0.08
Nurses	Perinatal	26 (41.9)	101 (38.3)	0.66	2 (3.2)	9 (3.4)	1.00	4 (6.5)	13 (4.9)	0.54	12 (19.4)	47 (17.8)	0.85
	Pregnancy	9 (31)	30 (38)	0.82	20 (69)	73 (92.4)	0.57	0 (0)	6 (7.6)	0.33	0 (0)	12 (15.2)	**0.03**
	Postpartum	17 (48.6)	71 (38.4)	0.27	2 (5.7)	6 (3.2)	0.62	4 (11.4)	7 (3.8)	0.08	12 (34.3)	35 (18.9)	0.07

<u>Emotional</u>

Perinatal women experiencing anxiety reported significantly lower levels of emotional support from their partners (71% vs. 89.8%, p<0.001), fathers (41.9% vs. 58%, p=0.02), and brothers (12.9% vs. 31.1%, p=0.004), compared to non-anxious perinatal women. A trend towards lower emotional support from partners was observed among women with anxiety during pregnancy compared to non-anxious pregnant women (58.6% vs. 88.6%, p = 0.007). No other significant differences were observed from any other source. Postnatally, women with a score of 10 or more on STAI reported significantly lower levels of emotional support from their partners (77.1% vs. 90.3%, p=0.04), sisters (20.0% vs. 38.9%, p=0.03), and brothers (14.3% vs. 33.0%, p=0.03) compared to postpartum women with a score of less than 10 on STAI.

<u>Appraisal</u>

Perinatal women experiencing anxiety reported significantly lower levels of appraisal support from their mothers (51.6% vs. 68.2%, p=0.02), mother-in-law (33.9% vs. 48.1%, p=0.05), and friends who were mothers (48.4% vs. 63.3%, p=0.04), compared to non-anxious perinatal women. Anxious pregnant women reported significantly less appraisal support from their partners (48.3% vs. 79.7%, p=0.01), mother (34.5% vs. 62.0%, p=0.03), and father (20.7% vs. 45.6%, p=0.04). Significantly lower support from nurses was also observed in the anxious group of pregnant women (0.0% vs. 15.2%, p = 0.03).

No significant association was observed from any source of appraisal support on anxiety during the postpartum period. However, trends towards reduced perceived support from GPs and nurses (respectively 45.7% vs. 30.3%, p=0.08, and 34.3% vs. 18.9%, p=0.07) were present among women with depression (not statistically significant).

The relationship between social support and anxiety during the perinatal period using multiple logistic regression analysis

The independent effects of various social support types on anxiety during the perinatal period were investigated using multiple logistic regression analyses, accounting for relevant potential confounders, income, mental health history and perinatal status. Considering the whole perinatal period, women's mothers served as a protective source, with informational support significantly lowering anxiety odds (AOR = 0.40, 95% CI = (0.22, 0.75), p = 0.004). Partner-provided emotional support mirrored this effect (AOR = 0.36, 95% CI = (0.17, 0.77), p = 0.009). While appraisal support from mothers-in-law (AOR = 0.35, 95% CI = (0.15, 0.82), p = 0.015) and friends who were mothers (AOR = 0.55, 95% CI = (0.29, 1.03), p = 0.06) showed suggestive trends, father-in-law appraisal support surprisingly increased anxiety odds (AOR = 2.96, 95% CI = (1.20, 7.33), p = 0.02). Interestingly, partner-provided instrumental support, though not statistically significant, displayed a marginally protective effect in the perinatal period (AOR = 0.46, 95% CI = (0.20, 1.05), p = 0.066).

Among pregnant women, social support from partners and midwives proved to be a significant protective factor against anxiety, controlling for income. Both emotional (AOR = 0.29, 95% CI = (0.09, 1.00), p = 0.05) and appraisal support (AOR = 0.31, 95% CI = (0.11, 0.89), p = 0.03) from partners significantly reduced anxiety. Additionally, informational support from midwives played a similar protective role (AOR = 0.27, 95% CI = (0.10, 0.76), p = 0.01). Notably, although not statistically significant, instrumental support from partners seemed to have a marginally protective effect (AOR = 0.28, 95% CI = (0.06, 1.24), p = 0.09).

Among postnatal women, mothers and partners stood out as crucial figures in mitigating anxiety risks through their social support. Mothers' informational support (AOR = 0.37, 95% CI = (0.17, 0.80), p = 0.01) and partners' emotional support (AOR = 0.36, 95% CI = (0.14, 0.93), p = 0.03) emerged as significantly protective. Paradoxically, GP appraisal support was associated with heightened anxiety (AOR = 2.18, 95% CI = (1.02, 4.64), p = 0.04).

Posthoc analysis of the relationship between online and mothers' group support and depression and anxiety outcomes

We performed separate analyses for perinatal, pregnant, or postnatal women to explore the impact of the online and mothers' group on the outcome variables of depression and anxiety. The covariates used for adjustment were consistent with those utilised to investigate the effects of social support. For perinatal mothers, online support demonstrated a significant association with anxiety, with an adjusted odds ratio (AOR) of 0.42 (95% CI: 0.23, 0.77, p = 0.005). Similarly, pregnant women showed a significant association between online support and anxiety, with an AOR of 0.29 (95% CI: 0.11, 0.75, p = 0.01). In contrast, for postpartum women, it was the mother's group that significantly reduced depression, with an AOR of 0.51 (95% CI: 0.27, 0.97, p = 0.04), while online support did not show a significant association with depression. Likewise, the mother's group was found to significantly reduce the odds of anxiety in postpartum women, with an AOR of 0.38 (95% CI: 0.17, 0.86, p = 0.02), while online support did not exhibit a significant impact on anxiety in this subgroup.

Visualisation of main findings

The following figures summarise the main findings regarding the relationship between social support, depression and anxiety during the perinatal period (Figure 7), during pregnancy (Figure 8) and in the postpartum period (Figure 9), from multiple logistic regression analyses. These findings contribute to a nuanced understanding of the factors influencing depression and anxiety among women in the perinatal period, providing valuable insights for interventions and support strategies.
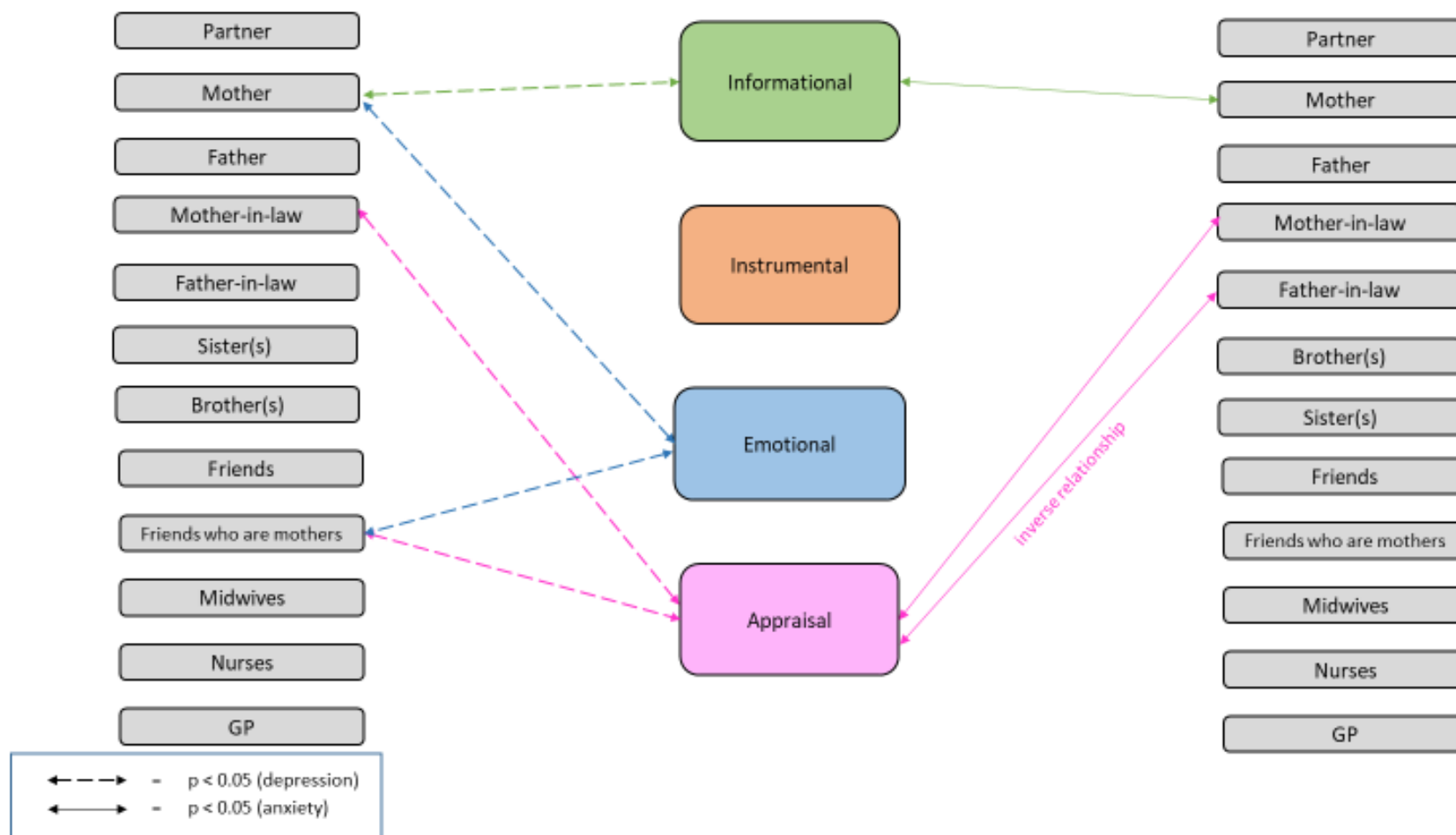
Figure 7. Summary of the relationship between social support, depression, and anxiety during the perinatal period.
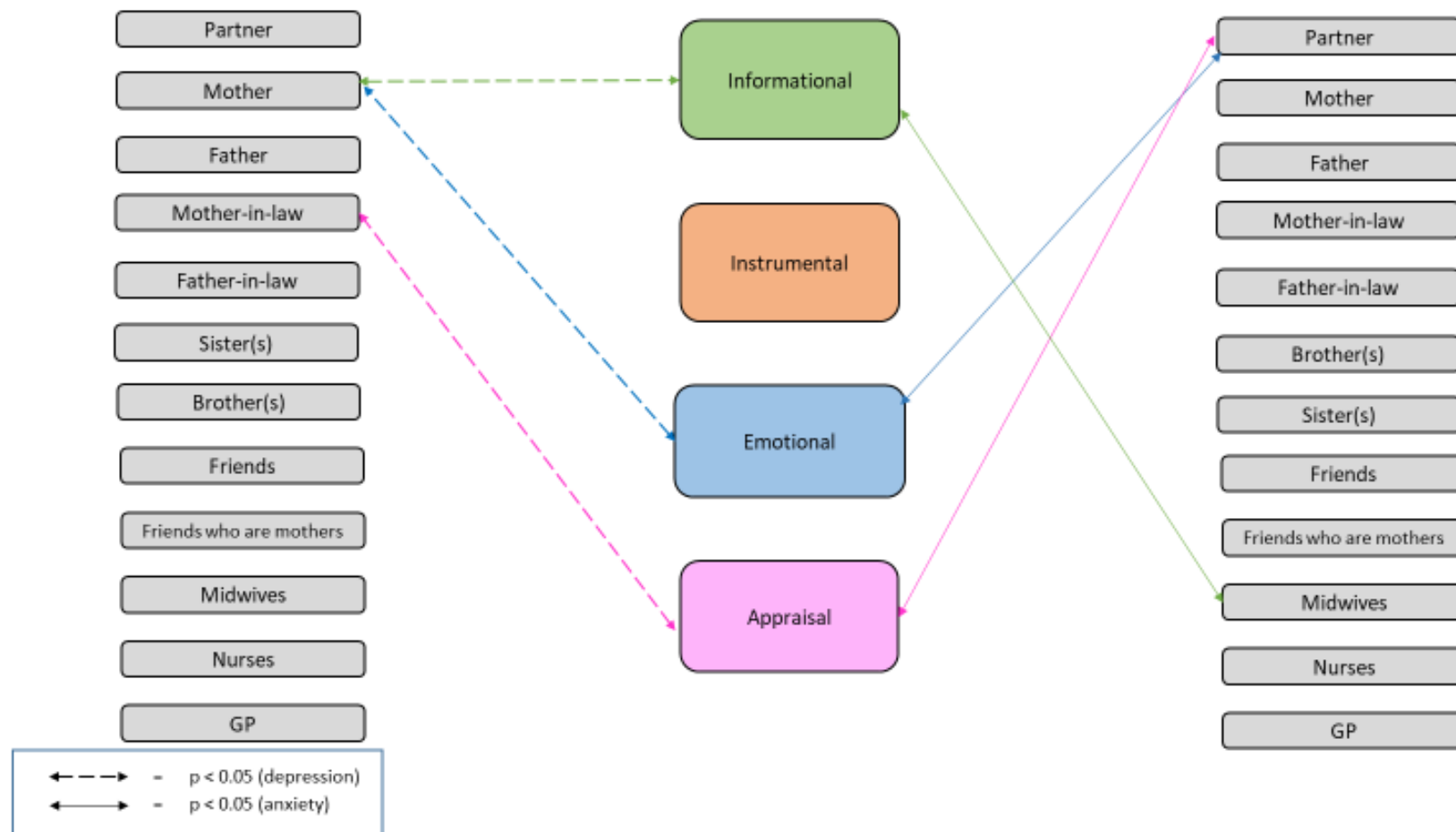
Figure 8. Summary of the relationship between social support, depression, and anxiety during pregnancy.
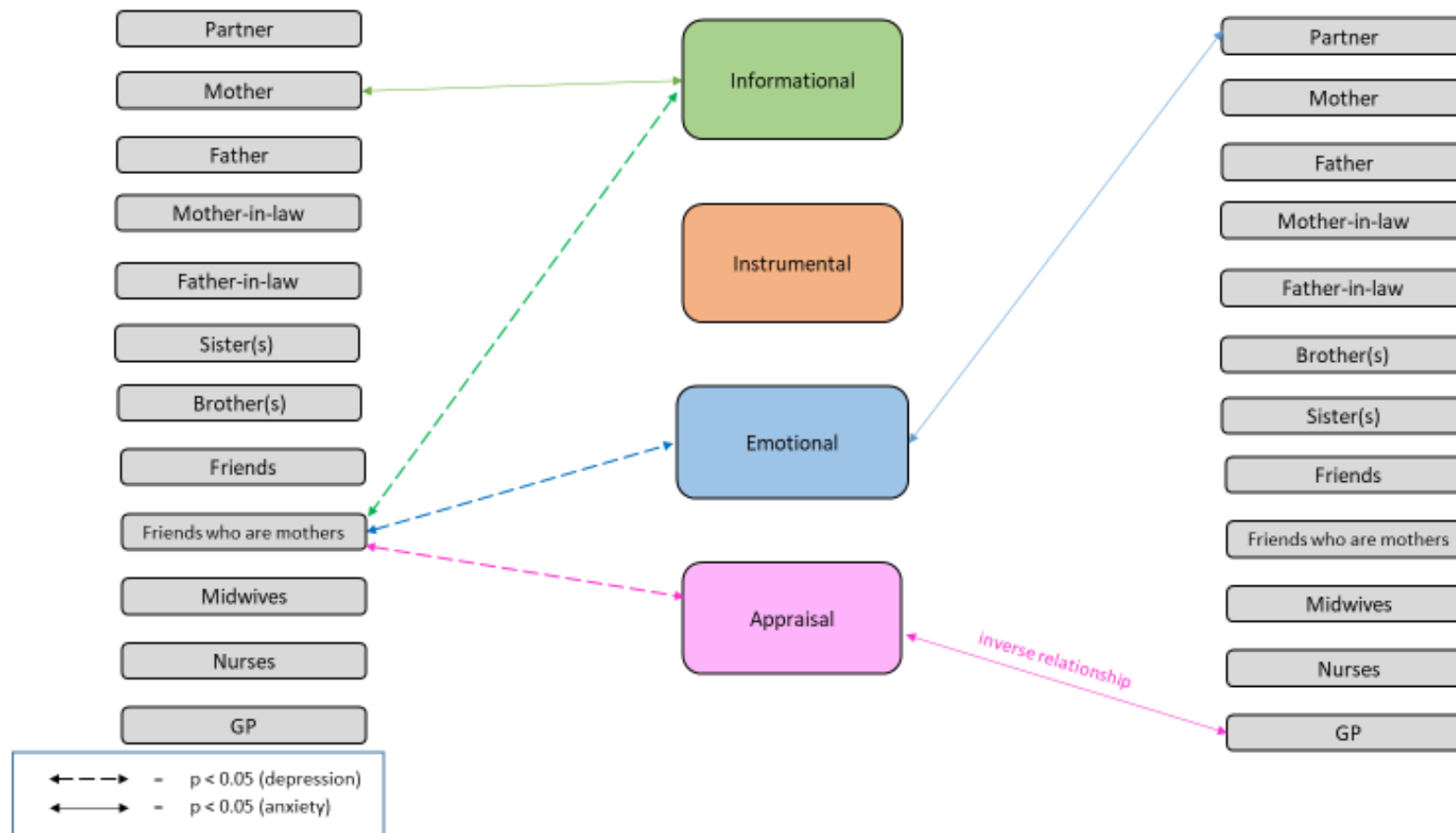
Figure 9. Summary of the relationship between social support, depression, and anxiety during the postpartum period.

Summary

The study's phase one examined the relationship between functional and structural social support and depression and anxiety in the perinatal period. Results from the multiple logistic regression analysis showed that receiving informational support from mothers, and appraisal support from mothers-in-law, significantly decreased the likelihood of both depression and anxiety for perinatal women. Female figures seemed to be of crucial relevance across the perinatal period, since receiving appraisal and emotional support from friends who were mothers, or emotional support from the participants' mothers, significantly decreased the likelihood of depression. Receiving online support was conducted in a posthoc analysis and emerged as a significant independent correlate of anxiety during the perinatal period.

For pregnant women, appraisal and emotional support from the participants' partners significantly decreased the likelihood of experiencing anxiety. Informational support from women's mothers and midwives respectively decreased the likelihood of depression and anxiety during pregnancy. Emotional support from participants' mothers, and appraisal support from their mothers-in-law, significantly decreased the likelihood of experiencing depression. Online support conducted in a posthoc analysis was a significant independent correlate of depression and anxiety during pregnancy.

In the postpartum period, friends who were mothers appeared as a significant source of support. Receiving informational, emotional, and appraisal support from friends who were mothers significantly decreased the likelihood of experiencing depression. Likewise, receiving support from mothers' groups significantly decreased the likelihood of experiencing both depression and anxiety during the postpartum period. The information support that participants received from their mothers was associated with a reduced likelihood of experiencing postpartum depression. Likewise, emotional support from partners had a comparable impact on anxiety, leading to a significant decrease in the odds.

The next chapter presents the findings of the study's phase two, about women's experiences of social support in the perinatal period.

Chapter 5: Women's experiences of perinatal support - qualitative findings

This chapter provides the demographic data of the participants who were interviewed, and describes the themes and sub-themes that were developed from the analysis of women's narratives. Six overarching themes emerged from women's experiences of perinatal support: Understanding the link between support and mental health, Counting on the presence of others, Being cared for as an individual, Having affirmational support, Trusting the provided information, and Being impacted by COVID-19.

Participants Characteristics

The interviews with the sixteen women were conducted during October and November 2021. Each interview lasted between 13 and 54 minutes, with an average length of 30 minutes. A total of eight hours of interviews were conducted. Most women were in the postpartum period when they were interviewed (n = 14). Ten women were primiparas, and six had other children. The type of care they received varied: five women had a private obstetrician, four received public hospital care (by hospital doctors and midwives), two had continuity of care by midwives, one received public hospital care being a high-risk patient, one received shared care (between GP and hospital). Two other women received combination of care (private obstetrician + continuity of care by midwives, and public hospital care + continuity of care by midwives). One woman was not sure about the type of care she received in the perinatal period.

The majority of the 16 participants were born in Australia (n = 12). Four women were born overseas (two in Brazil and two in the Philippines). Women's ages ranged from 28 to 42 years, and the majority were in a relationship (married or de-facto) (n = 15). Most participants had a Bachelor degree (n = 10), three had a Master degree, one had a Doctorate degree, one was graduated, and one finished high school. The complete demographic data of participants can be seen in Table 11.

Table 11. Demographic data of participants (data obtained during study's phase one, except perinatal status)

N.	Name*	Age	Perinatal Status**	Primipara	Type of Care	Type of birth	Nationality	Marital status	Income	Education	Mental Health History	Social Support	EDS ≥ 13	STAI ≥ 10
1	Clara	28	Postnatal (7 months)	Yes	Private obstetrician	Scheduled caesarean	Australian	De Facto	150.000 or more	Graduate	Yes, no diagnosis	Low	Yes	Yes
2	Ana	31	Postnatal (4 months)	Yes	Private obstetrician	Vag. w/ suction	Australian	Married	150.000 or more	Doctorate	Yes, diagnosed	Low	Yes	No
3	Amanda	39	Postnatal (2 months)	No	Private obstetrician	No info**	Australian	Married	150.000 or more	Bachelor	Yes, diagnosed	Low	Yes	No
4	Laura	33	Pregnant	Yes	Public hospital	N/A	Brazilian	Married	75 to 99.999	Bachelor	Yes, diagnosed	High	Yes	Yes
5	Emma	28	Postnatal (6 months)	Yes	Priv obst + MCoC	Vaginal	Australian	Married	150.000 or more	Master	No	High	No	No
6	Angel	37	Postnatal (2 months)	Yes	Pub hos + MCoC	No info***	Filipina	Divorced	100 to 149.999	Bachelor	Yes, no diagnosis	Low	No	No
7	Lilian	30	Postnatal (7 months)	Yes	Private obstetrician	Scheduled caesarean	Australian	Married	150.000 or more	Bachelor	No	High	No	No
8	Margareth	41	Postnatal (11 months)	No	Pub hos (high risk)	Unplanned caesarean	Australian	Married	100 to 149.999	Bachelor	Yes, diagnosed	Low	Yes	Yes
9	Francis	34	Postnatal (8 months)	No	Private obstetrician	Scheduled caesarean	Filipina	Married	75 to 99.999	Bachelor	Yes, no diagnosis	Low	Yes	Yes
10	Elisa	42	Postnatal (7 months)	No	Shared care (GP)	Unplanned caesarean	Brazilian	De Facto	100 to 149.999	Bachelor	Yes, diagnosed	Low	Yes	Yes
11	Jessica	35	Postnatal (11 months)	Yes	Public hospital	Vag. w/ forceps	Australian	De Facto	25 to 49.999	Bachelor	Yes, diagnosed	Low	Yes	Yes

N.	Name*	Age	Perinatal Status**	Primipara	Type of Care	Type of birth	Nationality	Marital status	Income	Education	Mental Health History	Social Support	EDS ≥ 13	STAI ≥ 10
12	Bianca	35	Postnatal (2 months)	Yes	Public hospital	No info***	Australian	De Facto	150.000 or more	High school	No	High	No	No
13	Patricia	35	Postnatal (8 months)	No	Public hospital	Scheduled caesarean	Australian	Married	150.000 or more	Master	No	High	No	No
14	Lisa	33	Postnatal (8 months)	No	MCoC	Vaginal	Australian	Married	150.000 or more	Bachelor	No	High	No	No
15	Sarah	33	Pregnant (36 weeks)	Yes	Not sure	N/A	Australian	De Facto	100 to 149.999	Bachelor	Yes, diagnosed	High	No	No
16	Tamara	35	Postnatal (4 months)	Yes	MCoC	No info**	Australian	De Facto	150.000 or more	Master	Yes, no diagnosis	High	No	No

*Pseudonym

** Refers to when interviewed

*** Participant was pregnant during demographic data collection (online survey) and in the postpartum when interviewed.

Interview process and reflexivity considerations

During the qualitative data collection phase, I was pregnant, specifically in my 8th and 9th months of gestation. Hence participants were able to visibly observe my pregnancy during the interviews and this shared identity significantly facilitated the process of rapport building. My status as a mother further served as a point of connection with all participants to some extent. During the interviews, I occasionally nodded, smiled, or expressed compassion, demonstrating my ability to not only comprehend their experiences but also relate to them on a personal level, having similar experiences myself. Being part of this shared group likely contributed to participants feeling safe and at ease in my presence, which, in turn, facilitated the sharing of their narratives.

It is worth noting that two of the participants shared the same cultural background, mother tongue, and country of origin as me. These Brazilian women were receptive and cooperative, and their interviews were notably longer in duration. It is plausible that these two women felt heard and validated by someone who had similar life experiences, which may have encouraged them to share more during the interviews. Similar to Berger's research (2015) when she interviewed other immigrant women being an immigrant herself, the level of comfort for both interviewer and interviewee is increased and the development of a rapport comes easily when hearing an accent or speaking the same language. Benefiting from a shared immigration experience possibly provided three distinct advantages in the context of these two interviews: it facilitated a smoother entry into discussions, provided a foundation of knowledge about the topic, and enhanced the ability to grasp the nuanced reactions of the participants (Berger, 2015; Kacen & Chaitin, 2015).

Nonetheless, occupying an insider's position and possessing a degree of familiarity with the subject matter carries the inherent risks of compromising boundaries, potentially imposing the researcher's own values, beliefs, and perceptions, and projecting biases onto the research process (Drake, 2010). During the qualitative data analysis phase, I experienced apprehension due to the volume of material under analysis. I oscillated between emphasising themes that closely aligned with existing

literature and social support theory, and exploring other themes that, while personally significant, were not particularly relevant to this thesis. To address this challenge, I involved 'outsiders' in the analysis process, namely, my supervisors. Through extensive communication and collaboration, we ultimately arrived at the definitive thematic framework.

Self-care strategies were necessary at times. In particular, following accounts of women detailing instances of receiving inadequate support from their families and healthcare providers led me to naturally reflect upon my own experiences, a process that occasionally evoked emotional distress. While engaging with and analysing these narratives, I used the coping strategies previously described in "Methods".

Themes

The primary aim of the interviews was to explore the experiences of women around support during the perinatal period. In analysing the data, themes and respective sub-themes were developed and are outlined in Table 12. For each sub-theme, a quote from participants is used to establish the participants' voice in the results. Six overarching themes emerged from the narratives: Understanding the link between support and mental health, Counting on the presence of others, Being cared for as an individual, Having affirmational support, Trusting the provided information, and Being impacted by COVID-19. The first theme, "Understanding the link between support and mental health" directly addresses the primary objective of the study. The other five themes describe important aspects of structural and functional support from women's experiences. These themes not only provide valuable insights into the research problem, but also offer a deeper understanding of phase one's findings results by exploring participants' perspectives. As previously mentioned in "Methods/Ethical considerations", pseudonyms were used for each participant, as well as for their family members, friends, and professionals.

Table 12. Themes, sub-themes and supporting quotes.

Primary Themes	Sub-Themes	Supporting Quote
I. Understanding the link between support and mental health		*"Well, babies are probably meant to be raised in a village and they're not. If you're feeling anxious and depressed, no wonder!".*
II. Counting on the presence of others	Presence of healthcare professionals and services	*"I probably won't go back to that paediatrician now, because she didn't make me feel very supported".*
	Presence of family and friends	*"Someone to be there for a bit of backup would have been great".*
III. Being cared for as an individual	Receiving humanised support from professionals	*"He (the doctor) didn't even look at me, I literally felt like a bag of meat carrying a baby".*
	Receiving sensitive and culturally appropriate support	*"I just think if people before they say things would think in their heads: 'is this kind and is this helpful?''.*
IV. Having affirmational support		*"Just having a simple, "oh, well done". I actually do think it helps".*
V. Trusting the provided information	Receiving clear, consistent, and updated information from carers	*"They'll say you need to trust the professionals. I'm like no, I don't know these people, I haven't felt safe with the way they communicate".*
	Receiving advice from women who also have children	*"I also like going to fellow mums and just sharing, I guess, the experiences".*
	Exploring gender preferences in received care	*"While I certainly wouldn't turn away a male if they offered to help me, I probably would feel more comfortable with a woman".*
VI. Being impacted by COVID-19	Missing quality care due to the pandemic and feeling isolated	*"I almost didn't see anyone during the pandemic".*
	Having benefits through being isolated	*"It was quite good that COVID happened".*

Each theme and sub-theme will be fully explored in sequence.

Theme I: Understanding the link between support and mental health

'Well, babies are probably meant to be raised in a village and they're not. If you're feeling anxious and depressed, no wonder!'

This theme addresses the study's main objective, exploring the relationship between social support, depression and anxiety. Women's narratives clearly described how their mental health and well-being were affected by receiving (or not receiving) social support. Reflections regarding different cultural backgrounds were provided. The role of health professionals enhancing mental health was presented.

All sixteen women who were interviewed reported a perceived relationship between their mental health and the social support they were (or were not) receiving. Central to their sense of well-being, women highlighted the importance of having a community as a source of support. They explained how feeling part of a community can also be beneficial in help-seeking, since they felt more confident and secure in talking about mental health concerns in this context.

> *"So, it was like, where is the information that's just about - well babies are probably meant to be raised in a village and they're not? If you're feeling anxious and depressed, no wonder! And here are some ways of dealing with it, instead of it becoming like a medical issue. Yeah, so I think more of people talking and things like that"* (Patricia).

Women from diverse cultural backgrounds provided rich perspectives related to the importance of community. Francis explained how the social dynamics of a community (her extended family is in the Philippines) diminished the likelihood of depressive and anxious symptoms.

> *"I think just with this whole depression, anxiety - I think it's probably just - there's also social aspect to it. It's not just your own psychology. The sociology or something. With the whole raising a kid, it involves a village. Back home (Philippines), I don't ever experience – (people) getting depressed. So, it's quite enlightening that in this Western country it's a bit*

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more rampant. Because I think you're on your own. It's a nuclear family. It's just you and the baby, that's it". (Francis)

Isolation was mentioned by participants as a contributing factor to symptoms of depression, anxiety, and stress. For some women like Francis and Angel, lacking a support network meant missing practical support, which according to the phase 1 results, is a risk factor for developing depression and anxiety. Notably, not receiving practical support or completing activities of daily living implicated feelings of failure for some participants. The following quote demonstrates this:

"Also, I think if they (her parents) were here, just even holding the baby's, probably - while you go to the toilet and do your personal stuff. So, that would have been an easier - I think not so depressing, I suppose. I think I'm probably just a bit depressed and anxious because I'm not around with other people. (…) You wish you had six other pairs of hands" (Francis).

Further demonstrating the implications of isolation, some women narrated their difficulties reaching out for support, and how this had negative implications for their mental well-being. Elisa's narrative shows how her self-mediated isolation exacerbated her mental state.

"Well, in the postpartum, as I was going through a difficult phase, I didn't want to talk to anyone. When I have a problem, I close myself off. I'm not a normal woman. Women usually tell their problems. I do the opposite. I close myself off, and try to solve my problem. And I only go out when I'm fine again. I only leave that little house when I'm ok, you know? So I stayed in this little house, suffering and crying, and people wanted to talk to me. This friend of mine came to visit me, and I said: "I don't want any visits". And she was a friend. Then one day I called her and kept crying over the phone. But I wouldn't let anyone come see me in that vulnerable situation. I don't know why" (Elisa).

The isolation that women experienced was in part mediated by stigma around mental health issues. Society's lack of understanding about mental health concerns hindered

women from seeking support. Sarah, who was highly conscious about her history of mental health issues, described how other people's misunderstanding diminished her perception of support.

> *"I'm focused I might slip into a depression because I have a history of quite intense major depression. (…) So, for me, that's been my biggest priority and everyone brushes it off and says 'you're going to be fine'. I understand why people are saying that and it's not like I talk about it lots, but I think people are ignorant about a lot of mental health challenges" (Sarah).*

Considering women's difficulty in seeking help, health professionals can have a pivotal role, as was the case with Patricia. During her six-week check, her maternal health nurse explored her sources of social support and made an assertive intervention that was extremely helpful and permitted her to obtain emotional support from her own mother. The healthcare professional's support led to Patricia feeling comfortable to advocate on her own behalf effectively, which greatly enhanced her well-being.

> *"On my six-week check at the maternal health nurse, I was also really teary and struggling. She asked about my social supports and who was around, then I talked about my mum. She said, "next week, you need to ask your mum to come over for a full day and stay with you the whole day, not just drop in something", and she said, "promise me you'll ask your mum to do that". So, I did ask my mum to stay for a full day. And that actually completely changed a corner for me. Because I was crying every day, and I was really embarrassed that I was crying every day. So, having my mum there the whole day I ended up being able to talk to her, I think just because I had a longer period of time. She was like, "it's okay, lots of new mums cry every day". Because I think for me, it was most - it wasn't just that I was crying, I was just so embarrassed about it. So yeah, I think it did really help and I think that was the best advice I got, was just to have someone there and do a whole day with me, instead of people come in and have a cup of tea and you kind of, you know, pull yourself together and act like*

everything's okay. So, I feel like that was a form of social support that was - and I think just being able to be honest with people." (Patricia).

Women have also described how support from health settings, services, and professionals' conduct can profoundly affect their mental health. Lisa described her two different experiences receiving care from midwives during the postpartum period, and how it impacted her well-being. When she had her first child, Lisa received standard maternity care, and reported her mental health suffered. With her subsequent child, Lisa received continuity of midwifery care, and this made a positive difference to her mental health.

> *"One-hundred per cent. Especially I guess comparing the two experiences that I've had. I feel like I had less support first time around from midwives and I think my mental health suffered because of it. Second time around I had much more support from a midwife, visiting us in-home and I felt in that post-partum period really, really well mentally". (Lisa)*

Women spoke about difficulties in accessing support whilst suffering from a sub-clinical severity of illness. For example, Patricia was concerned about the risk of medicalising postnatal depression, which failed to acknowledge the hardships women experience in the course of the perinatal period. The normalisation of hardships has limited access to support.

> *"I felt like, yeah, I am anxious and I am having some depression but I don't know if I'm clinically depressed. (…) Sometimes there's just all or nothing. The resources are like, you're really in a kind of clinically depressed state or you're not. Whereas I felt like I was a little bit in the middle, I felt like yeah, I'm definitely experiencing some anxiety and I'm definitely feeling some feelings of depression, but I don't know if I'd actually be diagnosed as that. The maternal child health nurse said the same and so did PANDA; they just said, 'oh you're kind of - look like you're just struggling a bit, you're not at a clinical state'. So, I feel like, yeah there was sort of a bit of missing resources of people like that. I feel like sometimes it was almost like we*

were medicalising postnatal depression instead of recognising that actually, having a baby, particularly when you don't have a lot of people around you, particularly in a pandemic, is just hard" (Patricia).

Receiving informational support from health professionals can be particularly challenging for anxious or depressed women. Whilst depression can encompass cognitive decline, anxiety might involve inflexibility when adopting received advice. Amanda describes this struggle:

"When you have depression, your ability to be able to take in information when you're accessing that support is a problem. If you're in a low, it's really hard to remember it all and understand it all. You're so hypersensitive to anything. That might not seem like criticism, but you feel like it is criticism. With anxiety I think it's – you almost – for me, you'll take one piece of advice, and that is set in stone and you must follow that. You don't feel that you can mess with it a little bit. You feel like, no, we've got to follow that. And you almost bring that kind of anxiety back to the house. With my husband, I'll be like, no, they said we have to do it like this, so we have to do it like that. He has to sleep at seven o'clock because that's what it said. They said, he's got to be in a sleep schedule and that's how it's got to be. You almost get really controlling of the situation. So, conversely, if you are feeling better, if you're in a good spot, accessing that information and stuff (…) you feel like you can absorb it a bit better and you can also separate advice that won't work, you're like, well, I won't listen to that or yeah, I will listen – yeah, no, that makes sense" (Amanda).

Participants shared their experiences receiving support from mental health professionals and how it impacted their well-being. In addition to providing strategies to better cope with depression and anxiety, psychologists and counsellors also gave emotional support to women in the perinatal period by providing the opportunity to vent and talk about any concerns. These mental health professionals also offered effective tactics for coping with anxiety. Although helpful, women expressed how they wished these professionals could be available 24/7, since sometimes they are needed

between appointments, and women did not feel comfortable talking to a stranger via a hotline.

> *"It was helpful, I think, momentarily. Then at times when you're feeling a bit depressed, you're sort of - I think they say you can call Beyond Blue and those other hotline numbers. But I was probably very - just not comfortable ringing those numbers. I think the psychologist, when I talked to her, I think I feel already better. Then at the height of the - an emotion, well, obviously I cannot talk to her because it has to be an appointment. So, that was a bit tricky"* (Francis).

Theme II: Counting on the presence of others

Having healthcare professionals, family, and friends readily available seemed to be a crucial aspect of women's experience of social support. Women expected to receive consistent, continuous, and uninterrupted care from health professionals. The importance of midwifery care was highlighted in the postpartum period. Other non-medical professional services were also mentioned, such as doulas, cleaners and nannies. Practical and emotional support were expected from friends and family. Feeling alone or being unable to access people and services was perceived as unsupportive.

<u>Presence of healthcare professionals and services</u>

'I probably won't go back to that paediatrician now, because she didn't make me feel very supported'.

Women valued consistent and continuous care, and some decided to access privatised care for this reason, as publicly-funded care was limited. Having the same health professional during the pregnancy was reassuring, and also buffered against anxiety. Analysis of the narratives did not emphasise any specific professional category, and women seemed to be similarly satisfied with their GPs, obstetricians, and midwives if receiving continuous care from that professional during their pregnancy. Conversely, during the postpartum period, narratives focused on midwifery care. Women who received continuity of care from midwives described their satisfaction; those who did not receive this type of care wished they had.

"Because talking to other mums from mums' group and a mum who went through the midwifery support, or the midwifery caseload or something with the midwife, it seems like she got a lot more support after her birth than I did. The midwives would come and visit her up until the baby was six weeks, whereas like I said before, it was 'hi, you've had your baby, bye. Here's a text message to see how you're going; here's your green book, go see the maternal child health nurse'" (Clara).

Women felt unsupported and unvalued when professionals provided care in a rushed manner, especially in private settings when they had to pay a large consultation fee. Women also described how they felt supported when health professionals made themselves available by phone, email, or text, outside their practices or hospitals. Hotlines that provided uninterrupted support were also mentioned, particularly by new mothers that needed informational support.

"So the midwives, when I was home, they came round. I felt quite supported by them because they had a 24 hour hotline as well. So, for example, one night Benjamin coughed a little bit of blood and I was a bit worried, and I was like oh no, but I was able to call them and ask them. They said that it was normal; like they asked me if my nipples were bleeding and if I had had like – I guess being there was like marks or any scratches or anything on my nipples, and scarring. I was like "yeah, it has been – like they cracked so I've been using cream". They were like "that is quite common then for babies, like you might see a bit of that blood spit up from their milk". So that really reassured me instead of I guess putting me in a bit of a panic, and being like we need to go to the hospital, I don't know what's going on. Or instead of just going to Dr Google. I was able to call them and ask them, so that made me feel good" (Emma).

Excessive wait times in the public system and the expense of privatised care were cited by women as obstacles to appropriate support. One of the participants explained how crucial it was to receive immediate care if you were experiencing difficulties while breastfeeding, and waiting weeks for a consultation with a lactation specialist was

unrealistic. For those struggling with mental health concerns and waiting to see a counsellor or psychologist, waiting times in the public system were twice as long as those in private organisations. One participant had to be admitted to a mother-baby unit due to postnatal depression. This participant described how she was not ready to be discharged, but had to be due to the limited availability of beds:

> *"I guess with my stay at the mother-baby unit, I think I actually would have benefited from a little bit longer stay. But because there's a really limited availability of beds, I had to come home. I didn't feel quite ready at the time that they discharged me" (Margareth).*

Sleep deprivation was an issue reported by most women, even though this was not intentionally investigated in the interviews. Women valued overnight baby-care support that allowed them to sleep, but also appreciated practical support in the form of housework and caring for older children. These types of functional supports were provided by professionals such as cleaners, doulas, and night nannies:

> *"I have someone that comes to help me clean now once a fortnight. The day she comes is like the best day of the fortnight, because the house stays tidy for about two hours and I love it. That two hours is the best" (Margareth).*

> *"Oh my god. One of my friends told me she paid for a doula that came to her house for six weeks straight and every day would just come and play with her toddler and cook her food and do her washing. If I had all the money in the world, I would absolutely love that. Or a night nanny. To just sleep through the night" (Ana).*

<u>Presence of family and friends</u>

‘Someone to be there for a bit of backup would have been great’

Friends and family primarily supported women by providing practical and emotional support. During pregnancy, support was provided by transporting women to the hospital and/or to appointments, doing household chores, and caring for older

children. Women stated that common pregnancy conditions such as nausea and tiredness hampered them from doing such activities. In these cases, participants stated that family members such as their own mothers, partners, or others (brothers, sisters, and fathers) stepped in to perform these tasks. Emotional support was provided through meaningful conversations and physical affection, such as hugs or cuddles.

> *"Well, I had quite severe morning sickness throughout my pregnancy, so and I never had a driver's licence at the time, so my mum was pretty much my major support person. She would pick me up and take me to my appointments when I needed to go. (…) There was a couple of nights she had to take me up to the hospital because I was just that nauseous and sick, I had to get injections (…) She (her mother) was on the phone talking me through when I wanted to give up sort of thing, because I was so sick"* (Jessica).

> *"He (partner) was just a voice - he'd give me cuddles when I'd cry. He's the voice of reason. (…) He was very supportive. We'd both sit there, Google and then he'd bring me back a little back to reality when I'm thinking worst case scenarios. (…) Just a moment ago I had a huge cry and my fella let me cry and he made me a sandwich. He reassured me and he had a little laugh because it was a bit funny. So, he lightens the intensity of my - I'm a very intense person obviously, with mental health challenges, I get a bit in my head, so he gets me out of there. (…) I like to talk through decisions, I like to brainstorm out loud, and my mum and my partner especially can offer me that non-judgemental space, authentic connection"* (Sarah).

During pregnancy, friends who were also pregnant or already had children were cited as an essential source of emotional and informational support. The opportunity to share experiences and birth stories diminished feelings of loneliness and symptoms of anxiety.

"So, my friend, Laura – it was just fantastic. We could share what our bodies were going through and that was an enormous feeling of not aloneness and that was really supportive. So that was really great. I guess we were kind of in it together, in the feeling of being pregnant together. Even though we were feeling different things and bodies were doing different things, it was just nice to share that. Freak out together and then be excited together, that was really lovely" (Tamara).

Most participants identified family members as crucial sources of practical support in the postpartum period. Similar to the antenatal period, functional support involved activities related to housework and caring for older children in the postnatal period. Partners were repeatedly cited as fundamental persons to provide this practical support.

"I was lucky. Like I said, my partner - he's - it's only my partner, myself and the baby in our house and he's been - he was so supportive in the fourth trimester. He did the - he took over the cleaning, he took over the cooking, made sure that we're all eaten - fed. He'd come back from work and put me to bed and have the baby for a few hours before her next feed, so he's just been super supportive in the household" (Clara).

Narratives also highlighted the importance of friends providing this practical support, particularly when women's partners had to return to work. Whilst most participants referred to practical support related to house chores, some of them mentioned that taking care of the newborn for a short period was also perceived as supportive.

"You know, just bringing food, doing chores around the house. Some of them are confident enough to take care of Jake so it gives me time to go for a shower or have dinner or have lunch with two hands while they carry him. So, stuff like that. Yeah or because I had a C-section as well, I had the friend drive me around to appointments because I couldn't drive for the first six weeks" (Angel).

Having the newborn cared for by someone else also allowed women to take care of themselves, which was cited as significant for their well-being. Importantly, this was mentioned as a form of support especially when the person responsible for the newborn was the woman's partner. Receiving this type of support from friends and other members of the family was acceptable only when the woman was not in a relationship, or her partner was working. That is, women typically preferred their partner taking care of their infant, and would opt for other people only in their absence.

> *"I quite like cooking though, so there are nights that I have Daniel look after Benjamin so that I can just go through the cooking and baking – it's just like my time to be able to do something that I like. That's important for me to get that balance" (Emma).*

Women expressed dissatisfaction when they could not rely on the presence of friends and family during pregnancy and the postpartum period. The absence of support from partners, their own mothers and friends left women with insufficient assistance. Jessica (35 years old) was a victim of domestic violence and was interviewed when she was in the postpartum period (her baby was six months old). Based on phase one results, Jessica was suffering from depressive and anxious symptoms. During the interview, she explained how, even though she was still living with her partner, she could not count on his help:

> *"I had my partner, but you cannot say he was support. (…) we're going through a bit - we have been going through a rough patch for a while. (…) I think his father has bathed him once and changed one nappy. Might as well be a single parent" (Jessica).*

Another source of support that women highly valued came from their own mothers. Some participants' mothers were not present due to a variety of reasons: border closures, illness, and strained relationships. Whatever the case, women described that going through the perinatal period without this source of support was "really hard" and "at the end of the day you just want your own mum". Friends were also important for

women in the perinatal period, as participants expressed their wish to connect with other adults to receive emotional support.

> *"I didn't have any support.(…) I think that if my mother were here, it would have been different. I think she would hold me, I would be able to cry, she would see that I was crying. I think it would be a different kind of support"* *(Elisa).*

> *"I think I would have loved, I guess, more friends to say 'do you need anything? would you like us to visit?'. Just put the ball in my court, because honestly, most of my friends hadn't even seen Marcus until he was nearly six months old. That hurt a bit, but a lot of them were staying away because of COVID, and I guess making the assumption that 'he's your second baby so I'm sure you're fine'. I just really miss that network of friends around me and just having someone to talk to, an adult conversation, instead of watching whatever's on ABC Kids would have been good. I guess I just felt really isolated"* *(Margareth).*

Participants categorised as receiving low social support also described the functional aspects of social support they wished they had received. Breastfeeding complexities were discussed, and women expressed how this demanded significant amounts of their time and limited their freedom. Sleep deprivation was once again cited, and participants would have liked to obtain other people's help to sleep through the night at least occasionally, or even to just take a nap during the day. Likewise, cleaning was a desirable form of support for most women.

> *"Oh, you know, just - I would have been happy if someone was just around to hand me water or food while I was breastfeeding. Especially during the times when he was cluster feeding because you can't really get up and you're pretty much confined to the couch. Yeah, it would have been nice if someone could prep some meals for you, give you - hand you the food or hold the baby if you needed to go to the toilet"* *(Angel).*

"I think a few – maybe it was last week, I think the – I don't know if there's just adrenaline for the first few months, but I think it finally wore off and the sleep deprivation really hit me hard. I'm a bad sleeper at the best of times, so for me, getting up multiple times, it didn't feel so bad. I thought to myself, I'm still getting five hours sleep. Even if it's broken, it's fine. But I think the other week I realised that it's not. Having someone who might help out just even once a week. It makes a difference. So, you could even have a nap or whatever. That would be amazing. That would be a dream" (Ana).

Feelings of isolation were common among the narratives of those participants classified as receiving low social support, as seen in Francis' description below. Interestingly, Francis considered that her job as a nurse – a highly demanding job – was easier than maternity leave/caring for her baby. Her workplace permitted social contact, a proper meal or a coffee during her breaks, which motherhood did not.

"I actually go to work so I can rest [laughs]. I'm a nurse, so it's somehow - it's still a physically, mentally, emotionally draining job. But you get a proper hot coffee, you have proper break [laughs]. I think it's better for me mentally, in a sense, that I don't feel so isolated. Because when I was at - on mat leave, I feel somehow, just lonely. Just with lockdown, I wasn't - it wasn't really helping. So, coming to work was pretty good, in terms of socialisation" (Francis).

One of the participants, Elisa (42yo), valued practical support to the extent that she considered establishing an NGO to provide this to other mothers. This support would involve bringing food, cleaning the house, and holding the baby so the mother could rest.

"I had an idea with a friend of mine: somehow help mothers during the postpartum period, you know? My idea would be... I'll only be able to act, for now, in the Brazilian community. When we know that a mother is going to have a baby, my idea would be for us to give her this kind of support: one of us makes food and takes it to her home, another one goes there and

cleans the house. Creating an NGO, you know? Everyone gives what they can. I can, for six hours, hold the baby for the mother to sleep. (…) So I would go and clean the house, then I would make a meal... Then another mother would go, you know? Each person gives what they can" (Elisa).

Finally, participants explained how the presence of professionals, family, and friends are not only vital in the perinatal period, but also how a connection between all these sources of support, providing different types of assistance, is needed. One participant creatively modified the term "midwife," proposing the concept of a "postwife". Just as midwives offer support during pregnancy and childbirth, these "postwives", in conjunction with various services, would be tasked with delivering holistic postnatal care and practical assistance. This would encompass aiding in the woman's physical recovery, household tasks, and taking care of the baby to allow self-care for the mother.

"We need better connection between all the different areas, your obstetrician, your midwife, your mental health, lactation support, some kind of help at home, that kind of thing. You almost want like a silver chain service for pregnant and for mums who will come in and clean, and check your wounds, and hold the baby while you have a shower, or do that kind of thing. It's almost like a midwife, but you almost want a post wife. You want someone who's – they've almost been with you through the birth and – through the pregnancy and the birth but then they transition in to this post wife and they understand what you're going to need. So, they understand that you need to eat. You need to make sure that you drink plenty of water. You need to make sure that – when you – if you do have the opportunity to rest, you do rest. Yeah, some kind of support like that would be phenomenal" (Amanda).

Theme III. Being cared for as an individual

In this theme women described the care they experienced, and aspects of care they would have appreciated from health professionals, family, friends, and the community. According to participants, support needed to be determined and delivered with

individual consideration. Insensitive and generic interactions were considered to be unsupportive by the participants, and unsolicited advice was often perceived as an unwelcome criticism. Entertaining visitors was regarded as undesirable by most women, and those desiring visitors outlined their expectations around this. Lastly, participants discussed the types of functional support they believed women should receive in the perinatal period.

<u>Receiving humanised support from professionals</u>

'He (the doctor) didn't even look at me, I literally felt like a bag of meat carrying a baby'.

Participants described how health professionals took care of them during pregnancy and postpartum. Some professionals provided individual, attentive and caring consideration, with women's particular needs in mind. For example, Margareth's baby, Marcus, was admitted to the neonatal intensive care unit due to respiratory difficulties, and Margareth was placed in a shared bedroom with another woman and her baby. The participant could not visit her baby for thirteen hours which she described as being incredibly difficult. Compounding this, sharing a room with a mother who was able to enjoy the company of her infant was distressing. When she was taken to see her baby, and allowed to stay with him for longer than was officially permitted, and then moved into a single room, this thoughtful consideration by the 'nurse' (possibly a midwife or nurse-midwife) restored her positive postpartum experience:

> *"I had a really lovely nurse on who helped me get out of bed even though I really wasn't meant to be standing at that point. But I just needed to see my baby, I needed to see Marcus (in NICU). So she actually took me down in a wheelchair and she was only meant to let me stay there for half an hour, but she let me stay for two hours with him and I just sat there holding his hand, singing to him and talking to him. Then while I was down there she shifted me into a single room, so that was really lovely".*

However, this sensitive care was not universally experienced. A pregnant participant described her unpleasant experience from insensitive male obstetricians with poor

interpersonal skills in the public system. She was made to feel like "a bag of meat carrying a baby".

> *"I was in the public system (…) I got put in the obstetrician stream straight away because of my pre-existing condition. I almost wish I was just with the midwives because the obstetricians, I just had all men, I didn't have any female obstetrician until the day I delivered. I just found them really quite insensitive a lot of the time. There was one who we - my husband was there, we walked out and we were - just started laughing because it was so incredible how poor his interpersonal skills were. He didn't even look at me, I literally felt like a bag of meat carrying a baby. (…) I felt like I was just getting checked, sort of numbers. Sometimes I didn't even feel like they really saw me as a person, they were just looking at my uterus and trying to work out whether we had the Caesarean or not because of the pelvic issues. I found them really callous and insensitive" (Patricia).*

Another woman described an absence of sensitivity and adequate communication whilst receiving perinatal care. Having a mental health condition (trauma and anxiety), she felt uncomfortable disclosing her situation at every appointment when meeting different health practitioners.

> *"I don't know if some information was transferred or what kind of note was put on my file to reflect that for me my main priority was my mental health - that's my main concern. It just wasn't ever addressed … to have to disclose every time that you have anxiety and trauma and explain what you need every single time, and then those times that you don't do that, people are super poor communicators… it was very, very difficult" (Sarah).*

Another aspect mentioned by many women was professionals' attitudes and support regarding breastfeeding. In that sense, participants elucidated how they appreciated being encouraged to breastfeed, without being pressured to succeed at it. One participant expressed her need for more acceptance of formula feeding choices by the medical staff.

"I guess with the feeding issues I had, that was quite distressing for all of us. I would have liked if the medical profession was more accepting of formula feeding. I felt a bit out in the wilderness, you know, like I had to breastfeed, and I had to make that work. I think that just added to the difficulty of it. Yeah. So, I guess that's a bit of support I would have liked. Just like, 'it's okay if you choose to formula feed. It's not the end of the world'. So that's some support I would have liked" (Lilian).

Having individualised care was appreciated. The necessity of having professionals providing specialised care to women in the perinatal period was emphasised by a participant who was a victim of domestic violence (DV). Jessica (35yo) suggested how a position should be created for women who present with DV or similar issues in the perinatal period. She also expressed her desire for postnatal support from healthcare professionals, which was hindered due to safety concerns surrounding in-person visits. Significantly, she proposed practical alternatives, suggesting that a phone call from the professionals could have been a valuable means of support given the challenges of physical visitation.

"I think a lot of my mental health lies around post-traumatic stress stuff and DV. I think a DV in pregnancy, or DV trauma and pregnancy support nurse could even be - that position could be created. (…) I know that there was a risk there (visiting her postnatally), that they (professionals) have to take care of themselves around. But maybe even a phone call could have helped (…), just a phone call while I was at home would have helped I think a bit" (Jessica).

<u>Receiving sensitive and culturally appropriate support</u>

'I just think if people before they say things would think in their heads: 'is this kind and is this helpful?'''

Support was described as an individualised process, tailored to each woman's unique circumstances. The workplace emerged as a significant source of social support, with women highlighting the importance of their supervisors and colleagues being attentive and considerate of their specific needs during pregnancy and the postpartum period.

Unsolicited advice and opinions on pregnancy, childbirth and parenting were experienced as unwelcome criticisms and were frustrating for women. Many participants expressed their preference for visitors who offered practical assistance, such as cleaning, bringing food, or helping with older children. In contrast, guests who expected to be entertained during the postpartum period without offering support were not appreciated. The study also delved into various cultural practices during the postpartum period, consistent with the diverse backgrounds of the participants.

Women described their workplace as a relevant source of support. For some of them, their supervisors and colleagues were attentive and sensitive to the particular issues they were facing throughout their pregnancies and postpartum periods. Interestingly, women felt they received greater and more appropriate support when their supervisors were also mothers.

> *"I work for a government agency, and we are lucky enough to be able to work from home, and they were fantastic in allowing me to continue to work as well as with how sick I was. They were open to me taking a break when I needed to have a break, and then come back and complete the work later once I was feeling better. I don't know - if we were in an office situation, I think I would have had to have taken a lot of leave. Because we were working from home, and they were so understanding and supportive, I was able to work up to nearly full term and still be vomiting sixteen times a day. It was really good"* (Bianca).

> *"Yeah, I had a lot of support from work. My boss was pregnant at the time I told her I was pregnant. So, we sort of went on a bit of that journey together. She was very supportive about making leave arrangements and continues to be supportive and keep in touch and happy to let me work flexibly and that kind of thing when I return. Yeah, everyone else in the workplace is very enthusiastic and helpful and did a nice farewell for me just as I was leaving. Yeah, it was good to have that support through work"* (Lilian).

Despite the potential support that can be conferred from the workplace, some women were not satisfied with the support provided. Gender was mentioned as a possible explanation for the unsatisfactory support experience. The nonexistence of paid maternity leave was also cited.

> *"I had a going away party when I left and that was it. Like a going away sort of – and they gave me a hamper. That was it. No. I've been working in the mining industry which is not very female friendly so – yeah, no real support"* *(Amanda).*

> *"So I ended up leaving, because I didn't feel much support from the company either. The company doesn't offer you anything, not even a paid maternity leave. My boss didn't make things easy for me, I felt it was very difficult to be a woman. When I got pregnant, there was also this issue at work, you know? They called me and said: "you won't be entitled to paid maternity leave because you don't have two years of PR yet. Unfortunately, the company doesn't provide any kind of payment in this case". (…) I thought 'oh my God, I've been taking care of other people's children for five years, dedicating myself to raise and educate Australians, and now it's my turn to be a mother and I don't have any kind of support'. I felt totally helpless"* *(Laura).*

Another experience that women found disappointing and unhelpful was receiving unsolicited advice/opinion. Although advice can be considered a type of informational support, women did not appreciate it when the advice seemed to serve as a criticism rather than being constructive.

> *"My mum and my auntie wanted me to start sleep training my younger son at six weeks and basically cry it out with him. My mum was also very, 'you must breastfeed. You can't get formula. Don't buy formula – you should be able to do this'. So, I felt there was a lot of pressure being put on me to be able to breastfeed versus formula feed. A little bit around – like giving birth.*

Whether I had a vaginal birth or a C-section, people are like – there was a bit of pressure about, 'no, you've got to do it natural and stuff'" (Amanda).

"Lots of opinions. Of course. Everyone talks shit. People don't know what you're going through, also because you don't expose yourself. You don't whimper about your life to everyone. So when a person says something to you, they don't know your reality. They're not to blame for saying that to you either, because they are also inexperienced. They're usually the ones who don't have children, right?" (Angel).

Participants revealed that people who recently had babies were usually gentler and more respectful when providing advice. On the other hand, older people's opinions were considered insensitive and out-dated.

"I just think if people before they say things would think in their heads: 'is this kind and is this helpful?' It's irrelevant what Mary down the road did to her child 52 years ago. I don't need to hear that information because (1) it's not relevant and (2) it's that long ago Mary has probably forgotten what it was like and what happened. I think everyone's just got an opinion and it's just I don't think you ever realise until you actually have a baby how opinionated people are" (Bianca).

"I think gentle advice. We had lovely – actually, something that a lot of friends have done, which is just wonderful is, they have come to us, and I said I need to work on baby time, and they have respected that. So, that kind of respect of working on what's happening with the baby through social support has been really beautiful. That, I think, come from mothers who are at the same stage or recent mothers. I found that more challenging the older people are. Providing social support but in a really flexible way, which is very challenging for people who are working and have busy, complicated lives" (Tamara).

Women spoke about how people were frequently insensitive when providing advice and sharing their personal opinions. One participant claimed that advice is not

necessarily supportive, and each person's individuality should be considered before giving advice. Sarah's narrative below exemplifies phrases that can be supportive for perinatal women, such as asking women for their permission prior to giving advice, or simply saying less:

> *"It's probably what could people not say, I think they could have said less. I think people could say less, less about their own opinions, or at least share things differently. Or ask permission, 'would you mind if I told you a story, a birth story, it might be a bit full-on, but it might be useful'. How cool would that be? That would be magic, rather than someone launching into 'oh yeah, my friend's just had a stillbirth at 39 weeks'. Thanks, that's good to know, yeah, thanks. What do you do with that? What if I'd previously lost a baby, which I haven't fortunately, how is that going to help me? It's just a real lack of sensitivity"* (Sarah).

Nonetheless, one participant shared that receiving advice can be useful postnatally. Most importantly, she described the importance of being listened to, and receiving open-ended empathetic questioning, instead of advice.

> *"I think I do need to think about it. I think I feel really lucky, during pregnancy people just stopping to listen rather than to provide advice. "How are you going" rather than, "when I was pregnant blah, blah, blah". I feel really privileged that we received a lot of that asking how we were going and Josh as well, how he was going. I think it's that open-ended empathetic questioning is really lovely during pregnancy. Postnatally, that's difficult because advice is super useful postnatally, postpartum. Open advice, and that's really difficult to give advice in a way that is open"* (Tamara).

Several women expressed a desire for validation rather than being offered advice or potential solutions. Lilian pointed out that certain comments trivialise and disregard the challenges she had been facing, and instead simple validating statements about the difficulties of parenthood would suffice:

"I guess it's nice when people just - if you say something to them about your experience, it's nice if they just sit with you and go, 'yeah, that sounds hard'. Rather than trying to give you solutions, or say, 'it's just a baby, babies are like that', or 'ra, ra, ra'. Or like, 'cherish every moment'. You know, it's nice when people are really real about it and just go, 'yeah, I know it sucks and I'm sorry about that'" (Lilian).

Another type of support that was not appreciated by most participants was receiving parenting criticism in the form of 'advice' from visitors. Participants exposed the damaging effect that this can have on their well-being, especially when visitors also gave unsolicited advice and criticised their parenting style.

"My parents weren't happy with the way that we were raising our daughter. They're old-school members and it was - if we'd see them, I'd actually feel more upset on the visit because it's, "you should be doing this, she should be using a dummy; don't pick her up if she's crying". Then that makes you feel like shit, when really, we're lucky. I'm lucky I have a healthy daughter, I'm lucky that she's happy" (Clara).

Most women stated that being visited by people expecting to be entertained and catered for in the postpartum period was unwanted. Participants described that during the first weeks after birth, they are usually recovering and struggling with breastfeeding. Therefore, unexpected and unhelpful visitors can be disruptive to these processes. Women also reported that visitors usually expect (and ask) to hold their babies during these visits, and that can be quite an uncomfortable experience for new mothers.

"Yeah, I think for me that was helpful (not having visitors), because there was no expectation that we had to have a clean house for the guests. They say just ignore it but you still need to have a nice house and everyone just wants to hold her and I just wanted to hold her. We let family see her after two weeks and at the end of it, they were understanding of it" (Clara).

Uninvited visitors in the early postnatal period who expected to be entertained were unappreciated. Amanda put restricted visiting rules in place for her friends and family following her second child that mitigated this stress:

> *"I was inundated (with visitors) with Nicolas, my first son, and I found it really difficult. Particularly because I was trying to grapple with feeding and people just kept turning up. Some people would just stop in, they wouldn't let me know they were coming. They would just pop in for visits. They wouldn't bring food. They would expect me to make coffees and teas and entertain them and hand over my baby. I found that incredibly – it was very – I found it extremely difficult with my first. Then for Liam I was like, 'I'm not having visitors at the hospital. If you want to see me, you better be bringing something to eat otherwise just don't bother'" (Amanda).*

Besides handing their baby to others, women were reluctant about receiving visitors who came to see the baby and not help the mother/family. One participant explicitly said that this was unsupportive:

> *"Mum has moved to Queensland, but she – she'll come over maybe once a week and feed him a bottle. That's about as much as she'll do. I wouldn't really call that support because I think she's usually coming over for her own entertainment, not because she wants to help us or because she realises we need help. It's just because she wants to see the baby" (Ana).*

Conversely, visitors who provided practical support such as cleaning, or brought food, were mentioned as highly desired by most interviewees.

> *"The first thing people should be aware of, because they aren't: you should not ask a mother to visit their child. The second thing you should do to help a mother is to go there and bring her some food. Ring her intercom and deliver some food, not ask to visit the baby. You can say: 'I'll come visit the baby later, when you're better. Now I just came here to bring you something to eat, because I think you must be busy with this child'. I think that this kind of support would help a lot. You can call and say, 'Is everything alright? I*

want to know if everything is okay with you, I don't want to see the baby right now'. Because everyone keeps pressuring you to see the baby, so I think that's awful. Or 'I'm sending a cleaner there to clean your house', I don't know. I'm talking about close friends or relatives, who instead of wanting to come and see the baby, could help in this way. But no, your relatives come, sit there on the couch, and talk until they get tired, and you have to pay attention to them, dying of pain" (Elisa).

The effects of visitors who provide practical and emotional support on women's wellbeing can be seen through the analysis of Margareth's narrative. This participant had two completely different experiences receiving social support in the perinatal period: when she had her first son and four years later with her second son. Although she reported having postnatal depression on both occasions, she described that the first time was a "happy, exciting time". From her narrative, it is clear that she received more support from friends and family when her first son was born:

"Yeah, everyone wanted to come and visit (when first son was born). People came with casseroles and food, all sorts of things, helpful and it was just a really happy, exciting time. I had postnatal depression with him as well, but it was more because I really hadn't had much experience with babies at all and I was just terrified that I wasn't going to do the right thing as a mum. My mum's dementia hadn't progressed as much then, so she was actually quite a good support with Adam. They came up regularly to spend time with us, which was good. (…) (Now) my husband's a farmer so he's not always around to offer much support. Most of my friends live about half an hour away and are busy with their own families. I'm working, I've gone back to full-time work as well. So trying to juggle the childcare and work and general life tasks like the housekeeping, it's all been a big challenge" (Margareth).

Notably, visiting postnatally is a vital part of some cultures. Different cultural practices in the postpartum period were mentioned, considering the diversity of participants' backgrounds. Emma's narrative demonstrates how these practices, such as the

focussed help from her mother and limited activity during her four-week 'confinement' can concomitantly be restrictive and stressful, but also helpful:

> *"Then after I gave birth, I had what we call confinement, so I was at home for four weeks. The first four weeks after I gave birth, my mum came every day to my house, would drop off meals – my parents made meals and dropped them off. She would I guess run water for me to have baths and make soup and everything. (…) So culturally, you have to stay at home – you are not allowed to lift, you can't wash anything. You're not meant to have showers, you're not meant to wash your hair. It's very – I guess it's all about like trying to recover your body and rest as much as possible. It was hard [laughs] – it was really challenging. So, as much as I am thankful for that and I know that I wouldn't have recovered as well if it wasn't for that, it was still at times like crazy. Because I just wanted to have a shower, I didn't want to have a bath. I wanted to wash my hair. Like at the three-weeks mark I was like I'm ready to move around, I walk up – like I want to walk around, I want to go outside, and I couldn't leave the house. So that was really hard and that probably wasn't helpful, but also helpful at the same time, if that makes sense" (Emma).*

Due to the diversity of participants' backgrounds, some narratives also highlighted the importance of other types of support that were not previously mentioned in the literature, such as teaching and passing on the family's language. Sarah described the importance of her mother speaking Spanish to her newborn, that supported her culture and values:

> *"I think culturally as well, my mum will speak Spanish to the baby, which is really, really important to me. My Spanish is okay but it's not as good as I want it to be, so she can be that cultural person as well, which I think is a type of support because that's really supporting my values with the language and culture" (Sarah).*

Finally, women shared thoughts on what types of functional support they believed that women and their families should receive in the perinatal period. Besides cleaning and bringing food, help with older children and support for fathers were mentioned.

> *"Then probably post the baby, maybe they need to create hire-a-grandma. Someone who will come in and dote on you as the new mum and do things around the house. I know we get one visit from the nurse, but it doesn't feel like enough" (Ana).*

> *"Bring food. Don't turn up with anything other than something for her to eat because she will be hungry and it's got to be something she can eat one handed or she doesn't have to return a container. Praise her – yeah, praise her. Bring food. If you are visiting, do your dishes when you leave. Help with older children. That's such a big help. Help with older kids so they don't feel like they're being left out or the mum feels that she can focus on the newborn" (Amanda).*

Theme IV: Having affirmational support

'Just having a simple, "oh, well done". I actually do think it helps'.

This theme encompassed the narratives about appraisal and affirmational support. Women described how validation, encouragement and praise affected their well-being and sense of competency as mothers.

Women spoke about how words of encouragement, appraisal support, and validation positively affected their well-being. Health professionals seemed to have a pivotal role in this process. Since they were regarded as authority figures who had knowledge of the human body and baby's development, a compliment received from a health professional was highly valued by women in the perinatal period.

> *"Even just having a simple, 'oh, well done' – like I've had a lactation consultant and the child health nurse around his weight and breastfeeding and everything, they're like, 'well done. You've managed to transition back from bottle to boob and he's thriving. You're doing really well. You've got*

this'. So, I actually do think it helps. It feels genuine coming from a health professional" (Amanda).

Appraisal support was appreciated even if the health professionals could not help with the particular issue the family was dealing with. The praise and reassurance from these professionals were positively described by Lilian.

"I think when people did do that (praised) it was reassuring, and it really helped. So, for instance, when we were at the residential facility for feeding, they didn't really help the feeding issues, but the main thing that they helped us know, was that we were not doing anything wrong. They did say that we were doing a good job and she was doing well, so that was really good to hear" (Lilian).

Besides appreciating being praised, women also stressed the importance of receiving tactful feedback about their bodies and their competence as a mother. Tamara explained how she experienced health professionals give confidence-affirming praise:

"Yeah, actually I think health professionals that have given both praise and that constructive feedback have been really great. So, my physio who I've been seeing (…) she's really great at going, "your body is doing fantastic in this aspect and we're going to work together on addressing this". So, she's really lovely at praising and making it really gentle when something needs some work. I think that's what I found challenging about this nurse appointment. I've talked to a few other people who have experienced similarly, that it was very – there was not much praise, and it was very, "this is how you should be doing it". I think the midwives that came for the first two weeks were just beautifully full of praise and very gentle in their – "this is maybe an easier way you could breastfeed". They were just beautiful at making suggestions without making you lose confidence" (Tamara).

The experience of not feeling competent while transitioning to parenthood was mentioned by primiparas. These women described how encouragement could be

supportive, and help to build their confidence while adjusting to their new role as a mother and learning new tasks.

> *"I was used to being, I don't know, quite competent at things and doing well at work and things, so I think I had a real confidence drop when I found it hard. So, I think it is important that you get a lot of encouragement because you're learning. You're on a really, really big learning curve in a really hard situation, so yeah, I think encouragement is really important" (Patricia).*

Participants identified specific people from their support network from whom they would have liked to receive compliments. Informal sources of structural support were partners, family, and friends:

> *"My husband also, he's very – he's extremely complimentary because he knows how hard – like it's hard work. So, it does help. Yeah, it certainly helps. Although maybe I just like being praised. [Laughter]" (Amanda).*

> *"Yeah, I think so. It would be nice sometimes to just be told that you're doing a good job. Even from my father - I know that he's - he thinks it but it would be nice to hear it" (Clara).*

Remarkably, women experienced appraisal support as a kind of reward or reinforcement mechanism, especially in the early weeks when their babies are highly demanding. At this time babies often do not greatly interact or 'give back' with smiles or other rewarding gestures, and mother's selfless efforts and sleepless nights were given thanklessly, unless someone from their social network complimented them. Emma, a speech pathologist, crafted a captivating analogy to illustrate the importance of appraisal support during the early postpartum period:

> *"So, I'm a speech pathologist, but I am trained in behaviour analysis. So I look at reinforcement quite strongly and, for me, in the first couple of weeks, or even the first couple of months, you're slaving away for your baby, but your baby doesn't give you that reinforcement back. They're not saying 'thank you'. They're not smiling at you. There's no kind of praise coming*

through. If you don't have a support network that supports you and, I guess, boosts your morale and tells you you're doing a good job, I think it's so easy to just be like 'I'm not doing enough'. Or 'why should I keep going? Because no-one else is thanking me. My baby doesn't smile at me – my baby just cries at me' [laughs]. (…) but I was really lucky to have like my friends and like other mothers and my partner and my family say to me, "you're doing a great job" (Emma).

Still, some women expressed discomfort receiving praise, especially when they perceived that it was inauthentic. Other women explained that this discomfort is related to a personality trait or the way they were raised. Even so, these participants associated appraisal support with their well-being.

"I'm not really into praises. So, I don't feel comfortable with complements or praises. I suppose I do whatever I can, but then I don't need to be praised [laughs]. Sometimes it helps. It just gives me that boost: "You're doing really well" (Francis).

"No, I'm terrible at these things, like receiving compliments. I really suck. This is something that I also deal with in therapy. I have a hard time connecting with good things. When everything is going really well, I'm like: "oops, wait a minute, something's wrong or something's wrong", but it's the way I was raised, the things that have already happened in my life. So if a person gives me a compliment, it is very difficult for me to accept it (…) "Wow, you look so beautiful being pregnant!", "No, I don't, I look like an elephant" (Laura).

Participants elaborated the meaning attributed to the word "praise". Women explained they expected validation in the form of understanding and encouragement, but not necessarily compliments.

"I guess if people acknowledge that I'm doing my best and praise me for doing my best, then that would be pretty good. I think my partner and I have a lot of trust, so even though we're quite different we value our differences.

So, in that way, I guess, it'll be important to praise each other for the different things we bring. I don't know, I hadn't thought of that" (Sarah).

Lastly, women shared their final thoughts regarding the importance of receiving affirmational support:

"I think, praise – praise, the mum. She is doing a super human job at a time when she's getting no sleep. (…) Particularly for first time mums, it's all very new and you're trying to work everything out. You're also dealing with a – your own recovery after – whether it's C-section or a vaginal birth, you still need to deal with your own recovery. So, praise the mum" (Amanda).

"It can just be like words of encouragement – random words of encouragement. Like 'you've got this', or 'you've made it to Wednesday, you're doing great'. I think that makes a huge difference as well" (Emma).

Theme V: Trusting the provided information

Participants identified trusted sources from whom they would like to receive information about caring for their baby. Women's confidence in information provided by health professionals was influenced by factors such as the clarity of communication, obtaining updated information, and having continuity of care. Women's preferences regarding gender while receiving care were also investigated, and most participants stated a preference for receiving care from other women.

<u>Receiving clear, consistent, and updated information from carers</u>

'They'll say you need to trust the professionals. I'm like no, I don't know these people, I haven't felt safe with the way they communicate'.

Considering structural support, women expressed a preference to receive informational support mostly from health professionals, such as midwives, child health nurses, GPs, and paediatricians. Websites, apps, text messages from the government, Facebook and Instagram accounts were also mentioned.

Describing their expectations about receiving informational support from health professionals, women preferred to receive care from people who had plenty of

professional experience, and/or personal experience with children (being a mother or father).

> *"I definitely refer to like child health nurse, paediatrician, and also even like looking for a GP – I looked for one that had experience working with young children. Also that they had worked with young children before. (…) Like there's one that a GP, like a mum that's a GP, and she's just had a child that's a very similar age to my baby" (Emma).*

Women's narratives demonstrated that informational support from health professionals usually involved recommendations that were helpful for a specific problem they had been facing. Informational support also comprised education about babies' development, routine, and the woman's body.

> *"Even when Benjamin had baby acne; so he had a bit of acne on his face, and they were like "oh, just squirt a bit of breast of milk on it and that might – like it will help it". I did that and it did help. So I guess just giving me a little bit of those tips and tricks, but also saying to me like "it's okay if there's no routine, and it's so normal. It's very common that they're not sleeping, or this is why they're awake at night-time because they're feeding more. This is when your milk comes through". Even just looking at the latch and making sure that he's latching properly" (Emma).*

Notably, sometimes women started their narratives exploring informational support, but commingled it with appraisal and emotional support. This could be an indication that different types of support are interconnected, and receiving other types of support can influence a woman's receptivity to the given information. Emma was appreciative of governmental support as well as Child and Family Health nurses:

> *"So we have – like Queensland Government do free child health clinics with child health nurses. So I went to my local one, and I dropped in, and I met a nurse there and she was really lovely, and she made me feel a lot better. She like looked at the graph and everything and she was like 'he's putting on weight, he's doing really well. You're doing everything you can. You can*

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see how happy he is, how interactive he is', and I felt a lot better from that"
(Emma).

Women emphasised the importance of clear communication from care professionals in the perinatal period. Participants mentioned that receiving conflicting advice from different professionals was confusing and diminished their sense of confidence in professional advice – especially new mothers.

> *"You never get the same midwife twice because they rotate on shifts, (…) sometimes they give you conflicting advice. Like one midwife would say "oh, you need to top up, you need to do formula" and then the other's like, "don't feed him at night because he'll get unsettled". (…) It's hard to make a decision when you get conflicting advice. Especially when it's all so overwhelming, you're overloaded with information about what to do about taking care of a newborn and adjusting to your new life as a mother"*
> *(Angel).*

In addition to conflicting information, women complained about receiving obsolete information from health professionals.

> *"I feel like GPs - and even maternal child health nurses - still have that semi-old-school practice. At four months, the maternal child health nurse goes, "she should be starting solids and feed her Farex". You do your research and you see that Farex doesn't actually have much nutritional value. (…) It's just the information that you can read online and the information that you expect from health professionals, as well, to be the correct information, seems to be a little bit like the worst and the incorrect information" (Clara).*

Interestingly, participants stated that informational support received from health professionals, programs and services must be aligned with the woman's values. They explained that professional practices and advice are only relevant if it is compatible with their parenting style and beliefs, and that their innate confidence was important in their parenting choices:

"Because there's just this wealth of information out there and you just kind of get bombarded. Whereas once you feel confident and know what kind of a style of parenting you want, then you can - you're more confident as well. If the maternal child health nurse tells me to sleep train, I'm like, whatever, I don't care, I'm not going to do it because I'm confident now in what I want" (Patricia).

Throughout the narratives, it can be seen that continuity of care impacts women's receptivity to information. Participants stated that they trusted the provided information and advice given by midwives and other staff. Importantly, the acceptance of informational support was once more linked to other forms of support and the sense of security experienced with these professionals. Elisa describes her satisfaction and trust in their care:

"Midwives. I always had their support during my pregnancy, they always answered all my doubts. At the time of birth, I didn't have any problems with any of them, they were all wonderful. I was in the hospital in (location). I love that hospital, I love all the professionals there, I have nothing to complain about it. I have nothing to complain about the midwives, I always felt safe, what they told me was correct, so I always trusted their work, I never had any problem" (Elisa).

Demonstrating the importance of continuity of care, some participants described how failure to establish any continuity led to diminished consideration of professional advice. One participant openly conveyed her perception that Maternal and Child Health nurses possessed the most relevant knowledge for the information she sought. Nonetheless, the frequent rotation of professionals hindered the establishment of a trustworthy relationship, diminishing her likelihood of seeking assistance from them:

"I do think it probably would be the Maternal and Child Health nurses, but they're the people that I found the most difficult to form relationships with because of COVID and we weren't really seeing them. Because there wasn't continuity that you just see any Maternal and Child Health nurse. So,

probably I haven't sought help or information from them as much because I found the relationship aspect difficult, even though they are probably the most knowledgeable" (Tamara).

Receiving advice from women who also have children

'I also like going to fellow mums and just sharing, I guess, the experiences'.

Women reported they appreciated receiving information and advice from their own mothers, sisters, sisters-in-law, and friends who have children. Participants expressed a desire to engage in conversations and exchange their personal stories related to pregnancy, childbirth, and motherhood with these women, fostering a sense of relatability and normalcy in their own experiences.

> *"I also like going to fellow mums and just sharing, I guess, the experiences. It might not be so much scientific or evidence-based or factual but it is still nice to have that anecdotal information" (Emma).*

> *"Then I think some of my other friends that had babies were really supportive in sharing their stories of pregnancy or childbirth or post-birth. Again, that was just that feeling of normalness in the process though. Really good" (Tamara).*

The workplace was also a source of informational support for some women, who received advice from colleagues or supervisors who have also recently been pregnant or had a baby. Some women, however, indicated their preference for receiving information and advice from women who are also mothers, but only if they shared the same values.

> *"My mum, my closest friends that have children, that share my values. I think parenting, like most things in life, is pretty values-driven, whether you realise it or not" (Sarah).*

Exploring gender preferences in received care

'While I certainly wouldn't turn away a male if they offered to help me, I probably would feel more comfortable with a woman'.

Most participants reported a preference for receiving care from other women, in particular those who had given birth themselves. They explained that having a female body is essential to truly understand the hormonal changes, birth, and other perinatal processes.

> *"I'm doing an antenatal course (…) She's never had a child or birth, but I've never questioned that. So, it's not necessarily about someone that's birthed or is a mother, but a female body is quite important" (Sarah).*

> *"Probably most of it, I feel, is more appropriate from women. I know there are a lot of great male midwives out there and GPs, et cetera, but they don't actually go through the birth process. Yes, they might provide a lot of support through it, but they don't actually physically go through it. They don't know how much it wreaks havoc on your hormones and your mental state and your circadian rhythms and everything. So, while I certainly wouldn't turn away a male if they offered to help me, I probably would feel more comfortable with a woman" (Margareth).*

Some women stated that, overall, they do not prefer any particular gender, except in some specific situations, such as breastfeeding. In these cases, they appreciated when the professional has lived experience.

> *"No, I don't think gender really comes into it. I had a male obstetrician with my first son and I was really comfortable with that. I had a different obstetrician with Liam and she was female and that was also great. I would have had no problems having a male midwife or anything like that so no. I think, obviously – I think with lactation support maybe a female but then again, if a man knows – can understand how breastfeeding works, whatever, then I think absolutely. It's no different to a woman who hasn't had children giving that support. So no, I don't think there's an issue with either male or female" (Amanda).*

Analysis of women's narratives demonstrated the implications of gender assumptions and beliefs. Participants reported that men, from formal and informal settings, can give

insensitive advice and did not understand the perinatal experience. Remarkably, these gender-related factors provided a rationale for seeking particular forms of support from other women during the perinatal period. Some circumstances demanded female support providers, who possessed a firsthand understanding of the experiences and sensations involved.

> *"We did have an appointment with the sleep specialist who was a man and it was so gendered (…) I just thought 'yikes'. He's one of the few men that I've seen throughout my care, but it was very distinctly different. (…) He was just like, will tell you to hold onto the baby and bind, it's rubbish. I was like so you're telling me that after I've held this baby, felt every move, cried every tear, watched every macronutrient of carbohydrates, that I'm meant to just not cuddle my baby. That's the most ridiculous thing I've ever heard. I just cannot imagine a woman ever saying that ever. (…) I think the thing with the men, I've noticed both in care and informally, just like my partner or my friends' husbands or guys at work, all my male clients, there's just a real lack of acknowledgement of that instinct" (Sarah).*

> *"I know men, especially some partners, they're very supportive of their wives when they give birth and during the early stages of having a baby, but I think because they don't go through it and because they're not the primary care giver, they're not the one breastfeeding or having to hold the baby to settle them, they don't really understand how - I don't think they can grasp how challenging it is for the woman. So, there are some things that would be better suited for a woman to give support because they know what it feels like and how it is" (Angel).*

Theme VI: Being impacted by COVID-19

Despite interview questions not directly requesting information about the impacts of COVID 19, participants spontaneously expressed their experiences in relation to the pandemic. Border closures and lockdown restrictions impacted formal and informal social support. However, most participants mentioned that lockdowns also benefited their family dynamics and well-being.

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'I almost didn't see anyone during the pandemic'.

Health services and perinatal care routines changed radically with lockdown restrictions. During pregnancy, partners were not permitted to attend appointments and ultrasounds. Women who had previously experienced a miscarriage noted the fear and anxiety that accompanied attending a consultation by themselves. There was also a lot of uncertainty related to birth and the number of persons allowed in the hospital to support the woman throughout labour. This directly impacted women's mental health, leading to anxiety and stress symptoms. Not having the opportunity to do a walkthrough of the labour and maternity wards was also mentioned as a negative impact.

> *"When they said that because of COVID you can only have one support person - that caused me really extreme distress because I know that my partner and my friend who's serving as a doula complement each other in a way that my mental health really, really needs. I need the balanced support of my partner and then someone who can cover that emotional social aspect of the labour experience that my partner can't cover. So that combination of two safe people is really important, so when they said I couldn't I was really, really scared and distressed"* (Sarah).

Consultations with health professionals in the perinatal period were experienced as "impersonal" and "procedural", and women at times felt that maternal clinics were rushed and simply "ticked you off of the list that they need to". Participants explained that Telehealth had limitations, and appointments through the phone or video were inappropriate for some issues they were experiencing, such as problems with breastfeeding. The difficulty of arranging a face-to-face consultation when experiencing any COVID-19 symptoms was stated – even if presented with a negative PCR test - and women elucidated how unhelpful this was for those who had a newborn in need of medical care.

> *"So, what happened was, it was a telephone call and then a really short visit, but it really didn't work it made me just feel quite – I felt quite anxious*

after that. It didn't actually give me confidence in my parenting. So that was quite distressing" (Tamara).

"Especially in going to the doctors with my child, since he's been born. I have a toddler who is in childcare. So, he picks up lots of germs and bugs and it feels like there's been a couple of times when my baby in the newborn period has had a runny nose or some sort of sickness and I feel like I've been unable to get him seen by a medical professional because he has COVID symptoms. I just think that is atrocious and the stress that it causes parents for a young baby, not to be able to get any medical care is just - I'm just astounded that it's happening. It's happened so frequently. Even when I had a negative COVID test I've been unable to go into my - into the doctors and see someone face to face. I've found that telehealth with a baby is totally unhelpful. They need to be physically looking and examining the baby, not via telehealth" (Lisa).

Border closures limited the support women received, especially those who had family living in other states or overseas. These women expected practical and emotional support from their family of origin (particularly from their mothers), and were disappointed that their extended family could not be part of their birth/postnatal experience.

"I'd really hoped a lot of my family would've been able to be there, but with COVID that meant that we didn't really have that opportunity. I think I really grieved that (…) That was really saddening, not having that support. We didn't have support from family in terms of people being able to drop by and hold Mia for five minutes or bring around some food or clean the toilet, the really mundane little things. Or be someone to have a chat to while have Mia being soothed by someone else. So yeah, that was challenging" (Tamara).

The development of mental health concerns was associated with COVID-19 restrictions by the participants. Elisa (42 yo), a Brazilian who was a multipara,

described two different experiences of having a baby in Australia. Elisa believed that her postnatal depression was linked to a lack of support (due to COVID-19 restrictions) after giving birth to her second child:

> "I had my mom here for six months when my daughter was born (five years ago). She came a month and a half before she was born, and stayed until she was four months old. And now I had no support from her? Of course that influenced a lot in my depression" (Elisa).

Participants highlighted how they felt more vulnerable to COVID-19 related harms since they were pregnant, and this led to isolation in an attempt to protect their babies and themselves. Postnatally, they wished they could connect to other women undergoing the same process. However, with COVID-19 restrictions in place, mothers' groups were suspended, and feelings of isolation persisted.

> "I almost didn't see anyone during the pandemic. I almost didn't go out, I didn't do anything. I stayed home for a long time, really afraid of COVID, because I knew the risk I was taking being pregnant. I was much more susceptible and vulnerable" (Laura).

> "It was only about maybe a month or two ago that we had an online mothers group. I think that would've been nicer to have had earlier when COVID had happened to just feel less alone with other mothers because that was quite challenging. (…) I feel if you had that support and going to a mother's group at six weeks, you'll build a bit of a support system behind you" (Clara).

<u>Beneficial aspects</u>

'It was quite good that COVID happened'

Despite clear harms, some women reported that the restrictions surrounding COVID-19 were advantageous in some ways, protecting the family from undesirable visitors and advice. Some women described an appreciation for a "newborn bubble", enabling them to bond with the baby undisturbed. The absence of an expectation to present a clean house for guests was a welcome reprieve.

"We were a bit - well, it was more me as well, where I really wanted to have that pregnancy, that newborn bubble so I didn't want to have really any visitors, including my family to come and see her. COVID on the other hand was amazing for that, because in hospital, it was just me, my partner and the baby for five days; no visitors, nothing. We could just bond with her. I did find it challenging when my grandma and Josh's mother who are both older, in their 80s, passed judgement on the frequency of my breastfeeding and nappy changing. So COVID was slightly beneficial in that we were kind of in this little bubble, protected from unsolicited advice" (Tamara).

Flexibility with work arrangements during COVID-19 lockdowns was another advantage mentioned by participants. Having their partners working from home made them feel less isolated, while also receiving practical support. Postpartum women said that they could go to the shower, and their partner would look after the baby for a few minutes. They also had someone to chat to during the day. Whilst pregnant, women appreciated the flexibility when they were still working. Participants highlighted the importance of taking breaks and resting between tasks, considering common pregnancy conditions such as being tired/sleepy, and feeling nauseated.

"I guess it was quite good that COVID happened. That was part of the reason I decided – that we decided to have a baby. (…) Tutoring, all my classes were online so I knew that I would have that flexibility. Work actually were quite good in that regard. My boss was really good with letting me choose the days and times with my work commitments and classes. (…) if I was in a nine to five job where I had to be in an office, I would have been fired because I just could not function properly. So that took a little bit of stress off me because I knew if I'm in a Zoom tutorial and the students are then doing a break-out room activity, I can go and have a nap for 10 minutes and lay down or eat crackers because I'm just dying" (Ana).

Summary

Women's narratives vividly depicted the profound influence of social support on their mental health and overall well-being. Furthermore, women articulated how the support they received from healthcare settings, services, and professionals had a profound impact on their mental health as well. They expected consistent, continuous, and uninterrupted care from health professionals and placed importance on factors like clear communication, access to updated information, and continuity of care. The value of continuity of midwifery care was underscored during the postpartum period.

Women described how validation, encouragement, and praise positively affected their well-being and their sense of competence as mothers. They expressed expectations for both practical and emotional support from friends and family. Participants reported appreciation for receiving information and advice from women who had children, and unsolicited advice was often unwelcome and perceived as criticism. Most women expressed a preference for receiving care from other women, in particular those who had had children themselves.

Finally, The COVID-19 pandemic's border closures and lockdown restrictions had a significant impact on both formal and informal social support. However, it was notable that most participants found that lockdowns also had beneficial effects on their family dynamics and overall well-being.

These results are explored, expanded, and integrated with the quantitative findings in the next chapter.

Chapter 6: Discussion and integration

This chapter discusses the results of this study in relation to current literature, establishing greater insight into the relationship between social support, depression and anxiety in the perinatal period. The quantitative and qualitative findings of this study are integrated on a concept-by-concept basis. Limitations of the study are established. Final conclusions and implications for practice are outlined, as well as future directions for research.

In this chapter, a brief description of participants' sociodemographic characteristics and a comparison with the Australian population is presented. The importance of having continuity of care and a description of the support women expected to receive from health care providers is discussed. Attributes of expected formal social support and its impact on women's mental health are explored. An analysis of the prevalence of depression and anxiety in the perinatal period during the COVID-19 pandemic is posited. Maternal characteristics associated with depression and anxiety in the perinatal period are discussed, as is the relevance of online support and mothers' groups support. Finally, the main research question is explored in relation to current literature, analysing the structural and functional support associated with depression and anxiety in the perinatal period.

Unique contribution of this thesis

This is the first study to investigate online support and support from mothers' groups from a quantitative perspective. A systematic literature review conducted as part of my PhD candidature found only qualitative studies examining these two types of social support. This study also examined sources of support that have not been previously investigated, such as support from fathers, mothers-in-law, fathers-in-law, brothers, sisters, friends who are mothers, and neighbours. Investigation of both functional and structural aspects of social support have been previously published (Leahy-Warren et al., 2011; Leahy-Warren et al., 2012; Pao et al., 2019; Reid & Taylor, 2015; Stapleton, Schetter, Westling, Rini, Glynn, Hobel, & man, 2012). However, these studies did not simultaneously examine the range of different sources and types of support that this

study did. This is also the first qualitative study with an Australian sample that explored the relationship between social support, depression, and anxiety.

Description of participants' sociodemographic characteristics

The women in this study were well educated and of high socioeconomic status. Most of them were in a relationship during data collection and were born in Australia. Similar sociodemographic characteristics have been seen in studies that recruited participants via social media (Clout, 2015; Fonseca & Canavarro, 2017). The maternal age was slightly higher (33.2yo) than the average maternal age (first-time mothers) in Australia (30.9yo) (Australian Institute of Health and Welfare [AIHW], 2022). Participants in this study had lower rates of non-instrumental vaginal births and higher rates of caesarean section births than the median Australian rate (AIHW, 2022).

Continuity and quality of care

More than half of the cohort did not experience continuity of care throughout the maternity period, meaning that care was delivered by multiple healthcare professionals, rather than having one assigned professional (AIHW, 2023). Continuity of midwifery care during pregnancy and the postpartum period can improve outcomes for both the mother and the baby (Sandall et al., 2016), moderates the effects of prenatal maternal stress on postnatal maternal wellbeing (Kildea et al., 2018), and is associated with a statistically significant higher satisfaction with care during antenatal, intrapartum and postnatal period (Mortensen et al., 2019). Furthermore, continuity of care promotes a feeling of safety by having a reference person who women trust and to whom they could refer to (Myors et al., 2014; Slomian et al., 2017).

Some participants of this study reported they accessed private maternity care to ensure they would have the same clinician throughout their pregnancy and/or postpartum period. Having the same health professional during the perinatal period was mentioned by participants as a buffer against anxiety. However, despite these reports, there were no statistically significant differences in scores of depression or anxiety when comparing women who received public or private care (from an

obstetrician; the sample of women who received private or continuity of care from midwives was too small to calculate the correlation).

A systematic review found that midwifery continuity of care leads to improvements in maternal anxiety/worry and depression during the perinatal period (Cibralic et al., 2023). Furthermore, women with perinatal mental health concerns that receive continuity of midwifery care are less likely to have a preterm birth, have a higher likelihood of vaginal birth, and are more likely to be breastfeeding at discharge, compared to women receiving standard care (Cummins et al., 2023). To the best of our knowledge, there are no studies that show women have less mental health concerns when receiving continuity of care from an obstetrician.

In addition, there is evidence that continuity of midwifery care is beneficial for women with a history of birth trauma (Tafe et al., 2023). A small Australian study with multiparous women who self-identified as having psychological birth trauma explored their experiences of continuity of midwifery care following a previous traumatic birth experience. All eight participants reported positive experiences and a clear preference for this model for their next birth. Their interactions with the midwife in the continuity of care model established a sense of feeling better informed, empowered, and fostered trust in their bodies to facilitate a natural birth. Women believed that their positive birthing experience aided in their recovery from prior traumatic births, with their continuity of care midwife playing a significant role in helping them progress in the healing journey (Tafe et al., 2023).

Having maternity health professionals available via phone or an online device in between consultations was appreciated by the participants. The use of email, mobile phones and text messages between women and their clinicians has the potential to enhance their therapeutic relationship (Dash et al., 2016) and ensures greater adherence to treatment (Malagón-Rojas et al., 2020). Hotlines that provided readily accessible support were also valued, particularly by new mothers that needed informational support. Previous studies have shown that informational support seems to be particularly relevant for primiparas, considering women's needs in the perinatal period (Fakhraei & Terrion, 2017; Leahy Warren, 2005). Receiving education and

advice attenuates the uncertainty and anxiety of labour and birth. In addition, informational support can benefit primiparous women in the early postnatal period, since they are facing significant challenges as they navigate physical, emotional, and social adjustments, while also caring for their newborn infants (Fakhraei & Terrion, 2017; Leahy Warren, 2005).

Women in this study emphasised their dissatisfaction with excessive wait times to obtain mental health support. Long wait periods for mental health support have been previously reported to be a barrier for perinatal women in help-seeking (Button et al., 2017; Daehn et al., 2022; Sambrook Smith et al., 2019). These delays are problematic as women's access to immediate care can be crucial for the long-term well-being of both children and mothers who are experiencing a mental health concern pre or postnatally (DeRoche et al., 2023). Analysis of the barriers in help-seeking among perinatal women is imperative, given that one in five women do not disclose their mental health concerns to a healthcare provider (Prevatt & Desmarais, 2018).

For those women who were hospitalised due to their mental health, frustration with mental health services that initiated discharge prior to perceived readiness was also reported. This has also been found in other studies in relation to mental health care. Feeling 'gutted', 'extremely anxious' and 'stressed' are common among women who are prematurely discharged from perinatal mental health services (Myors et al., 2014). Importantly, absence of follow up or loss of access to other healthcare services whilst still in need can devastate their prior experience of feeling well cared for (Myors et al., 2014). In addition to these issues, continuity of care is often hindered by fragmented care provision and limited communication between healthcare providers (Nuyts et al., 2021).

Formal social support attributes and its impact on women's mental health

This study highlighted the importance of receiving humanised, individual, attentive, and considerate care from health professionals in the perinatal period. The significance of health professionals having 'people skills', maintaining a non-judgmental approach, being person-centred, developing a rapport, having a calm

voice tone, and being gentle, are widely reported in the literature (Myors et al., 2014; Slade et al., 2010; Sufredini et al., 2022). The absence of such interpersonal skills diminished the quality of care. Healthcare professionals that lack interpersonal finesse are often described as lacking in empathy, give inadequate emotional support, have little understanding of mental health concerns, are judgemental, or are dismissive of women's feelings and lived experiences (Carter et al., 2019; Evans et al., 2017; Slade et al., 2010; Stana & Miller, 2019). Having a therapeutic alliance is important for patients.

The therapeutic alliance – the interaction between healthcare provider and client when engaging and cooperating to achieve a positive health care behaviour (Doherty, 2009) – is known to be a significant predictor of treatment outcomes, including the treatment of depression and anxiety (Arnow et al., 2013; Marker et al., 2013; Pihlaja et al., 2018). A meta-analysis of 295 studies with 30,000 participants has shown that the therapeutic alliance is the most impactful therapeutic factor (Flückiger et al., 2018). A strong therapeutic alliance involves a mental health professional who demonstrates empathy, compassion, non-judgmental attitude, genuineness, authenticity, presence, and unconditional positive regard toward the client (Darazsdi & Bialka, 2023).

Not only did the multiple logistic regression analysis confirm the association between formal support (from midwives) and anxiety, the narratives shared by women underscored the impact of their interaction with health professionals on their overall well-being. Studies have shown that less perceived social support from a health care professional is considered to be a predictor of depression in the postpartum period (Kruse et al., 2014; Leahy-Warren et al., 2011; Salonen et al., 2014). In addition, it is established that receiving advice from midwives and nurses can be the most significant factor associated with women's perception of social support in postnatal wards (Salonen et al., 2014). Studies investigating the relationship between formal support and mental health concerns during pregnancy are scarce, but there is evidence that formal support during pregnancy and parental postnatal depression are inversely associated (Nakamura et al., 2020).

Prevalence of depression and anxiety in the perinatal period during the COVID-19 pandemic

This study found that across the entire sample of women in the perinatal period, the prevalence of depression symptomatology was 31.1% and the prevalence of anxiety symptoms was 19%. The prevalence of both depression and anxiety was higher for pregnant women: 33.6% were experiencing depression and 25.5% were experiencing anxiety. In the postpartum period, 27.2% of women experienced depression and 15.9% experienced anxiety.

Studies prior to 2020 report a prevalence of depression and anxiety in the perinatal period between 10 and 20%, depending on the sample (Cruise et al., 2018; Fairbrother et al., 2016; Giardinelli et al., 2012; Takehara et al., 2018; Yelland et al., 2010). However, most studies of perinatal women during the COVID-19 pandemic (between 2020 and 2022) showed higher levels of symptoms of depression and anxiety (Alfayumi-Zeadna et al., 2022; H. Chen et al., 2021; Mateus et al., 2022; Scandurra et al., 2023; Shorey et al., 2021; Sun et al., 2020). In our study, the prevalence of depression and anxiety during pregnancy was also higher than expected, possibly because data were collected during the COVID-19 pandemic. It is well-known that certain environmental circumstances, such as high levels of stress or unexpected emergencies, have the potential to increase mental health disorders, especially among groups that are already susceptible to psychological distress, such as women during the perinatal period (Mateus et al., 2022). In addition, the fear of contracting COVID-19, isolation and uncertainty, hospital restrictions during birth, and the subsequent loss of antenatal and postnatal care have also impacted women's experiences (Dol et al., 2023). Finally, the lockdowns, border closures, and COVID-19 restrictions in general resulted in diminished availability of support from family and friends during the perinatal period for millions of women (Dol et al., 2023; Melov et al., 2023), which is predictive of perinatal mental health concerns.

Interestingly, 25.5% of women in this study experienced anxiety during pregnancy, compared to 15.9% in the postpartum period[12]. This pattern of anxiety is consistent with the course of anxiety symptomology reported in other research of perinatal anxiety. A review of the prevalence and correlates of maternal perinatal anxiety found that anxiety increases from the first to the third trimester of pregnancy, peaks soon after childbirth, and then decreases as the postpartum period progresses (Leach et al., 2017). Given the significance of childbirth, it is understandable for mothers to experience anxiety due to physical and emotional stress, as well as adjustments required in their lifestyle (Paul et al., 2013). The decrease in anxiety symptoms months after birth could be an indication that mothers develop the capacity to effectively address and navigate the developmental challenges associated with the transition to parenthood, employing positive coping strategies (Figueiredo & Conde, 2011; Paul et al., 2013). In comparison, the high rates of antenatal anxiety within the current study suggests that being pregnant itself (with possible uncertainty surrounding the birth, COVID-19 and other factors) significantly challenges mothers-to-be. Therefore, more attention should be given to the psychological adjustment of women during pregnancy (Figueiredo & Conde, 2011).

This study was undertaken when COVID-19 border closures and lockdowns prevented women from receiving social support from family and friends. This negatively affected their mental health. The quality of health services was also impacted, with limited face-to-face consultations and support persons permitted to be present during ultrasounds, appointments, birth, and post-birth hospital stay. The impact of low social support on perinatal mental health during COVID-19 has been reported in other studies (Erbil et al., 2022; Melov et al., 2023; Terada et al., 2021), consistent with the higher anxiety levels recorded in pregnant women in this study.

Despite the clearly harmful implications of COVID-19, women in this study also described some benefits of the COVID-19 isolation. Participants reported that support

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[12] Considering this was not a longitudinal study and these were different groups of women, instead a single cohort measured throughout the perinatal period.

was mostly provided by their partners, most of whom were working from home due to the lockdown mandates. The lockdowns and restrictions protected women from unsolicited advice/visitors, and a desirable "newborn bubble" was created. Social selectivity is expected during the perinatal period and serves a protective function from an evolutionary perspective; the practice of isolation or partial isolation serves multiple purposes, including mitigating the risk of infanticide, facilitating mother-infant recognition, and reducing the likelihood of infectious diseases (Anderson & Rutherford, 2013). The transition to parenthood brings significant changes to the new parents' lifestyle, roles, functions, responsibilities, identity, and relationships like no other event across the lifespan (Crafter et al., 2019; Seyed Karimi et al., 2021). Some degree of isolation from people outside the "newborn bubble" in order to bond with the new baby and adjust to the new role as a mother and father is not only expected, but also beneficial.

Maternal characteristics associated with depression and anxiety in the perinatal period

This study has indicated that being an immigrant was a risk factor for depression in the postpartum period, similar to other studies (Chen et al., 2019; Collins et al., 2011; Falah-Hassani et al., 2015). Along with unstable economic status and a possible lack of acculturation, the absence or fragility of social support seems to be directly associated with higher depression scores in immigrant cohorts (Alhasanat et al., 2017; Chen et al., 2019). Immigrant women are more likely to not be screened for postnatal depression (Marti-Castaner et al., 2022), and when they are, screening practices and referral for treatment of depression is often inadequate (Fritz & McGregor, 2013). The inability to fluently speak the language of the country they are living in also affects women's capacity to access services, and sometimes they may not even understand the concept of postnatal depression, or have a word for this in their language (Tobin et al., 2018). Moreover, the loss of typical cultural practices (such as the new mother having a 40-day period of rest and recuperation), can be devastating for women that expect this traditional familial support – as COVID-19 restrictions prevented this support for many families (Tobin et al., 2018).

Complications during pregnancy (or other medical issues that were present before pregnancy) such as physical/hormonal/mental health concerns and family related problems were associated with depression and anxiety for perinatal and depression for pregnant women. Complications during pregnancy not only increase the risk of mental health concerns during the postpartum period (Blom et al., 2010), but are also risk factors that may affect child behaviour in early and middle childhood (Ben-Harush et al., 2022). Common complications such as gestational diabetes mellitus, hypertension, and some lesser prevalent conditions such as hyperemesis gravidarum are associated with perinatal depression and anxiety (Mitchell-Jones et al., 2017; Pace et al., 2018; Su et al., 2021). Possible explanations for this association are physical and hormonal changes that are historically linked with depression and anxiety. In addition, it is well established that pain, tiredness and other implications of illness are also associated with mental health issues in the perinatal period. Finally, unmet expectations about pregnancy, labour, and the postpartum period, can lead to feelings of disappointment and failure, affecting women's ability to adapt in the perinatal period and lead to mental health concerns (Blom et al., 2010).

A history of mental health concerns, a well-established predictor of perinatal anxiety and depression (Fisher et al., 2012; Liu et al., 2021; Schmied et al., 2013; Witt et al., 2011), was also linked with perinatal anxiety in this study. Other typical predictive variables of mental health concerns in the perinatal period, such as a lower maternal age, marital status, or type of birth, were not found to be statistically significant. Many studies about the perinatal period are heterogeneous in terms of design, interventions, method of assessment of depression or anxiety, and outcome measures. Compared with other studies that utilised similar quantitative instrumentation, this study relied on relatively strict cut-off points (e.g. EDS ≥ 13, while other studies used 9, 10, 11 or 12 as cut-off points). The interpretation of the results of this study is subject to the cut-off points relied on. Importantly, the decision of using a cut-off of ≥ 13 is based on the EDS' authors recommendation, since the validation study showed that mothers who scored above a threshold 12/13 were likely to be suffering from a depressive illness (Cox et al., 1987).

Online support

Online support was inversely associated with anxiety during the perinatal period. This study investigated the implications of both formal and informal sources of online support. The systematic review conducted as part of this thesis found that distance-delivered interventions (via internet or telephone) diminished levels of depression and anxiety in the perinatal period (Sufredini et al., 2022). A study that investigated the role of online social support to promote psychological wellbeing in new mothers found that social networking sites (SNS) usage was not significantly correlated with mental wellbeing (Henton & Swanson, 2023). Although the dependent variables investigated were not the same, analysis of some other relevant aspects might help to explain the seemingly inconsistent results. Henton & Swanson's study (2023) measured the frequency of SNS use in hours per week, whereas our study examined online support as a categorical and binary variable. Authors have also used different sub-domains (affective, social, diversion, personal and cognitive) (Henton & Swanson, 2023), while we used House's classification (as previously explained on Chapter 1 (Introduction).

Data collection took place during the COVID-19 pandemic, which could explain why online support was so significant to women. Measures such as lockdowns and closure of international borders during the pandemic impacted many aspects of life including access to overseas social support networks, which is particularly relevant since nearly 30% of the Australian population are migrants (ABS, 2021). The use of virtual contact with support networks was mentioned as beneficial to the mental health of perinatal women in another Australian study that also collected data during COVID-19 (Melov et al., 2023). In addition, smaller online support groups (for example, Facebook groups with a single support focus, such as breastfeeding, breast milk pumping or gestational diabetes), can also be helpful to mothers with anxiety (Harrison et al., 2020).

Interestingly, perinatal women usually join online communities looking for connectedness, reassurance, and informational support. With time, these women share emotional and esteem support, as they gain comfort with their membership in these groups (Rhee & Kim, 2023). Online support enables multiple types of support such as emotional, instrumental and informational, similar to that received from family

and friends (Sufredini et al., 2022). In addition, participation in online support groups can provide relief and comfort for women who are suffering postpartum depression symptoms through obtaining support and creating connection with other mothers (Sufredini et al., 2022).

Support from mothers' groups

Mothers' groups support was found to significantly reduce the odds of depression and anxiety in postpartum women. The importance of mothers' groups to perinatal women experiencing depression has been previously described (Anderson, 2013; Cook et al., 2019; Rooney et al., 2014). However, evidence about the relationship between anxiety and attendance at mothers' groups was under-developed until recently, considering that most studies about the perinatal period are focused on depressive symptoms, leaving anxiety relatively under examined (Sufredini et al., 2022).

Analysis of women's experiences attending mothers' support groups in other studies revealed themes such as normalisation of feelings due to shared experiences, feeling a sense of community, and gratitude for the group experience (Cook et al., 2019). Similarly, groups for women with postpartum depression (PPD) are perceived as a safe place for disclosure of PPD symptoms and feelings of resentment, fear, and guilt. The support groups foster mutual counselling connections, bolster individuals' self-esteem and self-value, and positively influence the overall well-being of their members (Anderson, 2013).

In this study, analysis of women's narratives aided the interpretation of quantitative findings about the relationship between depression, anxiety, and support from mothers' groups. Participants explained that such groups built a support system and lessened feelings of isolation. The positive impact of sharing experiences and feelings with others who are going through similar experiences has been previously described (Evans et al., 2017). Peer support can be beneficial not only to alleviate feelings of isolation, but also to fulfil women's emotional needs during the perinatal period (Evans et al., 2017; Raymond et al., 2014).

Structural and functional support associated with depression and anxiety in the perinatal period

Different sources and types of support (respectively, structural and functional attributes of support) were correlated and tested to examine their association with depression and anxiety. This section will discuss the instrumental, informational, emotional and appraisal support outcomes of this research in relation to other studies.

Instrumental (practical) support

Although women's narratives highlighted the importance of receiving practical support through the provision of help with housework, meals, and caring for older children, quantitative findings indicated that this type of support is not statistically significant for perinatal women to alleviate symptoms of depression nor anxiety. A possible explanation for this is that the instrument used in this study only investigated activities involving the baby but not the housework (the practical support item was "to carry out infant care tasks, such as feeding, changing, bathing and settling your baby").

Other studies have had similar results, with no significant association between practical support and depression (Chojenta et al., 2012; Eastwood et al., 2012; Iwata et al., 2016). An inverse association between depression and practical support has been described; however, it was as significant as other types of support (e.g. informational, appraisal, or emotional) (Leahy-Warren et al., 2012; Pao et al., 2019; Reid & Taylor, 2015). Hetherington and colleagues also had a sample of well-educated perinatal women with high incomes, and suggested the insignificance of practical support might be linked to such cohort's characteristics and needs. Studies involving women with low incomes found that the absence of tangible support during pregnancy was the most strongly associated with symptoms of postpartum depression (Bassuk et al., 2002; Hetherington et al., 2018), showing that this type of support can be beneficial, depending on the needs of the cohort.

Some types of practical support such as provision of second-hand baby clothes and equipment, help with the cost of travel to hospital, help with shopping, cooking, and looking after the newborn baby have been described to be as important as emotional

support. This support can positively affect women's emotional wellbeing by reducing anxiety about practical problems (McLeish & Redshaw, 2017).

Informational support

The impact of informational support was statistically significant when received from the participants' mothers, midwives, and friends who are mothers. When received from participants' mothers, this type of support was inversely associated with depression during the whole perinatal period, and with anxiety during the postpartum period. Receiving informational support from midwives significantly decreased the odds of experiencing anxiety during pregnancy. Postnatally, this type of support reduced the likelihood of experiencing depression. These findings reveal that women benefit mostly from advice and opinions from women who have a lived experience of motherhood, with whom they share a close relationship, and/or who have technical knowledge about the perinatal period, such as midwives.

Notably, women often rely on their own mothers, mothers-in-law, and elder women for information regarding antenatal care, due to having a trusting relationship, and these women's lived experience with pregnancy and childbirth (Comfort et al., 2022). In addition, it is known that pregnant women who used family members as primary sources of information have significantly increased levels of perceived informational support and reduced uncertainty about pregnancy (Song et al., 2013).

Considering the relationship between midwives' informational support and decreased odds of anxiety, it is worth mentioning that findings from other studies suggest that women in the perinatal period rely on health professionals for information about themselves or their babies (Leahy Warren, 2005). Informational support from health professionals about specific topics (e.g. postnatal depression) may positively contribute to women's psychological well-being (Heh & Fu, 2003).

Emotional support

In this study, emotional support was associated with lower levels of anxiety and depression in the perinatal period when received from the participants' mothers or

friends who were mothers. During pregnancy, emotional support from mothers and partners diminished the likelihood of women experiencing depression and anxiety, respectively. In the postpartum period, emotional support from friends who were mothers and partners also decreased the odds of experiencing depression and anxiety (respectively). The inverse relationship between anxiety and partner's support is well-established. During pregnancy, increased risk of anxiety has been associated with low levels of support from partners (Akiki et al., 2016; Cheng et al., 2016). Postnatally, low social support from partners was a statistically significant factor for anxiety (Dennis et al., 2017).

Perceived emotional support not only seems to mitigate depression and anxiety in the perinatal period, but is a key determinant to how young women (from 15 to 24 years old) experienced the recommended changes to their health behaviour during pregnancy. For example, pregnancy often requires changes in nutritional intake, cessation of smoking, monitoring weight gain, and use of health services. Inadequate emotional support is conducive to the perception that recommended behavioural modifications of pregnancy (whether this advice comes from health care professionals or others) are oppressive. Conversely, when women received emotional support from their partners and/or family members, it fostered a sense of empowerment in their experiences (Reszel et al., 2014).

Appraisal support

Appraisal support from women's mothers-in-law played a crucial role in reducing anxiety levels during the entire perinatal phase, while this type of support from mothers and friends who are mothers decreased the likelihood of experiencing depression. For pregnant women, appraisal support from their partners and mother-in-law significantly decreased the likelihood of experiencing anxiety and depression respectively during this period.

During the postpartum period, receiving appraisal support from friends who were mothers was associated with a lower likelihood of experiencing depression. In contrast, receiving appraisal support from GPs was linked to increased anxiety.

Women who feel anxious after giving birth may rely more on their GPs, visiting them more often with concerns about their babies, a common symptom of postnatal anxiety. In response to this, GPs might offer additional appraisal support to boost their confidence, which could help reduce their anxiety over time. In Australia, GPs are well-recognised for their essential role in identifying and treating perinatal mental health issues. Some women have described their GP as a trusted confidant to whom they reveal problems they might not share with anyone else (Hartley et al., 2012).

The nuanced associations between women and the people providing appraisal support establish important insights into supporting women in the perinatal period. Prior to this study, the effect of appraisal support in the perinatal period was relatively unknown, since few studies have investigated this association. For example, a study about the predictors of depressive symptoms in older Japanese primiparas found that dissatisfaction with appraisal support was a predictor of maternal depressive symptoms (Iwata et al., 2016). Similarly, an Irish study (also with first-time mothers), found that all types of support - including appraisal support - were inversely associated with depression (Leahy-Warren et al., 2012).

The findings of this study and others demonstrate that women gain valuable support through validation and compliments from fellow women with first-hand experience in motherhood, particularly those they share close connections with. Women anticipated receiving affirming and encouraging support from friends and family. When this form of support came from a healthcare professional, it positively influenced their confidence as well. As healthcare professionals are trusted and considered experts in the human body and infant development, receiving compliments from them bolstered women's confidence while adapting to their role as a new mother. It is known that appraisal support is not only relevant for reducing maternal mental health issues, but is also significantly related to maternal confidence with infant care practices (Leahy Warren, 2005).

Limitations and recommendations for future research

Despite the methodological rigour of this study, there are some limitations that need to be addressed. Participant recruitment took place via social media in both study phases. While this approach addressed challenges posed by COVID-19 lockdowns, it may have inadvertently excluded women without access to the online space. The high educational and socioeconomic status of the participants suggests this limitation was operative in the recruitment strategy. The homogeneity of the cohort limits the generalisability of the study's findings. In addition, only eight participants of the study's first phase identified as Aboriginal or Torres Strait Islander, and none in the subsequent phase. Therefore, there is limited insight into First Nations women's experiences of social support and mental health concerns. Future research should utilise recruitment strategies that gain a deeper understanding of the relationship between social support and mental health among Aboriginal and Torres Strait Islander women, as well as women with lower educational and socioeconomic status.

Another potential limitation was the absence of a specific psychometric tool designed to assess anxiety during the perinatal period when data collection took place (2021). This study used the five-item abbreviated state version of the Spielberger State Trait Anxiety Inventory (STAI) (Zsido et al., 2020), as the STAI was the most frequently used tool to measure anxiety in the perinatal period from 2010 to 2020 (Sufredini, 2022). Future research should utilise instruments that are purpose developed for women in the perinatal period. For example, the Pregnancy-Specific Anxiety Tool (PSAT) and the Pregnancy-Related Anxiety Scale (PrAS) could be valuable alternatives for screening and monitoring of pregnancy-specific and pregnancy-related anxiety, respectively (Bayrampour et al., 2023; Dryer et al., 2023). These scales contain specific items about the health and well-being of the baby, birth, the pregnant person's well-being, body image, maternal worries, postpartum, support, career and finance, which makes them more suitable for women who are currently pregnant. Further studies could remove the items related to pregnancy and birth, and investigate if these tools could also be used with postpartum women, similar to the EDS after it was validated to be used antenatally.

The cross-sectional design of this study also limits inferences regarding causality. The higher prevalence of depression among individuals with low social support in this

sample indicates these variables are associated, but not whether low social support causes depression or if another factor contributes to both. Future research designs (e.g., longitudinal studies) could explore causal relationships between social support and mental health concerns.

Conclusion and implications for policy and practice

Typically, childbirth is associated with feelings of joy and happiness. However, the perinatal period represents a period of vulnerability for women, carrying substantial social, emotional, physical, and financial implications. Studies indicate that approximately 10 to 20% of women experience mental health challenges during this period, predominantly depression or anxiety. In this study, the prevalence of mental health concerns was relatively high, possibly attributable to the data being collected during the COVID-19 pandemic: 31.1% of women were presenting symptoms of depression and 19% of anxiety.

This study investigated the effects of structural and functional support on depression and anxiety in women in the perinatal period, and explored the experiences of women around support during the perinatal period. Notably, the study investigated other previously unexplored sources of support, including fathers, mothers-in-law, fathers-in-law, siblings, friends who are mothers, and neighbours. Through this thorough investigation, several significant findings surfaced. This included the relevance of a type of support that has not been previously investigated in depth: appraisal support, which seems to be statistically significant when received from mothers, mothers-in-law, partners, and friends who are mothers. This finding has implications for the practice of healthcare professionals. Encouraging women who are close to the pregnant/postnatal woman to offer appraisal support could be regarded as a cost-effective intervention worth considering.

Another notable set of findings from this study were those related to online support and support derived from mothers' groups. Findings revealed these sources of support were inversely associated with anxiety and depression. Recognising that both online support and support from mothers' groups are inversely linked to mental health

concerns, these findings can guide healthcare professionals, policymakers, and support groups in tailoring interventions or programs to prioritise and bolster online support networks and mothers' groups. Online mothers' groups and other supports increased rapidly during the COVID-19 pandemic, so to have further understanding on the successful elements of such support would be useful. In particular, this would be helpful should another pandemic arise.

Additionally, the link between continuity of care and women's mental well-being underscores the importance of expanding midwifery continuity of care models, ensuring accessibility for all women. Currently, only 1.6% of births in Australia occur in the context of a continuity of care model (AIHW, 2023). The implementation of continuity of care models could potentially save billions of dollars in future health-related expenditures associated with perinatal depression and anxiety. These savings would be from reduced utilisation of primary and community health services, decreased reliance on hospital healthcare services, minimised productivity losses, and mitigated developmental issues that could impact the children of parents experiencing depression and anxiety, amongst many others.

Finally, this study represents the first qualitative investigation within an Australian context, exploring the relationship between social support, depression, and anxiety. Participants' narratives established insight into women's needs around practical, informational, emotional, and appraisal support. Similarly, the detailed accounts of women's experiences with services and healthcare providers illustrated their expectations regarding the care they received and the care they had hoped for. The analysis and descriptions of these narratives have provided an understanding of the experiences of perinatal support of women living in Australia.

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Appendices

Appendix A. Journal Article

Review article

The effects of social support on depression and anxiety in the perinatal period: A mixed-methods systematic review

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ABSTRACT

Background: The social support offered to women in the perinatal period can buffer against depression and anxiety. The sources and types of support that reduce maternal levels of depression and anxiety are not well understood.

Aims: To investigate the effects of structural and functional support on depression and anxiety in women in the perinatal period, and to explore the experiences of women around support during the perinatal period.

Method: A comprehensive search of six electronic databases was undertaken. Relevant studies published from January 2010 to April 2020 were included (PROSPERO reference number: CRD42020194228). Quantitative and qualitative studies were eligible if they reported the effects of, or had themes related to receiving functional or structural support in the perinatal period on women's levels of depression or anxiety. Qualitative data was synthesised using a thematic synthesis method. Quantitative data could not be pooled due to the lack of comparable RCTs or cohort studies and was thus presented in a narrative form.

Results: Fifty-one articles (41 quantitative and 10 qualitative studies) were included. Analysis of quantitative studies demonstrated that insufficient support from partner, friends and family was associated with greater risk of symptoms of depression and anxiety. Distance-delivered interventions (via internet or telephone) diminished levels of depression and anxiety. Qualitative data revealed three overarching themes: appreciating all forms of support in the perinatal period, recognising appropriate and inappropriate support from health professionals and services, and having barriers to mobilising functional and structural support.

Limitations: Grey literature was not explored and search strategies only included English, Spanish and Portuguese language articles. The reviewed studies were heterogeneous and for this reason, quantitative assessments were not feasible.

Conclusion: Support from specific sources such as family members, friends who are also mothers, health professionals, neighbours, supervisors, co-workers and online communities still need to be further investigated. Implications for health professionals involved in the care of women in the perinatal period are discussed.

1. Introduction

Childbirth is usually experienced with joy and happiness (Sawyer et al., 2011). However, the perinatal period is also a time of vulnerability for women, with significant social, emotional, physical and financial implications (Braveman et al., 2010; Chojenta et al., 2012; Coates et al., 2018). Between 10 and 20 % of women experience some type of mental health concern, most commonly depression or anxiety (Bauer et al., 2014).

The prevalence of mental health concerns during the perinatal period has been thoroughly investigated. During pregnancy, 10–22 % of women experience symptoms of depression, while 16–20 % experience anxiety (Fairbrother et al., 2016; Giardinelli et al., 2012; Takehara et al., 2018). In the postpartum period the prevalence of these two mental health concerns is similar: 11–25 % of mothers experience depressive symptoms and 12–17 % experience symptoms of anxiety (Cruise et al.,

Appendix B. Data extraction and quality appraisal of quantitative studies (systematic literature review)

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
1	Agostini, 2015, Italy	To identify different kinds of stressful life events and social support associated with antenatal depressive symptoms in a sample of pregnant Italian women.	Cross-sectional	Depression	Edinburgh Depression Scale (EDS), cut-off 13, at third trimester (pregnancy)	Structural (family, friends and partner) Multidimensional Scale of Perceived Social Support (MSPSS)	Total MSPSS score: OR = 0.94 (0.92–0.97, 95% CI; p=0.0005) Family: F = 6.12, df = 1,399, p = 0.014; Friends: F = 11.24, df= 1,399, p = 0.001; Significant others: F = 15.19, df= 1,399, p<0.0005.	Depressed women reported significantly lower social support from family, friends, and significant others.	100%
2	Akiki, 2016, Canada	To identify determinants of maternal antenatal state-anxiety in the second trimester of pregnancy, with a particular focus on whether "feelings about the	Cross-sectional	Anxiety	Spielberger State and Trait Anxiety Inventory (STAI), at second trimester (pregnancy)	Structural (family, friends and partner) Turner and Marino (1994) Social Support Scales	Linear regression: Family: Beta/p= -0.29 (p<0.001), 95% CI (-0.336) – (-0.252)	Low social support from one's partner and family were statistically significant determinants of state-anxiety during the second trimester Social support from friends was not retained in the final	100%

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Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		pregnancy" predicts state-anxiety after controlling for other covariates.					Friends: Beta/p= -0.30 (p<0.001), 95% CI (-0.343) – (-0.259) Partner: Beta/p= -0.20 (p<0.001), 95% CI (-0.244) – (-0.158) Multivariable regression: Family: Beta/p = -0.044 (0.029) Partner: Beta/p = -0.033 (0.0051) (p<0.05).	multivariable model, although presenting a significant value.	
3	Al Dallal, 2012, Bahrain	To provide data about the prevalence of postnatal depressive symptoms and associated risk factors among	Cross-sectional	Depression	Edinburgh Postnatal Depression Scale (EPDS) in Arabic, cut-off 12, at eight weeks postpartum	Structural (mother and husband) Questionnaire developed by the authors	Mother: OR (95% CI) = 1.33 (0.78–2.27) (p = 0.292) Husband: OR (95% CI) =	No significant association with depression was found when the participant's mother was not identified as a provider of support. When the husband was not	75%

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Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		Bahraini women at 8 weeks postpartum.					2.33 (1.36–4.00) (p = 0.002)	identified as a support, this was found on logistic regression to be a risk factor.	
4	Almutairi, 2017, Saudi Arabia	To examine the impact of general help-seeking behavior (GHSB) and partner support (PS) on PPD among Saudi women in primary health care clinics in Riyadh city.	Cross-sectional	Depression	Edinburgh Postnatal Depression Scale (EPDS), no cut-off, at 1-6 weeks (postpartum)	Structural (partner) Partner Support Scale (PSS)	B=-0.238 (-2.038), adj p=0.045 (vaginal delivery) and B=-0.199 (-1.108), adj p=0.276 (c-section) (p<0.05).	Found a relationship between partner support score and depression score.	100%
5	Cheng, 2016, USA	Examined the influence of partner support during pregnancy on psychological variables, smoking behaviour, and pregnancy risk factors using two socioeconomically distinct cohorts in Boston, Massachusetts.	Prospective cohort	Depression and Anxiety	Edinburgh Postnatal Depression Scale (EPDS), cut-off 12, on first and second trimester (pregnancy). Anxiety tool: unclear	Structural (partner) Turner Support Scale	Early preg. anxiety: AOR = 1.8, 95% CI: 1.0–3.4 and AOR = 1.9, 95% CI: 1.1–3.3 (two cohorts). Early preg. depression: (AOR 1.9, 95% CI: 1.1–3.3. Mid-preg depression: AOR = 3.1,	Low partner support was associated with anxiety and depression in early pregnancy, and depression in mid-pregnancy.	88%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
							95% CI: 1.7–5.7		
6	Chojenta, 2012, Australia	To examine the risk factors for postnatal depression (PND) using longitudinal data in a representative sample of Australian women.	Retrospective cohort	Depression	Women self-reported if they were diagnosed or treated for depression	Functional (emotional / informational, tangible, and affectionate) Medical Outcomes Study Social Support Index	Affectionate: OR = 2.37, 95% CI: 1.24-4.53, p<.05.	Affectionate support was significantly related to postpartum depression. Emotional, informational and tangible were not.	64%
7	Dagher, 2011, USA	To investigate the effects of total workload and other work-related factors on postpartum depression in the first 6 months after childbirth, utilizing a hybrid model of health and workforce participation.	Prospective cohort	Depression	Edinburgh Postnatal Depression Scale (EPDS), no cut-off, 5 weeks, 11 weeks, and 6 months postpartum	Structural (supervisor, co-worker, family and friends) Tools adapted from Bond et al. (1991); Sherbourne and Stewart (1991).	Family and friends: -0.2448 95% CI (-0.3114, -0.1781), t -7.21, p>0.000	Social support from family and friends was found to be inversely related to postpartum depression scores over the 6 months after childbirth, while supervisor and co-worker support was not.	100%
8	Dennis, 2017, Canada	To describe the prevalence of sustained postpartum anxiety and to	Prospective cohort	Anxiety	State Trait Anxiety Inventory (STAI), score > 40, at 1 week and/or 4 weeks,	Structural (partner, mother, mother-in-law and other women with children)	Predictor: Partner: aOR 0.59, 95% CI 0.40–0.85 (p = 0.01).	Partner social support was a predictor of sustained anxiety in the postpartum period (at 1 week). Mother-in-law	100%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		develop a multifactorial predictive model to assist in targeted screening procedures.			and 8 weeks postpartum	Social Provisions Checklist and Social Provisions Scale	Associated factors (uni. analy.): Partner: OR 0.37 (0.27–0.49), p<0.001; Mother-in-law: OR 0.60 (0.44-0.83), p=0.002; Other women with children: OR 0.62 (0.45-0.85), p=0.003	and other women with children social support were statistically significant factors. Mother support was not a statistically significant factor.	
9	Dudas, 2012, Hungary	To determine the psychosocial and obstetric correlates of depressive symptomatology during pregnancy in South-Eastern Hungary.	Cross-sectional	Depression	Leverton Questionnaire, cut-off 12, at 14–24 weeks (pregnancy)	Structural (partner and family) Questionnaire developed by the authors	Partner: AOR 1.79 (95% CI 1.32–1.89), p<0.001; Family AOR 1.23 (95% CI 1.10–1.41), p=0.018	A perceived lack of social support from partner and family were significant determinants of depression.	88%
10	Eastwood, 2012, Australia	To determine the prevalence and risk factors for postnatal depressive symptoms in	Cross-sectional	Depression	Edinburgh Postnatal Depression Scale (EPDS), cut-off 9-10, at 2–3 weeks postpartum	Functional (practical and emotional) Questionnaire developed by the authors	Emotional support: EPDS >9 = OR 1.60 (95% CI 1.34 – 1.92);	Emotional support and practical support remained significant in the final main effects parsimonious model for EPDS >9, while	88%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		women living in metropolitan Sydney, Australia.					EPDS >12 = OR 1.76 (95% CI 1.39 – 2.24)	emotional support remained significant for EPDS >12.	
11	Escriba-Aguir, 2013, Spain	To determine the effect of isolated psychological intimate partner violence and psychosocial factors (social support and alcohol or drug use by a partner/family member) on psychological well-being (depression or poor self-perceived health status) at 5 and 12 months post-partum.	Prospective cohort	Depression	Edinburgh Postnatal Depression Scale (EPDS), cut-off 10-11, at first trimester (pregnancy), 5 and 12 months (postpartum)	Functional (tangible and affective) Medical outcome study-social support survey (MOS-SSS)	Tangible: AOR = 1.97 (95 % CI 1.02–3.83), p= 0.044; Affective: AOR = 4.80 (95 % CI 2.07–11.13), p < 0.001	Women with a low tangible social network, and a lack of affective support were more likely to report PPD during the first year after birth.	89%
12	Faleschini, 2019, USA	To investigate associations of social support at 6 months postpartum with women's health	Prospective cohort	Depression	Edinburgh Postnatal Depression Scale (EPDS), cut-off 13, at six months postpartum	Structural (partner and family / friends (as one source))	Partner: OR = 0.33 (95% CI 0.20 - 0.55) and Family / friends: OR =	Support from partner and friends / family was strongly associated with lower odds of incident depression.	100%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		behaviors that have previously been shown to predict weight retention at 1 year postpartum.				Turner Support Scale	0.49 (95% CI 0.30 - 0.79), p-values > 0.05		
13	Giurgescu, 2016, USA	To explore African American women's experience of church attendance, church member support, depressive symptoms, and psychological well-being at 15-25 weeks' gestation.	Cross-sectional	Depression	Center for Epidemiologic Studies Depression Scale (CES-D), at 15 - 25 weeks (pregnancy)	Structural (church members) Questionnaire developed by the authors	Church members: M = 10.33 (SD 7.63)	There were no differences in depressive symptoms among women who received support from church members and those who did not.	100%
14	Glavin, 2010, Norway	To examine the effect of supportive counselling by public health nurses on postpartum depression.	Pragmatic trial	Depression	Edinburgh Postnatal Depression Scale (EPDS), cut-off 10, at 6 weeks postpartum (pre-test) and 3 and 6 months postpartum (post-test)	Structural (intervention: Supportive counselling sessions with the PHN in the period between 6 weeks and 3 months postpartum)	At 3 months: coefficient -2.6, [95% CI (-4.0,-1.1)], p = <0.01 At 6 months: coefficient -2.7, [95% CI (-4.3,-1.2)], p = <0.01	There were significant differences in mean EPDS score between the EG and CG groups after the intervention at 3 months and again at 6 months.	64%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
15	Hetherington, 2018, Canada	To examine if low social support contributes to subsequent risk of depressive or anxiety symptoms and to determine which type of support is most important.	Prospective cohort	Depression and Anxiety	Edinburgh Postnatal Depression Scale (EPDS), cut-off 10, Spielberger State Anxiety Index, cut-off 40, twice in pregnancy, at 4 months and 1 year (postpartum)	Functional (tangible, positive social interaction and emotional/ informational)

Medical Outcome Survey Social Support Scale | Low SS pregnancy and symptoms at 4 months: depressive (RR 1.50, 95% CI 1.24 to 1.82); anxiety (RR 1.63, 95% CI 1.38 to 1.93). Low SS at 4 months and anxiety symptoms at 1 year: (RR 1.65, 95% CI 1.31 to 2.09). | Low total social support during pregnancy was associated with an increased risk of depressive symptoms and anxiety symptoms at 4 months postpartum. Low total social support at 4 months was associated with an increased risk of anxiety symptoms at 1 year. Emotional/informational support was the most important type of support for postpartum anxiety. | 100% |
| 16 | Hughes, 2020, UK | To test the unique influences of friendship support and family support on parental psychological distress, including couple relationship quality and prenatal salivary cortisol as | Prospective cohort | Depression and Anxiety | Centre for Epidemiological Studies Depression Scale (CESD20), General Health Questionnaire (GHQ12) and the 6-item State-Trait Anxiety Inventory (STAI6), at third | Structural (family and friends)

Multidimensional Scale of Perceived Social Support | Mother Latent Intercept Est. (SE): Family support: -0.11 (0.11), Std. Est. −0.09, Latent Slope Est. (SE) −0.05 (0.03), Std. | Support from friends attenuated mothers' psychological distress (anxiety and depression), but not the support from family. | 100% |

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		covariates in our longitudinal dyadic model.			trimester (pregnancy), 4, 14 and 24 months (postpartum)		Est. -0.19. Friendship support: -0.11 (0.11), Std. Est. −0.08, Latent Slope Est. (SE) −0.10 (0.03), Std. Est. -0.36**), **p < .01		
17	Iles, 2011, UK	To identify whether symptoms of postpartum depression and posttraumatic stress are related within couples, both concurrently and across time and to explore the relationships between partner attachment, perceived social support and posttraumatic stress and depressive symptoms in	Prospective cohort	Depression	Edinburgh Postnatal Depression Scale (EPDS), cut-off 12 and 13, at 7 days, 6 weeks and 3 months (postpartum)	Structural (significant other) Significant Others Scale	At T2: .26, p<.001; at T3: .16, p<.01. Regression analyses: at T2: .10; at T3: .08	Dissatisfaction with partner support was associated with higher levels of postpartum depression.	89%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		couples in the postpartum.							
18	Iwata, 2016, Japan	To identify predictors of post-partum depression in older Japanese primiparas at 1 month post-partum.	Prospective cohort	Depression	Edinburgh Postnatal Depression Scale (EPDS), cut-off 9, at childbirth and 1 month postpartum	Functional (instrumental, informational, appraisal and emotional) Questionnaire developed by the authors	Appraisal support: OR = 2.52 (95% CI 1.22 - 5.22), p < 0.05.	Dissatisfaction with appraisal support was a predictor of maternal depressive symptoms.	100%
19	Jeong, 2013, Korea	To investigate risk factors for antenatal depression with a focus on emotional support.	Cross-sectional	Depression	Edinburgh Postnatal Depression Scale (EPDS), cut-off 10, at any stage of pregnancy	Structural (partner and mother) and functional (emotional) Questionnaire developed by the authors	Partner: OR = 2.26, (95% CI 1.94–2.64); Mother: OR = 1.43, (95% CI 1.26–1.62), p <.001	Emotional support from partner and mother significantly influenced depression during pregnancy.	75%
20	Jiao, 2019, Singapore	To examine the effectiveness of web-based and home-based postnatal psychoeducational interventions for first-time mothers during the early postpartum period.	RCT	Depression and anxiety	Edinburgh Postnatal Depression Scale (EPDS) (no cut-off), the anxiety subscale of the Hospital Anxiety and Depression Scale (HADS-A), at baseline and	Structural (intervention: Web-based and home-based postnatal psychoeducational intervention)	M = - 1.82, (p = 0.044)	When compared to the control group, the web-based intervention reduced postnatal depression at post-test 3, while the home-based intervention did not show significant effect on this outcome at all post-tests. There were	85%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
					after the intervention (one, three and six months postpartum)			no differences in anxiety scores among the groups.	
21	Kohlhoff, 2016, Australia	To report preliminary outcomes associated with an antenatal psychosocial assessment and depression screening program implemented at an Australian private obstetric hospital setting and to report characteristics and correlates of elevated depression symptoms in this sample.	Cross-sectional	Depression	Edinburgh Postnatal Depression Scale (EPDS), cut-off 12, at any stage of pregnancy	Functional (practical and emotional) Questionnaire developed by the authors	Practical: OR = 6.10 (95% CI 1.57 - 23.55), p = 0.009	Poor practical support was a significant predictor of antenatal depression.	75%
22	Kozinszky, 2012, Hungary	To evaluate the effectiveness of a brief preventive group intervention for postpartum	RCT	Depression	Leverton Questionnaire, cut-off 12, pre (second trimester of pregnancy) and	Structural (intervention: Brief preventive group intervention	Leverton Questionnaire total scores (OR = 0.69).	The intervention appeared to significantly reduce the risk of PPD.	100%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		depression (PPD) in a naturalistic setting, and study the effect of this on social and psychological risk factors.			post-intervention (6-8 weeks postpartum)	for postpartum depression)			
23	Kruse, 2014, USA	To extend testing of a relational theory that a low sense of belonging, delayed or impaired bonding, and loneliness are salient risk factors for postpartum depression (PPD) in women.	Prospective cohort	Depression	Postpartum Depression Screening Scale (PDSS), at <28 weeks' gestation, 28–35 weeks' gestation, and 6 weeks postpartum	Structural (health care practitioner, SO, friends and family) The Family APGAR, Health Care Alliance Questionnaire (HCAQ) and items of the Quality of Life Inventory (QOLI).	Partner: -10 and Health care practitioner: -11.	Less perceived social support from a health care practitioner and a partner were predictors of PPD. Support from friends and family was insignificant in the model that included the path for depression.	100%
24	Leahy-Warren, 2011, UK	Identified the prevalence of PND and examined the relationships between functional and structural social support at 6	Prospective cohort	Depression	Edinburgh Postnatal Depression Scale (EPDS), cut-off 11, at 6 and 12 weeks (postpartum)	Structural (formal and informal) and functional (informational, instrumental, emotional and appraisal)	6 weeks (low support): OR = 12.38, (95% CI 3.59–42.69), p < .001; 12 weeks (low	At 6 and 12 weeks, the only social support dimension independently associated with PND was total functional social support. At-birth formal structural	100%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		and 12 weeks postpartum.				Questionnaire developed by the authors	support): OR = 4.96, (95% CI 1.69–14.57), p < .01; birth: emotional: OR = 3.14 (95% CI 1.28–7.73), p < .05; Formal: OR = 3.19, (95% CI 1.31–7.76), p < .05).	support and emotional functional support were independently predictive of PND at 12 weeks. Informal structural social support network sources were weakly related to PND.	
25	Leahy-Warren, 2012, UK	To examine the relationships between social support, maternal parental self-efficacy and postnatal depression in first-time mothers at 6 weeks post delivery.	Cross-sectional	Depression	Edinburgh Postnatal Depression Scale (EPDS), cut-off 11, at 6 weeks (postpartum)	Structural (formal and informal) and functional (informational, instrumental, emotional and appraisal) Questionnaire developed by the authors	Informational (r = -0.29, p < 0.001); Instrumental (r = -0.33, p < 0.001); Emotional (r = -0.40, p < 0.001); Appraisal (r = -0.41, p < 0.001)	There was a statistically significant inverse relationship between informational, instrumental, emotional support and appraisal support and postnatal depression. Significant relationships were found between informal social support and postnatal depression too.	69%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
26	Milgrom, 2011, Australia	Evaluated the effectiveness of an antenatal intervention which targeted risk factors for poor postnatal adjustment, with the dual aim of reducing both postnatal symptoms of depression/ anxiety and parenting difficulties.	RCT	Depression and anxiety	The Edinburgh Postnatal Depression Scale (EPDS) (cut-off of ≥13), The Beck Depression Inventory-II and The Depression Anxiety Stress Scales short form (DASS-21), at baseline (20–32 weeks gestation, pre-randomisation) and post-treatment (12 weeks postpartum)	Structural (intervention: The antenatal "Towards Parenthood" intervention, a self-help workbook comprising nine units, followed by a discussion of the content with a psychologist or trainee psychologist in a weekly telephone support session)	Depression (BDI-II): $(F_{1, 86} = 7.82, p<.01.$ Cohen's $d = 0.6)$ Anxiety (DASS-21): $F_{1, 86} = 7.35, p<0.01.$ Cohen's $d = 0.58)$	Participants in the intervention reported significantly lower levels of depression (BDI-II) post-treatment than participants in routine care. Significant treatment effects favouring the intervention group were also found on subscales of the DASS for anxiety.	81%
27	Mulcahy, 2010, Australia	Compare outcomes from an 8-week Interpersonal Psychotherapy group (IPT-G) for postnatal depression with 'treatment as usual' (TAU), conducted in a	RCT	Depression	The Edinburgh Postnatal Depression Scale (EPDS) (cut-off of ≥13), The Beck Depression Inventory-II, and The Hamilton Depression Rating Scale (HAM-D), at week 1	Structural (intervention: Interpersonal Psychotherapy group (IPT-G) for postnatal depression)	EPDS: $t(22)=7.637, p<.05, 95\%$ CI 5.26–9.17, $\eta2=.726$ BDI-II $t(22)=6.940, p<.05, 95\%$ CI 8.78–16.27, $\eta2=1.84$	By end of treatment both the TAU and IPT-G groups significantly improved in terms of mean depression scores, however, the IPT-G women improved significantly more and had continued improvements at 3 months post therapy.	88%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		routine community setting in the Australian Capital Territory (ACT).			(commencement of IPT-G), week 4 (IPT-G mid-treatment), week 8 (IPT-G end of treatment) and 3 months after the completion of the IPT group				
28	Nylen, 2013, USA	To examine the associations between prenatal maternal depression, maternal perceived social support, and infant birth outcomes.	Prospective cohort	Depression	Structured clinical interview for DSM-IV axis I disorders, at first and second trimester (pregnancy)	Structural (partner) Social support questionnaire short form (SSQSR) and Support in intimate relationships rating scale (SIRRS)	Frequency (depressed): M 90.00 (SD 48.15) and (non-depressed): M 94.74 (SD 33.37); adequacy (depressed): 25.91 (14.35) and (non-depressed): 27.02 (11.32).	Depressed women were not significantly different from non-depressed women with respect to frequency or adequacy of partner support.	100%
29	O'Mahen, 2014, UK	To assess the preliminary effectiveness of NetmumsHWD on depressive and anxious	RCT	Depression and Anxiety	The Edinburgh Postnatal Depression Scale (EPDS) (no cut-off) and the Generalized	Structural (intervention: "NetmumsHWD", an online behavioural activation	EPDS: (−0.87, 95% CI −0.42 to −1.32) GAD-7: (−0.59,	There was a large effect size favouring women who received NetmumsHWD on depression and anxiety scores at post-treatment	81%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		symptoms, work and social impairment, perceived support, and maternal self reported bonding with her infant in order to help inform future sample size calculations.			Anxiety Disorder Scale (GAD-7), at baseline (first year postpartum), 17 weeks post-treatment, and 6 months post-treatment	treatment course, with access to a chat room and 'meet a mum' feature. Women received weekly phone call support from mental health workers.)	95% CI −1.11 to −0.07).	compared with women in the TAU group, and a large effect size on depression at 6 months post-treatment.	
30	Pao, 2019, USA	To examine the role of social support in a large, diverse population of PPD cases and controls.	Cross-sectional	Depression	MINI International Neuropsychiatric Interview and Edinburgh Postnatal Depression Scale (EPDS), cut-off 11 and 12, at 6-weeks postpartum (+or-1-2 weeks)	Structural (partner) and functional (emotional, tangible, affectionate, and positive social interaction) Medical Outcomes Study and The Baby's Father Support scale	OR = 0.23 (95% CI 0.19–0.27), p = 6.92E-90)	Higher levels of social support had a strong protective association against PPD and symptom severity is significantly and negatively correlated with the degree of social support, regardless of type. Women with PPD were significantly more likely to have lower perceived paternal support compared to controls.	55%
31	Posmontier, 2016, USA	To test the feasibility, effectiveness, and acceptability of	Prospective cohort	Depression	MINI International Neuropsychiatric Interview and the	Structural (intervention: nurse-midwife telephone-	P = .047 at 8 weeks and P = .029 at 12 weeks)	The Hamilton Rating Scale for Depression at 8 and 12 weeks was significantly lower	59%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		certified nurse-midwife telephone-administered interpersonal psychotherapy (CNM-IPT) as a treatment for PPD.			Hamilton Rating Scale for Depression, and Edinburgh Postnatal Depression Scale (EPDS), cut-off >9, at baseline and 4, 8, and 12 weeks post-enrollment	administered interpersonal psychotherapy) Social Support Questionnaire (SSQ).		among women in the treatment group (received up to eight 50-minute CNM-IPT sessions), compared to the control group (referred to mental health professionals). No significant difference in Edinburgh Postnatal Depression Scale scores was found between the 2 treatment groups, but across both treatment groups, there was a significant reduction in the Edinburgh Postnatal Depression Scale scores over time.	
32	Racine, 2019, Canada	To examine to what extent within-person fluctuations in maternal stress and anxiety predict subsequent changes in stress and anxiety from pregnancy to 12	Prospective cohort	Anxiety	Spielberger State Anxiety Scale (STAI), at < 25 weeks gestation (Time 1, T1), 34–36 weeks gestation (Time 2, T2), 4 months postpartum (Time 3, T3), and 12	Structural (partner, family and friends) Questionnaire developed by the authors	family (95% BCI [−.12, −.002]), friend (95% BCI [−.06, −.01]), partner (95% BCI [−.10, .01]).	Earlier individual levels of partner and family support predicted subsequent decreases in anxiety.	100%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		months postpartum, and to examine whether within-person fluctuations in maternal satisfaction with social support from the partner, family, or friends predict subsequent changes in stress and anxiety from pregnancy to 12 months postpartum.			months postpartum (Time 4, T4)				
33	Reid, 2015, USA	Examine the pathway between social support, stress exposure, and postpartum depression in greater detail.	Retrospective cohort	Depression	Composite International Diagnostic Interview – Short Form (CIDI-SF), Section A, at childbirth and one year postpartum	Structural (friends, family and partner) and functional (instrumental)

Questionnaire developed by the authors | Partner: – 0.10, Family and friends: – 0.17 (p = .001) | Both intimate partner support and friend and family support are independently associated with a significantly lower risk of postpartum depression for all women, regardless of family type. | 89% |
| 34 | Salonen, 2014, Finland | Evaluating primiparous or multiparous mothers' | Cross-sectional | Depression | Edinburgh Postnatal Depression Scale (EPDS), cut-off | Structural (nurses and midwives) and functional (affection, | Primiparas: - .257 (Pearson), p <.001 | Depressive symptoms (EPDS score ≥13) were associated with SSNP | 100% |

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		perceptions of social support from nursing professionals (SSNP) in postnatal wards and factors associated with SSNP.			13, after childbirth	affirmation and concrete aid) Social Support from Nursing Professionals, by Tarkka et al. (2000)	Multiparas: -.171 (Pearson), p .003	for multiparas, but not for primiparas.	
35	Schwab-Reese, 2017, USA	To identify the relationship between psychosocial employment characteristics and mothers' postpartum depression, anxiety, and stress symptoms.	Prospective cohort	Depression and Anxiety	Depression, Anxiety, and Stress Scales (DASS-21), after birth and 6 months postpartum	Structural (co-worker and supervisor) Tool by Rousseau and Aube (2010)	(Anxiety) co-worker: AOR 0.32 (95% CI 0.11-0.95), supervisor: AOR 0.19 (95% CI 0.04-0.86), organization: AOR 0.05 (95% CI 0.01-0.77), alpha = 0.05.	Increased social support provided by co-workers, supervisors, and the organization was associated with reduced odds of anxiety symptoms, but not for depression.	100%
36	Shorey, 2019, Singapore	To evaluate the effectiveness of a technology-based peer-support intervention program (PIP) on maternal outcomes	RCT	Depression and Anxiety	Edinburgh Postnatal Depression Scale (EPDS), cut-off 9 and 13, and State-Trait Anxiety Inventory (STAI), immediately	Structural (intervention: Technology-based peer-support intervention program)	d= –2.11; (–4.0 to −0.3); p =.03)	There was a statistically significant difference in EPDS scores between the intervention and control groups at 3 months postpartum after adjusting for covariates, but not in STAI.	85%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		during the early postpartum period.			postpartum (baseline), at 1 month postpartum and at 3 months postpartum				
37	Shorey, 2017, Singapore	To examine the effectiveness of Home-but not Alone, a postnatal psychoeducational programme delivered via a mobile-health application for parents during the early postpartum period to improve parenting outcomes.	RCT	Depression	Edinburgh Postnatal Depression Scale (EPDS), no cut-off, at baseline (before mothers were discharged from hospital) and post-test (at the end of 4 weeks using the app)	Structural (intervention: "Home-but not Alone", a postnatal psychoeducational programme delivered via a mobile-health application.)	Mean difference = -0.33 (95% CI -1.21 - 0.53), t = -1.44, p = 0.450.	Postnatal depression scores did not show any significant improvement compared with the control group.	81%
38	Stapleton, 2012, USA	Examined maternal perceptions of partner support and related relationship factors (partner relationship satisfaction and maternal interpersonal	Prospective cohort	Depression and Anxiety	Center for Epidemiological Studies and State-Trait Anxiety Scale–State Anxiety, at T1: 18–20 weeks' gestation; T2: 24–26 weeks' gestation; T3: 28–32 weeks'	Structural (partner) and functional (task, informational and emotional)

The Social Support Effectiveness (SSE) interview and pregnancy- | (beta = -.15) | Mothers who perceived stronger social support from their partners mid-pregnancy had lower emotional distress postpartum. Partner prenatal support was more strongly associated with postpartum depressive | 94% |

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		security) as predictors of maternal postpartum emotional distress (anxiety and depression) and infant temperament.			gestation) and at 6–8 weeks' postpartum	specific support needs (Collins et al., 1993)		symptoms than with anxiety.	
39	Tsai, 2019, Taiwan	Explored the relations of work-related factors, including perceived job strain and workplace support, to depressive symptoms among pregnant Taiwanese employees.	Cross-sectional	Depression	Edinburgh Postnatal Depression Scale (EPDS), cut-off 13, at third trimester (pregnancy)	Structural (colleagues and supervisor) Questionnaire developed by the authors	OR = 16.7 (95% CI 2.9– 53.1), p = 0.0023	Lack of support from colleagues were significantly associated with antenatal depressive symptoms.	100%
40	Yeh, 2018, Taiwan	To explore the prevalence of exposure to occupational hazards and depressive mood with associated underlying risk	Cross-sectional	Depression	Edinburgh Postnatal Depression Scale (EPDS), no cut-off, at 12 weeks (pregnancy)	Structural (co-worker and supervisor) Chinese Job Content Questionnaire (C-JCL)	Supervisor: Mean 11.4 (SD 2.2); Co-worker: Mean 12.4 (SD 2.2)	Reduced workplace support was significantly associated with possible antenatal depressive symptoms.	100%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support and used tool for measuring it	Study outcome	Summary of support effect	Quality appraisal
		factors among pregnant workers.							
41	Wozney, 2017, Canada	To test the effectiveness of a distance-delivered intervention (Managing Our Mood, MOM) in reducing the rate of PPD when compared to a control group at 3, 6 and 12 months postrandomization.	RCT	Depression	The Edinburgh Postnatal Depression Scale (EPDS) (no cut-off) and The Beck Depression Inventory-II, at baseline and 3, 6 and 12 months postrandomization	Structural (intervention: "Strongest Families™ Managing Our Mood (MOM)", a distance delivered intervention of 12-session cognitive-behavioural based. Intervention group received a package containing handbook, video and a partner/ companion information brochure about PPD, and also weekly telephone calls from a personal coach.)	3 months OR = 1.5; 6 months OR = 1.54; 12 months OR = 12.5 (p<0.05)	Intervention group participants were 1.5 times as likely to experience diagnostic remission at 3 months (mid-intervention), 1.54 times as likely at 6 months (p =0.696) and 12.5 times as likely at 12 months. Intervention 'dosage' significantly moderated this effect; for every additional coaching session completed, individuals had a 1.4 times greater chance of showing improvement at 3 and 6 months.	77%

Appendix C. Data extraction and quality appraisal of qualitative studies (systematic literature review)

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support	Summary of support effect	Quality appraisal
42	Anderson, 2013, USA	To determine how social support communication compares between types of support groups for women with postpartum depression (PPD).	Qualitative	Depression	Unclear or non-existent tool; Unclear time point (postpartum)	Structural (PPD support group, local mothers' group and working moms' group) and functional (informational, emotional, and tangible support).	For women with PPD, condition-specific support groups were reported to be most helpful.	90%
43	Carter, 2019, UK	Assess the acceptability, recruitment, feasibility and effectiveness of a peer support intervention for women with antenatal depression.	Qualitative	Depression	Unclear or non-existent tool; 28-30 weeks (pregnancy)	Structural (peer support worker).	The women within the intervention group valued the peer support highly, reporting that being able to speak openly to a PSW meant that feelings of alienation, abnormality, isolation and stigma were replaced with social support, confidence, self-esteem and hope for recovery.	85%
44	Evans, 2017, UK	To explore women's experience of anxiety in pregnancy and views on the use of anxiety instruments in antenatal care.	Qualitative	Anxiety	Unclear or non-existent tool; Anytime in the nine months postpartum.	Structural (midwife and peer support).	Women reported not being able to share their feelings of anxiety with others and felt isolated. Many participants would have liked to talk to others who were going	75%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support	Summary of support effect	Quality appraisal
							through similar experiences (peer support). Participants felt that their midwife did not understand their situation, or tried to minimise their feelings.	
45	Evans, 2012, Canada	To explore the perceived value and types of social supports that characterize the discussions women who participate in PPD online support groups.	Qualitative	Depression	Unclear or non-existent tool; Unclear time point (postpartum)	Structural (other moms in postpartum depression online discussion groups) and functional (emotional, informational and instrumental).	The majority of the women's postings illustrated emotional support followed by informational and instrumental support. Online support groups provide women experiencing postpartum depression a safe place to connect with others and receive information, encouragement and hope.	75%
46	Myors, 2014, Australia	To report on women's experiences of accessing the support of specialist PIMH (perinatal and infant mental health) services.	Qualitative	Depression and Anxiety	Unclear or non-existent tool; Unclear time point (during pregnancy and postpartum)	Structural (professionals of specialist perinatal and infant mental health (PIMH) services).	The women in this study were mainly positive about the support they received, specifically the close relationship they developed with 'their' clinician, which enabled personal growth as	95%

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Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support	Summary of support effect	Quality appraisal
							individuals and as mothers.	
47	Negron, 2013, USA	To explore postpartum women's views and experiences with social support following childbirth.	Qualitative	Depression	Unclear or non-existent tool; At 6-12 months postpartum.	Structural (partner, family, friends and counsellor) and functional (instrumental and emotional support).	Women across all groups identified receipt of instrumental support as essential to their physical and emotional recovery. Support from partners and families was expected and many women believed this support should be provided without asking.	75%
48	O'Mahen, 2012, USA	To understand the perinatal-specific needs of depressed women in an effort to inform treatment modifications that may increase the relevance and acceptability of Cognitive behavioral therapy (CBT) during this period.	Qualitative	Depression	Unclear or non-existent tool; Unclear time point (during pregnancy and postpartum)	Structural (partner, family and other mothers) and functional (practical and emotional support).	Women reported a desire to receive practical support from close others, particularly partners and family members, and emotional support from other mothers during the perinatal period.	75%
49	Slade, 2010, UK	To provide the first integrated in-depth exploration of postnatal women's experiences of the identification and management of	Qualitative	Depression	Edinburgh Postnatal Depression Scale (EPDS) scores ≥18, 6 months postpartum.	Structural (health visitor interventions; Cognitive-behavioural approach, Person-centred approach and	Women who received any psychologically informed sessions reported strongly positive experiences, placing particular	75%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support	Summary of support effect	Quality appraisal
		symptoms of depression and the offer and acceptance of postnatal care by health visitors taking part in the PoNDER trial.				Treatment as usual (the control group)).	emphasis on the importance of having the opportunity for one-to-one discussions with the health visitor.	
50	Slomian, 2017, Belgium	(1) to explore the needs of mothers in the year following childbirth; (2) to compare these needs between mothers who did not have the feeling of living a psychological disorder or a depression and mothers who lived a psychological disorder or had the impression of living a depression; and (3) to compare the needs expressed by mothers with the perception of professionals and fathers about the mothers' needs.	Qualitative	Depression	Edinburgh Postnatal Depression Scale (EPDS), group of mothers who had given birth 4 to 6 weeks earlier, and another group of mothers who had given birth 10 to 14 months earlier.	Structural (partner, family and professionals) and functional (information, sharing, psychological and practical / material support).	Women do not feel sufficiently supported in the perinatal period, not only from a psychological point of view but also from a more practical point of view, for example with household chores. They need to share their experience of life, they need to be reassured and they need to feel understood.	75%
51	Stana, 2019, USA	To investigate types of social support sought and received by women with PPD.	Qualitative	Depression	Unclear or non-existent tool; Unclear time	Structural (other mothers in a postpartum depression online support group)	Informational support was found to be the most frequently used type of support, followed by	80%

Ref	First author, year, country	Study aim	Study design	Health outcome	Tool used for measuring depression or anxiety and time points	Dimension of social support	Summary of support effect	Quality appraisal
					point (postpartum)	and functional (informational, emotional, esteem, unique communication and network/community support).	emotional support and network/community support.	

Please complete this survey about social support, depression and anxiety in the perinatal period

It will take around 20-30 minutes of your time

https://redcap.link/socialsupport

Follow this link to find out more

UTS HREC REF NO. ETH21-5848

Are you currently pregnant? Or, have you had a baby less than one year ago? If so, please consider sharing your experience around the support you have received. Follow the link to participate: https://redcap.link/socialsupport .

We are interested in learning more about the relationship between social support, depression and anxiety, to better understand how to improve health services for new mothers.

Please, share this survey with your friends who are currently pregnant or have a baby who is less than one year old!

If you have questions or concerns about the research, please feel free to contact us at Francieli.Sufredini@student.uts.edu.au.

Appendix E. Participant Information Sheet (Interview)

PARTICIPANT INFORMATION SHEET - INTERVIEW
Social support, depression, and anxiety in the perinatal period: a mixed methods study
UTS HREC REF NO. ETH21-5848

WHO IS DOING THE RESEARCH?
My name is Francieli Sufredini and I am a PhD Candidate at UTS. My supervisors are Associate Professor Christine Catling, Dr Joel Zugai and Dr Sungwon Chang. We can be reached at the Faculty of Health, UTS, phone (02) 9514 2000, or email (Francieli.Sufredini@student.uts.edu.au, Christine.Catling@uts.edu.au, Joel.Zugai@uts.edu.au, Sungwon.Chang@uts.edu.au).

WHAT IS THIS RESEARCH ABOUT?
This research is to find out about the effects of different types of support on depression and anxiety in women during pregnancy and in the first postnatal year. We are interested in learning more about the relationship between social support, depression and anxiety, to better understand how to improve health services for new mothers.

WHY HAVE I BEEN ASKED?
You have been invited to participate because you are currently pregnant or had a baby in the last year, and provided your email after responding to an online survey.

IF I SAY YES, WHAT WILL IT INVOLVE?
If you decide to participate, I will invite you to answer some questions about your experience receiving social support during your pregnancy, and/or after your baby was born. The interview will take approximately 30 to 45 minutes. We will agree on a date and time that suits you and I will send you a Zoom link by email. The interview will be audio recorded and transcribed. Even if you decide to turn on your video, I will not record your image, just your voice.

ARE THERE ANY RISKS/INCONVENIENCE?
Yes, there are some risks/inconvenience. It is possible that you will feel emotional distress as a result of the information you are being asked to recall, discuss or consider. If you feel uncomfortable and wish to stop the interview, you can do that at any time without consequences. If this happens, the researcher will guide you towards any appropriate help you may need from healthcare professionals.

DO I HAVE TO SAY YES?
Participation in this study is voluntary. It is entirely up to you whether or not you decide to take part. This decision will not otherwise affect current or future care at any hospital, medical or birth centre.

WHAT WILL HAPPEN IF I SAY NO?
If you decide not to participate, it will not affect your relationship with the researchers or the University of Technology Sydney. Even if you choose to participate in the interview, you can withdraw at any time during the interview. However, if you wish to withdraw from the interview after it is finished, it may not be possible to withdraw your data from the study results if your information has already been pooled with other participant's information and de-identified.

If you decide to leave the research project, we will not collect additional personal information from you, although personal information already collected will be retained to ensure that the results of the research project can be measured properly and to comply with law. You should be aware that data collected up to the time you withdraw will form part of the research project results.

CONFIDENTIALITY
By giving your verbal consent at the beginning of the interview, you consent to the research team collecting and using personal information about you for the research project. All this information will be treated confidentially. Your information will only be used for the purpose of this research project and only myself and my supervisors will have access to the data.

We plan to publish the results of this research in academic and industry journals and present them at conferences. In any publication, the information will be provided in such a way that you cannot be identified and will remain anonymous.

WHAT IF I HAVE CONCERNS OR A COMPLAINT?
If you have concerns about the research you think my supervisor or I can help you with, please feel free to contact us at Francieli.Sufredini@student.uts.edu.au or Christine.Catling@uts.edu.au.

This form is yours to keep.

NOTE:
This study has been approved in line with the University of Technology Sydney Human Research Ethics Committee [UTS HREC] guidelines. If you have any concerns or complaints about any aspect of the conduct of this research, please contact the Ethics Secretariat on ph.: +61 2 9514 2478 or email: Research.Ethics@uts.edu.au], and quote the UTS HREC reference number. Any matter raised will be treated confidentially, investigated and you will be informed of the outcome.

Appendix F. Information Sheet and Consent Form for Online Surveys

INFORMATION SHEET AND CONSENT FORM FOR ONLINE SURVEYS
UTS HREC REF NO. ETH21-5848 - Social support, depression, and anxiety in the perinatal period: a mixed methods study

What is the research study about?
The purpose of this research is to investigate the effects of different types of support on depression and anxiety in women during pregnancy and in the first postnatal year. We are interested in learning more about the relationship between social support, depression and anxiety, to better understand how health services can be improved for new mothers.

You have been invited to participate because you are either currently pregnant or had a baby in the last year.

Who is conducting this research?
My name is Francieli Sufredini and I am a PhD Candidate at UTS. My supervisors are Associate Professor Christine Catling, Dr Joel Zugai and Dr Sungwon Chang. We can be reached at the Faculty of Health, UTS, tel: (02) 9514 2000, or email (Francieli.Sufredini@student.uts.edu.au, Christine.Catling@uts.edu.au, Joel.Zugai@uts.edu.au, Sungwon.Chang@uts.edu.au).

Inclusion/Exclusion Criteria
Before you decide to participate in this research, we need to ensure that it is ok for you to take part.

1) Are you currently pregnant and/or have you had a baby less than one year ago? (this means your baby is less than one year old)
2) Are you 18 years or older?
3) Are you able to read in English?
4) Are you currently living in Australia?

If you have answered "Yes" to all the four questions, you are eligible to participate in this study. If not, thank you for your interest, but it seems that you do not meet the inclusion criteria for this study.

Do I have to take part in this research study?
Participation in this study is voluntary. It is entirely up to you whether or not you decide to take part. Even if you choose to respond to this survey, you can withdraw at any time in the middle of this process. This decision will not affect current or future care at any hospital, medical or birth centre. However, once you have submitted your survey, you will not be able to withdraw - as the surveys are anonymous and not identifiable and it would be impossible for us to remove your individual survey responses.

If you decide to participate, you will be invited to complete an online survey with some questions about yourself such as your age, marital status, household income, employment status, type of care received during pregnancy, how many children you have and information about any mental health concerns you have had in the past. After that section, you will be asked some questions that will measure your levels of social support, depression and anxiety. The whole survey will take approximately 20 minutes to complete. If you are unable to complete the survey in one attempt, you can leave it and come back to the same spot automatically later by clicking on the link.

At the end of the survey, you will have the option to flag your willingness to participate in the second phase of the study. If you do that, you will be asked to share your email and first name so we can invite you to participate in an interview.

Are there any risks/inconvenience?
Yes, there are some risks. It is possible that you will feel emotional distress as a result of the information you are being asked about on the online survey (e.g., type of birth, history of mental

health concerns, lack of support, depressive or anxious symptomatology). If you feel uncomfortable and wish to stop, you can do that at any time without consequences. If you would like to talk to someone about these feelings, please call one of these numbers: Mental Health Line (1800 011 511) or PANDA National Helpline (1300 726 306). Please, also consider discussing these feelings with your healthcare provider (midwife, obstetrician, GP, perinatal service or mental health care professional), a family member or a friend. You can also reach the researcher Francieli Sufredini at Francieli.Sufredini@student.uts.edu.au, so we can discuss and provide a referral to a counselling professional if necessary.

What will happen to information about me?
Access to the online survey is via https://redcap.link/socialsupport. By clicking on the box bellow, *y*ou consent to the research team collecting and using personal information about you for the research project. All this information will be treated confidentially. We would like to store your anonymous information for future use in research projects that are an extension of this research project. The results of this research might be published in academic and industry journals or presented at conferences. In any publication, the information will be provided in such a way that you cannot be identified and will remain anonymous.

What if I have concerns or a complaint?
If you have concerns about the research, my supervisor or I can help you. Please feel free to contact us at Francieli.Sufredini@student.uts.edu.au or Christine.Catling@uts.edu.au.

If you would like to talk to someone who is not connected with the research, you may contact the Research Ethics Officer on 02 9514 9772 or Research.ethics@uts.edu.au and quote this number: [ETH21-5848].

By clicking on the box bellow, you give your consent to the research team to collect and use personal information about you for the research "Social support, depression and anxiety in the perinatal period: a mixed methods study".

☐ Yes, I understand the information that has been given to me, and I agree to participate in this research project.

(Can not proceed if one does not tick the box)

Appendix G. Online Survey

Are you currently pregnant?	◯ Yes ◯ No

When is your expected due date? (Please use this format: Day-Month-Year = DD-MM-YYYY).

_____

What type of maternity care are you currently receiving? Please tick all that apply.

☐ Private obstetrician (and/or other specialist) care
☐ Private midwifery care
☐ Continuity of care by midwives
☐ General Practitioner/Obstetrician Care (shared care with the hospital)
☐ Public hospital maternity care (by hospital doctors and/or midwives)
☐ Public hospital high risk care
☐ Remote area maternity care
☐ I am not sure
☐ Another type of maternity care
(Continuity of care by midwives: When a woman has the same midwife/midwives caring for her throughout pregnancy, in the early parenting period, and/or during the labour and birth.)

Could you describe this other type of maternity care?

_____

Are you using public or private health services during your pregnancy? Please tick all that apply.

☐ I have Medicare, and I am using only public health services during this pregnancy.
☐ I have Medicare, but I am also using private insurance for some examinations or maternity healthcare professionals (e.g. private obstetrician).
☐ I have Medicare, but I am also considering using private insurance/healthcare for my birth.
☐ I do not have Medicare, and I am using my private insurance and/or paying full fees for public healthcare.
☐ I do not have Medicare, and I am using my private insurance and/or paying full fees for private healthcare.

Have you had a baby less than one year ago?	◯ Yes ◯ No

How old is this baby? (In months)

_____

What type of maternity care did you receive during this pregnancy? Please tick all that apply.

☐ Private obstetrician (and/or other specialist) care
☐ Private midwifery care
☐ Continuity of care by midwives
☐ General Practitioner/Obstetrician Care (shared care with the hospital)
☐ Public hospital maternity care (by hospital doctors and/or midwives)
☐ Public hospital high risk care
☐ Remote area maternity care
☐ I am not sure
☐ Another type of maternity care
(Continuity of care by midwives: When a woman has the same midwife/midwives caring for her throughout pregnancy, in the early parenting period, and/or during the labour and birth.)

Could you describe this other type of maternity care?

_____

Did you use public or private services during this pregnancy? Please tick all that apply.	☐ I have Medicare, and I used only public health services during this pregnancy. ☐ I have Medicare, but I also used private insurance for some examinations or maternity healthcare professionals (e.g. private obstetrician). ☐ I have Medicare, but I also used using private insurance/healthcare for my birth. ☐ I do not have Medicare, and I used my private insurance and/or paid full fees for public healthcare. ☐ I do not have Medicare, and I used my private insurance and/or paid full fees for private healthcare.
What type of birth did you have?	○ Vaginal birth ○ Vaginal birth assisted with a suction device ○ Vaginal birth assisted with forceps ○ Vaginal birth after caesarean (VBAC) ○ Scheduled caesarean ○ Unplanned caesarean
Do/did you have any pregnancy complications, or any other medical issues that were present before pregnancy (including physical/hormonal/mental health concerns/family problems)?	○ Yes ○ No ○ I would rather not answer this question
Please describe the complication(s):	
How many other children do you have, besides this one you are currently pregnant with/had less than one year ago?	
If you are feeling distressed by answering these questions and do not want to proceed, please tick the next button to immediately leave this survey.	○ I would like to leave this survey. (If you want to have a chat with someone right now, please call one of these numbers: Mental Health Line (1800 011 511) or PANDA National Helpline (1300 726 306). Please, also consider discussing your feelings with your healthcare provider (midwife, obstetrician, GP, perinatal service or mental health care professional), a family member or a friend. You can also contact the researcher by email: Francieli.Sufredini@student.uts.edu.au.)

Survey 20% Complete

How old are you? (In years)	
Were you born in Australia?	○ Yes ○ No
Please indicate where you were born:	○ Afghanistan ○ Albania ○ Algeria ○ Andorra ○ Angola ○ Antigua and Barbuda ○ Argentina ○ Armenia ○ Austria ○ Azerbaijan ○ Bahamas ○ Bahrain ○ Bangladesh ○ Barbados ○ Belarus ○ Belgium ○ Belize

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○ Benin
○ Bhutan
○ Bolivia
○ Bosnia and Herzegovina
○ Botswana
○ Brazil
○ Brunei
○ Bulgaria
○ Burkina Faso
○ Burundi
○ Cabo Verde
○ Cambodia
○ Cameroon
○ Canada
○ Central African Republic
○ Chad
○ Chile
○ China
○ Colombia
○ Comoros
○ Congo - Democratic Republic of the
○ Congo - Republic of the
○ Costa Rica
○ Côte d'Ivoire
○ Croatia
○ Cuba
○ Cyprus
○ Czech Republic
○ Denmark
○ Djibouti
○ Dominica
○ Dominican Republic
○ East Timor (Timor-Leste)
○ Ecuador
○ Egypt
○ El Salvador
○ Equatorial Guinea
○ Eritrea
○ Estonia
○ Eswatini
○ Ethiopia
○ Fiji
○ Finland
○ France
○ Gabon
○ Gambia
○ Georgia
○ Germany
○ Ghana
○ Greece
○ Grenada
○ Guatemala
○ Guinea
○ Guinea-Bissau
○ Guyana
○ Haiti
○ Honduras
○ Hungary
○ Iceland
○ India
○ Indonesia
○ Iran
○ Iraq
○ Ireland
○ Israel
○ Italy
○ Jamaica
○ Japan
○ Jordan
○ Kazakhstan
○ Kenya
○ Kiribati
○ Korea - North
○ Korea - South
○ Kosovo

- ○ Kuwait
- ○ Kyrgyzstan
- ○ Laos
- ○ Latvia
- ○ Lebanon
- ○ Lesotho
- ○ Liberia
- ○ Libya
- ○ Liechtenstein
- ○ Lithuania
- ○ Luxembourg
- ○ Madagascar
- ○ Malawi
- ○ Malaysia
- ○ Maldives
- ○ Mali
- ○ Malta
- ○ Marshall Islands
- ○ Mauritania
- ○ Mauritius
- ○ Mexico
- ○ Federated States of
- ○ Moldova
- ○ Monaco
- ○ Mongolia
- ○ Montenegro
- ○ Morocco
- ○ Mozambique
- ○ Myanmar (Burma)
- ○ Namibia
- ○ Nauru
- ○ Nepal
- ○ Netherlands
- ○ New Zealand
- ○ Nicaragua
- ○ Niger
- ○ Nigeria
- ○ North Macedonia
- ○ Norway
- ○ Oman
- ○ Pakistan
- ○ Palau
- ○ Panama
- ○ Papua New Guinea
- ○ Paraguay
- ○ Peru
- ○ Philippines
- ○ Poland
- ○ Portugal
- ○ Qatar
- ○ Romania
- ○ Russia
- ○ Rwanda
- ○ Saint Kitts and Nevis
- ○ Saint Lucia
- ○ Saint Vincent and the Grenadines
- ○ Samoa
- ○ San Marino
- ○ Sao Tome and Principe
- ○ Saudi Arabia
- ○ Senegal
- ○ Serbia
- ○ Seychelles
- ○ Sierra Leone
- ○ Singapore
- ○ Slovakia
- ○ Slovenia
- ○ Solomon Islands
- ○ Somalia
- ○ South Africa
- ○ Spain
- ○ Sri Lanka
- ○ South Africa
- ○ Spain
- ○ Sri Lanka

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○ Sudan
○ South
○ Suriname
○ Sweden
○ Switzerland
○ Syria
○ Taiwan
○ Tajikistan
○ Tanzania
○ Thailand
○ Togo
○ Tonga
○ Trinidad and Tobago
○ Tunisia
○ Turkey
○ Turkmenistan
○ Tuvalu
○ Uganda
○ Ukraine
○ United Arab Emirates
○ United Kingdom
○ United States
○ Uruguay
○ Uzbekistan
○ Vanuatu
○ Vatican City
○ Venezuela
○ Vietnam
○ Yemen
○ Zambia
○ Zimbabwe

How long have you lived in Australia? (In years; if less than one year, please answer "0")	_____

Do you identify as Aboriginal and/or Torres Strait Islander?	○ Yes ○ No

How would you describe your ethnicity?	○ Choose this option to open a box where you can state your ethnicity ○ I would rather not answer this question

Please describe your ethnicity:	_____

In which state or territory of Australia are you currently living?	○ New South Wales ○ Victoria ○ Queensland ○ South Australia ○ Western Australia ○ Tasmania ○ Northern Territory ○ Australian Capital Territory

What is your present marital status?	○ Married ○ De facto relationship ○ Never married/Single ○ Widowed ○ Divorced ○ Separated but not divorced ○ I prefer not to say

For how many years have you been in this relationship? (If less than one year, please answer "0")	_____

Which of these describes your household income last year?	○ $0 ○ $1 to $9 999 ○ $10 000 to $24 999 ○ $25 000 to $49 999 ○ $50 000 to $74 999 ○ $75 000 to $99 999 ○ $100 000 to $149 999 ○ $150 000 and greater ○ I would rather not answer this question.
What is the highest degree or level of school you have completed? (If currently enrolled, please consider the highest degree already received)	○ No schooling completed ○ Primary School ○ High School ○ Trade/technical/vocational/TAFE training ○ Graduate certificate ○ Bachelor's degree ○ Honours degree ○ Master's degree ○ Doctorate degree ○ Other
Please describe:	_____
Are you in paid employment?	○ Yes, part time ○ Yes, full time ○ Yes, casual ○ I am on maternity leave ○ No ○ Other
Please describe:	_____
Have you ever had a mental health concern in the past, whether diagnosed or not?	○ No ○ Yes, I received a diagnosis from a health professional ○ Yes, but I did not receive a diagnosis from a health professional (Mental health concern : When someone expresses a concern about any of these topics: behavior, emotion, mood, meaning of life, death, dying, managing chronic pain, addiction, work, relationships, education, eating, cognition, sleep, and challenging life situations. (Rubin, 2018: The Classification and Statistical Manual of Mental Health Concerns: A Proposed Practical Scientific Alternative to the DSM and ICD))
What was the diagnosis?	
What was this mental health concern?	_____
During this pregnancy, were you screened for depression or other mental health concerns? E.g.: did you complete a survey that had questions about depressive symptoms, or did your midwife/GP/obstetrician ask any specific questions about your mental health?	○ Yes ○ No ○ I am not sure
If you are feeling distressed by answering these questions and do not want to proceed, please tick the next button to immediately leave this survey.	○ I would like to leave this survey. (If you want to have a chat with someone right now, please call one of these numbers: Mental Health Line (1800 011 511) or PANDA National Helpline (1300 726 306). Please, also consider discussing your feelings with your healthcare provider (midwife, obstetrician, GP, perinatal service or mental health care professional), a

family member or a friend. You can also contact
the researcher by email:
Francieli.Sufredini@student.uts.edu.au.)

The following statements ask about the support that is available to you, related to your baby. After reading each statement, please tick the box that you feel is most appropriate. There are no right or wrong answers. Please answer all the questions.

Survey 40% Complete

	Strongly Disagree	Disagree	Agree	Strongly Agree
I have someone to care & comfort me.	○	○	○	○
I have someone to talk to & share experiences with.	○	○	○	○
Those close to me understand that it is ok for me to need help.	○	○	○	○
I have someone to talk to about how I feel.	○	○	○	○
I have someone who shows me appreciation.	○	○	○	○
If I need advice there is someone who will assist me.	○	○	○	○
I have people to count on when things go wrong.	○	○	○	○
I won't be / am not on my own taking care of my baby.	○	○	○	○
I have someone to help with routine housework.	○	○	○	○
I can get information on infant comfort/settling.	○	○	○	○
I can get information on infant changing/dressing.	○	○	○	○
I can get hands-on help with comforting baby.	○	○	○	○
I can get hands-on help with infant changing/dressing.	○	○	○	○
I can get hands-on help with infant feeding.	○	○	○	○
I can get information on infant feeding.	○	○	○	○
I can get information on infant bathing.	○	○	○	○
I can get hands-on help with infant bathing.	○	○	○	○
I can get consistent information on infant care.	○	○	○	○
I can get information on taking care of my body after birth.	○	○	○	○

The Perinatal Infant Care Social Support Scale (PICSS) (Leahy-Warren et al., 2019)

From the following list of people, please indicate the persons who you expect to be supportive and helpful to you in caring for your baby (if you are pregnant) or are supportive and helpful to you in caring for your baby (if you have already given birth). You can tick more than one type of support person, as necessary. If any of the names below are not applicable or relevant, please leave blank.

Please note:
Mother: This means support/help that you receive from your own mother.
Father: This means support/help that you receive from your own father, not the baby's father.

Survey 60% Complete

	Provide information about caring for your baby in relation to feeding, changing, bathing and settling your baby	Carry out infant care tasks, such as feeding, changing, bathing and settling your baby	Show that they care, love and respect you in caring for your baby	Praise you for doing a good job in caring for your baby
Partner	☐	☐	☐	☐
Mother	☐	☐	☐	☐
Father	☐	☐	☐	☐
Partners' mother	☐	☐	☐	☐
Partners' father	☐	☐	☐	☐
Sister(s)	☐	☐	☐	☐
Brother(s)	☐	☐	☐	☐
Friend(s)	☐	☐	☐	☐
Friends(s) who are also mothers	☐	☐	☐	☐
Neighbour(s)	☐	☐	☐	☐
Midwife	☐	☐	☐	☐
Local doctor (GP)	☐	☐	☐	☐
Nurse	☐	☐	☐	☐
Others	☐	☐	☐	☐

You mentioned "Others". Please specify:
_____

Do you receive or have you received support from an online source, such as a forum, website, Facebook group, WhatsApp Group, or others?

○ No
○ Yes

What is/was this online source?
_____

How does/has this help(ed) you? Please describe:
_____

If you are feeling distressed by answering these questions and do not want to proceed, please tick the next button to immediately leave this survey.

○ I would like to leave this survey.
(If you want to have a chat with someone right now, please call one of these numbers: Mental Health Line (1800 011 511) or PANDA National Helpline (1300 726 306). Please, also consider discussing your feelings with your healthcare provider (midwife, obstetrician, GP, perinatal service or mental health care professional), a family member or a friend. You can also contact the researcher by email: Francieli.Sufredini@student.uts.edu.au.)

Survey 80% Complete

Please select one option for each question that is the closest to how you have felt in the PAST SEVEN DAYS.

I have been able to laugh and see the funny side of things:	○ As much as I always could ○ Not quite as much now ○ Definitely not so much now ○ Not at all
I have looked forward with enjoyment to things:	○ As much as I ever did ○ Rather less than I used to ○ Definitely less than I used to ○ Hardly at all
I have blamed myself unnecessarily when things went wrong:	○ Yes, most of the time ○ Yes, some of the time ○ Not very often ○ No, never
I have been anxious or worried for no good reason:	○ No, not at all ○ Hardly ever ○ Yes, sometimes ○ Yes, very often
I have felt scared or panicky for no very good reason:	○ Yes, quite a lot ○ Yes, sometimes ○ No, not much ○ No, not at all
Things have been getting on top of me:	○ Yes, most of the time I haven't been able to cope at all ○ Yes, sometimes I haven't been coping as well as usual ○ No, most of the time I have coped quite well ○ No, I have been coping as well as ever
I have been so unhappy that I have had difficulty sleeping:	○ Yes, most of the time ○ Yes, sometimes ○ Not very often ○ No, not at all
I have felt sad or miserable:	○ Yes, most of the time ○ Yes, quite often ○ Not very often ○ No, not at all
I have been so unhappy that I have been crying:	○ Yes, most of the time ○ Yes, quite often ○ Only occasionally ○ No, never
The thought of harming myself has occurred to me:	○ Yes, quite often ○ Sometimes ○ Hardly ever ○ Never

The Edinburgh Depression Scale (EDS) (Cox, et al., 1987)

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the number at the end of the statement that indicates HOW YOU FEEL RIGHT NOW, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

Survey 95% Complete

	Not at all	Somewhat	Moderately so	Very much so
I feel upset.	○	○	○	○
I feel frightened.	○	○	○	○
I feel nervous.	○	○	○	○
I am jittery.	○	○	○	○
I feel confused.	○	○	○	○

The Spielberger State Trait Anxiety Inventory (Zsido et al., 2020)

If you are feeling distressed by answering these questions and do not want to proceed, please tick the next button to immediately leave this survey.	○ I would like to leave this survey. (If you want to have a chat with someone right now, please call one of these numbers: Mental Health Line (1800 011 511) or PANDA National Helpline (1300 726 306). Please, also consider discussing your feelings with your healthcare provider (midwife, obstetrician, GP, perinatal service or mental health care professional), a family member or a friend. You can also contact the researcher by email: Francieli.Sufredini@student.uts.edu.au.)
Thank you for your participation! Are you willing to participate in a 30-45 minute individual (online/zoom) interview? If so, please provide your contact information (email). Thank you for your consideration! If you say "yes" and provide your contact details, the researcher will have access to your survey responses, which would be otherwise anonymous. If you are invited and consent to participate in the interview, your survey responses might be connected to your interview answers for analysis purposes. As previously stated, all this information will be treated confidentially and in any publication the information will be provided in such a way that you cannot be identified and will remain anonymous.	○ Yes ○ No
Thank you for your interest in being interviewed. The researcher will be in contact if you are needed for the next stage of the research project. Please enter your email:	_____

Appendix H. Verbal Consent Script

VERBAL CONSENT SCRIPT
UTS HREC REF NO. ETH21-5848 - Social support, depression, and anxiety in the perinatal period: a mixed methods study

Interview no:
Date:
Time:
Interviewer:

Thank you for agreeing to speak with me today about your experience with social support during your pregnancy/postnatal period. This might be a sensitive issue so if you are feeling distressed or need to take a break we can stop at any time. The interview will take about 30 to 45 minutes. If you feel at any moment that you would rather not go on with the interview, that is fine, just let me know.

[Wait for participant to confirm they are happy to continue, otherwise thank them for their time.]

Thank you. Now I just need to confirm some information about you, and I'm going to start voice recording. This will help us to accurately record your answers, but all this information will remain completely confidential. Even if you decide to turn on/keep your video on, I will not record your image, just your voice. Is that OK?

First, I need to ask you some questions to confirm that you consent to participating. Remember, even after you've answered these questions, you can withdraw your consent at any time during the interview. However, it may not be possible to withdraw your data from the study results if these have already had your identifying details removed.

The consent questions are:

Question	Yes	No
Have you read the information contained in the participant information sheet?		
Have you had an opportunity to ask questions and are you satisfied with the answers you have received?		
Do you understand that there may be risks, such as feeling emotional distress as a result of the information you are being asked to recall, discuss or consider?		
Do you understand that the research will produce reports, a thesis and articles that might be published in academic and industry journals or presented at conferences?		
Do you freely agree to participate in this activity, with the understanding that you may withdraw at any time?		
Do you agree to having this interview audio recorded and transcribed (which means the discussion is typed up so that I can then use it in my research)?		

(If answered NO to any of these – clarify and/or discontinue interview)

If you have any concerns about the research you can contact me, Francieli Sufredini, at Francieli.Sufredini@student.uts.edu.au or my supervisor, Associate Professor Christine Catling, at Christine.Catling@uts.edu.au.
If you would like to talk to someone who is not connected with the research, you may contact the Research Ethics Officer on 02 9514 9772 or Research.ethics@uts.edu.au and quote this number: ETH21-5848.

Appendix I. Semi-Structured Interview Script

Pregnant women

(Open questions, to build rapport):

Remember, you are free to skip any questions you don't feel comfortable answering, ok? I see you are xx weeks pregnant. Is that correct? Do you know if it is a boy or a girl? How's it going, how have you been feeling during this time?

1) Who are the people giving you support during your pregnancy?
2) How is each person supporting you in your pregnancy? *(ask for examples for each person)*
3) Is there any type of support or help you would like to receive – but so far haven't?
4) How about professionals, such as GP, nurses, midwives, or any other you can think of. How are they supporting (or helping) you in your pregnancy?
5) Is the support provided by professionals insufficient in any way? What could be improved?
6) Do you think it is important that people praise you for doing a good job in caring for your baby? How so?
7) From whom would you expect to get information about caring for your baby in relation to feeding, changing, bathing and settling? Who do you think would know best?
8) What type of support in the household would have been helpful, in your opinion?
9) Do you think there are some types of support/help that would be more appropriate to receive from women, instead of men? If yes – could you give me an example?
10) I see you answered you were on … *(maternity leave/working part time/working full time/etc)* when you completed the online survey. How about now? Are you receiving or did you receive any support from your co-workers or supervisors? What was this type of support?
11) Was there anything that you have heard or experienced, that was supposed to be helpful, but was not? For instance, any advice, or something someone did while they were trying to support you, but was inappropriate, or even made things worse?
12) Do you think that COVID-19 may have affected the support you received during this period somehow? Can you explain it to me in what way?
13) How do you think the support you received links to how you were feeling at the time?
14) And finally, I have a last question for you: What could people do or say that you think it would really make a difference during this period?

Is there anything else you would like to add?
That was it, thank you so much for your participation!

Postpartum women

Remember, you are free to skip any questions you don't feel comfortable answering, ok? I see your baby is now __ months old. Is that correct? What is your baby's name? How is it going, how have you been feeling during this time?

1) Who were the people who gave you support during your pregnancy?
2) How did each person support you in your pregnancy? *(ask for examples for each person)*
3) Who supported you after your baby was born?
4) How did this person support you after your baby was born?
5) Is there any type of support or help you would have liked to have received but didn't?
6) How about professionals, such as GP, nurses, midwives, or any other you can think of. How did they support (or help) you in your pregnancy? And in the period after your baby was born?
7) Was the support provided by professionals insufficient in any way? What could be improved?
8) Do you think it is important that people praise you for doing a good job in caring for your baby? How so?
9) From whom would you like to receive information about caring for your baby in relation to feeding, changing, bathing and settling? Who do you think would know best?
10) What type of support in the household would have been helpful, in your opinion?

11) Do you think there are some types of support/help that would be more appropriate to receive from women, instead of men? If yes – could you give me an example?
12) I see you answered you were on … *(maternity leave/working part time/working full time/etc)* when you completed the online survey. How about now? Are you receiving or did you receive any support from your co-workers or supervisors? What was this type of support?
13) Was there anything that you have heard or experienced, that was supposed to be helpful, but was not? For instance, any advice, or something someone did while they were trying to support you, but was inappropriate, or even made things worse?
14) Do you think that COVID-19 may have affected the support you received during this period? Can you explain it to me in what way?
15) How do you think the support you received links to how you were feeling at the time?
16) And finally, I have a last question for you: What could people do or say that you think it would really make a difference during this period?

Is there anything else you would like to add?
That was it, thank you so much for your participation!

Questions underlined were included to clarify and/or explore further phase 1's results.

Appendix J. Ethical Approval

Dear Applicant

Re: ETH21-5848 - "Social support, depression and anxiety in the perinatal period: a mixed methods study"

Thank you for your response to the Committee's comments for your project. The Committee agreed that this application now meets the requirements of the National Statement on Ethical Conduct in Human Research (2007) and has been approved on that basis. You are therefore authorised to commence activities as outlined in your application.

You are reminded that this letter constitutes ethics approval only. This research project must also be undertaken in accordance with all UTS policies and guidelines including the Research Management Policy.

Your approval number is UTS HREC REF NO. ETH21-5848.

Approval will be for a period of five (5) years from the date of this correspondence subject to the submission of annual progress reports.

The following standard conditions apply to your approval:

- Your approval number must be included in all participant material and advertisements. Any advertisements on Staff Connect without an approval number will be removed.
- The Principal Investigator will immediately report anything that might warrant review of ethical approval of the project to the Ethics Secretariat.
- The Principal Investigator will notify the Committee of any event that requires a modification to the protocol or other project documents, and submit any required amendments prior to implementation. Instructions on how to submit an amendment application can be found here.
- The Principal Investigator will promptly report adverse events to the Ethics Secretariat. An adverse event is any event (anticipated or otherwise) that has a negative impact on participants, researchers or the reputation of the University. Adverse events can also include privacy breaches, loss of data and damage to property.
- The Principal Investigator will report to the UTS HREC or UTS MREC annually and notify the Committee when the project is completed at all sites. The Principal Investigator will notify the Committee of any plan to extend the duration of the project past the approval period listed above.
- The Principal Investigator will obtain any additional approvals or authorisations as required (e.g. from other ethics committees, collaborating institutions, supporting organisations).
- The Principal Investigator will notify the Committee of his or her inability to continue as Principal Investigator including the name of and contact information for a replacement.

This research must be undertaken in compliance with the Australian Code for the Responsible Conduct of Research and National Statement on Ethical Conduct in Human Research.

You should consider this your official letter of approval. If you require a hardcopy please contact the Ethics Secretariat.

If you have any queries about your ethics approval, or require any amendments to your research in the future, please don't hesitate to contact the Ethics Secretariat and quote the ethics application number (e.g. ETH20-xxxx) in all correspondence.

Yours sincerely,
The Research Ethics Secretariat

On behalf of the UTS Human Research Ethics Committees
C/- Research Office
University of Technology Sydney
E: Research.Ethics@uts.edu.au

Appendix K. Distress and safety protocol

[Social support, depression and anxiety in the perinatal period: a mixed methods study]

Distress and safety Protocol (for the participants: pregnant and postpartum women):
The following protocol will be put in place should a participant become distressed and require additional or ongoing assistance. Several strategies can be used, depending on the circumstances.
Prior to the commencement of the online survey and the interview, information regarding the counselling available (should it be required) will be provided to all prospective and actual study participants. The researcher will also provide sufficient information regarding the risks and benefits of the research so that individuals may freely consent to or decline participation.

Strategies to assist those distressed during the online survey.
Several times throughout the online survey, participants will find the following content: "If you are feeling distressed by answering these questions and do not want to proceed, please click on this box to leave this survey". These tick boxes will be placed throughout and at the end of each section of the survey, including demographic data questions and the three assessment tools (The Perinatal Infant Care Social Support Scale, The Edinburgh Depression Scale, and The Spielberger State-Trait Anxiety Inventory).
If the participant clicks in one of these boxes, an automatic message will appear: "If you want to have a chat with someone right now, please call one of these numbers: Mental Health Line (1800 011 511) or PANDA National Helpline (1300 726 306). Please, also consider discussing your feelings with your healthcare provider (midwife, obstetrician, GP, perinatal service or mental health care professional), a family member or a friend. You can also contact the researcher by email: Francieli.Sufredini@student.uts.edu.au"

Strategies to assist those distressed during an interview.
Should a participant become uncomfortable or distressed while discussing any topic during the interview, the following actions will be taken by the interviewer:
1. The researcher will stop the interview, assess the participant's mental status and behaviours (such as uncontrolled crying, shaking, etc.), and ask the participant if she wants to carry on.
2. If the participant wishes to stop, the interview will cease.
3. The researcher, who is also a certified Provisional Psychologist (AHPRA Registration number: PSY0002425341), will spend time with the participant and provide assistance, within the scope of her abilities.
4. The researcher will a) encourage the participant to contact their general practitioner (GP) or mental health care provider OR b) offer, with participant consent, for a member of the research team to do so OR c) with participant consent, contact a member of the health care team treating them for further advice/support.
5. The researcher may seek advice from the Chief investigator (principal supervisor) during step 4 to decide what alternative (a, b or c) would be appropriate on a case by case basis.
6. The researcher will provide the participant the contact number of specialised mental health services in Australia, where the participant can receive immediate support via telephone. Mental health professionals will be available at Mental Health Line (1800 011 511) or PANDA National Helpline (1300 726 306).

7. If the participant has a GP involved in her care, it may be more appropriate to refer her to her GP who is already familiar with their history and would provide continuity of care. In this case, the options of a counsellor or extant clinician would be provided to the participant as well (Medicare will cover 20 sessions of counselling per annum). Counselling options for those who are not entitled to Medicare will also be explored.

8. The intended outcome of the activation of this protocol will be a comprehensive assessment and the presentation of options regarding ongoing counselling or other management as appropriate.
9. A follow-up phone call or email will be made/sent by the interviewer the following day to ensure that the participant is well. In the case of a phone call, the researcher will ask for the participant's phone number, store it in a secure place and destroy it immediately after the phone call, if the participant is feeling well and safe. If she is not feeling well or safe, steps 4, 6 and 7 will be discussed and considered once more.

Distress and safety Protocol (for the researcher - PhD student):
The following protocol will be put in place should the researcher become distressed during any time of data collection. The researcher has a GP involved in her care and can be referred to a psychologist, if needed.
Strategies to assist distress felt by the researcher during an interview
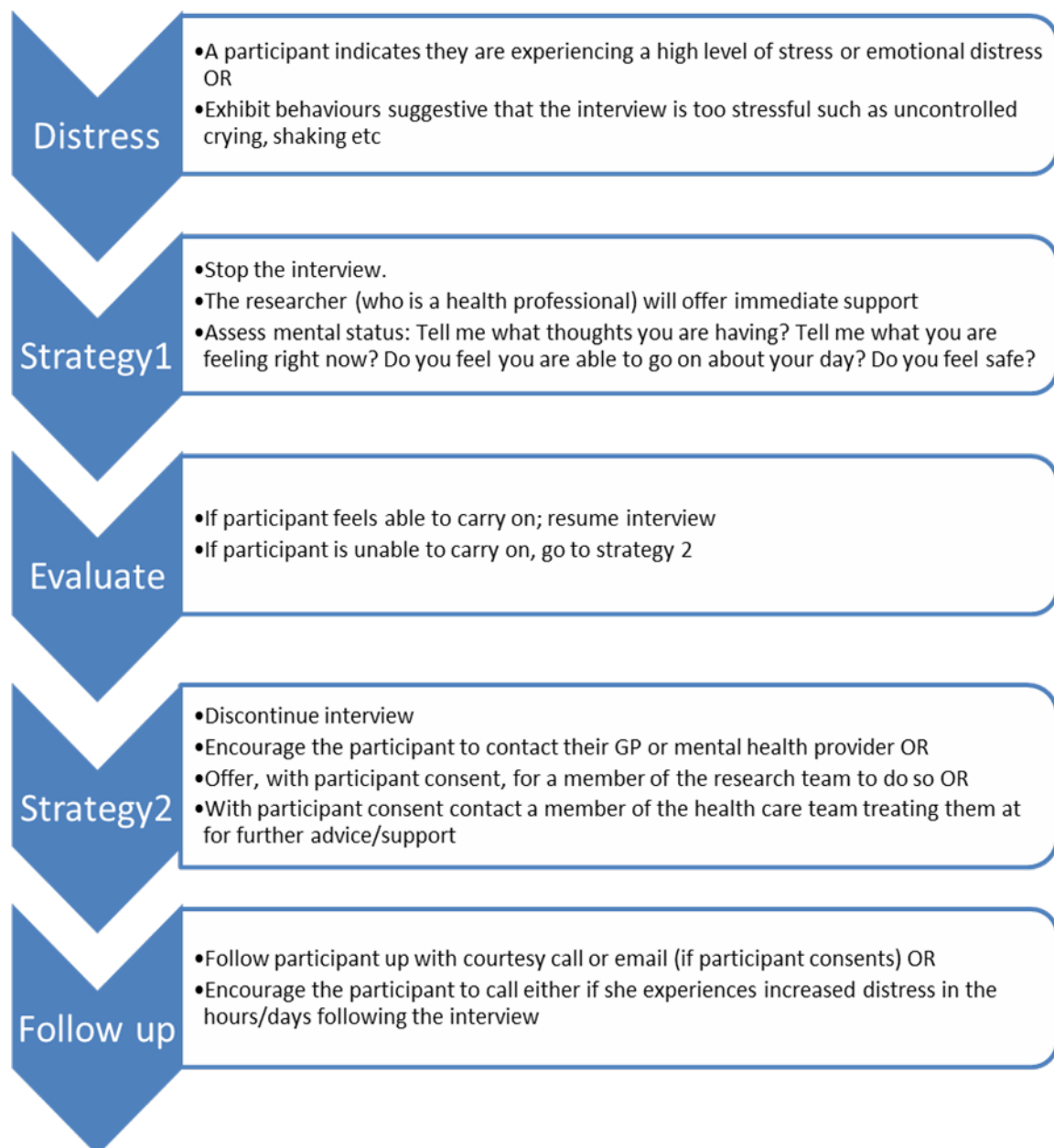
1. The researcher will have regular meetings with her supervisors.
2. The researcher will be referred to a counselling/psychologist professional to discuss her concerns, if needed.
3. The researcher will conduct interviews through Zoom only, so she will not put herself at any physical risk during field work.

Conclusion

It is the researcher's duty of care to ensure that there is a balanced consideration of the benefits against the risks. The researcher will ensure these strategies are familiar to her prior to commencing the data collection.
Below is the step by step guided protocol adapted from Draucker C B, Martsolf D S and Poole C (2009) Developing Distress Protocols for research on Sensitive Topics. *Archives of Psychiatric Nursing* 23 (5) pp 343-350).

Participants' Safety & Distress Protocol (interview):

Distress
- A participant indicates they are experiencing a high level of stress or emotional distress OR
- Exhibit behaviours suggestive that the interview is too stressful such as uncontrolled crying, shaking etc

Strategy1
- Stop the interview.
- The researcher (who is a health professional) will offer immediate support
- Assess mental status: Tell me what thoughts you are having? Tell me what you are feeling right now? Do you feel you are able to go on about your day? Do you feel safe?

Evaluate
- If participant feels able to carry on; resume interview
- If participant is unable to carry on, go to strategy 2

Strategy2
- Discontinue interview
- Encourage the participant to contact their GP or mental health provider OR
- Offer, with participant consent, for a member of the research team to do so OR
- With participant consent contact a member of the health care team treating them at for further advice/support

Follow up
- Follow participant up with courtesy call or email (if participant consents) OR
- Encourage the participant to call either if she experiences increased distress in the hours/days following the interview

Researcher's Safety and Distress Protocol:

Safety & Distress
- The researcher should consider the potential physical and psychological impact on the researcher of the participants description of life experiences
- The researcher should consider how many interviews could be undertaken in a week to manage her well-being

Strategy
- If the topic is potentially sensitive/distressing, the researcher will seek support of another member of the research team
- The researcher will schedule regular debriefing sessions with supervisors

Evaluate
- Are there alerted emotional states prior, during or after data collection?
- Are there any feelings of potentially "challenging" or "difficult" interviews?
- Has the researcher been attending regular scheduled debriefing sessions with supervisors?

Follow up
- The researcher will access her supervisors, and/or a GP/counselling service if needed.