“I am the worst pregnant woman ever”: A mixed-method study of the nature of psychological distress during pregnancy

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Abstract

Pregnancy constitutes a major life event that confronts women with unique physical, social, economic and psychological adjustments. Epidemiological evidence suggests that the prevalence and severity of most common mental health disorders (such as depressive and anxiety disorders) during pregnancy are not different from those in the population of non-pregnant women. However, the mental health state of pregnant women has received considerable clinical and scientific attention because of its suggested influence on the pregnancy outcome, the baby, and the future child. There is emerging evidence that experiencing antenatal distress may lead to suboptimal birth, adverse birth outcome, impaired bonding with the newborn, and postnatal depression. However, little is known about the mechanisms of such relationships, and about the nature of experiencing antenatal distress.

This program of work is concerned with investigating the nature of pregnancy distress. The aims of this thesis are two-fold: to explore the experiences of antenatal distress in the Australian and New Zealand context; and to examine the implications of such experiences both for the mother herself and her baby. Using a mixed-method approach within a critical realist framework, this thesis consists of a comprehensive review of the existing literature, a longitudinal psychosocial survey, and in-depth qualitative interviews.

This thesis begins with an outline of the research problem and sets the scene by providing the theoretical and methodological assumptions that underlie the design and the conduct of this thesis. In introducing this work, I argue that it is important to draw from a mixed-methodology scholarship grounded in feminism and critical realism to ensure a multi-faceted understanding of such complex phenomena as pregnancy and distress. I then position my research within a background of the existing literature, and pinpoint the gaps which this thesis aims to address. Starting with an epidemiological systematic review, I explore the link between antenatal distress and preterm birth, followed by a meta-synthesis of the qualitative literature that has examined the experience of antenatal distress. First, I suggest that direct causal relationships between antenatal distress and adverse birth outcomes cannot be established in a conclusive way, and secondly I argue that such assumptions can be problematic for women as the experiences of antenatal distress involve a complex journey. I then suggest that pregnancy distress entails a process similar to that of
grief and loss as a result of women’s inability to situate their experience within the *good* and *perfect* mother discourse.

The empirical section of this thesis draws on data I collected both via an online survey and through interviews and is presented in three consecutive studies. The online survey, which was completed by over 290 eligible pregnant women from Australia and New Zealand, consisted of various psychosocial questionnaires administered at three time points (twice during pregnancy and once after birth). This longitudinal data formed the basis for the first empirical study which explored the psychosocial predictors of antenatal distress. In this study I conclude that it is a woman’s overall sense of coherence that predetermines her distress during pregnancy. In order to advance the understanding of the meanings that women ascribed to their experience, and how these affected their ‘at odds’ perceptions of motherhood, I then present the findings from a qualitative study with 18 Australian women who reported pregnancy distress. Together, these studies point to the need to develop a more general framework for understanding antenatal distress allowing for factors such as global sense of fitting into the world, social support and relationships with others, embodied experiences, and cultural meanings around *good* mothering. The third and final empirical study re-examines the relationship between psychological distress during pregnancy and adverse birth outcomes, suggesting that maternal antenatal distress is not directly linked with adverse birth. This concluding work provides a reassuring message for women who feel emotionally vulnerable during their pregnancy that, despite their distress, they can still achieve an unproblematic birth. The empirical section suggests that there is a broad and contextualized framework within which pregnancy distress needs to be understood, involving both personal characteristics, past experiences, medical predispositions and factors, related to the intersectionality of social, economic and political processes. In closing, I draw together the methodological, theoretical and practical findings of this thesis. I highlight the implications of the way antenatal distress has been understood, theorized and managed in view of medicalization of mental health, pregnancy, stigma, and the cultural imperatives around *good* mothering.

Together the findings of this thesis contribute to deeper understanding of both the multiplicity and the uniqueness of the experience of pregnancy distress; a phenomenon which involves series of individual, biological, psychological, and relational aspects, all occurring in a specific cultural context. This thesis presents important new directions about
the ways antenatal distress can be understood, and approaches towards a well-informed and meaningful provision of care.
Declaration by author

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

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– incorporated as Chapter 3.

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Contributions by others to this thesis

As outlined above, A/Prof Fiona Bogossian and Dr Anja Wittkowski contributed to Chapters 3 – 7; and A/Prof Alina Morawska to Chapters 5 – 7. A/Prof Fiona Bogossian, Dr Margo Pritchard and Dr Anja Wittkowski contributed to the initial overall design of this program of work. A/Prof Fiona Bogossian and A/Prof Alina Morawska contributed to the final revisions of Chapters 1, 2 and 8. Jackie Devenish contributed with assistance in the library searches for Chapters 3 and 4. Paul Jackson provided advice with the website design of the longitudinal study in Qualtrics, which forms part of data sets presented in Chapters 5 and 7.

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Preface

“The last thing one settles in writing a book is what one should put in first”
(Pascal & Havet, 1852).

Indeed, having conceptualized, designed, collected, analysed and “lived and breathed” the pages that follow, having selected an audience and even a title, I must now examine what I have done…and why.

My work and my life, which have strangely but explicably merged particularly in the last three years of my doctoral studies, reflect my deep-rooted desire for unraveling mysteries, for getting into the core of each phenomenon and figuring out an order by which things are linked, happen and flow in the everydayness of life.

Now, when I am presented with the opportunity of looking back and re-examining my studies I inevitably reflect on my life too. The provocation for selecting the topic of pregnancy came not only from my own experiences of pregnancy, birth and mothering but even more so from my own intellectual gestation which motherhood had fueled. I was not content in merely settling into the experience. Instead, I was driven to learn and decipher it all throughout, its meanings, and its names, its structure and its fabric. So much so that I was compelled to ask ‘What is the nature of such deep transformation for women?’, ‘Why do we feel what we feel?’, and ultimately: ‘Is it just me, who feels and experiences these oceanic emotions?’.

Having recently finished a research degree in the UK (where I had touched the tip of the iceberg of motherhood), I summoned my well-organized and tidy scientific suitcase, and along with my husband and our 3 year-old son, moved to Australia in search for answers, not to say in search for the truth... Little did I know that this search would only lead to many more questions.

Alongside my PhD work, many shifts were quietly taking place. While literally trying to position myself in a very new physical world and a foreign culture, I was also negotiating the intricate dance amidst maternal, social, and academic roles. However, amongst the most challenging of transformations was the one regarding of my own scientific ‘truths’, the ones I had so dearly held throughout most of my schooling (in my home country of Bulgaria, and through my academic training in the USA and UK). In
shedding older and in many ways unquestioned ontological ‘truths’, I was faced with the need to critically review my own modus operandi. The more I was ‘digging into’ my research questions, the less answers I was able to find within the positivist psychology set of tools that I possessed. I discovered, for example, that in the operationalizing and defining of pregnancy distress alone, my approach presented various challenges both practical and philosophical. As a result I was pushed into cracking theories of knowledge and philosophy of science, social reality and politics, feminism and language, context and subjectivity. Instead of causality and linear interpretations, I came to realize that I needed a whole new set of critical terminology that allows for a much broader picture to depict health and the human condition. Consequently, my research lens has morphed throughout the years into a much more spacious, tolerant and eclectic approach. I had both abandoned the search for the universal truth and had expanded my views, which opened up new and exciting ways of doing research.

Nevertheless, it is now my conviction that modern science and academia need a shift in focus. Novel perspectives are needed in the search for an individualized and contextualized examination of the multiplicity of meanings of health, and ultimately of how people live life meaningfully. After all, it is the overall aim of social research to improve the lives of humans, and in the case of this thesis – the lives of mothers. In this sense, this doctoral work can be summed up for me in one term – liberating growth.
Chapter 1: Introduction

“We know more about the air we breathe, the seas we travel, than about the nature and meaning of motherhood.” (Adrienne Rich, 1977, p.11)

Overview

Not every woman wants to, choses to, or becomes a mother. For women who do, becoming a mother is one of the most radical changes in life. In fact, motherhood involves so many physiological, social and emotional transformations that it has been described as a crisis (Hollway, 2010; Baraitser, 2009; Raphael-Leff, 2001). Although the process of becoming a mother arguably begins much earlier than conception itself, pregnancy is recognized as the time of the most intensive preparation and transformation towards motherhood (Bergum, 1997).

Pregnancy, anecdotally believed to be a time of greater emotional wellbeing for women, is now known to be a time associated with a range of mood disorders, with some women more vulnerable than others (Ghadiali, 2007). Epidemiological research indicates that a large number of women experience symptoms of depression and anxiety in the perinatal period, with incidence rates ranging between 13% and 54%, respectively (Lee et al., 2007; Leigh & Milgrom, 2008). Moreover, it has been suggested that these rates are probably conservative estimates as cases of maternal perinatal distress are continuously under-reported and underdiagnosed due to the social stigma of sharing such experiences (Gavin et al., 2005; Leung & Kaplan, 2009). In recent years, perinatal mental health has been recognised as a major public health concern both internationally and within Australia and New Zealand (beyondblue, 2008-2010). Researchers and healthcare professionals have highlighted the impact of mental health problems during the perinatal period and the need for improved care in this area.

Research suggests that the term perinatal distress accurately reflects a broad spectrum of negative emotional experiences related to childbearing beginning at pregnancy and continuing within the first year after birth (Rallis, Skouteris, McCabe, & Milgrom, 2014; Rowe, Fisher, & Loh, 2008). Throughout the thesis, I have used the umbrella term “antenatal distress” or “pregnancy distress” to describe the experiences of negative mood for women during this dynamic period. This term consists of the three most prevalent antenatal mood disorder constructs: antenatal depression, antenatal anxiety, and high levels
of stress, experienced during pregnancy (Rallis et al., 2014). The combination of the three most common mental health problems during pregnancy under the “pregnancy distress” umbrella is said to have important implications in better understanding the negative affective states during pregnancy and their potential effect on both the mother and the baby (Rallis et al., 2014). Detailed exploration of both theoretical and operational definitions is provided in the chapters that follow.

Maternal antenatal distress has been extensively researched, primarily due to its significant impact on fetal and newborn health and wellbeing. Evidence suggests a link between antenatal distress and impaired attachment and bonding with the newborn (Martins & Gaffan, 2000; McFarland et al., 2011), long-term adverse psychological outcomes in children as old as 16-years of age (Stein et al., 2014) and postnatal depression (Lee et al., 2007; Leigh & Milgrom, 2008). Furthermore, a body of research has begun investigations on the potential relationship between antenatal distress and obstetric complications, such as preterm birth, low birth weight, and small for gestational age (Dunkel-Schetter, 2011; Grote et al., 2010; Lobel et al., 2008). Preterm birth (PTB), as well as low birth weight and small for gestational age (see Huang, 2014), have been identified as the most adverse birth outcomes and the leading causes of infant mortality and morbidity (CDC, 2010). Infants born preterm (<37 weeks of gestation) are at greater risk for a variety of health and developmental problems, and present a considerable emotional and economic cost to families, as well as significant implications for public-sector services (CDC, 2010).

Various risk factors, associated with the development of antenatal distress have been explored in the literature, with biomedical ones, such as endocrinal and hormonal changes, being amongst the predominant explanatory models (Harris et al., 1994). Other determinants include individual characteristics, such as negative cognitive style and low self-esteem (Leigh & Milgrom, 2008), maternal age and past history of mood disorders (Milgrom et al., 2008). Additionally, factors such as financial difficulties, employment conditions (Rich-Edwards et al., 2006), low social support and strain in intimate relationships (Jones, Bogat, Davidson, von Eye, & Levendosky, 2005; Lee et al., 2007), major life events and partner violence (Leigh & Milgrom, 2008; Stone et al., 2015) have been suggested as potential risk factors. However, there is no conclusive evidence to support that any of these factors alone contribute to the development of antenatal distress.
Rather a multi-faceted approach to detecting and managing depression and anxiety in pregnancy has been suggested (Wong, 2012; Stoppard, 2000, 2014) encompassing sociocultural, psychosocial and biological determinants.

To better understand how antenatal distress may result in adverse birth outcomes, a number of potential pathways have been proposed (Dunkel-Schetter, 2011; Paarlberg, Vingerhoets, Passchier, Dekker, & Van Geijn, 1995). Three pertinent theories that explore this pathway involve the mechanisms related to neuroendocrine, inflammatory/immune, and behavioural factors (Hobel, Goldstein, & Barrett, 2008). The activation of the hypothalamic-pituitary-adrenal (HPA) axis, or increases in the production of corticotropin-releasing hormone (CRH) in the mother as a result of her experiencing stressors during pregnancy is one potential theory (Smith & Nicholson, 2007; Smith et al., 2009; Wadhwa, 2001, 2005; Wadhwa, Porto, Garite, Chicz-DeMet, & Sandman, 1998). Additionally, infections of the reproductive and urinary tracts, sexually transmitted diseases, systemic infections have all been linked to birth outcomes through various immune-mediating processes, compromised by the experiences of stress during pregnancy (Coussons-Read et al., 2012; D'Anna-Hernandez et al., 2012). Lastly, it has been suggested that the behavioural pathways to adverse birth outcomes may consist of unhealthy lifestyle factors during pregnancy, such as smoking, substance use, and poor nutrition (Bakker et al., 2011; Barros, Mitsuhiro, Chalem, Laranjeira, & Guinsburg, 2011; Bonassi et al., 1994; Kramer & McDonald, 2009). A general consensus amongst these hypotheses is that there is a very limited understanding about how these mechanisms work (Dunkel-Schetter, 2011).

Nevertheless, given the small contribution (or explained variance within research) by the above factors to the development of distress, there is a great need to understand the broader context of these phenomena, both its private and the public aspects of it. Understanding of health behaviours in pregnancy for example, requires an in-depth understanding of the psychological and motivational processes such as beliefs, attitudes, intentions, social and cultural context, material disadvantages, experience and expectations (Lyons & Chamberlain, 2006). Despite great advances in psychological sciences in this respect, the opening quote from Rich’s 1977 “Of woman born” still remains fundamentally valid as very little is known about the period of becoming a mother. Exploring the nature of pregnancy, the time that involves a specific set of psychological processes and psychic changes (Hollway, 2016) provides a special opportunity for generating knowledge about
women that can encompass gender, subjectivity and embodiment, or the way culture operates to influence our understandings about the pregnant woman. Moreover, how we understand, theorize and represent pregnancy and the nature of pregnancy distress in particular, bears implications on the way a mother perceives herself, her baby and her world.

Focus on experiences

Despite progress in the area of epidemiological, observational and intervention research on perinatal mental health, research that explores the subjective experience of distress is scarce. Drawing on personal accounts and qualitative methods, a substantially smaller body of qualitative research has focused on the actual accounts of pregnancy-related distress, described by mothers-to-be (Bennett, Boon, Romans, & Grootendorst, 2007; Darvill, Skirtom, & Farrand, 2010; Furber, Garrod, Maloney, Lovell, & McGowan, 2009; Raymond, 2009). Studies focusing on experiences such as depression, anxiety, and social stigma form a basis for deeper understanding of the meanings women ascribe to their experiences, how they view themselves as mothers, and the ways they access help and cope.

Moreover, such qualitative explorations offer an alternative model of interpreting mental health, particularly in view of the limitations of currently dominant mainstream approaches to understanding “depression” in women (Lafrance & McKenzie-Mohr, 2013; Ussher, 1991, 2003, Caplan, 1992, 2013). Diagnostic labels (see APA, DSM-V, 2013 and WHO, ICD-10, 2014) have been argued to contradict the formulations informed by participants’ lived experience. Arguably, lay knowledge has been evidenced as equally useful and practical both in the understanding of people’s problems and experiences, and in informing assessment and successful treatment (Johnstone & Dallos, 2013). Moreover, it has been suggested that framing mental illness as a disorder can have serious implications for policy makers, over-diagnosis and over-prescription of medicalized treatment. Ignoring the now accepted role that one’s environment and psychology play in illness development, as well as relying solely on measurable and diagnostic criteria to assess and treat mental illness has stirred valid arguments concerning the limited understanding of such multi-faceted issues like depression, particularly when positioned within specific gendered context, i.e., women. (Browne, 2015; Kruger et al., 2015; Lafrance & McKenzie-Mohr, 2013; Ussher, 1991, 2003, Caplan, 1992, 2013). Such biomedical and individualistic
approaches have been critiqued as pathologizing by rooting the individual’s distress solely within the woman herself rather than within a complex and rich interplay of the individual, interpersonal and sociocultural factors in which she subjectively and actively interprets and negotiates her own identity (Jack & Ali, 2010; Leckenby & Hesse-Biber, 2007; Stoppard, 1999, 2014; Ussher, 2006). One of this thesis’s objectives is therefore to engage in the scientific discussion and critique of the mainstream psychological positioning of depression as a medical illness.

Description of the research questions

With many questions unanswered around potential risk factors and implications as a result of experiencing perinatal distress, the research of psychological processes of pregnancy deserves greater priority. When designing this research project, I began by asking the following major question: What is the nature of psychological distress during pregnancy? As a result of this broad inquiry, I developed a set of specific research goals which evolved with the progress of the work as I discovered the gaps within the existing research literature. Of particular importance was to answer these additional questions:

- What is the existing epidemiological research evidence of the relationship between antenatal distress and birth outcome? (Study 1, Chapter 3)
- What is the existing qualitative research evidence on the experience of distress during pregnancy? (Study 2, Chapter 4)
- What are the best predictors of antenatal distress? (Study 3, Chapter 5)
- What is the nature of the experience of antenatal distress for women themselves? (Study 4, Chapter 6)
- Does antenatal distress and specific individual characteristics, increase the risk for obstetric adversity? (Study 5, Chapter 7)

I set out to answer these questions in both a linear and non-linear fashion. The next chapter provides the theoretical and methodological background which guided this program of work, delineating the research process and providing a map (both textual and visual) of the chapters that follow.
Chapter 2: Theoretical and methodological framework

This chapter begins by critically introducing the ontological and epistemological background of this research. Then I present a description and justification for the methodological framework within which I position my work. Following, I provide a reflexive awareness considering my role in the co-production and shaping of the research process. I conclude the chapter by presenting the structure of this thesis and a visual map for the chapters included.

Beyond the mind-body dualism

At the heart of this thesis is the examination of how the mind affects the body. Specifically, it explores the relationship or the effect of certain psychological states, such as mood or personal characteristics on physiological and physical dimensions of health, such as labor and birth. However, to view this problem within a strictly concise dualistic mind-body conceptual framework is to subscribe to what Descartes formulated in the seventeenth century as “Cartesian dualism” (Hutchins, Adler, & Britannica, 1952). According to this dualism, the mind is viewed as immaterial, self-contained, and subjective, while the body is a representation of the physical world, active and importantly, objective, defined by the laws of mechanics; in its essence the body and the mind are depicted as two separate dichotomous entities. Although this model has heavily informed modern medical scientific progress, and thus has been amongst the most influential conceptualizations of human nature, there are numerous critiques of its ideological premises (Mehta, 2011; Turner, 2008; Wade, 2006; Gold, 1985; Engel, 1977).

The main problem with this view is that by isolating the mind from the body, the significance of the individual’s subjective experiences is denied or omitted, which poses numerous issues around understanding, theorizing, and managing health. Indeed the distinction between mind and body is associated with opposing epistemologies; “empiricists” or “positivists” stress the physical, observable and objective nature of science and usually rely on quantitative methodologies to explore the phenomena of interests; the alternative position is taken by the “constructivists” who emphasize the key role of the situated meaning within the individual’s social context, and the role of the mind and human perceptions in creating multiple realities and interpretations of knowledge, usually employing experience-based qualitative methodologies grounded in lay knowledge (Burr,
2003; Denzin & Lincoln, 2005). These opposing theoretical positions may appear to be contradictory; however, arguably they are not. This thesis aims to combine these approaches in exploring antenatal distress and birth outcomes.

**Mixed methods and triangulation**

In the fields of social and health research the use of mixed-method approaches has been widely advocated (Johnstone, 2004). Adopting such methodology aims to provide multiple sources of converging evidence that would best answer the research question (Creswell, 2013). Additionally, using more than one method or source of data in the study of certain phenomena, also described as ‘triangulation’, is another reason why research benefits from blending quantitative and qualitative methods (Risjord, Dunbar, & Moloney, 2002). It is argued that triangulation can provide completeness, confirmation and abductive inspiration, and thus leave fewer unanswered questions (Risjord et al., 2002).

In this regard, exploring the psychological processes of pregnancy through both quantifiable (a survey) and experience-based (interviews) frames of examination is an essential part of this research enterprise. These two perspectives are maintained throughout this thesis in an attempt to provide multiple perspectives on the topic through the use of multiple quantitative and qualitative methods. Employing a mixed-methods design in this thesis allows for an answer to a range of questions aiming to provide a more holistic account (Leckenby & Hesse-Biber, 2007) of the topic of women’s experiences of distress during pregnancy. This approach is positioned within a postmodern perspective, which embraces multiple versions of truth and reality (DeVault, 1996). This thesis, approaches the notions of ‘experiences’, ‘perceptions’, ‘attitudes’, ‘beliefs’, and ‘identities’, in relation to the topic of distress during pregnancy, as social constructs which can be analysed and understood within such postmodern context (Burr, 2003).

**Critical realism**

Nonetheless, it has been argued that using a combination of quantitative and qualitative methods can be a methodological ‘minefield’ due to the complexity of ontological and epistemological positions that are involved in both (Blaikie, 1991). It has been suggested that a methodologically compatible position which does not privilege either method can be found in adopting a “critical realist framework” (see McEvoy & Richards, 2006). Indeed, in recent years, there has been a move towards a critical realist epistemology (Bhaskar,
that has challenged the contradictions between quantitative or objective, and qualitative or subjective methodologies. This framework recognizes the materiality of the body, its objective nature and its “realness” along with other aspects of experience, such as the socially constructed nature of existence, the importance of gender, class, race, and context (Bhaskar, 2010).

What is key in the conceptualization of critical realism is its acknowledgement that all aspects of the human condition are mediated by culture, language and politics (Pilgrim & Rogers, 1997). As Ussher (1999) proposes the most pertinent and radical premise behind the use of critical realism is in its “acceptance of the legitimacy of lay knowledge […] invariably viewed as having equal, although not superior, status to expert knowledge” (p.109). Therefore, the usefulness of a critical realist approach for answering the questions set out in this thesis, lies in its recognition of the pregnant maternal body, the context within which this maternal body is positioned, and the socio-cultural and political influences that intersect when women negotiate their maternal identity, and all the potential methodological angles from which this phenomenon can be observed and understood.

Material-discursive-intrapsychic framework

A useful strategy within the critical realist position, for developing a more integrated way of thinking about the body and the mind and particularly in view of pregnancy, distress, and birth, is the materialist-discursive-intrapsychic approach where biological, psychosocial and discursive factors can be addressed within a framework that does not privilege one or the other (Stoppard, 2000; Ussher, 1999, 2006; Yardley, 1997) but successfully borrows meaningful interpretations from all. Theorizing psychological distress from a materialist-discursive-intrapsychic perspective then allows for multiple considerations of female embodiment (the physicality or texture of the pregnant body), maternal subjectivity (the specific meanings that a woman gives to her experience of becoming a mother during pregnancy) and of the social context within which a woman situates herself (Lafrance & Stoppard, 2007; Ussher, 2002; Stoppard, 2000, 2014).

Feminist methodology

Feminist methodology assigns a central position to women’s lives (Scholz, 2012, p.3). It is impossible to study women, motherhood and pregnancy outside of the context of
Feminism. Feminist researchers have been investigating the lives of women since the beginning of the last century, when issues around contraception, abortion, sexuality and madness were at the centre of the feminist agenda; even further, since the early 1980s, there has been a shift into a much greater focus on research, development of feminist theory, epistemology and methodologies (Ussher, 1999).

Moreover, in the arena of health psychology, feminist research has covered a rich body of critical examination, including the study of sexual health, menstruation, infertility, reproductive technologies, and more recently - pregnancy and childbirth, motherhood and mothering, postnatal depression and other topics related to mothering issues (Abbey & O'Reilly, 1998; Chodorow, 1999; Hays, 1996; Nicolson, 1990, 1999; O'Reilly, 2008, 2012; Oakley, Hickey, Rajan, & Rigby, 1996; Rich, 1995; Ussher, 2006; Mauthner, 2010; Choi et al., 2005).

However, as Ruth Cain (2009) notes, feminism has a difficult relationship with maternity pointing out to the “surprising lack of feminist advocacy around the difficulties of motherhood” (p. 128). She argues that this may be due to the universality of biological maternity within one of feminism’s most compelling argument - the deconstruction of gender and its attachment to bodily sex. Certainly, pregnancy, birth and child-rearing are bodily events which happen only to women (at least currently). Thus, in considering them and their relevance for the subject who carries them out, we tap into an underlying feminist discomfort with the vulnerable reproductive body (Cain, 2009). The period of becoming a mother is a fundamental issue for feminism and a challenging one for psychology, as it involves processes hard to access via available language and discourses (Hollway, 2016) mostly because, despite advances in gender equality and partner involvement in child-caring roles (Lupton & Barclay, 1997) it is women who mother, and women who parent for the most part.

With regards to reproductive mental health, the feminist agenda has challenged traditional pathologizing discourses about women, madness, and reproduction without underestimating the “realness” of such bodily experiences (i.e., pregnancy and birth). In a feminist critique of postnatal depression, Ruth Cain calls for a “feminist reassessment of maternal distress” (2009, p. 123) arguing that maternal distress is framed within a disease framework, which ignores systematic issues, such as loss of status, career choices/ability, financial independence and an entry into a privatised space of mothering without macro-
structural support – all factors that are rarely taken into account in the analysis of perinatal distress.

Apart from a critique of the cultural, social and political traditions of motherhood, the main strength in using feminist methodology is in its offer of alternatives. Such alternative solutions propel forward our understanding of women’s lives and women’s health by positioning women’s and mother’s voices as a starting point of exploration (Oakley, 1996), which has been a central point in my thesis.

The Good Mother ideology

Ideologies are repeated patterns, ideas, opinions and values that create meaning. As such, ideologies are part of the common sense or the taken-for-granted set of assumptions that people use to make sense of reality (Althusser, 1976). Thus, ideologies define what exists, what is good, and what is possible (Therborn, 1980). It can be argued that we live in an era dominated by motherhood ideology (Hays, 1996; Maushart, 2000; Rich, 1995). A central concept explored in this thesis is the pertinent role of the good woman (Jack, 1993) and more specifically the good mother (Hays, 1996). The good woman and the good mother have been conceptualized within a very narrow cultural message which women take on, prioritizing relationships, relinquishing their own needs for the sake of others (e.g., children, family, social context, work, etc.) in a selfless and self-sacrificing way (Mauthner, 2010; Lafrance & Stoppard, 2006; Nicolson, 1999; Jack, 1993). This cultural message has profound implications for the way women construct their understandings of what it means to mother in a good way. The good mother myth consists of an unquestioned understanding of perfection: she never gets angry, she is entirely giving and nurturing and is by nature capable of knowing everything necessary to raise happy and well-adjusted children (Caplan, 2013). Hays’ sociological research on the good mother (1996) depicts her within the framework of intensive mothering which is described as child-centered, expert-guided, emotionally-absorbing, labor-intensive and financially expensive (p.8). In her influential work exploring mothering practices Hays identifies that mothers are increasingly expected to devote themselves exclusively to their children, regardless of their abilities. The level of this devotion determines the standards by which women measure themselves in relations to the ‘good mother’. In essence, according to Hays’ intensive motherhood involves a process that requires mothers to negotiate an identity within two opposing discourses: she is expected to mother in an entirely and selflessly devoted
manner, while living within social structures that operate and benefit a highly individualistic approach. As has been widely noted, such ‘good mothering’ ideology is fraught with many pre-set norms. For example, Walkerdine & Lucey (1998) observed how in the UK childrearing practices are differentiated by class, with the middle class typically seen as ‘right’ and ‘natural’, and the working class as inadequate to the norm; Duncan (2005) additionally suggested that class and parenting were linked in subtle, nuanced ways with class based differences. Such differences in mothering appear in terms of constraint or ‘rationality’ or ‘preference’ (p 73) in view of parenting. As Byrne (2006) claims: “at the core of practices of motherhood lies the intersection of race, class and gender, with white middle-classness often functioning as a norm of motherhood” (p. 1002). Similarly, Gillies (2007) notes how working class mothers are typically marginalised, whilst middle class mothers engage with raising children as a kind of parenting ‘project’. This idea of ‘project’ attitude could arguably be applied to pregnancy. Furthermore, claiming a good motherhood identity can be closely linked with intensive motherhood and striving to attain this ‘right’ way of pregnancy to ensure such identity. This is where the cultural ideologies of motherhood, including historical and social contexts, intersect with more material factors such as educational level, relationship status, and so on, which, in turn, influence maternal subjectivity during pregnancy and ultimately maternal mental health. With that in mind, this thesis sets out to consider the role of good mothering during pregnancy, which includes a sets of choices and attitudes towards motherhood and the baby, could be one of the aspects of demonstrating ‘good motherhood’ in this intensive mothering ideology. Such normative discourse has been argued to be highly oppressive to women (O’Reilly, 2004) for setting up unrealistic standards and opposing expectations on modern mothers (Badinter, 2012) and ultimately resulting in distress.

The concept of the good mother and its critiques has been particularly helpful in the understanding of the psychological processes of transitioning into motherhood during, especially in the context of depression and negative mood. Feminist research has been amongst the first to propose a critical examination of the moral or moralistic way in which motherhood has been universally constructed (Badinter, 1981; De Beauvoir, 1952; Rich, 1995). I argue that such binary opposition of good-versus-bad mothering resonates throughout the research related to pregnancy and childbirth, particularly when research focuses on the consequences of such messages, such as birth and post-birth issues. It is in the heart of such popular beliefs that I have formed my own argument that being a good
mother carries very precise and singular meanings. Namely, the good mother is expected to have a quick, planned and timely conception (Benzies et al., 2006; Lupton, 1999), to have a positive, healthy and glowing pregnancy (Ikemoto, 1992), unproblematic birth (Chadwick & Foster, 2014), and a very easy adjustment into the maternal role and life with a newborn baby (Staneva & Wittkowski, 2012).

Hence there is little doubt, given the pervasiveness of such cultural message that any experience differing from the good mother descriptions would result in difficulties. This is why I position the cultural analysis of the good mother ideologies in the centre of the understanding of antenatal psychological distress.

**Reflexivity**

“The pot carries its maker’s thoughts, feelings, and spirit. To overlook this fact is to miss a crucial truth, whether in clay, story, or science.” (Krieger, 1991, p. 89)

Reflexivity involves the researcher’s acknowledgement of their own contribution to the construction and the interpretations of knowledge throughout the research process (Willig & Stainton-Rogers, 2007), through both a personal and epistemological reflexive engagement with the research practice. This process involves consistent questioning of the aims, values, assumptions, power relations and theoretical positions of the research and the researchers. Furthermore, it means considering whose interests are being met, who benefits from this research and the outputs, and how participants are being considered at each part of the process.

Admittedly, as I have already stated in the Preface, I am heavily influenced by my identity and my social location as cisgender, white, able-bodied, educated, lower middle-class, heterosexual, married mother who is an immigrant living in Australia. Building on my own experiences of mothering and my involvement with motherhood groups (online and informally) in the past seven years, I believe I managed to relate to the women in this study, to engage with them on a personal level, to ensure a rapport of trust and mutual respect, but also to constantly revisit my own epistemological position, my aims and the way I conducted my studies.

Importantly, acknowledging the fact that I am also a mother was particularly helpful in eliminating potential positions of power relations between the women and me.
All of the women I spoke with in the interviews, inquired about my parenting status, and it was obvious, in the course of each interview that they needed to know more about my social location and background, even more so when hearing my accent. This “asking questions back” has been explored in detail by the feminist sociologist and researchers (Oakley, 1981) who highlight the need for reciprocity in the process where the researcher not only “elicits and receives information but also gives it back” (p. 30). Oakley’s work on interviewing women, particularly her work with pregnant women, has influenced my own style. Particularly doing feminist research and being aware of a ‘participatory model’ of the research practice which seeks to put the ‘subjective into the knowledge’ (Cotterill, 1992) has been central for me. Additionally, although my personal experience of pregnancy was not emotionally or physically distressing, opening up to the women in my study about the challenges of raising children in the context of modern life, has given me an added insider position and, I believe has influenced the way these women shared their stories. Moreover, each interview ended with a debriefing and a discussion on the effect that talking about their experiences had made the women feel. Unanimously women elaborated on the importance of being listened to, heard and validated in their own respect. Ultimately, every interview also changed me, challenging me to re-examine my own position within my studies and my personal beliefs. Thus, every next interview I conducted was informed by this newly developed sensitivity to women’s vulnerabilities.

My research has an applied focus and is intended to be relevant and understandable to clinicians and professionals engaged in the provision of care for women in the perinatal period. This intention is particularly evident in the style of writing I used in the published (and under review) papers in Chapters 3, 5 and 7, where I adapted my language for medical (GP, obstetrics, psychiatric and psychological) journals. Part of the aim of the applied focus was to engage in an active discussion with the clinical professions about the findings of this research. For example, I intentionally published and presented as I progressed, choosing to submit to profession-specific journals and take speaking engagements that reached a clinical (or related health professional) audience. Further, other publications (Chapter 4 and 6) had also an applied intent in mind. It was important to ensure that a new language of discussing pregnancy experiences is adopted both within healthcare professionals and the women themselves. I paid particular attention when discussing my work and when disseminating the findings of these studies within the media.
This ever-present dialogue (both internal and with colleagues) of keeping the woman centre-stage has influenced immensely the way I have approached this project.

**Summary of approach**

Overall, by formulating a critical realist conceptual framework, I draw on the analysis of pregnancy developed by both quantitative and qualitative schools of thought in an attempt to present a more holistic triangulated view of pregnancy distress. Through the application of a materialist-discursive-intrapsychic methodology, I aim to address the ways in which women experience psychological distress during pregnancy; how they perceive themselves and their pregnant body within a certain social context of unavoidable expectations of maternal perfection and fetal centrality; how they negotiate a maternal identity in view of these expectations; and lastly, how these experiences relate to the way these women give birth.

**Structure of the thesis**

The chapters are presented chronologically to reflect my own intellectual journey in navigating and conducting this research (see Fig. 1). Chapters 1 to 4 serve to introduce the main topic of this thesis and to situate it within the existing scientific literature.

Specifically, the aim of Chapter 1 was to set the scene for this program of work by introducing the overall scope of this research project and by presenting the objectives of the studies. In Chapter 2 I explained the theoretical framework that has guided my work and the methodological approaches I have chosen to allow for the best ways to answer the research questions that this thesis raises. In the final section of Chapter 2, I discussed reflexively on my epistemological as well as personal positions which have informed the design, production, analysis of data, and the findings of this thesis.

Chapter 3 presents a systematic review of the existing epidemiological literature on the relationship between maternal distress during pregnancy and adverse birth outcomes, specifically preterm birth. This study was designed to inform the work of professional staff, engaged in the provision of care for perinatal women, such as midwives, obstetricians, gynecologists and mental health workers. Findings from this review highlighted the main gaps in the literature structured around methodological, theoretical and conceptual issues in the exploration of such relationship. As a result of this work, I concluded that there is a much greater need for deeper scientific explorations on what the
experience of psychological distress is for women themselves, and what meaning they find in such experiences. This led to the next stage of the project which, in Chapter 4, consists of a meta-synthesis of the qualitative literature on the experience of pregnancy distress. This chapter delves in-depth into women’s personal accounts of experiencing depression, anxiety and high levels of stress during pregnancy.

The chapters that follow these introductory sections (Chapter 5 through 7) form the empirical work of my thesis, which consisted of a three-stage online survey, and of qualitative interviews. The survey comprises a longitudinal online study that I conducted between January 2014 and October 2015, within a sample of pregnant women from Australia and New Zealand. Eligible participants were assessed at three time points, twice during their pregnancy (second and third trimester), and once after their baby was born (from 12 weeks until up to a year postnatally). Measures included a comprehensive list of scales exploring psychosocial factors related to the perinatal experience (see Appendix A for the full list of measures). Data from the longitudinal survey formed the basis for two empirical studies, presented in Chapters 5 and 7, while data from qualitative interviews with women who took part in the survey but also agreed to be interviewed, is presented in Chapter 6.

In Chapter 5 I explore the most prominent predictors of maternal psychological distress during pregnancy. This is a quantitative study on data from 293 pregnant women who were assessed during their second trimester of pregnancy. This work highlights the importance of recognizing both social (such as the global sense of coherence) and personal (such as mothering orientations) factors in the understanding of psychological distress during pregnancy.

Following on, Chapter 6 presents a qualitative study of a purposive selected sample of 18 pregnant women, who experienced pregnancy distress. This study investigates how women interpret their experience of distress and the meanings they ascribe to it. A thematic analysis of in-depth interview data allowed the identifying of the complexity of the process that vulnerable women undergo during pregnancy in view the idealized notion of the good mother.

Building on this multi-layered understanding of pregnancy distress, Chapter 7 presents the final findings from the longitudinal online survey, specifically the work that
investigates whether experiencing psychological distress during pregnancy influences adverse birth outcomes. The analysis involved datasets from a total of 285 women, and included all three time points of assessment. This study focuses on revisiting the link between mind and body (pregnancy distress and birth, respectively) and contributes to better understanding of risk around adversities.

In closing, Chapter 8 brings together the overall theoretical, methodological and practical contributions of this research. In this final chapter I provide an overall summary of findings, while revisiting the primary aims, findings and implications of this thesis in terms of medicalization, stigma and definitions of distress. I conclude with a discussion on the new possibilities for moving forward such research, and an epilogue.
Figure 1. Thesis structure
Chapter 3: Review

Epidemiological evidence on the relationship between antenatal distress and adverse birth outcomes

A growing body of research has suggested that maternal experiences in pregnancy have extensive effects on the developing fetus and the offspring which may persist throughout the lifespan. Concurrently, equally convincing research has not identified such link. This project began by systematically exploring the scientific evidence on this reportedly inconsistent relationship, particularly the link between experiencing depression, anxiety and/or stress antenatally and preterm birth. It was essential to examine the nature of this relationship and the potential explanations around the inconsistencies in such findings in order to better inform the design of the exploratory stages of the project.

The purpose of this chapter is to highlight active areas of research on the psychological science on pregnancy and birth within the domain of a wider bio-psychosocial framework. In particular, this review brings forward a deficiency in strong theoretical evidence and robust methodological interpretations (and definitions) of mental health and pregnancy distress in particular. This study is presented in the remainder of this chapter in the form of a published paper.

Title: The effects of maternal depression, anxiety, and perceived stress on preterm birth: A systematic review

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Key words: Depression, Anxiety, Perceived Stress, Pregnancy, Preterm birth, Systematic review
Abstract

Background: Experiencing psychological distress such as depression, anxiety, and/or perceived stress during pregnancy may increase the risk for adverse birth outcomes, including preterm birth. Clarifying the association between exposure and outcome may improve the understanding of risk factors for prematurity and guide future clinical and research practices.

Aim: The aims of the present review were to outline the evidence on the risk of preterm associated with antenatal depression, anxiety, and stress.

Methods: Four electronic database searches were conducted to identify quantitative population-based, multi-centre, cohort studies and randomised-controlled trial studies focusing on the association between antenatal depression, anxiety, and stress, and preterm birth published in English between 1980 and 2013.

Findings: Of 1469 electronically retrieved articles, 39 peer-reviewed studies met the final selection criteria and were included in this review following the PRISMA and MOOSE review guidelines. Information was extracted on study characteristics; depression, anxiety and perceived stress were examined as separate and combined exposures. There is strong evidence that antenatal distress during the pregnancy increases the likelihood of preterm birth.

Conclusion: Complex paths of significant interactions between depression, anxiety and stress, risk factors and preterm birth were indicated in both direct and indirect ways. The effects of pregnancy distress were associated with spontaneous but not with medically indicated preterm birth. Health practitioners engaged in providing perinatal care to women, such as obstetricians, midwives, nurses, and mental health specialists need to provide appropriate support to women experiencing psychological distress in order to improve outcomes for both mothers and infants.
Introduction

Research has identified that amongst women who experience psychological adversities during pregnancy there is a trend toward sub-optimal birth outcomes, including mortality and morbidity, shorter gestation, and lower birth weight (Grote et al., 2010). According to the World Health Organization (2009) preterm birth (PTB) is the leading cause of infant mortality and, morbidity. Infants born preterm (<37 weeks of completed gestation) are at a greater risk of various health and developmental problems, and present a considerable emotional and economic cost to families, as well as significant implications for public-sector services. Despite decades of investigation, the incidence of preterm birth has not declined and its aetiology remains unexplored.

PTB has been linked to a complex cluster of overlapping biomedical, social and psychological factors. While some studies report no link between maternal mental health during pregnancy and birth outcomes (Perkin, Bland, Peacock, & Anderson, 1993), there is emerging evidence of the relationship between maternal mental health during pregnancy and pregnancy outcomes, including PTB (for reviews see Grote et al., 2010). However, evidence of the specific effects of antenatal depression, anxiety and stress on birth outcomes remains unclear and at times conflicting. Therefore, the main objective of this review is to identify and examine the impact of overall maternal psychological distress during pregnancy, specifically the three most prevalent diagnostic (clinical) and symptomatological (sub-clinical) presentations of psychological distress, i.e., depression, anxiety and perceived stress (referred to subsequently as DAS) during pregnancy.

Depression is one of the most common complications during pregnancy and the childbearing years. The prevalence of major depressive disorder defined by diagnostic criteria during pregnancy is 12.7%, while as many as 37% of women report experiencing depressive symptoms at some point during their pregnancy (Lee et al., 2007). Anxiety is known to be more prevalent than depression at all stages of pregnancy although there is a high level of comorbidity of about 60% between the two (Bennett, Einarson, Taddio, Koren, & Einarson, 2004; Lee et al., 2007). Additionally, the way a woman perceives and interprets various stressful events in her environment during pregnancy has gained increasing research attention, especially in respect to the contribution to adverse birth outcomes.
Experiencing depression, anxiety, or stress (DAS) during pregnancy may expose both mother and infant to 1) many psychological risks, including an impaired bonding with the foetus and with the new-born, increased risk of poor psychological postnatal adjustment, postnatal depression, and 2) physiological consequences, including low birth weight, intra-uterine growth restriction, and preterm birth. This review will focus on studies reporting PTB, defined as birth prior to the completion of 37 weeks gestation.

It is likely that, beyond the established bio-medical factors, depression, anxiety and perceived stress may contribute in different ways to PTB, activating different pathways in the process. Furthermore, the co-morbidity of depression, anxiety and perceived stress may pose an even higher risk for PTB. Therefore, the secondary objective of this review is to examine the effects of depression, anxiety and perceived stress as individual and as combined exposures.

Additionally, it is recognised that the relationship between DAS and PTB and the interpretation of findings is expected to be influenced by the operationalisation of DAS and PTB, the antenatal measures used and potential modifying and confounding variables. Consequently, the third objective of this review is to critically consider these methodological influences in determining the relationship between DAS and PTB.

**Methods**

The protocol for the review was developed and agreed by the authors prior to commencement. It followed all aspects recommended in the reporting of systematic reviews, namely the PRISMA Checklist and MOOSE Guidelines (Moher, Liberati, Tetzlaff, & Altman, 2009; Stroup et al., 2000). Epidemiological studies (both observational and experimental) that explored the association between DAS during pregnancy and PTB were considered for this review. Depression and anxiety were conceptualised as defined by DSM-IV-TR criteria on mood disorders (2000). Stress was conceptualised as an individual’s response to a stressful situation through a validated self-report measure of stress and not only the occurrence of specific stressors (such as daily, occupational, chronic, etc., stressors only). Principal summary measures for associations were odds ratios (OR), relative risks (RR), hazard ratios (HR), regression coefficients, and a discriminate predictive function. The protocol was not submitted for registration.
Eligibility Criteria and Search Strategy

MEDLINE, CINAHL, PsycInfo, and Cochrane databases searches were conducted by the first author (AS), with the help of an experienced health sciences librarian (JD). Search terms, inclusion and exclusion criteria applied in the review can be found in Table 1.

Table 1. Search terms, Inclusion and Exclusion Criteria

<table>
<thead>
<tr>
<th>Search terms (keywords, index words, MeSH headings, and their combinations using Boolean AND/OR operators):</th>
<th>Included:</th>
<th>Excluded:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. &quot;in pregnancy&quot; OR &quot;in pregnant women&quot; OR &quot;during pregnancy&quot; OR &quot;whil* pregnant&quot; OR prenatal OR antenatal OR prepartum OR antepartum;</td>
<td>English-language articles published between 1980 and 2013</td>
<td>Reviews or theoretical papers</td>
</tr>
<tr>
<td>2. anxiety OR depress* OR anxious OR stress* OR mental OR distress*;</td>
<td>Quantitative primary research articles (population-based, multi-centre, cohort studies and randomized-controlled trials)</td>
<td>Retrospective design was used to measure antenatal depression, anxiety or stress</td>
</tr>
<tr>
<td>{Anxiety} OR {Anxiety Disorders} OR {Anxiety Management} OR {Depression (Emotion)} OR {Major Depression} OR {Stress}</td>
<td>Measured depression, anxiety and stress symptoms in all pregnant women by means of self-reported questionnaires or structured psychiatric interview</td>
<td>Duplicate articles using the same data</td>
</tr>
<tr>
<td>3. preterm OR premature OR “early delivery” OR “early onset of labour” OR “early onset of labor” OR prematurity OR gestational age;</td>
<td>Reported the use of validated diagnostic or screening tools to determine either one of depression, anxiety, or stress</td>
<td>Primarily focus was on the use of antidepressant medication, rather than the measurement and diagnosis of depression</td>
</tr>
<tr>
<td>{Premature birth}</td>
<td>All articles were entered into EndNote X6 (Thomson Reuters, Carlsbad, CA, USA).</td>
<td></td>
</tr>
</tbody>
</table>

Subsequent manual searches were performed through reference lists of the papers and of other published reviews. A study selection table detailing inclusion and exclusion criteria (Table 1.) was used by two reviewers (AS and FB), who independently judged a random sample of studies to enhance reliability of selection. Subsequently, studies that were under
question for inclusion (n=20) were re-examined by the second reviewer (FB). Of 1469 reviewed studies, 39 met the inclusion criteria and were selected for final quality assessment (see Fig 1.).
Assessment of quality and risk of bias

The methodological quality and risk of bias of each study was assessed using an adapted checklist developed by a knowledge synthesis group for the specific purpose of review of the evidence relating to determinants of preterm and low birth weight births (Shah, 2010). The checklist is applicable across study types and details criteria and standards for selection, exposure assessment, outcome assessment, confounding factors, analytical, and attrition bias assessment with classifications ranging from None to High, and Cannot Tell (see Table 2.). Adjustments were made regarding exposure and outcome descriptions, definitions criteria, and criteria for confounding factors, where the lowest (none) levels of bias were ascertained to studies that controlled for all common and adjusted confounders and high bias was assigned to studies that did not consider or report on any confounders. Overall bias assessment was determined as the most frequently occurring, highest level across the six categories. The Cannot Tell assessment was interpreted as a high level of bias. Discrepancies were resolved by a consensus between AS and FB, a process which reflected that undertaken by the checklist originators.
<table>
<thead>
<tr>
<th>Bias</th>
<th>None</th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
<th>Cannot tell</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Selection</strong></td>
<td>Consecutive unselected population</td>
<td>Sample selection form large population but no defined selection criteria</td>
<td>Sample selection ambiguous but sample may be representative</td>
<td>Sample selection ambiguous and sample likely not representative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sample Selected from general population rather than a selected group</td>
<td>A select group of population based on race, ethnicity, residence, etc. studied</td>
<td>Eligibility criteria not explained</td>
<td>A very select population studied making it difficult to generalize findings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rationale for case and control selection explained</td>
<td>Follow-up or assessment time(s) explained</td>
<td>Rationale for case and controls not explained</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Follow-up or assessment time(s) explained</td>
<td></td>
<td>Follow-up or assessment time(s) not explained</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Exposure assessment</strong></td>
<td>Direct interview with the mother during pregnancy regarding DAS</td>
<td>Completion of self-report measure by the mother regarding DAS</td>
<td>Assessment of DAS from global dataset (National register, Vital statistics)</td>
<td>Extrapolating data from population exposure sample or indirect method of assessment (not from mother but others)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>More than once during pregnancy</td>
<td>Once or more during pregnancy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Outcome assessment</strong></td>
<td>Assessment from hospital record, birth certificate</td>
<td>Assessment from administrative database (National register, Vital statistics)</td>
<td>Assessment from direct question to mother regarding length of gestation or with open-ended questions</td>
<td>Assessment form non-validated sources or generic estimate from overall population</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PTB defined as &lt;37 weeks</td>
<td>PTB defined as &lt;37 weeks</td>
<td>Unclear cut-off point for gestational length</td>
<td>Unclear cut-off point for gestational length</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ultrasound or last menstrual period</td>
<td>Ultrasound or last menstrual period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Confounding factor</strong></td>
<td>Controlled for all common adjusted confounders</td>
<td>Only certain main confounders adjusted</td>
<td>Very few (1 to 2) confounders were controlled for</td>
<td>Not controlled for confounders</td>
<td></td>
</tr>
<tr>
<td><strong>Analytical</strong></td>
<td>Analyses appropriate for the type of sample</td>
<td>Analyses not accounting for common statistical adjustment (e.g., multiple analyses) when appropriate</td>
<td>Sample size estimation unclear or only sub-sample of eligible participants studied</td>
<td>Analyses inappropriate for the type of sample/study</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Analytical method accounted for sampling strategy in cross-sectional studies</td>
<td>Sample size calculations not performed, but all available eligible patients studied</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sample size calculation performed and adequate sample studied</td>
<td>Sample size calculated and reasons for not meeting sample size given</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bias</td>
<td>None</td>
<td>Low</td>
<td>Moderate</td>
<td>High</td>
<td>Cannot tell</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------------------------------</td>
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<td>--------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Attrition</td>
<td>• 0-10% attrition and reasons for follow-up loss explained</td>
<td>• 0-10% attrition and reasons for follow-up loss not explained</td>
<td>• 11-20% attrition, reasons for follow-up loss not explained</td>
<td>• &gt;20% attrition reasons not explained</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>• All subject from initiation of study to final outcome assessment were accounted for</td>
<td></td>
<td>• &gt;20% attrition reasons explained</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• All subjects from initiation to final assessment not accounted for</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Findings

Description of studies

The study selection process is reported as recommended by the PRISMA group (Moher et al., 2009) in Figure 1. The final 39 articles selected for review represented a total of 134,488 pregnant women. The majority of studies (27) were from the USA, and the remainder from Sweden (2), Denmark (2), France (2), Brazil (2), Canada (1), UK (1), Norway (1), and China (1). All studies employed prospective cohort study design and multivariate data analysis. Six studies drew upon large population-based data. Sample sizes varied from 88 to 63,395, and sampling ranged from convenient to systematic (random). Settings ranged from university hospital-based clinics, multi-centre studies, to public hospitals with antenatal clinics. Pregnancy outcome (PTB, and other) data were generally collected from medical charts. However, there were exceptions, and in these cases the data were collected directly from women by contacting them (Li, Liu, & Odouli, 2009) but only after medical records were deemed unavailable.

Assessment of bias

Eighteen studies were assessed as exhibiting low overall methodological bias, 16 as having moderate bias, four studies deemed to have high bias, and one study was assigned as not biased (see Table 3). When moderate and high levels of assessed bias were combined and considered across the selected studies, the majority of studies exhibited selection bias (66%), and exposure assessment bias (54%). We aimed at presenting the reader with a complete picture of the current literature, thus the four studies with high levels of bias were not excluded at this stage, despite scoring highest on confounding factors, as they captured important information on the association between exposure and outcome variables. The remaining bias types were evident in the minority of studies with the proportion of studies exhibiting confounding factor bias assessed at 36%, followed by analytical bias (31%), outcomes assessment bias (28%) and attrition bias (10%). Within the studies with low and no bias, the most frequently occurring type of bias was again selection bias (47%) and exposure assessment bias (37%).
<table>
<thead>
<tr>
<th>First Author (Year)</th>
<th>Country</th>
<th>Study Design</th>
<th>Type of Bias</th>
<th>Overall bias assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yonkers (2012)</td>
<td>USA</td>
<td>Prospective cohort</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Copper (1996)</td>
<td>USA</td>
<td>Prospective cohort</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Coussons-Reed (2012)</td>
<td>USA</td>
<td>Prospective cohort</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Dayan (2002)</td>
<td>France</td>
<td>Prospective cohort</td>
<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td>Fransson (2011)</td>
<td>Sweden</td>
<td>Population-based</td>
<td>None</td>
<td>Low</td>
</tr>
<tr>
<td>Glynn (2008)</td>
<td>USA</td>
<td>Prospective cohort</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>Hedegaard (1993)</td>
<td>Denmark</td>
<td>Prospective population-based cohort</td>
<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td>Ibanez (2012)</td>
<td>France</td>
<td>Prospective cohort</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Kramer (2009)</td>
<td>Canada</td>
<td>Prospective cohort</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Li (2000)</td>
<td>USA</td>
<td>Population-based cohort</td>
<td>Moderate</td>
<td>None</td>
</tr>
<tr>
<td>Lobel (2008)</td>
<td>USA</td>
<td>Prospective cohort</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>Mancuso (2004)</td>
<td>USA</td>
<td>Prospective cohort</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Neggers (2006)</td>
<td>USA</td>
<td>Prospective cohort</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Nordeng (2012)</td>
<td>Norway</td>
<td>Population-based</td>
<td>None</td>
<td>Low</td>
</tr>
<tr>
<td>Nordentoft (1996)</td>
<td>Denmark</td>
<td>Prospective cohort</td>
<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td>Orr (2007)</td>
<td>USA</td>
<td>Prospective cohort</td>
<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td>Rini (1999)</td>
<td>USA</td>
<td>Prospective Cohort</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>Ruiz (2012)</td>
<td>USA</td>
<td>Prospective Cohort</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Steer (1992)</td>
<td>USA</td>
<td>Prospective cohort</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>First Author (Year) Country</td>
<td>Study Design</td>
<td>Type of Bias</td>
<td>Overall bias assessment</td>
<td>First Author (Year) Country</td>
</tr>
<tr>
<td>-----------------------------</td>
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<td>-------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Wadhwa (1993) USA</td>
<td>Prospective cohort</td>
<td>High</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Catov (2010) USA</td>
<td>Prospective cohort</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Dole (2003) USA</td>
<td>Prospective cohort</td>
<td>High</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>Faisal-Cury (2010) Brazil</td>
<td>Prospective cohort</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Gavin (2009) USA</td>
<td>Prospective cohort</td>
<td>Low</td>
<td>High</td>
<td>None</td>
</tr>
<tr>
<td>Hoffman (2000) USA</td>
<td>Prospective cohort</td>
<td>Low</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
</tbody>
</table>
| Lau (2013) China            | Prospective community based cohort | Moderate | Low | Low | High | Moderate | Low | Moderate | Low | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderat...
Data synthesis

Individual studies were critically analysed, and the findings were subsequently summarised. The lack of homogeneity of data with respect to sample characteristics, methodology, assessment tools, timing and cut-off scores, diagnostic criteria and symptomatology, conceptualisations of exposure and definitions of PTB, was observed and precluded a meta-analysis.

Participant characteristics

Recruited participants were all pregnant women, ranging from those clinically diagnosed as depressed, to those experiencing various levels of depression, anxiety or stress symptomatology, and healthy comparison groups. While some studies controlled for age and its implications, most studies categorized women on that basis. Age range varied substantially across studies. Study variability was also present in ethnicity and race, socio-economic status, urban and rural settings and in the marital status, parity, education levels, and income of the participants. Black and Hispanic race and socioeconomically disadvantaged women with lower income and on public assistance were overrepresented across the studies. Some studies reported negative health behaviours pre- and during the pregnancy (e.g., smoking, drinking, abusing drugs, etc.,) and controlled for behavioural practices and lifestyle as predictive of birth outcomes. However, the majority of studies did not assess participants’ health behaviours.

Conceptualising preterm birth

Reported PTB rates ranged from 4.1% to 23% (mean=9.1). Six studies reported the rates for PTB specifically for depressed (clinically diagnosed, and either on antidepressant medication or untreated) participants and these ranged from 8% to 32% (mean=15.5%). Sixteen studies defined prematurity beyond the generally accepted standard of birth before completing 37 weeks of gestation. Sub-categorizations included were by the type of preterm birth delivery (spontaneous or medically indicated), its timing (early vs. late), and by established causes (rupture of membranes or preterm labour). Despite the general consensus of using the categorical variable with a cut-off point of 37 weeks, a few studies explored gestational age length (in days and weeks) as well. One study defined PTB as birth before week 36 (Perkin et al., 1993), another study before completed 35 weeks (Copper et al., 1996), whereas another one (Lobel, Dunkel-Schetter, & Scrimshaw, 1992) differentiated between a “clearly preterm” (<36 weeks) and “marginally preterm” (36-37 weeks). Two other adverse birth outcomes were commonly reported along with PTB – low birth weight (LBW) (babies, weighing less than
2500gr) and intrauterine growth restriction (IUGR) (baby weight that is below the 10th percentile for gestational age). However, it is important to differentiate among each one, because it is hypothesized that different adverse birth outcomes have different aetiology, although they may share overlapping risk factors and comorbid sequelae.

**Types of exposure**

In order to synthesise the findings and address the secondary aims of the review, studies were grouped by exposure (i.e., depression, anxiety and perceived stress, or a combination thereof) and are reported in Table 3 with studies ordered by level of bias.
<table>
<thead>
<tr>
<th>Authors, Year, Country</th>
<th>Sample Size (n), Characteristics/ Setting</th>
<th>Measure of Exposure/ Symptoms or Clinical Diagnosis</th>
<th>Exposure Assessment Frequency (n), Gestational week (x/40)</th>
<th>Outcome Assessment PTB Type/ Rate</th>
<th>Significant measures of Effect and Associations RR/HR/OR [95%CI]</th>
<th>Adjusted for Confounders</th>
<th>Risk of Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yonkers KA et al. (2012) USA</td>
<td>2 793</td>
<td>CIDI Interview/ Clinical Diagnosis</td>
<td>n=2, 17 and 28/40</td>
<td>E (4) L (14)</td>
<td>OR*=1.2 [0.68-2.1]</td>
<td>Age, education, race, smoking, drug use, pregnancy history past depression, past psychiatric disorders</td>
<td>None</td>
</tr>
<tr>
<td>Fransson et al. (2011) Sweden</td>
<td>2 904</td>
<td>EPDS/ Symptoms</td>
<td>n=1, 16/40</td>
<td>S MI</td>
<td>OR=1.56[1.03-2.35]</td>
<td>Age, civil status, residency status, education level, assisted conception, history of infertility</td>
<td>Low</td>
</tr>
<tr>
<td>Li et al. (2009) USA</td>
<td>791</td>
<td>CES-D/ Symptoms in 41.2%</td>
<td>n=1,10/40 (6-18)</td>
<td>&lt;37 Miscarriage</td>
<td>HR=1.9 [1.0-3.7]</td>
<td>Use of SSRI, age, smoking, education, race, gravidity, history of miscarriage, PTB or LBW</td>
<td>Low</td>
</tr>
<tr>
<td>Neggers Y et al. (2006) USA</td>
<td>3 149</td>
<td>CES-D/ Symptoms - Psychological status</td>
<td>n=1,22-23/40</td>
<td>LBW IUGR</td>
<td>OR = 1.3 [1.04-1.7]</td>
<td>Race, pre-pregnancy weight, previous PTD, parity, education, alcohol and tobacco use, history of hypertension, diabetes, gender of the infant</td>
<td>Low</td>
</tr>
<tr>
<td>Authors, Year, Country</td>
<td>Sample Size (n), Characteristics/ Setting</td>
<td>Measure of Exposure/ Symptoms or Clinical Diagnosis</td>
<td>Exposure Assessment Frequency (n), Gestational week (x/40)</td>
<td>Outcome Assessment PTB Type/ Rate</td>
<td>Significant measures of Effect and Associations RR/HR/OR [95%CI]</td>
<td>Adjusted for Confounders</td>
<td>Risk of Bias</td>
</tr>
<tr>
<td>------------------------</td>
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<td>-------------------------------------------------------------</td>
<td>--------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Nordeng H et al. (2012) Norway</td>
<td>63 395 Representative of population 50 out of 52 hospitals</td>
<td>Hopkins SC/Symptoms in 6.7%</td>
<td>n=2, 17 and 30/40</td>
<td>&lt;37</td>
<td>Congenital malformation, LBW</td>
<td>OR=1.13[1.03-1.25]</td>
<td>SSRI, socio-demographics and lifestyle factors</td>
</tr>
<tr>
<td>Ruiz RJ, et al. (2012) USA</td>
<td>470 Hispanics only Physician practices and community clinics</td>
<td>CES-D/ “Mild to Severe” symptoms in 40.3%</td>
<td>n=1, 22-24/40</td>
<td>E(9) L(24)</td>
<td>$\chi^2=5.33$, p=0.021 *interaction b/w depressive symptoms and hormones associated with PTB</td>
<td>History of PTB, preeclampsia, marital status, infections, age, BMI, GA for blood drawing</td>
<td>Low</td>
</tr>
<tr>
<td>Steer RA et al. (1992) USA</td>
<td>712 Minority groups (50% adolescents and 50% adults) 2 inner-city hospitals</td>
<td>BDI/ Symptoms (higher in adolescents)</td>
<td>n=1/28/40</td>
<td>&lt;37</td>
<td>LBW SGA</td>
<td>OR*=3.39[3.24-3.56]</td>
<td>Race, low BMI, inadequate weight gain, smoking, prior history of PTB, parity</td>
</tr>
<tr>
<td>Gavin AR et al. (2009) USA</td>
<td>3 019 65% White 25% Black 10% other Multi-centre POUCH study</td>
<td>CES-D/ Symptoms in 17%</td>
<td>n=1/15-22/40</td>
<td>MI&lt; 35 MI 35-36 PTB &lt;35 PTB 35 - 36/</td>
<td>* in Adults only (not predictive in adolescents)</td>
<td>OR=1.1 [0.6-1.9]</td>
<td>Age, race, parity, Medicaid use, use of psychotropic medication</td>
</tr>
<tr>
<td>Hoffman &amp; Hatch (2000) USA</td>
<td>666 Lower SES 2 suburban rural sites</td>
<td>CES-D in 28% (40%low SES)</td>
<td>n=3, 13, 28 and 36/40</td>
<td>&lt;37 Not reported</td>
<td>Fetal growth, GA</td>
<td>OR=1.07 [0.87-1.31]</td>
<td>SES, Social support, History of previous poor pregnancy outcome</td>
</tr>
<tr>
<td>Authors, Year, Country</td>
<td>Sample Size (n), Characteristics/ Setting</td>
<td>Measure of Exposure/ Symptoms or Clinical Diagnosis</td>
<td>Exposure Assessment Frequency (n), Gestational week (x/40) n=1,17/40</td>
<td>Outcome Assessment</td>
<td>Significant measures of Effect and Associations RR/HR/OR [95%CI]</td>
<td>Adjusted for Confounders</td>
<td>Risk of Bias</td>
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</tr>
<tr>
<td>Orr et al.(2002) USA</td>
<td>1 399 Only Black 4 hospital-based clinics</td>
<td>CES-D/Symptoms</td>
<td>S PTB only</td>
<td>RR= 1.96 [1.04-3.72]</td>
<td>Behavioral, clinical and demographic variables</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Smith MV et al.(2011) USA</td>
<td>1 100 Hispanic (~50%) Black and White (~50%) 3 cohorts in Health Start Screening Initiative</td>
<td>PRIME-MD/Symptoms in 36%</td>
<td>n=1/14-34/40 &lt;37 8% in depressed</td>
<td>LBW SGA Complications of delivery Newborn status GA, birth weight, Apgar scores, admission to NICU</td>
<td>OR=1.83 [1.17-2.86]</td>
<td>Smoking, drug and alcohol use during pregnancy</td>
<td>Moderate</td>
</tr>
<tr>
<td>Suri R et al.(2007) USA</td>
<td>90 3 exposure groups University setting</td>
<td>Structured Clinical Interview, HAM-D, BDI, PSS/Symptoms and Clinical Diagnosis in 22-28%</td>
<td>Monthly assessments &lt;37 14.3% in antidepressant depressed group; 0% in depressed; 5.3% in no depression</td>
<td>OR*=1.41 [0.26-7.73]</td>
<td>Age, parity, weight gain, medical risk factors</td>
<td>Moderate</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.1 Evaluation of Studies (Depression, n=14) (Cont.)
### Table 4.1 Evaluation of Studies (Depression, n=14) (Cont.)

<table>
<thead>
<tr>
<th>Authors, Year, Country</th>
<th>Sample Size (n), Characteristics/ Setting</th>
<th>Measure of Exposure/ Symptoms or Clinical Diagnosis</th>
<th>Exposure Assessment Frequency (n), Gestational week (x/40)</th>
<th>Outcome Assessment</th>
<th>Significant measures of Effect and Associations RR/HR/OR [95%CI]</th>
<th>Adjusted for Confounders</th>
<th>Risk of Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wisner KL et al. (2009) USA</td>
<td>238</td>
<td>SCID – ADS GAS SF-12 and interview/Cl Diagnosis in 44.9%</td>
<td>n=3, 20, 30 and 36/40</td>
<td>E and L</td>
<td>Infant birth weight, Neonatal characteristics</td>
<td>RR*= 3.71[0.98-14.13]</td>
<td>Age and Race Maternal BMI</td>
</tr>
<tr>
<td></td>
<td>3 exposure groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>depression, no SSRI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 hospital sites</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>SSRI exposure</strong></td>
<td></td>
</tr>
<tr>
<td>Straub et al. (2012) USA</td>
<td>14 175</td>
<td>EPDS/Syptoms in 9.1%</td>
<td>n=1,24-28/40</td>
<td>20% PTB in depressed and SSRI groups; 4-9% in the rest</td>
<td>OR=1.3[1.09-1.35]</td>
<td>Age, race, prior PTB, insurance status</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>70% White</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Multiple gestation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8% Black</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13.7% Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19.4% on public assistance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>University hospital</td>
<td></td>
<td></td>
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</table>
### Table 4.2 Evaluation of Studies (Anxiety, n=4)

<table>
<thead>
<tr>
<th>Authors, Year, Country</th>
<th>Sample Size (n), Characteristics/ Setting</th>
<th>Measure of Exposure/ Symptoms or Clinical Diagnosis</th>
<th>Exposure Assessment Frequency (n), Gestational week (x/40)</th>
<th>Outcome Assessment</th>
<th>Significant measures of Effect and Associations RR/HR/OR [95%CI]</th>
<th>Adjusted for Confounders</th>
<th>Risk of Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mancuso et al. (2004)</td>
<td>282</td>
<td>PSA/Symptoms in Black women higher than in White</td>
<td>n=3, 18 to 20/40; 28 to 30/40; 35 to 36/40</td>
<td>&lt;37</td>
<td>GA</td>
<td>&lt;37</td>
<td>Low</td>
</tr>
<tr>
<td>USA</td>
<td>43% Black</td>
<td>Blood plasma hormonal analysis</td>
<td></td>
<td>GA</td>
<td>GA</td>
<td>Medical risk, parity, socioeconomic variables</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>32% Hispanic</td>
<td>PSEI/Symptoms of increased anxiety in 28%</td>
<td>n=1,16/40</td>
<td>GA</td>
<td>GA</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>24% White</td>
<td></td>
<td></td>
<td>GA</td>
<td>GA</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Urban prenatal clinics and private practices “Behavior in Pregnancy Study”</td>
<td></td>
<td></td>
<td>GA</td>
<td>GA</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>Low</td>
</tr>
<tr>
<td>Orr et al. (2007)</td>
<td>1820</td>
<td></td>
<td></td>
<td>GA</td>
<td>GA</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>Low</td>
</tr>
<tr>
<td>USA</td>
<td>Predominantly Black</td>
<td></td>
<td></td>
<td>GA</td>
<td>GA</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Predominantly on public assistance</td>
<td></td>
<td></td>
<td>GA</td>
<td>GA</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>Low</td>
</tr>
<tr>
<td>Catov JM et al. (2010)</td>
<td>667</td>
<td>STAI/Symptoms for A-T and A-S</td>
<td>n=2, 8 to 28/40 and 6 weeks after</td>
<td>Non-defined</td>
<td>Anemia, UTI, hyper tension, GD, meconiu m, fetal distress, weight, Apgar</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>Moderate</td>
</tr>
<tr>
<td>USA</td>
<td>30% Black</td>
<td></td>
<td></td>
<td>GA</td>
<td>GA</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>Predominantly on public assistance</td>
<td></td>
<td></td>
<td>GA</td>
<td>GA</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>Women’s Hospital “Prenatal Exposure and Preeclampsia Prevention Study”</td>
<td></td>
<td></td>
<td>GA</td>
<td>GA</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>Moderate</td>
</tr>
<tr>
<td>Bhagwanani SG et al. (1997)</td>
<td>88</td>
<td>STAI/Symptoms for A-T and A-S</td>
<td>n=2, 8 to 28/40 and 6 weeks after</td>
<td>Non-defined</td>
<td>Anemia, UTI, hyper tension, GD, meconiu m, fetal distress, weight, Apgar</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>High</td>
</tr>
<tr>
<td>USA</td>
<td>65% White</td>
<td></td>
<td></td>
<td>GA</td>
<td>GA</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>27% Black</td>
<td></td>
<td></td>
<td>GA</td>
<td>GA</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>8% Hispanic</td>
<td></td>
<td></td>
<td>GA</td>
<td>GA</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>University Hospital</td>
<td></td>
<td></td>
<td>GA</td>
<td>GA</td>
<td>Smoking and drug use, BMI, History of PTB, Black race</td>
<td>High</td>
</tr>
<tr>
<td>Authors, Year, Country</td>
<td>Sample Size (n), Characteristics/ Setting</td>
<td>Measure of Exposure/ Symptoms or Clinical Diagnosis</td>
<td>Exposure Assessment Frequency (n), Gestational week (x/40)</td>
<td>Outcome Assessment</td>
<td>Significant measures of Effect and Associations RR/HR/OR [95%CI]</td>
<td>Adjusted for Confounders</td>
<td>Risk of Bias</td>
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</tr>
<tr>
<td>Coussons-Read ME et al. (2012) USA</td>
<td>173 Hispanic 75% White 25%</td>
<td>NUPDQ DMHA Blood sample (inflammatory marker)/ Symptoms</td>
<td>n=2, 14-18/40; 28-32/40</td>
<td>&lt;37 GA</td>
<td>R²adj=.23, F(5159) = 11.369, p&lt;.000</td>
<td>Infection during pregnancy, Combined effect of distress and inflammatory markers</td>
<td>Low</td>
</tr>
<tr>
<td>Hedegaard M et al. (1993) Denmark</td>
<td>5459 Medical Centre</td>
<td>GHQ/ Symptoms</td>
<td>n=2, 16 and 30*/40</td>
<td>&lt;37</td>
<td>High stress later in pregnancy* RR=1.75 [1.20-2.54]</td>
<td>Age, smoking, educational level, parity, previous PTB, height and pre-pregnancy weight</td>
<td>Low</td>
</tr>
<tr>
<td>Nordentoft M et al. (1996) Denmark</td>
<td>2 432 Antenatal clinic in University Hospital</td>
<td>Severity of Psychosocial Stressor Scale</td>
<td>n=1, 20/40</td>
<td>&lt;37 IUGR</td>
<td>OR=1.14 [1.00-1.29]</td>
<td>Age, cohabitation with partner, education</td>
<td>Low</td>
</tr>
<tr>
<td>Lau Y. (2013) China</td>
<td>584 Antenatal clinic in public hospital</td>
<td>GHQ 12/ Symptoms</td>
<td>n=1, 18/40</td>
<td>&lt;37 LBW</td>
<td>OR=2.45 [1.04-5.62]</td>
<td>Demographics, socioeconomic, obstetrics, medical characteristics, Smoking, alcohol, drug abuse</td>
<td>Moderate</td>
</tr>
<tr>
<td>Rondo, et al. (2003) Brazil</td>
<td>865 Low income families 12 health units in 5 hospitals in Southeast Brazil</td>
<td>GHQ/ Symptoms of distress varied 22.1 to 52.9%</td>
<td>n=3, 16; 20-26; and 30-36*/40</td>
<td>&lt;37 LBW, IUGR</td>
<td>*RR=2.32 [1.18-4.60]</td>
<td>Age, education, marital status, income, parity, history of LBW, pre-pregnancy weight, height</td>
<td>Moderate</td>
</tr>
<tr>
<td>Authors, Year, Country</td>
<td>Sample Size (n), Characteristics/ Setting</td>
<td>Measure of Exposure/ Symptoms or Clinical Diagnosis</td>
<td>Exposure Assessment Frequency (n), Gestational week (x/40)</td>
<td>Outcome Assessment</td>
<td>Significant measures of Effect and Associations RR/HR/OR [95%CI]</td>
<td>Adjusted for Confounders</td>
<td>Risk of Bias</td>
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<tr>
<td>Copper RL et al. (1996) USA</td>
<td>2593</td>
<td>STAI CES-D/ Symptoms of stress, anxiety and depression</td>
<td>n=1, 25-29/40</td>
<td>S PTB at &lt;35 weeks/ 3.9% And PTB &lt;37/ 15.5%</td>
<td>IUGR LBW</td>
<td>High stress OR=1.16 [1.05-1.29]</td>
<td>Age, marital status, insurance, education, tobacco, alcohol and drug use, Black race</td>
</tr>
<tr>
<td>Dayan J et al. (2002) France</td>
<td>634</td>
<td>STAI EPDS/ Symptoms of anxiety (not reported %) and high depression in 11.2%</td>
<td>n=1, 20-28/40</td>
<td>&lt;37 S</td>
<td>11.4%</td>
<td>Depression in underweight women OR=6.9 [1.8-26.2]</td>
<td>Socio-demographics and biomedical factors</td>
</tr>
<tr>
<td>Glynn LM et al. (2008) USA</td>
<td>415</td>
<td>PSS STAI P-SA/ Symptoms of perceived stress and anxiety</td>
<td>n=2, 18-20 and 30-32/40</td>
<td>&lt;37 GA</td>
<td>9.1%</td>
<td>Perceived stress OR=3.08 [1.51-6.28]</td>
<td>Race, parity, smoking, gestation, medical risk</td>
</tr>
</tbody>
</table>
**Table 4.4 Evaluation of Studies (Mixed exposure, n=16) (Cont.)**

<table>
<thead>
<tr>
<th>Authors, Year, Country</th>
<th>Sample Size (n), Characteristics/ Setting</th>
<th>Measure of Exposure/ Symptoms or Clinical Diagnosis</th>
<th>Exposure Assessment Frequency (n), Gestational week (x/40)</th>
<th>Outcome Assessment Other</th>
<th>Significant measures of Effect and Associations RR/HR/OR [95%CI]</th>
<th>Adjusted for Confounders</th>
<th>Risk of Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ibanez G et al. (2012) France</td>
<td>1719</td>
<td>CES-D STAI/ Symptom s of anxiety in 7.9%; of depression 11.8%, and anxiety and depression in 13.2%</td>
<td>n=1, 24-28/40</td>
<td>&lt;37 S in 3.4% MI in 2.1%</td>
<td>GA, birth weight, Combined Depression and Anxiety for S PTB OR=2.46 [1.22-4.94]</td>
<td>Age, education, parity, BMI, smoking, hypertension</td>
<td>Low</td>
</tr>
<tr>
<td>Kramer MS et al. (2009) Canada</td>
<td>5 092</td>
<td>DHS MSS; JSIS; ASSIS, PLES, PSS, S-ES LOT, CES-D Biomarkers/ Symptoms of anxiety and depression</td>
<td>n=1, 24-26/40</td>
<td>S PTB &lt;37 only</td>
<td>Pregnancy-related anxiety OR=1.7 [1.2-2.3]</td>
<td>Age, parity, living arrangement, birth place, smoking, education, income, height, BMI, medical/obstetric risk</td>
<td>Low</td>
</tr>
<tr>
<td>Lobel et al. (2008) USA</td>
<td>279</td>
<td>PDQ PLES STPI PRHS/ Symptoms of state anxiety, perceived stress and pregnancy-specific stress</td>
<td>n=3, 10-25; 21-35/40 and 2 weeks after the last one</td>
<td>&gt;37/Not reported % GA, Birth weight Pregnancy-specific stress (single factor combining stress and anxiety) $(B=.18, p=.004)$</td>
<td>Obstetric and medical risk</td>
<td>Low</td>
<td></td>
</tr>
</tbody>
</table>
Table 4.4 Evaluation of Studies (Mixed exposure, n=16) (Cont.)

<table>
<thead>
<tr>
<th>Authors, Year, Country</th>
<th>Sample Size (n), Characteristics/ Setting</th>
<th>Measure of Exposure/ Symptoms or Clinical Diagnosis</th>
<th>Exposure Assessment Frequency (n), Gestational week (x/40)</th>
<th>Outcome Assessment</th>
<th>Significant measures of Effect and Associations RR/HR/OR [95%CI]</th>
<th>Adjusted for Confounders</th>
<th>Risk of Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rini et al. (1999) USA</td>
<td>230, 53% Hispanic, 47% White Medical Centre</td>
<td>Mastery Scale LOS S-ES STAI P-RA/Symptoms of anxiety and stress</td>
<td>n=1, 28-30/40</td>
<td>&lt;37/Not reported %</td>
<td>GA, Birth weight</td>
<td>Prenatal stress OR=1.59 β=0.46, p&lt;.05</td>
<td>Ethnicity, income, education</td>
</tr>
<tr>
<td>Wadhwa PD et al., 1993 USA</td>
<td>90, 77% White, 13% Hispanic, 7% Black Teaching Urban hospital</td>
<td>PSS, Hopkins SC P-RA DHS Schedule of life events/ Symptoms of stress, pregnancy related anxiety</td>
<td>n=1, 22-28/40</td>
<td>&lt;37</td>
<td>GA, Apgar scores, Birth weight, intrapartum complication Pregnancy-related anxiety* and PTB (r=0.25, p&lt;0.05) Increase of 1 unit in anxiety, shortened gestation with 3 days</td>
<td>Age, parity, race, socio-economics, prenatal care, smoking</td>
<td>Low</td>
</tr>
</tbody>
</table>
Table 4.4 Evaluation of Studies (Mixed exposure, n=16) (Cont.)

<table>
<thead>
<tr>
<th>Authors, Year, Country</th>
<th>Sample Size (n), Characteristics/ Setting</th>
<th>Measure of Exposure/ Symptoms or Clinical Diagnosis</th>
<th>Exposure Assessment Frequency (n), Gestational week (x/40)</th>
<th>Outcome Assessment</th>
<th>Significant measures of Effect and Associations RR/HR/OR [95%CI]</th>
<th>Adjusted for Confounders</th>
<th>Risk of Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andersson L et al. (2004) Sweden</td>
<td>1 465</td>
<td>PRIME-MD/ Clinical diagnosis of major depressive disorder (3.1%), dysthymia, GAD (5.9%); minor depressive disorder (7.1%), anxiety NOS (4.1%)</td>
<td>n=1, 16-18/40</td>
<td>&lt;37 S PTB</td>
<td>SGA, respiratory distress asphyxia and malformation</td>
<td>Depressive disorder OR=1.32 [0.68-2.56]</td>
<td>Age, parity, marital status, employment, smoking, BMI, Moderate</td>
</tr>
<tr>
<td></td>
<td>Representaive cohort</td>
<td>2 obstetric clinics in Sweden</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Dole N et al. (2003) USA</td>
<td>1 962</td>
<td>Life experiences survey SSS / Symptoms of depression, anxiety, and pregnancy-related anxiety and stress</td>
<td>n=1, 24-30/40</td>
<td>S and MI &lt;37</td>
<td>Pregnancy-related anxiety and S PTB RR= 2.1 [1.5-3.0]</td>
<td>Smoking, alcohol, parity, poverty, bacterial vaginosis, medical problems</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>Predominantly Black and low SES</td>
<td>2 perinatal clinics; The PIN study</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Faisal-Cury A, et al., 2010 Brazil</td>
<td>831</td>
<td>CIS-R/ Clinical diagnosis of depression and anxiety in 33.6%</td>
<td>n=1, 20-30/40</td>
<td>&lt;37</td>
<td>LBW OR=1.03 [0.57-1.88]</td>
<td>Smoking, age and number of pregnancies</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>Low SES</td>
<td>Antenatal clinics in Sao Paolo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authors, Year, Country</td>
<td>Sample Size (n), Characteristics/ Setting</td>
<td>Measure of Exposure/ Symptoms or Clinical Diagnosis</td>
<td>Exposure Assessment Frequency (n), Gestational week (x/40)</td>
<td>Outcome Assessment PTB Type/ Rate</td>
<td>Other</td>
<td>Significant measures of Effect and Associations RR/HR/OR [95%CI]</td>
<td>Adjusted for Confounders</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------------------------</td>
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<td>-----------------------</td>
</tr>
<tr>
<td>Lobel et al., USA 1992</td>
<td>130 Low SES women Predominantly Hispanic</td>
<td>Public clinic</td>
<td>PSS STAI Medical risk interviews/ Symptoms of perceived stress and state anxiety</td>
<td>n=4 and 1 postnatal, 12.4 weeks at start with 10 days interval</td>
<td>Clearly preterm (&lt;36) 4.6% Marginally preterm (36-37) 12.3%</td>
<td>Birth weight GA</td>
<td>Model of distress (perceived stress plus anxiety) significantly predicted PTB $r=-.23$ independent of medical risk In a regression analysis (not SEM) $r=.30$, $p&lt;.03$</td>
</tr>
<tr>
<td>Messer, LC et al., USA 2005</td>
<td>1908 59% White 30% Black 30% low SES</td>
<td>Prenatal care clinics; The PIN study</td>
<td>PI, LES CES-D WCQ/ Symptoms of depression and stress</td>
<td>n=1 24-29/40</td>
<td>&lt;37</td>
<td>High perceived stress and not intended pregnancy OR=3.4 [2.6-4.5]</td>
<td>Age, education, race, marital status</td>
</tr>
<tr>
<td>Perkin MR et al., UK 1993</td>
<td>1515 White</td>
<td>Teaching hospital in London</td>
<td>GHQ/ Symptoms of anxiety and depression</td>
<td>n=3, At booking, 28, 36 /40</td>
<td>PTB &lt;36 weeks S</td>
<td>Anaesthesia type of delivery</td>
<td>High depression OR=3.1 [2.4-3.9] Anxiety OR=0.99 [0.73-1.34]</td>
</tr>
</tbody>
</table>
### Table 4.4 Evaluation of Studies (Mixed exposure, n=16) (Cont.)

<table>
<thead>
<tr>
<th>Authors, Year, Country</th>
<th>Sample Size (n), Characteristics/ Setting</th>
<th>Measure of Exposure/ Symptoms or Clinical Diagnosis</th>
<th>Exposure Assessment Frequency (n), Gestational week (x/40)</th>
<th>Outcome Assessment</th>
<th>Significant measures of Effect and Associations RR/HR/OR [95%CI]</th>
<th>Adjusted for Confounders</th>
<th>Risk of Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field T et al., 2006 USA</td>
<td>300 depressed only women Prenatal clinic</td>
<td>CES-D SCID-interview STPI STAXI Cortisol/ Symptoms and clinical diagnoses for depression, symptoms for anxiety (state and trait)</td>
<td>n=1 20/40</td>
<td>GA, birth weight, birth length, head circumf.</td>
<td>Discriminant function of CES-D $\lambda=0.97$, $p=0.30$</td>
<td>Not reported</td>
<td>High</td>
</tr>
<tr>
<td>Jesse DE et al., 2003 USA</td>
<td>120 Predominantly White and low SES (~50% smoked) 3 Rural clinics</td>
<td>PPP, DHS SBI, S-ES 2 statements on depression AAS, PoP, LRB/ Symptoms of depression (~50%) and stress and abuse (15%)</td>
<td>n=1 16-28/40</td>
<td>Depression Stress Perception of pregnancy</td>
<td>Depressive OR=3.89 [1.18-12.73] Stress OR=1.00 [0.9-1.2] Perception of pregnancy OR=1.406 [1.02-1.94]</td>
<td>Not reported</td>
<td>High</td>
</tr>
</tbody>
</table>

**Note on abbreviations and scales:** E Early PTB (<34 weeks); L Late PTB (<37 weeks); S Spontaneous delivery; MI Medically indicated
AAS (Abuse Assessment Screen); ASSIS (Arizona Social Support Interview Schedule); CIDI (World Mental Health Composite International Diagnostic Interview); CIS-R (Clinical Interview Schedule Revised, symptoms based); DHS (Daily Hassles Scale); GAS (Global Assessment Scale); HSC (Hopkins Symptoms Checklist); JSIS (Job-related stress Intendedness scale); LES (Life experiences survey); LOT (Life Orientation Scale); LRB (Lifestyle risk behaviours); MSS (Marital Strain Scale); NUPDQ (Revised pregnancy specific distress Questionnaire); PDQ (Prenatal Distress); PI (Pregnancy Intendedness ); PLES (Prenatal Life events scale); PoP (Perceptions of Pregnancy); PPP (Prenatal Psychosocial Profile); P-RA (Pregnancy-related anxiety); PRHS (Prenatal Health Behaviours Scale); PRIME-MD (Primary Care Evaluation of Mental Disorders); P-SA (Pregnancy-specific Anxiety); PSEI (Prenatal Social Environment Inventory); PSS (Perceived Stress Scale); SBI (Support Behaviours Inventory); SCID –ADS (Structured Clinical Interview for DSM-IV Atypical Depression Supplement); S-ES (Self-esteem scale); SF-12 (Health survey); SRLE (Schedule of Recent Life Events); SSS (Social support scale); STAI (State Trait Anxiety Inventory); STAXI (State Anger Expression Inventory) STPI (State-Trait Personality Inventory); WCQ (Ways of Coping Questionnaire)
**Depression**

Depression during pregnancy and its effect on PTB were explored in 14 studies. Estimates of the effect of depression on PTB in the studies which were assessed as having low risk of bias ranged from OR 1.13 to 3.93 and in general narrow confidence intervals were observed with the null value contained in only one of the studies (Yonkers et al., 2012), where there was no clear link between major depressive episode and PTB. However, in the same study the authors found a significant increase in risk for PTB when depression was combined with the use of antidepressants (OR=2.1 [95% 1.0-4.6]. Seven studies, assessed as having moderate/high risk of bias, estimated similar effects of OR 1.07 to 3.71. In four of them there was no statistical significance of the effect of DAS on PTB, as CI contained the null value. Overall, eight studies reported a significantly increased risk for PTB (Fransson, Örtenstrand, & Hjelmstedt, 2011; Li et al., 2009; Neggers, Goldenberg, Cliver, & Hauth, 2006; Nordeng et al., 2012; Orr, James, & Blackmore Prince, 2002; Smith, Shao, Howell, Lin, & Yonkers, 2011; Steer, Scholl, Hediger, & Fischer, 1992; Straub, Adams, Kim, & Silver, 2012); one study reported a positive predictive value between exposure and outcome (Ruiz et al., 2012), and five studies reported no statistically significant increase in risk (Gavin, Holzma, Siefert, & Tian, 2009; Hoffman & Hatch, 2000; Suri et al., 2007; Wisner et al., 2009; Yonkers et al., 2012). Both independent and mediated (through antidepressant use) effects for depression were identified across studies. A population-based study (Li et al., 2009) noted that the risk for PTB increased with increasing severity of depression, suggesting a potential dose-effect interaction, whole another one (Fransson et al., 2011) concluded that even moderate levels of depressive symptoms significantly elevated the risk for PTB. The use of antidepressants in combination with depression was strongly linked to prematurity in three studies (Suri et al., 2007; Wisner et al., 2009; Yonkers et al., 2012).

Conclusions about the independent effect of depression versus depression with medication use, or medication use only with no clear signs of depression, remain conflicting. A robust study from Norway on over 63 000 women (Nordeng et al., 2012) identified that depression alone, rather than exposure to antidepressants during the pregnancy, was statistically significantly associated with a modest increased risk for PTB, while another smaller case-control study (Suri et al., 2007) of 90 women, grouped by 1) antidepressant use, 2) a diagnosis of depression alone, and 3) healthy controls, concluded that depression was predictive only when combined with the use of antidepressants. Furthermore, rates of PTB in the participants from the antidepressant use group was very high (14.3%), but none of the women diagnosed as depressed (no antidepressant use) had a premature birth. Similar effects were observed in the
Yonkers et al.‘s study (Yonkers et al., 2012) were again it was the use of antidepressants, rather than depressive symptomatology that presented an increased risk for PTB.

The most common tool used (n=6) to measure depression in these studies was the Center of Epidemiological Studies-Depression CES-D, developed to measure depressive symptoms in the general population. It has been extensively validated and widely used in epidemiologic research and during pregnancy. In four of the studies, high levels of depressive symptoms measured were predictive of PTB, while in the other two studies the risk was not statistically significant. The Edinburg Postnatal Depression Scale was used in two studies, while the PRIME-MD, the Hopkins Symptom Checklist and the Beck Depression Inventory were used in one study each. All of the measures are widely used and validated in pregnancy populations. Of these four studies depressive symptoms were predictive of PTB. In most of the studies (n=8) assessment for depression was employed only once, usually during the second trimester measured on average at 20 weeks (range 10 to 36 weeks). In all studies with singular assessment a positive association between exposure and outcome was observed, whereas in studies that employed multiple assessment times (twice, three times or more) the predictive value of DAS was observed in only one (out of five) studies.

Studies that used several tools (n=3) in combination with a diagnostic clinical interview and thus reported on a clinical diagnosis of depression along with multiple assessment points during gestation (Suri et al., 2007; Wisner et al., 2009; Yonkers et al., 2012) reported a statistically non-significant risk for prematurity. However, all depressed women in these studies were taking antidepressants (with the exception of Suri’s study, 2007) subgroup of 30 non-users) and the effect of depression alone was difficult to differentiate, while the combination of both predicted PTB.

Anxiety

Anxiety in pregnancy was measured in four of the reviewed studies. Anxiety was symptomatologically, rather than diagnostically, operationalized. It was significantly associated with PTB in three of the studies with estimates of effect ranging between OR 1.48 to 2.73. Two studies with a low risk of bias supported the significant role of anxiety in PTB. These studies used pregnancy-specific anxiety measures versus the general (state and trait, STAI) anxiety instruments. Assessing pregnancy-specific anxiety rather than state anxiety was associated with a better predictive model for prematurity (Orr, Blazer, James, & Reiter, 2007). Mancuso and colleagues (2004) also explored the effect of biological markers of anxiety (corticotrophin-releasing hormones, CRH) as predictive of PTB in 282 women, indicating that greater levels of
maternal anxiety along with high levels of CRH were associated with shorter gestational age and PTB. Orr and colleagues (2007) reported a significant OR 2.73, with a wider CI. Catov and colleagues (2010) studied 667 women and found significant associations between anxiety and gestational age and PTB only in Black women, who represented 30% of the sample; however, such association was not significant for White women. Women with anxiety had on average 3.3 days shorter gestations. Women with trait rather than state anxiety had a 5.6-fold increase in the risk for PTB (Bhagwanani, Seagraves, Dierker, & Lax, 1997). Overall, women with increased anxiety had a significantly increased risk of spontaneous PTB.

The operationalization of anxiety differed between studies, with some defining it as a relatively stable characteristic and an individual’s general proneness to anxiety against the ability of being optimistic (Catov et al., 2010), or as worries or concerns about health of the baby (Orr et al., 2007). Other researchers defined anxiety as pregnancy-specific with particular feelings of panic or fear about the pregnancy (Mancuso et al., 2004). In two of the four studies assessment was performed just once with three studies assessing anxiety after a minimum 16 weeks of gestation. Bhagwanani and colleagues (1997) undertook initial assessments of anxiety across a wide range of gestation from 8-28 weeks, although it is unlikely that anxiety is a stable construct during this time. Two studies used the STAI which clearly differentiates between state and trait anxiety (Spielberger, Gorsuch, Lushene, & Vagg, 1989), while pregnancy-specific anxiety was explicitly assessed through the Pregnancy-Specific Anxiety Scale (Roesch, Schetter, Woo, & Hobel, 2004) and pregnancy-specific items from the PSEI in full scale (Orr, James, & Casper, 1992).

Perceived stress

The effect of perceived stress on PTB was examined in five studies, which consistently demonstrated a statistically significant relationship. Of the three prospective studies, with low risk of bias, two demonstrated increased risk from OR 1.14 to RR 1.75. One study concluded that the combination of elevated distress and certain inflammatory processes was significantly predictive of PTB. Pregnancy-specific distress and elevated inflammatory markers were predictive of shortened gestational length and PTB (Coussons-Read et al., 2012). The independent effect of stress was identified in one study (Hedegaard, Henriksen, Sabroe, & Secher, 1993), while the rest reported a combination of elevated distress levels alongside inflammatory bio-markers, history of obstetric adversities, years of schooling, and smoking. The studies with moderate risk of bias, demonstrated a larger estimate of the effect of perceived stress on PTB, and wider-ranging CIs.
Perceived stress was assessed between one and three times across the studies at a minimum of 14 weeks gestation. Levels of stress, measured during the 2nd and 3rd trimesters were identified as best predictors of prematurity (Coussons-Read et al., 2012; Hedegaard et al., 1993; Rondó et al., 2003). In the study by Hedegaard and colleagues (1993), it was stress experienced during week 30, and not earlier (at 16 weeks), that was evidenced to contribute to an increased PTB risk. The General Health Questionnaire (GHQ and GHQ-12 forms) was used in three of the studies as a measure of stress. The GHQ is a screening instrument used to detect the presence of minor psychiatric morbidity in patient and community samples. It relies on assessing psychological and psychosocial symptoms, such as somatic symptoms of anxiety, stress, social dysfunction, insomnia and severe depression. Other tools were the Denver Maternal Health Assessment, DMHA, which measures overall maternal stress through a combination of daily stress experiences and life events through the focus of perceived-self efficacy, and the Severity of Psychosocial Stressor Scale, combined with selected items from the DSM-IV-TR diagnostic criteria for anxiety (Lau, 2013).

**Mixed exposure (depression, anxiety and stress, DAS)**

The majority of studies (n=16) explored a variety of potential psychological risk factors simultaneously. Overall, 13 of these studies reported a significant increase in the risk for PTB for women experiencing DAS during pregnancy (Copper et al., 1996; Dayan et al., 2002; Dole et al., 2003; Field, Hernandez-Reif, & Diego, 2006; Glynn, Schetter, Hobel, & Sandman, 2008; Ibanez et al., 2012; Jesse, Seaver, & Wallace, 2003; Kramer et al., 2009; Lobel et al., 2008; Lobel et al., 1992; Messer, Dole, Kaufman, & Savitz, 2005; Rini, Dunkel-Schetter, Wadhwa, & Sandman, 1999; Wadhwa, Sandman, Porto, Dunkel-Schetter, & Garite, 1993). Three studies (Andersson et al., 2004; Faisal-Cury, Araya, Zugaib, & Menezes, 2010; Field, Hernandez-Reif, Diego, et al., 2006) used diagnostic criteria for major depressive disorder and generalized anxiety disorder to clearly differentiate between symptoms and syndromes. PTB rates in the diagnosed participants ranged from 5.2% to 32%, however, with no statistically significant effect size.

Estimates of the effect of exposure on PTB in the studies, which were assessed as having low risk of bias (n=8) ranged from OR 0.90 to 6.90 with most studies reporting narrow CIs, and three of these reporting on a non-significant risk for PTB (Andersson et al., 2004; Faisal-Cury et al., 2010; Perkin et al., 1993). Within all low bias studies, in the majority (n=6) assessment was performed once - usually during the second trimester of gestation (16–28 weeks) employing multiple measures, and all were predictive of increased risk for PTB.
Ibanez and colleagues (2012) identified the combination of depressive and anxiety symptoms to be the worst condition during pregnancy and the best predictor for adversity and PTB compared with the independent risk of depression or anxiety. Interestingly, Perkin and colleagues (1993) found no increase in the risk for PTB in women experiencing depression or anxiety during pregnancy. The cut-off time-frame that they specified as PTB was birth at less than 36 weeks gestation, thus potentially missing out on the women who gave birth between 36 and 37 weeks. Furthermore, this study employed the GHQ -12 tool in their assessment of psychological distress, which has been deemed unsuitable for use in pregnancy due to confounding in its scoring methods in a study on pregnant women experiencing pre-labour rapture of membranes at term (Martin & Jomeen, 2003).

Generally, in seven studies the increase in risk was independent of DAS, after controlling for major confounders including Black race and biomedical problems, while in the rest of studies (n=9) the effect was mediated through high levels of cortisol, medical risks, and smoking.

The multidimensional framework, defined by Lobel (1994) as pregnancy-specific distress, was used in five studies (Glynn et al., 2008; Lobel et al., 2008; Lobel et al., 1992; Rini et al., 1999; Wadhwa et al., 1993). They were all assessed as low in bias and all provided evidence of a precise effect of the association between DAS and PTB.

For all 39 studies in this review, assessment of DAS was performed by self-report questionnaires (n= 36) and only in few studies a diagnostic interview was used, either on its own or in combination with a self-report instrument. Thus, whether psychological mood was at a diagnostic level for clinical disorder or at subclinical level and how these determined birth outcome, was hard to interpret. In 14 studies, measures were employed more than once. A wide distribution of assessment points discourages interpretations about when is the best time to assess DAS throughout the pregnancy; however, higher levels of DAS experienced during the third trimester were best predictive of PTB and shortened gestational length.

**Risk factors and confounders**

Studies varied greatly in the inclusion of risk factors and potential confounders. Most studies included at least the established minimum by the general PTB literature for confounders, such as age, socio-economic status, race/ethnicity (predominantly Black and Hispanic), education level, parity, history of PTB, and smoking and/or substance abuse, with the exception of two studies (Bhagwanani et al., 1997; Jesse et al., 2003) that did not report on any. Other risk
factors and confounders that have emerged in recent research included domestic violence, the use of SSRI and antidepressants pre- and during the pregnancy, body mass index (pre- and during pregnancy), chronic medical conditions such as diabetes, asthma or cardio-vascular disease, personality factors and resources, social support and living arrangements (Facchinetti, Ottolini, Fazzio, Rigatelli, & Volpe, 2007; Lederman, 2011).

A significant effect on the relationship between DAS and PTB was the use of antidepressants, existing medical conditions, and infections during pregnancy. The distinction between risk factors and confounders was not made clear in most studies, with the exception of the studies that employed multilevel modelling and had conducted a stratified analysis prior to model testing, where confounders are robustly identified and then successfully controlled for.

**Discussion**

This review explored the association between DAS and PTB. In summary, 26 out of 39 studies provided Level III-2 evidence and of these, 19 were assessed to have low risk of bias. Thus, findings suggest an increased overall risk for prematurity when a woman experiences one or more of the described psychological disorders. Furthermore, apart from a full clinical diagnosis of a disorder, a sub-clinical or symptomatological manifestation alone is found to be also predictive of PTB, and this has important clinical and practical implications. Pregnancy-specific distress, identified as a combination of pregnancy-specific anxiety and worries, and elevated perceptions of stress, is also a powerful predictive concept when exploring psychosocial determinants of PTB.

Considering all the studies, regardless of level of bias, PTB was significantly and independently predicted by depression, anxiety, or perceived stress (or in any combination between these) in 15 studies. Whenever the type of prematurity was specified, it was spontaneous rather than medically indicated PTB that was predicted by DAS. In the rest of the studies (n=24), this association was moderated and mediated by various confounding variables, with medical risks and smoking, the most consistently identified. Health habits, in the form of lifestyle and healthy choices, the use of antidepressants, and past psychiatric disorders were also mediating variables.

In terms of socio-cultural factors, the findings suggest that race/ethnicity as well as low socio-economic status were related to several other variables that influence PTB, such as self-care, smoking, drug and alcohol abuse, and accessing adequate antenatal care. Specifically, the association of ethnicity to PTB was mediated through lower levels of personal resources,
language barriers, economic difficulties, separation from friends and family, racial and
neighbourhood discrimination for migrants (Coussons-Read et al., 2012; Rini et al., 1999; Ruiz
et al., 2012), which all present an important area for future investigations. This finding is in line
with the literature that explores Black race as one of the most predictive factors for PTB
(Giurgescu, McFarlin, Lomax, Craddock, & Albrecht, 2011; Graham, Frank, Zyzanski, Kitson,
& Reeb, 1992; Kiely et al., 2011). In 14 studies, women were assessed on psychological
measures more than once and repeated perinatal screening suggests an appreciation that mental
health status during pregnancy is not static. It can be argued that measuring depression in early
pregnancy may not be an accurate predictor because the development of subsequent depression
might go undetected. A strong confounder of the effect of depression on PTB is the use of
antidepressants during pregnancy and their moderating effect, which has rarely been explored
independently, with few exceptions (Suri et al., 2007; Yonkers et al., 2012). It is possible that
the level of clinical depression could potentially moderate this pathway, either directly or
through the antidepressants required for more severe depression.

While there seems to be a general agreement on operationalizing antenatal depression,
it is important to note that there are various ways of conceptualising both anxiety and stress,
and in most studies these terms have been used concurrently. This lack of differentiation carries
important implications on the specificity of the type of assessment either as a cluster of
symptoms or a clinical disorder. Furthermore, during pregnancy anxiety was reported to have a
medium-to-large correlation with depressive symptoms (Lancaster, Flynn, Johnson, Marcus, &
Davis, 2010). This review highlights the importance of using a clearly defined
multidimensional approach in the operationalization of pregnancy-specific distress,
encompassing both anxiety and perceived stress related to pregnancy, such as that proposed by
Lobel (1994) which provides a definitive and inclusive approach to understanding pregnancy-
specific distress and its precise effect. In a review (Alderdice, Lynn, & Lobel, 2012) on
pregnancy-specific stress measures where 15 tools were identified and their psychometric
properties examined, it was suggested that pregnancy-specific stress is: 1) associated, but not
identical to general stress, and 2) pregnancy-specific stress was indeed predictive of PTB. It
also is concluded that a multidimensional theoretical concept should be applied in measuring
distress during pregnancy. Likewise, it is critical to be as descriptive and specific as possible in
the operationalization of PTB.

While existing reviews (Alder, Fink, Bitzer, Hösli, & Holzgreve, 2007; Grote et al.,
2010; Orr & Miller, 1995) explore the relationship between various adverse psychological
states during the pregnancy and poor birth outcomes, this review is the first, to our knowledge,
to focus comprehensively on three of the most common psychological disorders during pregnancy, and their association with PTB, specifically. Although Alder et al., (Alder et al., 2007) concluded that women experiencing depression and anxiety in general had more pregnancy and birth complications, the findings of that review missed the differentiation between clinical and sub-clinical depression and anxiety. While in the current review most results are based on assessing symptoms via research-based measures, an overall finding is that even moderate levels of sub-clinical mood disorders increases the risk for adverse birth outcome. Importantly, this review adds to the understanding of antenatal assessment of symptoms versus syndromes. In order to be able to predict potential adverse birth outcomes, women who are pregnant and present with depression or anxiety symptoms rather than a full clinical diagnosis for the above, deserve careful evaluation and monitoring along with exploration of added risk factors.

**Conclusion and clinical implications**

Health practitioners engaged in providing perinatal care to women, such as obstetricians, midwives, nurses, and mental health specialists should be aware of the association between antenatal DAS and the risks for PTB. Prevention should include various approaches to identify and address maternal psychological needs, as fully as any medical/physiological aspects of antenatal care. Understanding the associated risks for PTB in women experiencing DAS during pregnancy is essential in a clinical setting, particularly in planning effective strategies to manage mental health during the perinatal period and thus reducing the psychological impact of potential prematurity. Importantly, the results from this review conclude that until there is a better common understanding of the concepts measured perinatally, it is hard to specify an appropriate way to intervene, heightening the need for further research, better operationalization of perinatal moods, and standardised measures of both predictor and outcome variables.
Chapter 4: Meta-synthesis

Qualitative evidence on the experience of distress

The previous chapter highlighted the debated nature within the existing research evidence on the relationship between antenatal distress and adverse birth outcomes, particularly within an inherently heterogeneous sample of studies. An overall finding was that there is a trend of an increase in the risk for preterm birth as a result of antenatal distress (broadly defined as depression, anxiety and stress). However, definite conclusions around risk could not be made due to inconsistencies in the operationalization of antenatal distress including accurate assessment, intensity, and timing as well as all potential confounders of the effect and their mediation role.

Furthermore, another important conclusion revealed a great dearth in the scientific knowledge on the nature of antenatal distress itself, and the implications on women’s practices of self-care, mood management and coping. As a result, the focus of my work shifted towards identifying and understanding the experiences of antenatal distress. This chapter locates the existing qualitative research on this experience and provides a novel framework of understanding antenatal distress. This study is presented in the remainder of this chapter in the form of a published paper.

Title: The experience of psychological distress, depression, and anxiety during pregnancy: A meta-synthesis of qualitative research

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Key words: Pregnancy; Antenatal Depression; Anxiety; Distress; Meta-synthesis; Qualitative

Highlights:
- There is a scarcity in qualitative research in the area of antenatal distress
- We explored the lived experience of antenatal distress via a meta-synthesis
- We identified an overarching theme of grief/loss that describes women’s experience
- Women go through a specific process of transformation towards motherhood
- Popular notions about ‘the perfect mother’ undermine women’s experiences
Abstract

Objective: to systematically review qualitative research that explores the experience of maternal antenatal psychological distress, such as depression, anxiety and stress during pregnancy.

Method: a meta-synthesis was conducted to integrate the findings of qualitative studies. Eight final eligible studies were scrutinized, recurring themes were extracted and compared across studies, and core themes were identified.

Findings: five core themes of the experience of pregnancy distress were identified: Recognizing that things are not right, Dealing with stigma, Negotiating the transformation, Spiralling down, and Regaining control. In the interpretation of these concepts the experience of maternal antenatal distress was depicted as a process similar to the one of grief and loss, as a result of women’s inability to situate their experience within the ‘perfect mother’ discourse.

Key conclusions: women who experience psychological distress undergo a specific process of transformation towards motherhood that begins during pregnancy. This process is exacerbated by their interpretation of their experience as deviant and often as inadequate.

Implications for practice: this review will assist health professionals in translating and negotiating the transformation towards motherhood for women experiencing pregnancy distress, in a timely and meaningful manner.
Introduction

Despite the expansion of roles that contemporary women undertake, pregnancy and motherhood remain central to women’s identity. The experience of psychological distress, defined as depression, anxiety and/or perceived stress, is prevalent in women during the perinatal period especially pregnancy (Bennett et al., 2007): 7-20% women report antenatal/postnatal depression (Gavin et al., 2005) and around 15% report antenatal anxiety (Rubertsson et al., 2014). While psychological distress is a broad term, there is a general consensus that pregnancy itself is a stressful life event for women because it challenges them to adapt to various psychosocial and physiological changes (Hodgkinson et al., 2014). The study of increased levels of pregnancy-related stress, understood as stressful life events and their psychological appraisal, including fear of childbirth and labour, has been introduced as an important prenatal risk factor, specifically in the understanding of adverse birth outcomes (Lobel et al., 1992).

Antenatal depression is characterized by prolonged low mood, a sense of inadequacy, guilt, and hopelessness, accompanied by loss of interest in usually enjoyable activities, crying, changes in appetite, decreased energy, lack of motivation and a sense of isolation and withdrawal (usually for at least two weeks) (Bennett, Einarson, Taddio, Koren, & Einarson, 2004). While antenatal anxiety is often comorbid with depression, symptoms cluster around experiences of unmanageable fears, worries and concerns about the baby, birth or parenting, rumination, irritability and inability to relax. Definitions of psychological distress (depression, anxiety and perceived stress) differ, especially in view of the recent debates over the usability of the Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria that informs the assessment and diagnosis of mental disorders. These DSM labels have been argued to contradict the formulations informed by participants’ lived experience (Johnstone & Dallos, 2013), with the latest being evidenced as useful and practical both in the understanding of users’ problems and experiences, and in informing assessment and successful treatment.

Therefore, the term ‘pregnancy distress’ in this paper refers to depression, anxiety and perceived stress during pregnancy through both self-reported accounts of women and through diagnostic criteria of mental health disorders. Furthermore, combining the three most common mental health problems during pregnancy under the ‘pregnancy distress’ umbrella is said to have important implications in better understanding the negative
affective states during pregnancy because it provides an overarching criteria for the identification of various potential factors contributing to the increase of pregnancy distress (Rallis et al., 2014).

Untreated antenatal depression is evidenced to bear far-reaching implications for both the mother and the infant individually, presenting an increased risk of developing postnatal depression (O'Hara & Gorman, 2004), affecting the couple’s relationship (Zelkowitz & Milet, 1996), the attachment to the baby (Carter et al., 2001), and adding to parenting stress (Leigh & Milgrom, 2008). Furthermore, untreated psychological distress during pregnancy can affect birth outcomes, such as preterm birth, low birth weight, intrauterine growth restriction, and various birth complications (Staneva et al., 2015; Grote et al., 2009); thus, highlighting pregnancy as an important marker for exploration of women’s mental health and their experiences.

Most recent research, however, originates from bio-medical perspectives (Beijers et al., 2014), with fewer studies reporting on women’s accounts of their lived experience of psychological distress, specifically during pregnancy. Previous reviews have focused on systematically exploring the incidence, risks, and the effects of depression, anxiety and stress during pregnancy (Bennett et al., 2004; Lancaster et al., 2010; Lee et al., 2004); however, our searches failed to identify a meta-synthesis on the experience of pregnancy distress, inclusive of depression, anxiety and/or stress.

Therefore, the current review aimed at addressing this knowledge gap, foregrounding women’s lived experience rather than a clinical perspective and providing a new analytical framework of interpretation of women’s experiences of antenatal distress, in order to advance a more meaningful understanding of the experience of psychological distress for pregnant women and healthcare professionals. Three specific objectives informed the design of this meta-synthesis:

- First, it was critical to describe, understand and interpret women’s experiences, how they formed an understanding of these and how they chose to share them.
- The second objective was to interpret and synthesize data from qualitative studies that describe the story as a process, including; women’s views about the cause of their psychological distress, how they react to it, how they cope, the implications of experiencing a rather different pregnancy due to
mental state, and to understand how psychological distress impacts on their health and potentially on birth outcomes.

- Finally, it was essential to interpret and discuss the findings in light of the wider social implications, including how women make sense of depression within dominant narratives of the ‘perfect woman’ (Stoppard, 2014).

**Methods**

This meta-synthesis is informed by a theoretical framework, underpinned by the feminist interpretations of motherhood (Chodorow, 1999; Lafrance & Stoppard, 2006; Nicolson, 1999; Stoppard, 1998), and by a social constructionist ontology that considers the individual situated within a specific social, historical and cultural context (Burr, 2003). Conducting research from a feminist perspective entails an understanding that builds on women’s experiences, already intrinsically related to the study of motherhood, and invites a different interpretation of the social construction of health and of illness.

Meta-synthesis is an interpretative, qualitative research approach for the synthesis of qualitative data (Paterson & Canam, 2001), which had been theoretically informed by Noblit and Hare’s (1988) meta-ethnographic framework. A step-wise approach including procedures of critical scrutiny of the theory, method and data-analysis, culminating in a synthesis, was employed in view of generating a new understanding of the phenomenon of antenatal distress (Paterson & Canam, 2001). In the interpretation of emerging themes, studies were collated and contrasted according to the design they used and the sub-type of psychological distress. Subsequently, each study was juxtaposed against the rest to ensure applicability of themes and metaphors across studies, and to explore any potentially refutational data. Using a meta-synthesis method to identify qualitative research about women’s experiences of pregnancy distress, it was critical to ensure that women in the selected studies were identified as experiencing psychological distress, such as depressive, anxiety or stress symptoms, described through both self-referrals and psychiatric diagnostic criteria. Mental illness included severe mental disorders (e.g., psychosis, schizophrenia and bipolar affective disorder), which were discussed and explored once the analysis began, including a Google and Web of Sciences searches (no studies were identified at this stage); further interpretations of the literature developed a new understanding that depression, anxiety and stress may also occur in the context of severe mental health problems.
Search strategy

A literature search was conducted in the databases CINAHL, Medline and PsycInfo for studies published between January 1980 and November 2014. Key words and MeSH terms such as “pregnancy”, “depression”, “anxiety”, “stress”, and Boolean operators “AND” and “OR” were used to search for studies. With the help of a health sciences librarian, a specified qualitative filter, which was modified for all databases, was applied to further add broader number of qualitative studies.

Inclusion and exclusion criteria

Inclusion criteria were very broad, including worldwide studies (published and unpublished thesis) in English that explored the antenatal experience of psychological distress. Studies were qualitative, using interviews or focus groups as a data collection method. There were no exclusions imposed on the timing of data collection, whether this was conducted contemporaneously or retrospectively. A total of 3328 studies were identified. For the purposes of this synthesis, all qualitative methods were included; however, the initial grouping, interpreting and reporting of findings were undertaken separately for each methodological approach, and then merged and compared. Reference lists from retrieved papers were examined, and health care professionals in the perinatal field were contacted for suggestions on related studies. Two reviewers independently reviewed the search results. Agreement regarding inclusion was decided by meeting all three criteria:

- qualitative design, and
- depression, anxiety, or stress experience, and
- pregnancy context

Publications were excluded if they were non-qualitative in design, if they focused on women’s experiences of depression, anxiety and distress out of the pregnancy context or shared by others (carers or partners) and not the women themselves.

Eight papers met the inclusion criteria. Included studies reflected an international perspective (there were two studies each from Canada, the United Kingdom and the USA, and one study from Sweden and Cambodia, respectively) and a total of 128 women represented their views on experiencing psychological distress during pregnancy. Details of the complete selection process are depicted in Figure 1.
Quality assessment

The final set of included papers was assessed for quality, using a 32-item BMJ-developed quality checklist COREQ (Consolidated Criteria for Reporting Qualitative Research, Tong et al., 2007). It incorporates a descriptive reporting system allowing the reader to be informed of important aspects of the study methods, the research team, the analysis and the interpretation of findings. All items were grouped into three main domains: 1) research team and reflexivity, 2) study design, and 3) data analysis and reporting. Additional four items from the CASP (Critical Appraisal Skills Programme guidelines, 1998) were added to address the overall congruence of each study, its usefulness to synthesis, the transferability and importance of the findings for the purposes of this meta-synthesis. The studies were first independently assessed by the first author (A1), then a part of studies were rated by a second author (A2), until a consensus was reached on the content of the meta-synthesis, a procedure designed to enhance reliability (Mays & Pope, 2000). An assessment quality appraisal sheet was completed for each study (Table 1). No studies were excluded due to the critique of their quality; methodological characteristics were provided to enhance the readers’ critical understanding and these were regularly explored and discussed, while following the meta-synthesis steps.
Figure 1
Flow diagram for study selection (PRISMA) January 27 2014
1980-2014 date restrictions
<table>
<thead>
<tr>
<th>Table 1. Quality appraisal tool (COREQ, Tong et al., 2007 and CASP, 1998)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domain 1: Research team and reflexivity</strong></td>
</tr>
<tr>
<td><strong>Personal Characteristics</strong></td>
</tr>
<tr>
<td>1. Interviewer/facilitator</td>
</tr>
<tr>
<td>Were the researcher’s credentials provided?</td>
</tr>
<tr>
<td>3. Occupation</td>
</tr>
<tr>
<td>4. Gender</td>
</tr>
<tr>
<td>5. Experience and training</td>
</tr>
<tr>
<td><strong>Relationship with participants</strong></td>
</tr>
<tr>
<td>6. Relationship established</td>
</tr>
<tr>
<td>7. Participant knowledge of the interviewer</td>
</tr>
<tr>
<td>8. Interviewer characteristics</td>
</tr>
<tr>
<td><strong>Domain 2: Study design</strong></td>
</tr>
<tr>
<td><strong>Theoretical framework</strong></td>
</tr>
<tr>
<td>9. Methodological orientation and Theory</td>
</tr>
<tr>
<td>10. Sampling</td>
</tr>
<tr>
<td>11. Convenience</td>
</tr>
<tr>
<td>Consecutive</td>
</tr>
<tr>
<td>Snowball</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>11. Method of approach</th>
<th>Alhusen et al., 2012</th>
<th>Bennett et al., 2007</th>
<th>Eriksson et al., 2006</th>
<th>Furber et al., 2009</th>
<th>MacLellan, 2010</th>
<th>McKillop et al., 2010</th>
<th>Migl, 2009</th>
<th>Raymond, 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>How were participants approached? e.g. face-to-face, telephone, mail, email</td>
<td>X ✓ ✓ ✓ x ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

| 12. Sample size | ✓ ✓ ✓ ✓ x ✓ ✓ |
| How many participants were in the study? | ✓ ✓ ✓ ✓ x ✓ ✓ |
| 13. Non-participation | X ✓ ✓ ✓ x ✓ nc |
| How many people refused to participate or dropped out? Reasons? | ✓ ✓ ✓ ✓ x ✓ ✓ |

| Setting | ✓ ✓ ✓ ✓ x x ✓ ✓ |
| 14. Setting of data collection | Where was the data collected? e.g. home, clinic, workplace |
| 15. Presence of non-participants explained | Was anyone else present besides the participants and researchers? |
| ✓ ✓ ✓ ✓ x x ✓ ✓ |

| Description of sample | ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ |
| 16. | What are the important characteristics of the sample? e.g. demographic data, date |
| Data collection | ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ |
| 17. Interview guide | Were questions, prompts, guides provided by the authors? |
| ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ |

| 18. Repeat interviews | X x x X ✓ x ✓ x |
| Were repeat interviews carried out? If yes, how many? | ✓ ✓ ✓ ✓ ✓ ✓ ✓ |
| 19. Audio/visual recording | Did the research use audio or visual recording to collect the data? |
| ✓ ✓ ✓ ✓ ✓ ✓ ✓ |

<p>| 20. Field notes | X x x X x x ✓ x |
| Were field notes made during and/or after the interview or focus group? | ✓ ✓ ✓ ✓ ✓ ✓ ✓ |
| 21. Duration | What was the duration of the interviews or focus group? |
| ✓ ✓ ✓ ✓ ✓ ✓ ✓ |
| Table 1. Quality appraisal tool (COREQ, Tong et al., 2007 and CASP, 1998) (Cont.) |
|---------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Alhusen et al., 2012 | Bennett et al., 2007 | Eriksson et al., 2006 | Furber et al., 2009 | MacLellan, 2010 | McKillop et al., 2010 | Migl, 2009 | Raymond, 2009 |
| 22. Data saturation | Was data saturation discussed? | X | x | ✓ | ✓ | ✓ | x | ✓ | nc |
| 23. Transcripts returned | Were transcripts returned to participants for comment and/or correction? | X | x | x | X | x | x | x |
| Domain 3: Analysis and Findings | ✓ | ✓ | ✓ | ✓ | ✓ | x | ✓ | ✓ |
| Data analysis | 24. Number of data coders | How many data coders coded the data? | X | ✓ | ✓ | ✓ | nc | nc | nc | nc |
| 25. Description of the coding tree | Did authors provide a description of the coding tree? | X | ✓ | ✓ | ✓ | nc | nc | nc | nc |
| 26. Derivation of themes | Were themes identified in advance or derived from the data? | nc | ✓ | ✓ | ✓ | ✓ | nc | ✓ |
| 27. Software | What software, if applicable, was used to manage the data? | ✓ | ✓ | ✓ | ✓ | nc | x | nc | ✓ |
| 28. Participant checking | Did participants provide feedback on the findings? | nc | ✓ | x | ✓ | nc | x | nc | x |
| Reporting | 29. Quotations presented | Were participant quotations presented to illustrate the findings? | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 30. Data and findings consistent | Was there consistency between the data presented and the findings? | ✓ | ✓ | ✓ | ✓ | ✓ | nc | ✓ | ✓ |
| 31. Clarity of major themes | Were major themes clearly presented in the findings? | ✓ | ✓ | nc | ✓ | ✓ | nc | ✓ | ✓ |
| 32. Clarity of minor themes | Is there a description of diverse cases or discussion of minor themes? | ✓ | ✓ | ✓ | ✓ | ✓ | nc | nc | ✓ |</p>
<table>
<thead>
<tr>
<th>CASP</th>
<th>Alhusen et al., 2012</th>
<th>Bennett et al., 2007</th>
<th>Eriksson et al., 2006</th>
<th>Furber et al., 2009</th>
<th>MacLellan, 2010</th>
<th>McKillop et al., 2010</th>
<th>Migli, 2009</th>
<th>Raymond, 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>33. Congruence</td>
<td>✓</td>
<td>✓</td>
<td>nc</td>
<td>✓</td>
<td>✓</td>
<td>nc</td>
<td>nc</td>
<td>✓</td>
</tr>
<tr>
<td>34. Transferable data</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>nc</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>35. Useful to synthesis</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>36. Important findings to practice</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Key: ✓ - information was provided and described; x - information was not provided; nc – information was not clear or sufficient
Data coding and analysis

We began the analysis by extracting codes, followed by themes, from each study separately. For each study a list of themes was established; then these lists were juxtaposed, by a back and forth translation of their content amongst all studies and identifying their nature as either reciprocal (in agreement with the line of argument) or refutational (or negative cases that disconfirm a line of argument), before creating a final line of argument (Paterson & Canam, 2001). All authors participated in this process until an agreement for each theme was established. Alongside the theoretical background, major paradigms and schools of thought that informed each paper’s research questions, design, analysis and the interpretation of findings were explored for each study, whenever authors reported their theoretical stance, through the process of meta-theory as proposed by Paterson and Canam (2001). No disconfirming cases were identified.

The purpose of a meta-synthesis is not only to raise questions about what is already known in the study of certain phenomenon, but also to build an exhaustive theoretical approach to provide meaningful answers to the questions posed (Noblit & Hare, 1988; Paterson & Canam, 2001). The aim of this synthesis was to provide a novel analytical framework for the interpretation of the process and experience of psychological distress during pregnancy. Therefore, once all themes were discussed, and linked together, a further process involved the outlining of an overarching concept of antenatal distress which we tested in search for confirming or disconfirming evidence through reading and re-reading of the eight studies, finalizing the meta-synthesis with the construction of a comprehensive framework of antenatal distress (Figure 2).

Reflexivity

Reflexivity requires an awareness of the researcher's input in the construction of meaning applied to the research process, and an acknowledgment of the impossibility of remaining ‘outside of one's subject matter’ while conducting research. Reflexivity then is the “exploration of the ways in which researcher’s views act upon and inform their research” (Nightingale and Cromby, 1999, p. 228). The first author (A1) was aware that her experience of being an academic, heterosexual woman who has experienced pregnancy and motherhood, and is working informally within the area of perinatal mental health, had impacted upon the way she relates to the data, but at the same time she felt that this has been
particularly helpful during the analysis. These experiences enabled A1 to have both an insider and outsider perspective to understand and build on her own knowledge of the diversity of experiences of pregnancy distress. Additionally, it is important to stress that the entire research process of conducting this review has been influenced by a feminist perspective and the need for adding women’s voices to scientific knowledge.

Findings

Participants varied in terms of the type of antenatal distress, their socio-economic and ethnic backgrounds, educational attainment, relationship status, and age range, during either a first or subsequent pregnancies. There was variation in the use, interpretation and scope of qualitative research methods and the paradigms that informed the studies. Grounded theory was identified as the approach in three of the studies (Bennett et al., 2007; Eriksson et al., 2006; MacLellan, 2010), while two studies employed a descriptive analysis (Alhusen et al., 2012; Raymond, 2009), two studies applied a phenomenological design (McKillop et al., 2010; Migl, 2009), and one used an interpretative framework analysis (Furber et al., 2009). Study and participants’ characteristics are depicted in Table 2.

In four of the studies conducted during pregnancy, interviews were held mostly during the third trimester but two studies did not specify the timing of the interviews during pregnancy. In the remainder, the design was retrospective and women were interviewed in face-to-face up to two years postpartum. Psychological distress was defined as antenatal depression in four of the studies. The presence of depression was identified through the self-report depression scale Edinburgh Postnatal Depression Scale (Cox et al., 1987) in two studies (Alhusen et al., 2012; McKillop et al., 2010); through a psychiatrist diagnosis for a major depressive episode in two studies (Bennett et al., 2007; MacLellan, 2010), and as a self-referred depression in one study (Raymond, 2009). Antenatal anxiety was present in two studies; one of the studies explored the experience of intense fear related to childbirth (Eriksson et al., 2006), which has been identified as a key aspect of pregnancy-related anxiety (Lobel et al., 1992), and the other as a comorbid disorder with depression (MacLellan, 2010). The experiencing of high levels of prenatal stress/distress was reported in two of the studies (Furber et al., 2009; Migl, 2009), with women accessing help services.
<table>
<thead>
<tr>
<th>Author Year Country</th>
<th>Qualitative research design/ Data collection</th>
<th>Timi ng</th>
<th>Sample size</th>
<th>Distress/how was assessed</th>
<th>Age</th>
<th>Marital status</th>
<th>Parity</th>
<th>Ethnicity</th>
<th>Other important characteristics</th>
<th>Main study themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alhusen et al 2012 USA</td>
<td>Descriptive (Content analysis)/ Interviews</td>
<td>Pro</td>
<td>12</td>
<td>Depression/9 women with over 9; and 3 with normal EPDS</td>
<td>16-29</td>
<td>8 single 4 in a relationship</td>
<td>3 first 9 multi</td>
<td>Black only</td>
<td>Low SES 10 unemployed</td>
<td>How antenatal depression affected the maternal fetal attachment</td>
</tr>
<tr>
<td>Bennett et al 2007 Canada</td>
<td>Grounded theory (Social constructivism) /Interviews</td>
<td>Retro</td>
<td>19</td>
<td>Depression/Psychiatrist-diagnosed major depression</td>
<td>25-47</td>
<td>18 in a relationship 1 single</td>
<td>9 first time 10 multi</td>
<td>varied</td>
<td>Relatively high economic status Some women took medication and sought therapy during pregnancy and postpartum</td>
<td>The experience of diagnosed antenatal depression</td>
</tr>
<tr>
<td>Eriksson et al 2006 Sweden</td>
<td>Grounded theory/ Interviews</td>
<td>Retro</td>
<td>20</td>
<td>Anxiety (intense fear related to childbirth)/self</td>
<td>24-41</td>
<td>19 in a relationship 1 single</td>
<td>6 first time 14 multi</td>
<td>varied</td>
<td>Very selective population of women who had a baby (healthy with no complications, with 5 elected C-sections) over a year ago</td>
<td>Fear, grief, coping strategies, and the importance of attuned staff</td>
</tr>
<tr>
<td>Furber et al 2009 UK</td>
<td>Interpretative (Framework analysis) /Interviews</td>
<td>Pro</td>
<td>24</td>
<td>Distress/self-report mild to moderate</td>
<td>24-39</td>
<td>21 with partner 3 single</td>
<td>8 first time 16 multi</td>
<td>n/a</td>
<td>Referred to Specialist Midwife for mild to moderate psychological distress</td>
<td>Psychological distress during pregnancy: its causes, its impact, and ways of controlling it</td>
</tr>
<tr>
<td>Author Year Country</td>
<td>Qualitative research design/ Data collection</td>
<td>Timing</td>
<td>Sample size</td>
<td>Distress/how was assessed</td>
<td>Age range</td>
<td>Marital status</td>
<td>Parity</td>
<td>Ethnicity</td>
<td>Other important characteristics</td>
<td>Main study themes</td>
</tr>
<tr>
<td>---------------------</td>
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</tr>
<tr>
<td>MacLellan 2010 Cambodia</td>
<td>Grounded theory/ Interviews</td>
<td>Pro</td>
<td>13</td>
<td>Anxiety and Depression/Psychiatric Interview</td>
<td>18-44</td>
<td>13 in a relationship</td>
<td>3 first time 10 multi</td>
<td>10 anxiety, depression, rural, no education, unplanned pregnancy</td>
<td>Four themes: Fear of childbirth, Lack of information, Traditional vs allopathic practice, Access to government midwife</td>
<td>Antenatal anxiety in rural Cambodia</td>
</tr>
<tr>
<td>McKillop et al 2010 Canada</td>
<td>Phenomenology/ Interviews</td>
<td>Pro</td>
<td>6</td>
<td>Depression/10,11, 12 on EPDS</td>
<td>23-33</td>
<td>All in a relationship</td>
<td>4 first time 2 multi</td>
<td>varied</td>
<td>Five themes: Disconnection vs new connection, Loss of identity vs new identity, Fatigue vs vitality, Anxiety and insecurity vs confidence and security, Sadness and hopelessness vs joy and expectation</td>
<td>The lived experience and ambivalence of antenatal depression:</td>
</tr>
<tr>
<td>Migl 2009 USA</td>
<td>Phenomenology/ Interviews</td>
<td>Retro</td>
<td>10</td>
<td>Distress/ n/a</td>
<td>27-36</td>
<td>8 in a relationship 2 single</td>
<td>4 first time 6 multi</td>
<td>varied</td>
<td>All women were attending prenatal support group and participated in Mind and Body Exercise program Low SES, In a Sure Start Programme for socially disadvantaged</td>
<td>The lived experience of prenatal stress</td>
</tr>
<tr>
<td>Raymond 2009 UK</td>
<td>Descriptive Constructivism/ Interviews</td>
<td>Retro</td>
<td>9</td>
<td>Depression/ self</td>
<td>23-40</td>
<td>5 in a relationship</td>
<td>5 first time 4 multi</td>
<td>varied</td>
<td>Emotional isolation: loneliness, pressure to be a good mother, and fragmented health care</td>
<td></td>
</tr>
</tbody>
</table>
Five central themes were identified across the studies: “Recognizing things were not right”, “Dealing with stigma”, “Negotiating the transition”, “Spiralling down”, and “Regaining control”. In order to fully understand both the experience and the process behind women’s views, interpretations led to the formulation of an overarching conceptual framework (Figure 2). This framework positions women’s experiences within the field of psychological loss, disruption and grief, experienced as a result of change and adjustment (Kübler-Ross et al., 1972). Motherhood, interpreted as a succession of losses of identity, autonomy, appearance, and feminine roles have been proposed by Nicolson (1990; 1999) in her research using a feminist approach to examine postnatal depression. In this meta-synthesis, Nicolson’s framework was also found to be applicable to the antenatal context, thus, providing an understanding for the continuity of stressful psychological processes that begin prior to the birth of a baby.
Figure 2. The process of antenatal psychological distress

- The invasive thoughts
- Inability to carry on as usual
- In search for reasons
  
  Recognising things are not right

Dealing with stigma

- Social norms
- Shame, guilt, inadequacy
- Self-silencing

A state of limbo

- The Mother-self
- Recognising one's needs despite baby's

Negotiating the transformation

Spiralling down

- Feeling overwhelmed
- Traveling into a silent anxiety
- Anxiety and Depression

- Committing to change
- Creating a "safety net"
- Self-care - opportunity for growth

Regaining control
**Theme 1: Recognizing things are not right**

Acknowledging the pregnancy and slowly recognizing that women’s expectations about pregnancy were not met was the first central theme, present in all studies. The inability to organize their thoughts and difficulties in making decisions affected women’s functioning and resulted in questioning the pregnancy, and dealing with thoughts of regret. The realization of a new-found physical and mental restriction on women’s ability to ‘carry on as usual’ or to function in an established way, increased women’s sense that things are not right, which were associated with feelings of low self-worth and low self-esteem. In the search for a reason for these feelings, women identified various stressors in their life. Perceived causes of psychological distress varied within studies; however, external factors (i.e., work/occupational factors), home environment, and internal psychological factors (i.e., past traumas and current relationships), hormones and limited knowledge about their own pregnant body and the process of labour were widely described as factors contributing to their distress. Of particular importance to women’s mental state was their partner’s involvement with their pregnancy, a factor crucial to accepting their new status. Increased emotional vulnerability and fear of abandonment influenced the process of recognising that things are not right. Anxiety, fear and the impression that the pregnancy was a mistake increased women’s interpretations of pregnancy as a shameful and disruptive event, and some coped through denial:

[…] initially I denied a lot of the stuff, kept it in, denied it, deluded myself, and just kept going (Bennett et al., 2007).

Another key factor that exacerbated anxiety and stress was the experience of a previous pregnancy and birth problems, including miscarriages or a problematic or painful labour. Current medical complications related to the pregnancy exacerbated women’s mood and feelings of helplessness, which is an established contributor to pregnancy-specific distress (Cote-Arsenault & Donato, 2011; Tsartsara & Johnson, 2006).

**Theme 2: Dealing with stigma**

The next theme and the subsequent phase on the continuum of women’s experience was that of stigma. This concept relates to the discrepancy between how experiencing psychological
distress was at odds with how women wanted to be perceived by others. Women had many direct, but also subtle reactions by others that emphasised what they perceived as the perfect pregnancy. Feeling different increased their sense of inadequacy and women questioned their ability to nurture and care. Many women described their environment as making large demands on them, and one that was interpreted as a set of hostile traditions that situated pregnancy and motherhood in an elevated and unattainable position of perfection. Popular interpretations of what pregnancy should be like or of what is proper for a pregnant woman to do, eat and feel impacted negatively women who are already vulnerable to distress and low mood. In all studies, the concept of feeling guilty and ashamed because of crying was identified as an emotion that did not fit within the ideal context of pregnancy:

Mothers tend to think they should always be there. And mothers are supposed to be always rock solid, aren’t they? Everyone assumes that. (Raymond, 2009)

Thus, there was a consensus on the lack of understanding and the oppressive feelings of inadequacy when women cry for reasons different to popular belief:

…the glow, joy, balloons and presents”, but the truth is, for me, that couldn’t be further from the truth. [...] I don’t think my tears will be tears of joy (Alhusen et al., 2012)

Identifying the perceived difference between ideal and real experience for most of these women resulted in their use of a number of coping strategies, some of them clearly avoidant, such as to cry alone, “to run away”, “to shut” down, and isolate themselves physically, socially and emotionally:

So, that’s what I do, I wear a mask for people, so be it (Bennett et al., 2007)

Other negative coping strategies were obsessive cleaning and sourcing information that precipitated further their distress. Exploring Cambodian women’s views, MacLellan (2010) noted that to conform to the tradition was the preferred way to deal with stigma and to avoid feelings of guilt and ostracism. However, this strategy created even further anxiety and isolation in women who wanted to conform but still needed to confide their real feelings to somebody.
Theme 3: Negotiating the transition

A pervasive theme was the state of inertia during the pregnancy that prompted women to question their sense of self, their lack of control over their own body and mind, and feelings of entrapment. Lacking a sense of control over one’s body, especially in the context of pregnancy when naturally the sense of control is both highlighted and surrendered, has been linked to increased levels of depression and anxiety (Keeton et al., 2008). This description depicts both the state of inertia and the emerging sense of the self as a mother or the mother-self and the future life with their newborn baby. A process of ambivalence, change of self and loss of identity, disconnection, and revision of past and future roles as well as relinquishing a sense of being the child in preparation to parent a child as an adult self was identified. This process was described by some women as an adjustment phase, negotiating the manoeuvring towards motherhood as “wandering around in a blur” (McKillop et al., 2010). This adjustment phase of exacerbated sense of responsibility, increased the pressure on women resulting in a particularly overwhelming sense of travelling into despair”:

The pressure of making sure that I was taking care of my body was stressful. That’s I think the scariest thing ever [...] You are solely responsible, you know (Migl, 2009).

Additionally, trying to prepare for labour and childbirth-related pain influenced women’s already anxious and vulnerable state. Women’s narratives focused on how challenging it was to recognise new aspects of themselves, such as constant worrying and preoccupation with fears and anxiety that they did not approve of and perceived as harmful to the developing baby. A lack of knowledge and understanding of the processes of the pregnancy and labour put women in an increased state of anxiety. In Migl’s study (2009), the actual knowledge that feeling stressed during the pregnancy may have an impact on the foetus, intensified the anxiety itself.

A crucial aspect of negotiating the transition to motherhood for women was to recognise and reorganize their own needs. This process was performed throughout the pregnancy and women described that feelings of anxiety and depression had made it difficult for them to communicate their own needs and to ensure their own emotional and physical needs were met. In all studies, but one, the mothers already had children. Although
these mothers were already familiar with the mother-self or the motherhood role, and presumably have formed an understanding of it, it still did not serve as a protective factor against their anxiety and depression. It could be argued that it served as a reminder that motherhood involves more losses, such as energy, personal time, and resources. Other aspects of the transition involved balancing their own needs with the ones that the new baby will have, which was a source of ambivalence and anxiety, which women interpreted as unhealthy themselves (Raphael-Leff, 2010). Women shared an overall need for being understood, accepted in a non-stigmatized way, and self-caring without a sense of guilt. This extended from partners to healthcare providers, and was manifested as a need for an informed, un-intrusive midwife who should be understanding, non-judgmental, and for a supportive network or a place where they “could touch base once a week” (Raymond, 2009) and connect with others in a meaningful way. The fact that this type of desired support was not always available for women exacerbated their state, pushing their needs back, isolating them further and preventing them from identifying sources for help.

**Theme 4: Spiralling down**

Women described their state as a complex interaction between an environment that was perceived as unsupportive, a healthcare team that was unavailable, and partners that were unwilling to share and accept their pregnancy, all of which altered their perceptions of themselves and of their ability to mother their babies. Communicating these emotions was particularly challenging even in close family circles, and with their own mothers. Overall this complex process of unmet needs, feelings of inadequacy and guilt frequently resulted in what women described as “giving into their feelings” and falling into a “silent anxiety” (Bennett et al., 2007). Most women struggled to understand what exactly was wrong and found it confusing to explain their experience and feelings:

> It’s hard to explain this anxiety. Because it’s like something horrible is wrong, like something horrible happened to you. But nothing horrible happened to me. I don’t know how to explain it. (Bennett et al., 2007).

Women’s experiences took various forms, levels, symptoms and interpretations under the common themes of feeling overwhelmed, breaking down, feeling scared, agonizing, lonely and desperate, not enjoying life, crying and excessively dreading the future.
Theme 5: Regaining control

An important aspect of women’s adjustment processes were the phenomena of re-grounding oneself and regaining control. This process was reported in five of the studies and involved making a plan, committing to it, and gaining a new sense of strength through self-care, within a supportive context. For the women who managed to decide to “confront and confine the threat” (Bennett et al., 2007), a new-found determination not to let their mood overtake their experience was established and a change subsequently occurred. Women found motivation to get through the deep feelings of protectiveness they had for their babies. Crucial for women was to find a network and a “safety net” (Raymond, 2009), where they felt understood in a non-judgmental way by other women, who had experienced similar emotions or by a genuinely interested carer.

The key role of peer support (Jones et al., 2014) in the context of perinatal mental support is supported in our synthesis, identifying isolation and lack of networks for validation of women’s experience as a contributing factor towards their distress. The concept of a safety net was interpreted as an important physical and psychological connection and provided reassurance that their feelings were validated and accepted. If women were encouraged, they felt empowered and their confidence increased which further enabled them to cope with distress in a more proactive way. Women found it particularly empowering to open up, search for help and reassurance and to better understand and control anxiety-provoking issues though various networks of friends, family and healthcare providers, and even within themselves. The acceptance and acknowledgement of their mood by the women themselves and by their social support networks were the most important factors to minimize their distress and increase their self-esteem.

I learned a lot about myself. It was almost a gift in that, I don’t know how to describe this…I learned about myself. I’ve learned to make time for myself (Bennett et al., 2007).

Women made a conscious decision to self-care and address their own needs, after they managed to learn more about themselves, which facilitated their engagement in activities such as relaxation, self-management, reorganizing and delegating household chores.
For some, both pregnancy and the experience of psychological distress were perceived as an opportunity to get to know themselves better and to re-examine their attitudes and overall sense of self and priorities, and ultimately to “being in a better place”. In a study (Migl, 2009), in which women were participating in a relaxation program, their understanding was that stress needed to be “recognised, mediated, released and minimized” for both mother’s and baby’s well-being. However, considering that these women were already part of a supportive program, regaining control could be further explained as encouraged and fostered by their context.

Discussion

This meta-synthesis provided a framework of the experience of psychological distress during pregnancy found within eight qualitative studies. The five overarching themes and the metaphor of the process of grieving, loss and change offered a novel conceptual analytic framework for antenatal distress. This framework contributes to a deeper understanding of the intricate ways in which women could experience the transition to motherhood, how women negotiate this transition within a culture that promotes an idealized and prescriptive view of motherhood, what makes some women more vulnerable than others, and what coping strategies women employ in order to regain a control over their emotional well-being. This meta-synthesis builds on the maternal theoretical understanding that extends the timeframe of the impact of psychological distress on as early as pregnancy and even pre-pregnancy as contributing factors to mothers’ experiences and sense of self. In line with earlier studies, this review provides further understanding on the sometimes unrealistic and romantic expectations of motherhood and pregnancy held by women and how these shape their experiences, resulting in feelings of inadequacy, defeat and isolation, all of which may contribute to and perpetuate distress (Choi et al., 2005; Staneva & Wittkowski, 2012). Similarly, a discrepancy between ideal and real self has been established as a known trigger for depression and anxiety (Higgins et al., 1985), pointing to the importance of health care professionals in challenging these idealized views.

Multiple identity and roles losses have been acknowledged as part of the normal transition and adjustment to motherhood in the postnatal depression research (Liamputtong & Naksook, 2003; Nicolson, 1990). Feelings of loss in the form of loss of control over one’s emotions and over one’s physical body were a pervasive component of women’s narratives. Regardless of parity and whether they were invited to share their experience during the
pregnancy or retrospectively, women had to face and negotiate the transformation, by accepting themselves and their pregnancy, relinquishing previous roles and accepting new ones.

An important finding was the sometimes frightening and empowering role that women realised they have over the well-being of their baby, while they are pregnant. Realising this potential, women were more pressured but also more assertive in recognising and voicing their needs, identifying a support system, gaining knowledge and resurfacing. This position is in line with Stoppard’s concept of the “good woman” (Lafrance & Stoppard, 2006; Stoppard, 1998), wife, housewife, and mother, which have been particularly pronounced in the transition to motherhood. In a discourse analysis of 15 women’s accounts of their experiences of recovery from depression, Lafrance and Stoppard (2006) noted that recovery was constructed within a narrative of personal transformation in which women let go of their good woman practices (or the ones determined by the needs of others for instance, the baby in the pregnancy context) and attended to their own needs first. Furthermore, Stoppard (1998) expanded this concept to “the new woman” or one that adds to women’s self-perception the desire to access social recognition, power, and status that a career provide. Our findings similarly suggest that expanding women’s roles and responsibilities might add further to understanding why women experience increased levels of mood disorders, particularly during childbearing years.

The notion of self-silencing is also relevant here (Jack, 1993; Jack & Ali, 2010) because women’s depression is a symbolic act of experiencing powerlessness and thus silencing of their true voices and selves in their intimate and social relationships. In our meta-synthesis, the women who felt alone and misunderstood by their partners, and those who lacked support and resources, chose to remain silent in their attempts to make sense of their mood. This appears to have a profound impact on their emotional state, and potentially on their birth experiences and postnatal adjustment to motherhood, such as poor attachment with their babies and postnatal depression.

Therefore, negotiating the transition plays an important role at that critical point when a woman would either spiral down or if she would regain control with a renewed sense of personal growth, a greater sense of satisfaction, lessened anxiety and depression symptoms, and a better preparedness for motherhood. The process of coping is dependent on various intervening factors that can facilitate the use of adequate coping strategies, such
as positive beliefs or an increased sense of coherence (Antonovsky, 1987), problem-solving skills, social skills and availability of proper social support and material resources. A particularly important factor that may regulate the levels of vulnerability for women is the concept of control, whether understood as the ability to alter the environment, to change the meaning of the situation, or to manage one’s emotions and behaviours. If the pregnancy is experienced as an inability to control one’s body and emotions, while realising that this exact control is important for the baby, feelings of desperation, anxiety and depression may be more likely. It was interesting to note that access to information served to increase anxiety for some women, despite evidence that the education of women and the provision of information during pregnancy alleviates concerns and worries (Artieta-Pinedo et al., 2010). One explanation could be the nature of information and the context within which women access it; for example, reading about others’ positive experiences of labour and parenting on popular internet forums had been perceived as positive only if it there was a sense of shared community and support among the women (Plantin & Daneback, 2009). However, when women searched for specific information around pregnancy and risk, sharing apprehensions and doubts with other women increased their anxiety (De Santis et al., 2010).

Limitations

Due to the lack of qualitative research in the area of perinatal mental health, specifically in the context of pregnancy, and also the lack of variability in the location of this type of research inquiries, the number of studies in this review is limited, which could affect the transferability of findings. Additionally, a study from Cambodia was part of the final analysis, which despite being a developing country reflects evidence in itself of the transferability of these findings across cultures. Furthermore, the scope of topics reflects a rich and in-depth understanding of pregnancy distress, which could serve in the promotion of awareness of this important yet under-researched domain of scientific knowledge.

Implications for practice and recommendations for future research

Future studies exploring antenatal distress would benefit from employing a feminist lens and a longitudinal methodology (ideally including pre-pregnancy and each trimester data), which addresses this research topic from an in-depth perspective, taking into account wider historical, social, political, and cultural factors that provide the backgrounds of women’s context and experiences.
Evidence from such research may inform health providers, engaged in the provision of care for women during pregnancy, to facilitate the building of a strong safety net for vulnerable women in a timely and meaningful manner, as well as to encourage a healthy self-image and self-care by normalising the experience of pregnancy and motherhood. An emerging area of scientific interest is the application of mindfulness-based interventions which promote deeper self-awareness and knowledge, and most importantly, self-acceptance which could be a very effective strategy for women at times of little or no control over their pregnant body and during the time of transition towards motherhood. It is important that midwives and health professionals are aware of the many responsibilities women may have and help women recognise a time for their own needs during pregnancy and beyond.

This review highlights notable gaps in the literature; for example, the small number of identified studies and therefore the absence of qualitative research on women’s perceptions and views on their mental state during pregnancy and the implications these have on their physical and psychological well-being, both during pregnancy and postpartum. Similarly, little research has focused on the protective factors for women with psychological difficulties during pregnancy, such as factors external to women themselves, such as their partner, peer and carer support; and various strategies to cope and resist dominant discourses on motherhood, which may determine their decision to commit to change and seek proper support. Furthermore, a woman-centred research approach may deepen the knowledge on how women situate themselves and their pregnancy in a particular social context that may aid the normalising of the process of transformation during pregnancy and motherhood as one that incorporates joy with losses and grief.
Chapter 5: Pregnancy-specific distress
The role of maternal sense of coherence and antenatal mothering orientations

Taking into consideration the findings from reviewing both the epidemiological and the qualitative literature on antenatal distress, I began the design of an empirical longitudinal mixed-method project, which formed the empirical work of this thesis. The complete three-stage survey explored a comprehensive list of measures evidenced in the literature to relate the experience of perinatal mood disorders, including antenatal distress, birth outcomes and postnatal adjustment to motherhood (Appendix A). This paper presents data from the first stage of the study, when pregnant women were invited to take part in this project and completed a set of measures exploring antenatal distress.

This chapter examines the strongest psychosocial predictors associated with antenatal distress. In this work, I highlight the importance of expanding the understanding of potential factors influencing maternal mental health during pregnancy. This study is presented in the remainder of this chapter in the form of a published paper.

Title: Pregnancy-specific distress: The role of maternal sense of coherence and antenatal mothering orientations

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Key words: Pregnancy, Distress, Maternal Orientation, Sense of Coherence
Abstract

Background: Maternal mental health during pregnancy has been identified as a key factor in the future physiological, emotional and social development of both the mother and her baby. Yet little is known about the factors that contribute to increased levels of pregnancy-specific distress. The present study investigated the role of two psychosocial and personality-based constructs, namely women’s sense of coherence and their mothering orientations, on their pregnancy-specific distress.

Design: During their second trimester of pregnancy, 293 Australian and New Zealand women participated in an online study. Hierarchical multiple regression analysis was used to determine the unique contribution of women’s sense of coherence (Sense of Coherence Scale, SoC 13) and their antenatal mothering orientation (Antenatal Mothering Orientation Measure-Revised, AMOM-R) to pregnancy-specific distress (Revised Prenatal Distress Questionnaire, NuPDQ).

Results: Low sense of coherence was the best determinant of women’s pregnancy-specific distress, accounting for over 45% of the variance (β = -.33, p<.001, 95% CI [-.43, -.23]). A Regulator mothering orientation was correlated with distress but did not have a unique contribution in the final model.

Conclusions: This study further highlights the importance of better understanding women’s perceptions of emotional health and their mothering role while taking into consideration their wider social context.
Background

Pregnancy is recognised as a time of great physiological, social and psychological transformation which has been associated with significant emotional distress for many women (Rallis et al., 2014). Women experience various levels of distress: depression affects approximately 10-25% of women (Faisal-Cury et al., 2010), while anxiety impacts on 25-45% of women during the perinatal period (Rubertsson et al., 2014). Evidence points to the association between maternal distress during pregnancy and adverse birth outcomes (Staneva et al., 2015a), extending its effects beyond the emotional well-being of the mother herself onto the future cognitive, emotional and social development of the infant and child (Stein et al., 2014).

Vulnerability to perinatal mental disorders has been predominantly associated with past history of psychiatric diagnoses, low levels of social support and lower socio-economic status (Fisher et al., 2012; Robertson et al., 2004; Seguin et al., 1999). Additionally, the focus of research has been expanded to address individual constructs in the understanding of antenatal mental health, such as coping styles (Faisal-Cury et al., 2012), and low self-esteem (Clavarino et al., 2010). Identifying the factors associated with distress specific to the pregnancy context is an important step in the improvement of mental health during pregnancy (WHO, 2008) and is yet to be elucidated.

Despite extensive research in the area of perinatal health, specific determinants of maternal antenatal mental health remain under-explored; this is partly because individual factors have been examined in isolation from the wider social and cultural context pregnant women find themselves in. This finding extends to the context in which studies have been conducted and within which women are responding; and additionally because attitudes, expectations and health practices, specific to the pregnancy, have been overlooked, which when taken together make it difficult to interpret findings (Cox, 1996).

Additionally, there is a need for pregnancy-specific anxiety research that considers distress as a multidimensional phenomenon, but also one that is unique to the experience of pregnancy. For example, both antenatal and postnatal anxiety have been explored extensively through general anxiety measures (Buist et al., 2011; Huizink, Mulder et al., 2004), yet emerging evidence suggests that pregnancy-specific distress may be a more powerful predictor of birth outcomes than overall stress and anxiety from sources unrelated
to pregnancy (Roesch et al., 2004). Therefore, in this study, we operationalize anxiety as the experience of psychological distress within the specific context of pregnancy, related to worries and concerns about the fetus, labour, and the upcoming parenting role, within the family and wider context.

Little is known about how specific psychological constructs such as women’s antenatal maternal attitudes, beliefs and expectations about the baby, the pregnancy, and herself as a mother relate to her mood. A model that explores these factors called “Maternal Orientations” differentiates two main clusters of mothering styles (Raphael-Leff, 1986). The original model represents a continuum of possible maternal orientations with two distinct and polar opposite. Women, who employ a Facilitator maternal orientation, consider pregnancy and motherhood as the ultimate life goal and an achievement of their female identity, fully adapting to the baby’s needs. Alternatively, a Regulator orientation represents an expectation that the baby would adapt to the needs of the mother. The two orientations differ in the way women use psychological defences, the way they relate and connect with the baby, and their tendency to use different coping strategies when dealing with ambivalent feelings (Raphael-Leff, 1986).

These orientations have also been researched in terms of ante- and postnatal depression and early adjustment to motherhood suggesting a strong association (Sharp & Bramwell, 2004). Although this model has subsequently implemented two additional orientations (Reciprocator and Conflicted, Raphael-Leff, 2001), the current study explores the Facilitator and Regulator orientations as these form the foundation of the construct, and have been measured empirically through psychometric scales (Sharp & Bramwell, 2004; Van Bussel et al., 2009, 2010). In contrast, the Reciprocator and Conflicted orientations have been mainly theorized and presented through case studies (Raphael-Leff, 2001). Additionally, an argument has been made to investigate these as dimensions rather than discrete maternal categories (Roncolato & McMahon, 2011).

A salutogenesis theory developed by Antonovsky (1987) offers the concept of sense of coherence (SoC) as an important factor in the understanding of health through the way people interpret and deal with stressful situations in life. According to this theory, if a person perceives stressful events as “comprehensible, manageable and meaningful challenges worth overcoming” (Oz et al., 2009, p.29), they may be less likely to experience depression and anxiety in the face of change and have an increased quality of life and better
health. Comprehensibility is the extent to which the world is perceived as making sense; manageability is the ability to access resources to cope with the demands, while meaning is represented by the way people perceive their life as having a purpose. Research has evidenced the link between SoC and good health, with positive correlations identified between SoC and both psychological health (Mullen et al., 1994), and general well-being (Pallant & Lae, 2002). Consistent with this theory, high levels of SoC during the antenatal period have been associated with better pregnancy well-being overall (Ferguson et al., 2014; Larsson et al., 2009), and with uncomplicated delivery (Oz et al., 2009).

It could be argued that these two personality constructs (Maternal Orientations and SoC) are related because they both reflect women’s psychological development of a “self-in-relation” to themselves and to others, a concept that describes women situating themselves within their context at a time of transition which has been identified as a source of distress and depression for women (Jack, 1991).

The aim of this study was to explore various factors that contribute to increased distress for women during pregnancy, and in particular the role of two constructs: SoC and maternal orientations. We hypothesized that pregnancy-specific distress would increase for women presenting with a lower degree of SoC. We also predicted that orienting towards a Regulator mothering identity would add to women’s pregnancy-specific distress. According to our understanding, these determinants have not been previously explored within the literature that focuses on pregnancy-specific determinants of distress. Through this approach we aim to obtain a better understanding of risk factors for distress in pregnancy, and thus advance our understanding of maternal identity formation, inform on more effective screening for maternal distress, and promote the employment of timely and meaningful interventions for women who experience increased levels of distress during pregnancy.

**Methods**

*Study design and procedure*

This study is part of a larger project involving an online mixed-methods longitudinal study on the transition to motherhood (antenatal mood, birth, and early adjustment to motherhood) that assesses women at three time points, starting from the second trimester of pregnancy, through the third trimester, and shortly after the birth. As part of this study we examine
cross-sectional data from the second trimester of pregnancy and report only on the measures of interest.

Participants were recruited via various online pregnancy and parenting platforms across Australia and New Zealand between February and October 2014. Participants were referred to a secure University-based website for information on the study and participation, and after obtaining informed consent, eligible women were forwarded to a secure Qualtrics™ survey platform. Women were eligible if; they were residing within Australia and/or New Zealand, their pregnancy had progressed to the second trimester, and they did not experience severe suicidal ideation. The Research Ethics Committee of the University [omitted for blind review] gave permission for this study.

Main outcome measures

**Pregnancy-specific distress** was assessed with the Revised Prenatal Distress Questionnaire (NuPDQ, Lobel, 1996), a 17-item self-report scale measuring the extent to which women feel “bothered, upset, or worried at this point” about pregnancy issues, including physical symptoms, bodily changes, labour and delivery, parenting, infant and mother’s health, medical and financial problems. Responses are on a 3-point scale, ranging from 0 (not at all) to 2 (very much). Mean and total pregnancy-specific distress (range 0-34) scores were calculated. A cut-off point of 16 was used to differentiate moderate to high levels of distress. The scale has been previously identified as an optimal instrument for measuring distress related to pregnancy and parenting (Nast et al., 2013); it demonstrated reliability of α=.79 in this sample. Scores of 16 and over on the Pregnancy Distress scale have been used as a cut-off point in our study, indicating higher levels of distress and anxiety.

**Antenatal depression** was assessed with the Edinburgh Postnatal Depression Scale, (EPDS), a 10-item self-report scale measuring depressive symptoms experienced within the previous week (Cox et al., 1987). Responses to statements are scored on a 4-point Likert scale ranging from 0 to 3, with higher scores indicative of greater intensity of depressive symptoms. The EPDS has been validated for use with women antenatally and has been extensively used with sensitivity levels of .86, specificity levels of .76 and strong reliability with Cronbach’s alpha .87 (Bergink et al., 2011). In the present study internal consistency was α=.86. Prior research indicates that a cut-off score of 11 is indicative of depression
symptomatology (Murray & Carothers, 1990). We used the EPDS as a continuous variable in subsequent analyses; we additionally report rates of depressive symptoms.

*Sense of coherence* was measured with Antonovsky’s 13-item Sense of Coherence scale, (SoC 13) (Antonovsky, 1993), which assesses an overall life orientation towards stress management and perceptions of health, environment and well-being on an originally 7-point Likert scale. However for the purposes of this study, we modified it to a 5-point Likert scale, ranging from 1 to 5, to facilitate participants’ responses. Total scores range from 13 to 65, with higher scores indicative of higher sense of coherence. SoC has been widely used and validated in various cultural and health care contexts, including pregnancy (Oz et al., 2009). Previous studies show evidence of good internal consistency $\alpha= .79-.91$ (Antonovsky, 1993), including the present study ($\alpha = .90$).

*Mothering Orientations* were assessed with the 18-item Antenatal Maternal Orientation Measure-Revised (AMOM-R) (Roncolato & McMahon, 2011), on a 6-point Likert scale, which identifies and differentiates between two distinct styles of mothering styles (Facilitator or Regulator), relating to a psychodynamically informed interpretation of pregnancy, the child, and motherhood (Sharp & Bramwell, 2004). Cronbach alphas for Facilitator and Regulator Scales in this study were .79 and .68, respectively.

The socio-demographic information collected included maternal age, ethnicity, education, marital status, employment and financial satisfaction. Participants were asked to report on parity, previous and current pregnancy complications, and history of medical or psychological and psychiatric problems. Additionally, participants were asked to report any stressful life events that they had experienced in the past 12 months. Health habits, including exercise, illegal drug, alcohol use, caffeine intake, as well as smoking, were also explored. Women were asked about the quality of their relationship with their mother, as well as their satisfaction with their partner, and whether they perceived they were a victim of domestic abuse.

*Statistical approach*

Prior to performing the regression analyses, data from a total of 328 participants were examined for accuracy and normality. All variables were normally distributed; skewness and kurtosis were all close to zero (between 0 and 1). Homoscedasticity of variables was also present, suggesting normal distributions. Distribution of missing data (MCAR, missing
completely at random) indicated that about 10% of participants (n=35) disengaged with the survey after completing about 80% of it; thus these 35 cases were deleted. Analysis was performed on complete cases only (n=293).

A sample size of 293 was deemed adequate given all independent variables to be included in the analysis (Tabachnick & Fidell, 2001). While all relationships with each factor were explored initially, only the variables that correlated significantly with each determinant were included in the regression analyses (see Table 1.)
Table 1. Correlations between study variables

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Multicollinearity among the determinants was assessed with the variance inflation factor (VIF) statistic; values from 1.12 to 3.13 were within the acceptable range (<5) (Field, 2013). Hierarchical multiple regression analyses were conducted to determine which independent variables were best determinants of pregnancy-specific distress, and also to explore the unique contribution of the variables of interest (Tabachnick & Fidell, 2001). Determinants were entered in three consecutive blocks, based on previous theoretical research: first, “past characteristics”; followed by “current pregnancy characteristics”; and lastly, by the factors of interest “psychological constructs” maternal orientations and sense of coherence. All statistical analyses were performed using the statistical IBM package SPSS 22 (SPSS Inc., Chicago, IL).

**Results**

Women were predominantly married white Australians; the majority were between 25 and 36 years of age, with a singleton pregnancy. Participants’ characteristics can be found in Table 2. All women were assessed during their second gestational week of pregnancy (M=18.6 weeks, SD=0.21).
Table 2. Participant characteristics N=293

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<td>15-19</td>
<td>4 (1%)</td>
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<tr>
<td>20-24</td>
<td>25 (9%)</td>
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<tr>
<td>25-29</td>
<td>106 (36%)</td>
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<td>30-34</td>
<td>109 (37%)</td>
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<td>35-39</td>
<td>42 (14%)</td>
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<td>40-45</td>
<td>6 (2%)</td>
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<td>45-49</td>
<td>1 (.3%)</td>
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<td><strong>Parity</strong></td>
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<tr>
<td>Primipara</td>
<td>94 (31%)</td>
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<tr>
<td>Multipara</td>
<td>199 (69%)</td>
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<td><strong>Planned pregnancy</strong></td>
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<tr>
<td>Yes</td>
<td>236 (80.5%)</td>
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<tr>
<td>No</td>
<td>57 (19.5%)</td>
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<td><strong>Pregnancy</strong></td>
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<td>287 (98%)</td>
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<tr>
<td>Multiple</td>
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<tr>
<td>Married</td>
<td>214 (73%)</td>
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<td>Cohabitng</td>
<td>61 (21%)</td>
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<tr>
<td>Divorced/Separated</td>
<td>3 (1%)</td>
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<tr>
<td>Single</td>
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<tr>
<td>Widow</td>
<td>1 (.3%)</td>
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<td>Other (engaged to be married)</td>
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<td>Australia</td>
<td>242 (83%)</td>
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<tr>
<td>New Zealand</td>
<td>51 (17%)</td>
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<td>195 (66%)</td>
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<td>White New Zealander</td>
<td>48 (16%)</td>
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<td>Asian</td>
<td>8 (3%)</td>
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<tr>
<td>Aboriginal/Torres Strait Islander; Maori</td>
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<tr>
<td>American</td>
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<td>European</td>
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<td>Full time</td>
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<td>Part time</td>
<td>77 (26%)</td>
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<td>Not working, but looking for a job</td>
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<tr>
<td>Home based paid work</td>
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<td>Not working (stay at home parents, etc.)</td>
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<td>60 (20.5%)</td>
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<td>70 (24%)</td>
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<tr>
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<tr>
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<td>18 (6%)</td>
</tr>
<tr>
<td>Neutral</td>
<td>167 (57%)</td>
</tr>
<tr>
<td>Domestic abuse</td>
<td>5 (2%)</td>
</tr>
<tr>
<td>Variables</td>
<td>Number (%)</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Mood, health, and lifestyle</strong></td>
<td></td>
</tr>
<tr>
<td>Current mood</td>
<td></td>
</tr>
<tr>
<td>Distress (Anxiety)</td>
<td>32 (11%)</td>
</tr>
<tr>
<td>Depression</td>
<td>50 (17%)</td>
</tr>
<tr>
<td>Past psychological experiences and/or episodes</td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>92 (31%)</td>
</tr>
<tr>
<td>Depression</td>
<td>109 (37%)</td>
</tr>
<tr>
<td>Smoke</td>
<td></td>
</tr>
<tr>
<td>Not</td>
<td>273 (93%)</td>
</tr>
<tr>
<td>Yes</td>
<td>14 (5%)</td>
</tr>
<tr>
<td>Exposed to 2nd hand smoke</td>
<td>6 (2%)</td>
</tr>
<tr>
<td>Stressful life events in the last 12 months</td>
<td></td>
</tr>
<tr>
<td>Past medical terminations</td>
<td>26 (9%)</td>
</tr>
<tr>
<td>Separated/divorced partner</td>
<td>6 (2%)</td>
</tr>
<tr>
<td>Moved to a new address</td>
<td>99 (34%)</td>
</tr>
<tr>
<td>Argued more than usual with partner</td>
<td>60 (20.5%)</td>
</tr>
<tr>
<td>Prescription medication use</td>
<td>75 (26%)</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>21 (7.5%)</td>
</tr>
<tr>
<td>Serious infection during current pregnancy</td>
<td>5 (2%)</td>
</tr>
</tbody>
</table>
Means and standard deviations for all continuous variables correlating with pregnancy distress are included in Table 3.

**Table 3.** Descriptive statistics for study variables

<table>
<thead>
<tr>
<th>Study variable</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edinburgh Postnatal Depression Scale (EPDS)</td>
<td>6.41</td>
<td>4.80</td>
<td>0-30</td>
</tr>
<tr>
<td>New Pregnancy-specific Distress Questionnaire (NuPDQ)</td>
<td>9.16</td>
<td>5.15</td>
<td>0-34</td>
</tr>
<tr>
<td>Sense of Coherence (SoC)</td>
<td>48.48</td>
<td>8.20</td>
<td>13-65</td>
</tr>
<tr>
<td>Antenatal Maternal Orientation Measure (Regulator subscale)</td>
<td>2.49</td>
<td>.70</td>
<td>1-6</td>
</tr>
<tr>
<td>Antenatal Maternal Orientation Measure (Facilitator subscale)</td>
<td>4.59</td>
<td>.66</td>
<td>1-6</td>
</tr>
</tbody>
</table>

Based on cut-off scores on the EPDS, 17.1% (n=50) of the women in this study were experiencing high depressive symptoms. Similarly, a cut-off level for the NuPDQ anxiety scores indicated that 10.9% (n=32) of the women in this study were experiencing high levels of distress and anxiety.

Lower SoC was highly and significantly associated with pregnancy-specific distress, depressive symptoms, impaired interpersonal relationships with both partner and a woman’s own mother, and with maternal orientations (negatively with a Regulator mothering style and positively with the Facilitator). Furthermore, past diagnoses of anxiety and of depression, financial issues, education level, and planning this pregnancy, were also associated with SoC.

**Regression analyses**

Based on previous theoretical assumptions the following factors, statistically correlated with pregnancy-specific distress, were included in three successive blocks. The first block of variables which we formulated under “past characteristics” included education, past medical terminations, and previous psychiatries diagnoses of anxiety or depression, \( \Delta F (4, 183) = 9.10, p <.001, \Delta R^2 = .16 \). The second block included “current pregnancy characteristics”, such as current pregnancy complications (excessive pelvic pain, serious infections, and hospital admissions); stressful life events in the past 12 months (separation or divorce, increased arguments with partner, moving to a new address); financial issues (1-not enough to cover basic needs; 2-and leftover money after covering basic needs); couple satisfaction; satisfaction with current relationship with own mother; and experiencing depressive symptoms. Adding that second block significantly improved the overall model with another 19% of explained variance \( \Delta F (12, 171) = 4.31, p <.001, \Delta R^2 = .36 \). Lastly, the third block,
which included the “psychological constructs” of interest namely, sense of coherence (SoC) and maternal orientations (Regulator or Facilitator orientation), was entered, adding another 9.4% to the explained variance and improving significantly the overall model to 45.2% explained variance for pregnancy-specific distress ($\Delta F (3, 168) = 9.61, p < .000, \Delta R^2 = .09$).

The best determinants in the final model, indicated by statistically significant $\beta$, were a low sense of coherence, followed by past medical terminations, a recent hospital admission, a serious infection (described as malaria, kidney infection, or lower genital tract infections). The unique contribution of Mothering Orientations was not statistically significant (Table 4).
Table 4. Hierarchical multiple regression analysis for variables predicting antenatal distress N=293

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th></th>
<th>Model 2</th>
<th></th>
<th></th>
<th>Model 3</th>
<th></th>
<th></th>
<th></th>
<th>95% CI β</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE b</td>
<td>β</td>
<td>t</td>
<td>B</td>
<td>SE b</td>
<td>β</td>
<td>t</td>
<td>B</td>
<td>SE b</td>
<td>β</td>
</tr>
<tr>
<td>Past termination</td>
<td>2.99</td>
<td>.90</td>
<td>.23**</td>
<td>3.34</td>
<td>2.02</td>
<td>.86</td>
<td>.22**</td>
<td>3.4</td>
<td>3.01</td>
<td>.81</td>
<td>.23**</td>
</tr>
<tr>
<td>Education</td>
<td>-.40</td>
<td>.26</td>
<td>-.09</td>
<td>-1.52</td>
<td>-.02</td>
<td>.25</td>
<td>-.01</td>
<td>-1.10</td>
<td>-.20</td>
<td>.23</td>
<td>-.06</td>
</tr>
<tr>
<td>Past anxiety</td>
<td>-1.55</td>
<td>.78</td>
<td>-.16*</td>
<td>-1.99</td>
<td>-1.40</td>
<td>.72</td>
<td>-.15</td>
<td>-1.93</td>
<td>-.69</td>
<td>.65</td>
<td>.07</td>
</tr>
<tr>
<td>Past depression</td>
<td>-1.70</td>
<td>.75</td>
<td>-.18*</td>
<td>-2.20</td>
<td>-.30</td>
<td>.74</td>
<td>-.03</td>
<td>-1.40</td>
<td>.11</td>
<td>.70</td>
<td>-.01</td>
</tr>
<tr>
<td>Excessive pelvic pain</td>
<td>.22</td>
<td>.94</td>
<td>.02</td>
<td>.23</td>
<td>.60</td>
<td>.90</td>
<td>.04</td>
<td>.65</td>
<td>-1.73</td>
<td>-1.81</td>
<td></td>
</tr>
<tr>
<td>Hospital admission</td>
<td>2.92</td>
<td>1.35</td>
<td>.15*</td>
<td>2.17</td>
<td>3.50</td>
<td>1.26</td>
<td>.18*</td>
<td>2.78</td>
<td>-2.30</td>
<td>-2.66</td>
<td></td>
</tr>
<tr>
<td>Serious infection</td>
<td>5.10</td>
<td>2.30</td>
<td>.14*</td>
<td>2.21</td>
<td>5.40</td>
<td>2.14</td>
<td>.15*</td>
<td>2.51</td>
<td>-4.06</td>
<td>-4.36</td>
<td></td>
</tr>
<tr>
<td>Financial issues 1</td>
<td>-1.30</td>
<td>.71</td>
<td>-.13</td>
<td>-1.80</td>
<td>-.81</td>
<td>.68</td>
<td>-.08</td>
<td>-1.21</td>
<td>-1.42</td>
<td>-1.26</td>
<td></td>
</tr>
<tr>
<td>Financial issues 2</td>
<td>.38</td>
<td>.45</td>
<td>.07</td>
<td>.86</td>
<td>.43</td>
<td>.06</td>
<td>.86</td>
<td>-.79</td>
<td>-.90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planned pregnancy</td>
<td>.63</td>
<td>.77</td>
<td>.06</td>
<td>.83</td>
<td>.50</td>
<td>.72</td>
<td>.04</td>
<td>.70</td>
<td>-1.34</td>
<td>-1.46</td>
<td></td>
</tr>
<tr>
<td>Separation or divorce</td>
<td>2.30</td>
<td>2.34</td>
<td>.06</td>
<td>.98</td>
<td>2.00</td>
<td>2.18</td>
<td>.06</td>
<td>.92</td>
<td>-4.23</td>
<td>-4.35</td>
<td></td>
</tr>
<tr>
<td>Moving to a new address</td>
<td>.21</td>
<td>.63</td>
<td>.22</td>
<td>.34</td>
<td>.20</td>
<td>.59</td>
<td>.02</td>
<td>.33</td>
<td>-1.14</td>
<td>-1.18</td>
<td></td>
</tr>
<tr>
<td>Increased partner conflict</td>
<td>.90</td>
<td>.74</td>
<td>.08</td>
<td>1.21</td>
<td>.52</td>
<td>.71</td>
<td>.05</td>
<td>.74</td>
<td>-1.34</td>
<td>-1.45</td>
<td></td>
</tr>
<tr>
<td>Depressive symptoms</td>
<td>.23</td>
<td>.07</td>
<td>.25**</td>
<td>3.50</td>
<td>.07</td>
<td>.08</td>
<td>.98</td>
<td>-.06</td>
<td>-.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPDS</td>
<td>-.41</td>
<td>.24</td>
<td>-.12</td>
<td>-1.71</td>
<td>-.35</td>
<td>.22</td>
<td>-.10</td>
<td>-1.60</td>
<td>-.53</td>
<td>-.33</td>
<td></td>
</tr>
<tr>
<td>Couple satisfaction</td>
<td>-.08</td>
<td>.30</td>
<td>-.02</td>
<td>-.28</td>
<td>.05</td>
<td>.29</td>
<td>.01</td>
<td>.19</td>
<td>-.56</td>
<td>-.58</td>
<td></td>
</tr>
<tr>
<td>Relationship with mother</td>
<td>-.88</td>
<td>.63</td>
<td>.14</td>
<td>1.40</td>
<td>.63</td>
<td>.14</td>
<td>1.40</td>
<td>-1.10</td>
<td>-1.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulator orientation</td>
<td>-.20</td>
<td>.67</td>
<td>-.03</td>
<td>-1.30</td>
<td>-.30</td>
<td>-.15</td>
<td>-1.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitator orientation</td>
<td>-.19</td>
<td>.05</td>
<td>-.33**</td>
<td>-4.06</td>
<td>-.43</td>
<td>-.023</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. $R^2=.16$ F(4,183)=8.96 (p<.001) for Model 1; $\Delta R^2=.19$ F(16, 171)=5.96 (p<.001) for Model 2; $\Delta R^2=.09$ F(19, 168)=7.30 (p<.001) for Model 3; *p<.05; ** p<.001
Discussion

This study examined two psychosocial factors contributing to the experience of pregnancy-specific distress: women’s sense of coherence (a dynamic and complex dispositional factor that can explain women’s individual adaptive capacities to change and stress), and women’s antenatal mothering orientation (specific style or a set of expectations about motherhood). Overall, these findings show that a low sense of coherence (SoC) makes the most substantial contribution to explaining pregnancy-specific distress, after controlling for a number of potentially confounding factors. Although orienting towards a Regulator mothering style was correlated with distress, this effect was not sustained in the final model. This suggests SoC to be a more potent determinant than mothering styles in the context of pregnancy-specific distress.

Given that pregnancy involves many changes and physical, psychological and social adjustments in the preparation for parenthood, there is a greater likelihood for vulnerable women to experience pregnancy-specific distress, particularly when there is a decreased sense of control over one’s body and a much heightened sense of responsibility of the mother to the developing foetus. As SoC refers to a global, enduring, and dynamic feeling of confidence in one’s ability to manage, predict, and control their environment (Antonovsky, 1987), pregnancy might present as a potential disruption in one’s overall sense and way of coping. In a systematic review on the relationship between SoC and health, which included over 450 studies worldwide, Eriksson and Lindström (2006) concluded that the stronger the SoC the better the perceived health of an individual across study populations, age, sex, ethnicity, etc., evidenced that SoC has a main, moderating or mediating role in the development and maintenance of physical health, particularly at stressful times. Additionally, a longitudinal study that explored the stability of SoC over a 5-year period in healthy individuals found that a loss of SoC over time was present when there was a change in perceived good health (Nilsson et al., 2003) suggesting that although SoC is a relatively stable personality construct, it is amenable to change only when a new pattern in one’s life is initiated. Therefore, SoC carries the potential to be re-examined and modified at times of great life transformations such as pregnancy and parenthood. Thus, it is now clearer why lower levels of SoC in this study, which predicted greater levels of distress, were also operating alongside physical health constructs.

Furthermore, it may be argued that past and current medical complications intensify maternal pregnancy-specific distress via the mediating effect of SoC. In their study on self-
perception of risk during pregnancy, Gupton and colleagues (2001) concluded that women who required hospitalization during pregnancy for various reasons, perceived their risk to be higher than those with uncomplicated pregnancy and experienced higher anxiety. Similarly, for the women in our study experiencing medical complications and hospitalization during their pregnancy, having lower levels of SoC, moderating their perception of their health and their ability to manage stress, predicted a higher level of pregnancy-specific distress.

Although Mothering Orientations were moderately correlated with pregnancy-specific distress, their unique contribution to the final model was not statistically significant. This could be due to several factors. Firstly, the model already accounted for a wide range of psycho-social and physiological variables. Secondly, SoC could be a potentially wider construct which encompasses within it maternal orientations, and thus predicts better the overall effect on distress; and lastly, Mothering Orientations could have a larger influence on distress during the postnatal period compared to the pregnancy, specifically for women in this study where worries about physical issues (related to the pregnancy and needing hospitalizing) were identified amongst the strongest determinants of distress.

It is important to note that experiences of distress (particularly at times of great change such as pregnancy) are deeply rooted in a woman’s position in her environment, culture and specific family dynamics. Social factors, such as how well supported she feels during pregnancy by her partner, her wider family, work environment and overall, societal expectations about most aspects of pregnancy and motherhood are all crucial factors in antenatal mood (Elsenbruch et al., 2007; Staneva & Wittkowski, 2013; Pilkington et al., 2015); along with a sense of being cared for by a nonjudgmental health-care provider (Hayes et al., 2001). Current research on distress and coping highlights a socio-ecological approach (Holahan et al., 1999; Lyons & Chamberlain, 2006), which considers the impact of the social context on an individual’s adaptation, resilience and personal growth in the face of stressful life events (Folkman & Moskowitz, 2000; Taylor et al., 2000). As all personal circumstances such as searching for meaning, resources and a plan for future life management are being re-examined, reassessed, and reviewed by women during pregnancy (Lederman, 1996), it further explains why pregnancy-specific distress increases.

Limitations and future research directions

The findings of this study need to be interpreted bearing some methodological limitations in mind. This study relied on self-report measures on mood and personality constructs, as well as
on socially desirable constructs (such as domestic violence, or health practices) which may be subject to the biases inherent in such measures. Although more objective assessments of affect are possible via standardized clinical interviews, the use of surveys has several advantages, such as cost-effectiveness and access to unique populations in a time-effective manner, which is of particular saliency within the context of pregnancy. Yet conducting research online presents with sampling biases (i.e. access to computers and internet) and also self-selection bias (Wright, 2005).

Additionally, it is arguable whether women who experience increased levels of anxiety, depression or stress are in general willing to participate in research; therefore the extent of the problems could be under-represented and thus underestimated compared to the general population. Women who participated in this study were predominantly white, highly educated and middle-class, which has potential implications on the generalizability of the findings. However, this has been a problem identified in most similarly focused research (Graham, 1992).

It is important to note that it is impossible to conclude whether the correlations between factors and their effect on pregnancy-specific distress are not bi-directional, and that we do not fully understand the temporal relationship between these variables. For example, if women who have been admitted to hospital had actually suffered from a serious infection as a result of increased stress (see Wadhwa et al., 2001), or whether the fact that they were hospitalized increased their levels of distress due to the added worries about the well-being of the baby or due to their inability to feel in control of the situation and of their body. Similarly, it is impossible to infer the pathway and underlying mechanisms that are in place; namely if relationship conflict was the source of distress for women or their distress further affected how women felt within their relationships. Additionally, an important contributing factor in pregnancy-specific distress was the experience of depressive symptoms; it would be hard to identify the direction of the relationship.

Lastly, future research on psychological distress in women, particularly in the perinatal period, would benefit from employing a longitudinal design which would account for both greater variability in mood measures within pregnancy trimesters, and explain mediating and moderating effects of factors, and identify modifiable factors for health care providers.

Clinical implications
The current study has significant clinical implications. Under Antonovsky’s SoC theory, “having consistent, load balanced, and individual choice making experiences” strengthen a person’s SoC and can enable them to adapt to and cope when facing life stressors. Psychosocial interventions that target and enhance this important protective factor could be recommended to women antenatally, particularly when additional stresses are present in their lives.

Perinatal interventions that target mood disorders, such as depression and anxiety, are predominantly delivered in the postpartum period (Cohen et al., 2010). It has been argued that preventive approaches, such as addressing emerging symptoms of mood disorders during pregnancy, would have a greater effect on improving both antenatal and postnatal mood disorders (Austin, 2004; Dennis, 2005). Although the efficacy of psychosocial interventions during pregnancy for treatment and prevention of anxiety has been inconclusive, identifying and supporting women antenatally has been indicated as critical (Alderdice & Lynn, 2009; Schetter & Tanner, 2012).

Cognitive-behavioral therapy (Beck, 1979) has been amongst the best empirically-supported treatments for mood disorders used in perinatal populations; it is based on the premise that inaccurate beliefs and maladaptive information processing (forming the bases for repetitive negative thinking) have a causal role in the cause and maintenance of distress. One intervention, grounded on the premises of cognitive behavioural therapy, that has been shown to decrease antenatal anxiety and negative mood is mindfulness-based stress reduction therapy and mindful yoga (Newham, Wittkowski, Hurley, Aplin, & Westwood, 2014; Vieten & Astin, 2008). A recent review on the effectiveness of mind-body interventions during pregnancy by Marc et al. (2011) concluded that interventions, such as yoga, meditation, imagery, and biofeedback among others, might benefit the management of women’s anxiety and depression during pregnancy through mental relaxation, altering negative thinking and changing the perception of stressful events, thus alleviating distress. We argue that psychosocial interventions can potentially focus on strengthening an individual’s SoC through the promotion of acceptance and the cultivation of self-care and self-compassion, which would be particularly beneficial to women during pregnancy, where a sense of loss of control over one’s body is perceived as anxiety-provoking (Weissbecker et al., 2002).

Furthermore, in order to alleviate women’s distress during pregnancy, women need to be able to freely reassess their beliefs and expectations around motherhood within an accepting culture, active support from partner and health care providers, which allow for vulnerability, personal choices and agency, and which support and normalize women’s experiences.
Conclusions

In conclusion, the present study assessed psychosocial factors which contributed to the increase of pregnancy-specific distress, highlighting the importance of better recognition of distress symptoms, unique to the pregnancy period. This study provided an explanation of a key personality construct, such as the sense of coherence, which could potentially be modifiable when recognised in a timely and meaningful manner, in order to address women’s distress during pregnancy.
Chapter 6: “At odds”

A qualitative exploration of women’s experiences of antenatal distress

In the previous study I examined the strongest predictors of antenatal distress via quantitative methodology highlighting the importance of considering both private and public factors within social and individual characteristics. In this chapter I present a qualitative study of the nature of this experience. In approaching the same phenomenon from an alternative methodological position, I aim to build beyond the set of measurable factors and to investigate the alternative and subjective ways in which antenatal distress is framed. Of particular interest while conducting this study, was to examine the nature of meanings that women ascribed to their experience, and how these affected their ‘at odds’ perceptions of motherhood. This study is presented in the remainder of this chapter in the form of a paper, submitted for the peer-review process.

Staneva, A., Bogossian, F., Morawska, A., & Wittkowski, A. (under review) “I feel like I am broken … I am the worst pregnant woman ever”: A qualitative exploration of the ‘at odds’ experience of women’s antenatal distress.
Title: “I feel like I am broken…I am the worst pregnant woman ever”: A qualitative exploration of the ‘at odds’ experience of women’s antenatal distress

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Key words: women, motherhood, pregnancy, distress, stigma, qualitative
Abstract

Recent epidemiological research has shown that experiencing psychological distress during pregnancy has important implications for the mother, her developing fetus, and the child’s future behavioural, cognitive and emotional development. Research on perinatal mental health has provided important insights around risk factors for the development of distress; however, there is still a limited understanding of the experience of women struggling emotionally during pregnancy. The purpose of this study was to explore how women view, experience and interpret psychological distress during pregnancy. Eighteen pregnant Australian women, between 22 to 46 years old, were invited to participate in in-depth interviews, after having taken part in a larger longitudinal study on antenatal psychological distress. Data were analyzed thematically within a critical realist theoretical framework. The perception women had of themselves as mothers during pregnancy did not involve a linear experience; rather it was a complex negotiation of layered and varied psychological and social influences. We present four themes, reflecting the experience of psychological distress: “making sense of mood”, “embodied distress”, “rethinking relationships” and “in and out of time”. A predominant concept was one of a problematic and troubled maternal identity. Thus, we situate the current findings within the dominant discourse of the good mother which promotes guilt and stigma for women who cannot identify with this concept and who self-label as bad mothers as a result.
Introduction

Pregnancy is widely recognised and celebrated as a joyful and positive experience for women. There is, however, emerging evidence that pregnancy can be a time of greater vulnerability and adverse mood, and can act as a potential trigger for the development or the increase of psychological distress (Andersson et al., 2003). Epidemiological research indicates that a large number of women experience symptoms of depression and anxiety during pregnancy with incidence rates ranging between 37% and 54%, respectively (Lee et al., 2007); these are probably conservative estimates as cases of maternal perinatal depression are under-reported and underdiagnosed (Gavin et al., 2005; Leung & Kaplan, 2009). Therefore, for many women their pregnancy experience may be outside the socially constructed image of a romanticised pregnancy ideal (Abbey & O'Reilly, 1998; Hays, 1996), which may contribute to their distress and potentially challenge their self-perception of competence, mothering and identity.

Findings from a growing body of research conducted within a feminist framework suggest that maternal depression is a subject of socially constructed cultural variations, related to the ideological mainstream and unquestioned assumptions about the good woman (Stoppard, 2000). The good woman and the good mother have been conceptualized within a traditional role which women take on, prioritizing relationships, relinquishing their own needs for the sake of others (e.g., children, family, social context, work, etc.) in a selfless and self-sacrificing way (Jack, 1993; Lafrance & Stoppard, 2006; Mauthner, 2010). Furthermore, pregnancy and motherhood are culturally normative for women. Not only are women expected to inevitably become mothers within a pronatalist framework which advocates, imposes and idealizes motherhood (Gillespie, 2000; Maher & Saugeres, 2007), but mothers are also expected to mother in a very specific way, contained by the tight and prescriptive widely recognised image of the “good mother” (Stoppard, 2000). In Australia, the concept of the good mother is equally pervasive and “permeated within a wide range of ways, such as ideology, discourse, governance, regulation and stereotyping” (Goodwin & Huppatz, 2010, p.3).

Most research on depression focuses on a biomedical model, relying heavily on a medicalized understanding of depression resulting from a chemical imbalance and pre-determined risk factors. In the context of pregnancy, this view denies the significant impact of the psychological and social determinants embedded in the cultural, economic and
political context within which pregnancy and motherhood are inevitably situated. This lack of multifaceted explanatory models may increase the sense of individual responsibility for women who are already in a vulnerable position. The implication being that there is a disorder within them for which they are responsible, often resulting in self-blame and self-doubt (Lafrance & McKenzie-Mohr, 2013; O'Neill, 2005). Treatment and interventions within perinatal care have also been framed within a discourse of risk that may challenge a woman’s agency and increase her vigilance and self-monitoring (Carolan, 2009; Lupton, 1999), all potentially resulting in an increase of emotional distress.

Additionally, a substantial part of the existing literature focuses on maternal distress in the postnatal rather than the antenatal period (Murray, 1992; Stein et al., 2014). Apart from epidemiological findings on risk factors and adverse consequences of postnatal distress, some recurrent themes have been identified in the qualitative literature. These focus on a problematic maternal identity, social and emotional isolation, stigma, and ultimately a sense of grief and a loss of self (Lewis & Nicolson, 1998; Mauthner, 2010; Nicolson, 1999). Furthermore, amongst the greatest risk factors identified for postnatal depression is the experience of depression during pregnancy (Lee, Yip, Leung, & Chung, 2000).

Studies on maternal distress during pregnancy are more limited, although there are few notable exceptions. A qualitative study that explored Canadian women’s experiences of managing depression during pregnancy (Bennett, Boon, Romans, & Grootendorst, 2007) describes the concept of “becoming the best mom that I can” as a complex journey for women from despair to a successful re-gain of control, with women’s narratives revealing a deep sense of isolation, stigma, lack of understanding and help, leading to profound doubt of their own ability to mother. This study was conducted retrospectively, up to two years post-pregnancy, with mothers who were accessing help and whose experiences, it could be argued, had been managed and normalized.

A recent review of qualitative, primary research, comprising studies from the USA, Canada, UK, and Sweden demonstrated that women, who experience various levels of distress during their pregnancy, interpreted their experience as deviant and viewed their future selves as inadequate mothers (Staneva, Bogossian, & Wittkowski, 2015). The review highlighted the comparatively scant qualitative research that explores current personal accounts of distress during pregnancy, and the need for a greater understanding of the reality of women’s emotional experiences, their interpretations of distress and stigma, and the
implications of distress on their maternal role attainment (Staneva, Bogossian, & Wittkowski, 2015).

According to Goffman’s social theory (1963), stigma is an attribute that discredits an individual or a group, rendering them inferior in comparison with others, referred to as “normals”. Stigma is associated with what Goffman describes as “abominations of the flesh, the soul and the tribe” (deviant bodily, mentally/behaviourally and based on gender, ethnic, racial, or national characteristics) that lead to a “spoiled identity”. Goffman discusses a number of responses that stigmatized individuals can engage in as a result; for example, undergoing plastic surgery if the stigma is related to their body. People who live with mental health stigma are amongst the most stigmatized groups in society (Stuart, 2008) and although it may not be possible for people to conceal a mental illness, how to manage information about their condition can be a potent source of stress, anxiety and further feelings of stigma even in the absence of any direct discrimination. Individuals can make special efforts to compensate for their experience of stigma, such as for example, drawing attention to another area of the body, behaviour or characteristics or they can choose to hide. Hiding, however, can lead to further isolation, depression, and anxiety and stigmatized individuals can in turn feel more self-conscious, can experience increased stress and feelings of conflict, and may refuse or avoid help for fear of greater stigmatization (Goffman, 1963).

The aim of this study was to explore women’s experiences of psychological distress during pregnancy. We define antenatal distress as increased levels of depression and/or anxiety, measured by self-administered scales described below. We aimed at exploring women’s emotional experiences, how they made sense of these, how these meanings were being constructed and how they related to women’s management of their mood. Furthermore, examining interpretations around mental health stigma, particularly in view of the requirements of the “good mother” could provide useful insight into women’s experiences and their maternal identity formation. Better understandings of these processes may have the potential to provide new and meaningful perspectives for the delivery of care.
Method

Framework

A central aim of feminist-informed research is to give voice to subjective views and to value them in their own right, which arguably is of great value in informing more meaningful and better suited mental health interventions compared with psychiatric assessments (Johnstone & Dallos, 2013). A critical realist theoretical approach (Bhaskar, Archer, Collier, Lawson, & Norrie, 1998; Yardley, 1997) allows for both the physiological and embodied experience of discomfort within women’s sense making of their experience, while equally acknowledging such an experience within a social realm (Sayer, 1992) and recognizing that representations of experiences are characterized and mediated by culture, language, and political interest rooted in factors such as gender, race or social class (Pilgrim & Rogers, 1997). Critical realism is an epistemology that combines both the role of human agency in constituting the social world and an understanding that people’s actions are inevitably influenced by personal and societal mechanisms independent of our thoughts or interpretations, thus not giving priority to either discourses (how we talk about certain phenomena) nor the materialist “real” world (Sims-Schouten, Riley, & Willig, 2007).

Therefore, the role of physiological changes, hormones, age, past history, economic factors can be acknowledged and studied within the historical and cultural context in which a woman lives. Applying a materialist-discursive-intrapsychic approach (Ussher, 1997; Yardley, 1997; Stoppard, 1997) requires a deeper examination of factors that include embodiment, physical spaces and institutional structures, and is particularly applicable in the exploration of the experiences of pregnancy and psychological distress, combining the material reality of the physical body and the multiple interpretations that women apply in the understanding of their psychological reality (Bergin, Wells, & Owen, 2008).

Recruitment and procedure

We analyzed data collected as part of a larger mixed-method project on the experience of antenatal psychological distress and its implications on birth outcomes (i.e., preterm birth, low birth weight, and maternal and infant complications) (Staneva et al., in prep.)

Recruitment for the larger study was conducted through advertising posters, displayed at community health centres, local libraries, coffee shops in Brisbane, Australia,
Women were invited to take part in an online survey if their pregnancy was confirmed and had progressed to the second trimester, and they did not experience any severe suicidal ideation. Participating women (n=312) were assessed at three time points, starting from the second trimester of their pregnancy (12 to 26 weeks of gestation), through the third trimester (after week 26), and after birth (from 12 weeks until one year postpartum) on various psychosocial self-reporting measures, reported elsewhere (Staneva et al., in prep.).

Women were screened using depression and anxiety self-assessment measures contained within the survey. The Edinburgh Postnatal Depression Scale (EPDS, Cox, Holden, & Sagovsky, 1987) is a 10-item self-report scale measuring depressive symptoms experienced within the previous week. Responses to statements are scored on a 4-point Likert scale ranging from 0 to 3, with higher scores indicative of greater intensity of depressive symptoms. Beyond its use postnatally, the EPDS has been validated for use with antenatal women. A cut-off point of 12 was used to identify moderate to high levels of depressive symptoms. The Revised Prenatal Distress Questionnaire (NuPDQ, Lobel, 1996), a 17-item self-report scale measuring pregnancy-specific anxiety, namely the extent to which women are feeling “bothered, upset, or worried at this point” about pregnancy issues, including physical symptoms, bodily changes, parenting, infant and mother’s health, medical and financial problems. Responses are on a 3-point scale, with responses ranging from 0 to 34; a cut-off score of 16 was adopted to indicate moderate to high levels of pregnancy-specific anxiety.

To provide an additional opportunity for women to express their emotions, a question was added to the survey asking them to assess their own mood ever since they had found out about their pregnancy (consisting of the following responses: I feel high levels of anxiety, I feel very low or depressed; I feel hopeless; I feel too overwhelmed and out of control; I feel O.K.; I feel great).

Thus, in order to be invited for an interview, women were selected against the following criteria:

1) EPDS ≥ 12 or NuPDQ ≥ 16 and;
2) responded as distressed during pregnancy, and;
3) had agreed to be contacted further.
Eligible women (n=67) were emailed within a week of survey completion with an explanation of the interview study objectives, and invited to participate in an one-on-one interview. Women were not advised of the outcome of their responses on depression and anxiety scales at this stage of participation. This decision was made in order to avoid potential distress or stigma caused by using diagnostic labels, such as depression or anxiety; it was additionally informed by our knowledge of mental health stigma (Goffman, 1963) which may discourage participation. However, once rapport between the lead researcher (AS) and the women was established through the interview process, women were asked to comment on their responses on the survey questions about experiencing psychological distress (see Appendix B. Interview Schedule).

Nineteen women agreed to participate. A total of 18 women were interviewed. One woman initially agreed but later did not respond to several communication attempts. Women were able to nominate the date, time and setting (either in person, by phone, or via Skype - with or without video). Confidentiality was maintained by assigning each survey participant a unique code number, and by using pseudonyms to identify individual participants (as indicated at the end of each excerpt). All participants were provided with sources of support on several occasions (once within the online survey, and consequently via supportive emails with relevant links, and verbally at the end of the interviews). No incentives or rewards were offered for interview participation. Permission to conduct the study was received from relevant University Research Ethics committees.
<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Age</th>
<th>Pregnancy Week/ Planned pregnancy</th>
<th>Relationship status</th>
<th>Other children/ *number of pregnancy losses or terminations</th>
<th>Education</th>
<th>Occupation/ Employment status</th>
<th>Ethnicity</th>
<th>Distress scores /Therapy (support), * psychotropic medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sarah</td>
<td>32</td>
<td>15/no</td>
<td>married</td>
<td>no</td>
<td>trade/ technical college qualification</td>
<td>professional /full-time</td>
<td>White Australian</td>
<td>Depression (EPDS 16) and Anxiety /none</td>
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<td>2. Vera</td>
<td>34</td>
<td>28/yes</td>
<td>married</td>
<td>no</td>
<td>post-graduate degree public service/full-time</td>
<td>professional /part-time</td>
<td>White Australian</td>
<td>Anxiety (NuPDQ 16)/none</td>
</tr>
<tr>
<td>3. Silvia</td>
<td>26</td>
<td>25/no</td>
<td>married</td>
<td>no</td>
<td>university degree</td>
<td>White Australian</td>
<td>Depression (EPDS 16) and Anxiety (NuPDQ 18)/Psychotherapy</td>
<td></td>
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<tr>
<td>4. Lina</td>
<td>22</td>
<td>19/no</td>
<td>polyamorous, cohabiting with two partners</td>
<td>no/****</td>
<td>trade/ technical college qualification some high school</td>
<td>Educator/part-time</td>
<td>White Australian</td>
<td>Depression (EPDS 18)/none</td>
</tr>
<tr>
<td>5. Simone</td>
<td>35</td>
<td>19/yes</td>
<td>married</td>
<td>no/terminations</td>
<td>administrative worker/part-time professional /home-based paid work part-time</td>
<td>White Australian</td>
<td>Depression (EPDS 12) and Anxiety (NuPDQ 19)/Alternative holistic</td>
<td></td>
</tr>
<tr>
<td>6. Sasha</td>
<td>32</td>
<td>18/yes</td>
<td>married</td>
<td>1 (toddler)/***</td>
<td>university degree</td>
<td>White Australian</td>
<td>Depression (EPDS 12) and Anxiety (NuPDQ 16)/GP*</td>
<td></td>
</tr>
<tr>
<td>7. Sofia</td>
<td>27</td>
<td>20/yes</td>
<td>married</td>
<td>no</td>
<td>university degree</td>
<td>White/ North American</td>
<td>Anxiety (NuPDQ 20)/Psychotherapy*</td>
<td></td>
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<td>Pseudonym</td>
<td>Age</td>
<td>Pregnancy Week/Planned pregnancy</td>
<td>Relationship status</td>
<td>Other children/number of pregnancy losses or terminations</td>
<td>Education</td>
<td>Occupation/Employment status</td>
<td>Ethnicity</td>
<td>Distress scores /Therapy (support),*psychotropic medication</td>
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<tr>
<td>8.Maia</td>
<td>29</td>
<td>16/no</td>
<td>married</td>
<td>2 step-children</td>
<td>completed high school</td>
<td>home-based paid work/part time manager/not working</td>
<td>White Australian</td>
<td>Anxiety (NuPDQ 25)/Midwife, *discontinued Depression (EPDS 12) /Religious group support, <em>discontinued Depression (EPDS 13) and Anxiety (NuPDQ 21) /Alternative holistic and Psychotherapy Depression (EPDS 21) and Anxiety (NuPDQ 21)</em>/due to see a Psychotherapist</td>
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<td>cohabiting</td>
<td>no</td>
<td>university degree</td>
<td></td>
<td>White Australian</td>
<td>Depression (EPDS 12) /Religious group support, <em>discontinued Depression (EPDS 13) and Anxiety (NuPDQ 21) /Alternative holistic and Psychotherapy Depression (EPDS 21) and Anxiety (NuPDQ 21)</em>/due to see a Psychotherapist</td>
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<tr>
<td>10.Margaret</td>
<td>46</td>
<td>26/yes</td>
<td>married</td>
<td>no**</td>
<td>post-graduate degree</td>
<td>social worker/full time</td>
<td>White Australian</td>
<td>Depression (EPDS 13) and Anxiety (NuPDQ 21) /Alternative holistic and Psychotherapy Depression (EPDS 21) and Anxiety (NuPDQ 21)*/due to see a Psychotherapist</td>
</tr>
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<td>11.Kara</td>
<td>28</td>
<td>29/yes</td>
<td>cohabiting</td>
<td>1* son, and 2 step-sons</td>
<td>trade/technical college qualification</td>
<td>community and personal service worker/not working professional/full-time</td>
<td>White Australian</td>
<td>Depression (EPDS 21) and Anxiety (NuPDQ 21) /due to see a Psychotherapist</td>
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<td>12.Pippa</td>
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<td>no</td>
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<td>university degree professional/part-time school chaplain/not working</td>
<td>South East Asian</td>
<td>Anxiety (NuPDQ 29)/none Depression (EPDS 15)/none Depression (EPDS 15)/none, *discontinued</td>
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<tr>
<td>13.Susana</td>
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<td>35/yes</td>
<td>married</td>
<td>1*</td>
<td>university degree</td>
<td>university degree professional/part-time school chaplain/not working</td>
<td>White Australian</td>
<td>Depression (EPDS 15)/none Depression (EPDS 15)/none, *discontinued</td>
</tr>
<tr>
<td>14.Jade</td>
<td>38</td>
<td>20/no</td>
<td>married</td>
<td>3* (teenagers)</td>
<td>university degree</td>
<td>university degree professional/part-time school chaplain/not working</td>
<td>White Australian</td>
<td>Depression (EPDS 15)/none Depression (EPDS 15)/none, *discontinued</td>
</tr>
</tbody>
</table>
Table 1. Participants Characteristics (N=18) (Cont.)

<table>
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<tr>
<th>Pseudonym</th>
<th>Age</th>
<th>Pregnancy Week/Planned pregnancy</th>
<th>Relationship status</th>
<th>Other children/number of pregnancy losses or terminations</th>
<th>Education</th>
<th>Occupation/Employment status</th>
<th>Ethnicity</th>
<th>Distress scores/Therapy (support), psychotropic medication</th>
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</thead>
<tbody>
<tr>
<td>15.Mandy</td>
<td>29</td>
<td>13/yes</td>
<td>married</td>
<td>no*</td>
<td>university degree</td>
<td>professional/full-time</td>
<td>White Australian</td>
<td>Depression (EPDS 14) and Anxiety (NuPDQ 27)/none</td>
</tr>
<tr>
<td>16.Stella</td>
<td>31</td>
<td>20/yes</td>
<td>married</td>
<td>3 (teenagers)</td>
<td>some high school university degree</td>
<td>labourer/not working professional/not working but looking for a job</td>
<td>White Australian</td>
<td>Depression (EPDS 12)/none</td>
</tr>
<tr>
<td>17.Brooke</td>
<td>25</td>
<td>24/yes</td>
<td>cohabiting</td>
<td>no</td>
<td>university degree</td>
<td>professional/not working</td>
<td>White Australian</td>
<td>Depression (EPDS 12)/none</td>
</tr>
<tr>
<td>18.Mila</td>
<td>26</td>
<td>31/no</td>
<td>married</td>
<td>1** (toddler)</td>
<td>completed high school</td>
<td>not working</td>
<td>White New Zealander</td>
<td>Depression (EPDS 22)/none</td>
</tr>
</tbody>
</table>
Participants

Characteristics, such as age, parity, education and employment status, are provided in Table 1. The majority of women were aged between 22 and 34 years, pregnant with their first child, married or cohabiting, and identified as White Australian. Some women had a history of depression and/or anxiety disorder, while for others this was their first experience. EPDS scores ranged between 12 and 22; and NuPDQ scores ranged between 16 and 27.

Data collection and analysis

Individual interviews were conducted with 18 Australian women during the second and third trimester of pregnancy between February and October 2014. A series of questions were developed and after one face-to-face pilot interview, they were refined further. In the development of a semi-structured interview schedule we followed recommendations on the process of interviewing women within a feminist manner developed by Oakley and Roberts (1981) prioritizing the “interactive” nature of the conversation and the co-creation of knowledge between participants and interviewee in a non-hierarchical fashion (p.44, Oakley & Roberts, 1981).

After introducing the study objectives, and re-confirming consent, women were invited to talk about their experiences beginning with the opening question: “Could you tell me about your experience of being pregnant?” Additionally, in order to encourage participants to orient towards the topics of concern to them as opposed to preconceived and expected notions of pregnancy and motherhood, interviews usually began with the interviewer relating to pregnancy as a “mixed bag of experiences” consisting of various emotions, and not only positive experiences. We believe that this facilitated the rapport between speakers leading to a conversation about mood, symptoms, coping strategies, beliefs and expectations about the mothering role, and views on parenting. Questions were asked to confirm women’s experiences and to encourage them to express how they reached particular conclusions. Finally, women were invited to ask any questions and to share how talking about their experiences made them feel. Interviews were conducted either by phone (n=10) or face-to-face via Skype (n=8), and lasted between 1 and 1½ hours.

All interviews were conducted and transcribed by the first author (AS). Field notes were kept after each interview and were incorporated in the analysis. A modified version of the transcript notations, adapted by Lafrance (2008) was used and included pausing, overlapping
and prolonged speech, non-verbal utterances, and emphasis on particular words. A random selection of transcripts (n=3) were checked against the tapes to ensure accuracy. Recruitment continued until saturation of codes was reached and no novel concepts or further ideas were identified. Data were analysed thematically following the guidelines of Braun and Clarke (2006) and latent meanings were explored. A theoretical thematic analysis was chosen because the analysis was driven by the researchers’ theoretical and analytic interest in the area of pregnancy distress. This form of thematic analysis tends to provide less of a rich description of the data overall, and more of a detailed analysis of the more pertinent aspects of the data (Braun & Clarke, 2006), and more particularly women’s experiences and their interpretations shared and co-constructed in the context of the interview.

The analysis began with multiple readings of the transcripts and an initial general coding. After this, the first author (AS) coded all transcripts, and compared and contrasted codes with those identified by the second author (FB) on four randomly selected transcripts. Disagreements were explored though a discussion and re-reading of data abstracts in view of ensuring that the identified codes were present across the data. A coding manual was compiled and clusters of codes were established, leading to integration of possible themes and identification of points of difference by the first author. In order to establish a greater trustworthiness and dependability of the analysis of the interview data, five colleagues experienced in qualitative research were invited to discuss excerpts from five random manuscripts; individually identified codes and themes were discussed leading to a final consensus on the themes and subthemes.

In terms of reflexivity, the first author (AS) recognised that her experience of being an academic, heterosexual, white middle-classed woman who has experienced pregnancy and motherhood, had inevitably impacted upon the way she related to the participants and the data, but this was also considered beneficial during both the data collection and analysis, enabling her to build on her own knowledge of the diversity of experiences of pregnancy. Additionally, the rest of the research team shared the same characteristics which could potentially have influenced a greater consensus and assumed knowledge, especially around pregnancy and motherhood. Furthermore, despite sharing a common academic stance within critical health psychology, the five colleagues who engaged in the final thematic discussion were non-mothers (with the exception of one), and self-identified within a broad range of gender and sexual identities which, we believe, contributes to a greater trustworthiness and agreement on the identified themes.
Findings

All of the women engaged in detailed discussion of their experience of pregnancy, of their mood, interpretations, experiences, and how these influenced their views of themselves as mothers. Women’s accounts gravitated toward the concept of the *good woman* and *good mother*: struggling, resisting or striving towards the wish to be good, to be perfect, and to provide the optimum care for their babies. The experience of distress did not fit well within the discourse of the *good mother*. As a result, women’s accounts oriented around the notion of feeling *at odds* with dominant notions of the *good* women and mothers which led to constructions of a troubled maternal identity: “You know I want to be that perfect mum and I want to be that perfect wife I know it’s not gonna happen but I hope it’s gonna happen!”(Sarah). Building on Sarah’s knowing but continual hoping to be “perfect” in her maternal role and role as a wife, in this analysis we focus on the how women balanced the idealized identity with their own reality, and thus multiple mothering identities.

**Figure 1.** The experience of pregnancy distress

We present four key themes which related to women’s troubled identity or their *at odds* experience (see Figure 1). The first theme “Making sense of mood” included two sub-themes: 1) the fabric of distress and 2) managing mood, coping, and (not) talking. The second theme “Embodied distress” consisted of three sub-themes: 1) unmet expectations, 2) a lost trust and 3) the regulated body. The third theme “Rethinking relationships included: 1) insecurities about the future and revisiting the past and 2) mummy wars and other women. The last theme
was called “In and out of time” and consisted of two sub-themes: 1) the life plan and 2) maternal lineage. Working through these themes, we present how distress during pregnancy was constructed both as a result of pressuring culture norms but also as a particularly aggravating time for women who are already vulnerable.

**Theme 1: Making sense of mood**

In this section, we first trace the texture (or fabric) of distressed mood, through women’s narratives of the sources of distress and their struggles to find reasons why they felt this way. We then present women’s attempts to cope and manage their mood.

1.1. The fabric of distress

Women’s talk about their mood oriented towards a narrative of struggle. Depression was described as feeling “alone” (Kara), “vulnerable” (Margaret), “broken” (Silvia), and like “giving up” (Mila), but also as an unacceptable experience for women which they had to work on and overcome: “I have to deal with it could be a lot worse…” (Kara).

“I just feel like I am broken…I am the worst pregnant woman ever. it’s on those days when something goes particularly wrong I would just break down […] it is almost like I can see the edge of the cliff and I can see really depressed people down the bottom of the cliff and I just stand there and look at them for a while and I just walk away from the cliff.” (Silvia)

Anxiety was described as intensive worrying that was beyond women’s control, about the fetus, about their ability to labour and to parent, a sense of being overwhelmed with tasks, decisions and choices, and a preoccupation with “negative thoughts” (Kara, Brooke, Jade), in a “caught up in my head” manner (Margaret).

These descriptions mirror popular notions as well as diagnostic symptomatology for both depressive and anxiety disorders. It was difficult for women to differentiate whether their symptoms, such as feeling dizzy, unable to sit still, feeling tense and nauseated, and generally unwell were part of a mood disorder or part of common pregnancy experience: “Is it pregnancy nausea? Or is it anxiety nausea? […] I tend to feel just sick in the stomach and not quite right” (Sasha).

Apart from providing a comprehensive list of their sources of distress around bodily changes, interpersonal conflict, financial stress, work pressures, a particular source of worry for women was their mood. They had a specific understanding of how their own distress was
directly jeopardizing their baby, affecting the fetus, their bond with the fetus, and a potential risk for postnatal depression. Women strongly identified with taking full responsibility for their mood and the need to be managing and taking control of their emotions:

“Well you know you read about postnatal depression and you read the risks and one of those is already having anxiety or whatever and you sort of make a connection with yourself and you go Oh, and you are being seen completely useless and you think Oh boy what’s gonna happen when you have a baby? I feel very responsible for what’s going on inside of me” (Silvia)

Another source of distress was a shared sense of loss of women’s previous selves, their roles and envisioning the potential losses that come with parenting, such as loss of time, career, their usual body, freedom and spontaneity. As described by Pippa: “It is a lot more image issues for myself and my old lifestyle to what I have to settle with now, which is where I am finding the most difficult at the moment”. An expected conflict between managing work and motherhood was represented in terms of a search to find a balance, attempting to calculate their availability in each role and negotiating a maternal identity within conflicting concepts:

“I’d love to say 50-50 to be honest because I think for myself, I still need my own identity and my own…kind of project! I can’t just be someone’s mum or someone’s’ wife! You need to be your own person as well. But to be someone’s mum or someone’s’ wife is also…what I would sign up for, so? There needs to be a good balance between both” (Sarah)

Women felt overwhelmed with the multitude of decisions and risk assessments that they were faced with in terms of pregnancy care, providers, birthing, parenting advice, parenting styles, feeding practices, baby’s heath, child-care and similar. They shared that they were faced with either too much or “starkly conflicting information” (Margaret) which increased their sense of feeling pressured and burdened, not only to have to make such choices but also by the responsibility inherent in each choice, and by the ways others perceived them: “My anxieties are more based around what do people think of me and am I going to be a good mother” (Silvia).

“Oh, it’s crazy! I feel like I am doing a PhD to be honest! There is so much to learn and you know […] I am not happy to really do something just because that’s what people do I just want to know why and I guess I want to be part of that decision but it’s so stressful” (Susana)
Overall, women were looking inwards for reasons for their distress, and by implication dismissing external factors that could be contributing to their mood. Jade stated she was “too emotional and not a good communicator” and this was the reason why she felt more vulnerable and stressed. This and other similar self-criticism seemed to motivate women to want to change, but they shared that this added further to their confusion as they saw no clear sense of what needed to change or how to change: “I just think it’s difficult this way cos I don’t know who I am anymore … and I have to figure this out” (Pippa). Women’s speech reflected an over-involvement in re-examining their lives, their past and current relationships in a search for answers:

“I didn’t have the best childhood… I had a lot of therapy over the years because of…when I was a kid… my parents separated when I was 4 and […] I was just brushed to the side […] All my life all I ever wanted to be was a mummy! Like I’ve never wanted to do anything else with my life than have children and love them the way I wasn’t.” (Stella)

There was a reoccurring pattern of shoulds and shouldn’ts that women referred to when they spoke about their mood as “I should be excited and happy about this” (Jade). This language orients to the prescriptive nature of idealised motherhood and women’s position as accountable to such rules. Women expressed a deep regret and guilt for not enjoying their pregnancy as much as they should, or for not having positive expectations and excitement about their future life with a newborn. Women’s accounts were dominated by moral judgements that they had to be “grateful and appreciative of the pregnancy”. There was a prevailing sense of inadequacy and feeling at odds with what they perceived they should feel compared with their experience, especially if pregnancy was planned one:

“I should be happy cos we…wanted to fall pregnant […] so I should be really happy but I am finding that erm… I am not? And it’s…there is no real reason …why?” (Mila)

A potent explanation for understanding their depression was that it was a matter of chemical and hormonal imbalance. Depression was a constructed as a “disorder of the body and the brain” in need of “balancing back to normal” (Maia). For Mila who struggled with her mood and who was offered a hormonal explanation by her care provider, this was problematic because it was not providing a helpful response to her worries: “People assume it’s hormones
so… I mean would you want to go and talk to someone if they are gonna say It’s just your hormones? Kinda feels pointless” (Mila).

Women were struggling to find justifiable reasons for distress which added to their sense of unease, particularly because they felt the expectation and the obligation to feel grateful and to feel happy about their pregnancies: “A lot of people go you should be grateful because you are pregnant …and I am I really am but…I don’t know, something’s different” (Mila).

1.2. Managing mood, coping, and (not) talking
Women engaged in various ways to cope with their experiences which included ways that women self-defined as both positive (helpful and meaningful to themselves) and negative (or problematic and unauthentic to themselves) approaches. Women constructed self-care as being mindful of triggers, slowing down, meditating, staying close to nature, arranging for more down time, and speaking to close friends. However, for almost half of the women doing all of the above was constructed as problematic. Various reasons for this were expressed, such as having to care for children, relatives, or a partner, a busy work life, and being responsible for domestic chores: “It’s almost like I don’t have time to have a mental break down cos you know. I can’t schedule one in so I kind of always had that mentality that I just have got to keep going!” (Kara).

It could be argued that women had difficulty in differentiating self-care from baby care, and found a conflict between what was good for them and for the baby:

“I actually had a bit of a cry to my husband last Saturday because I erm there isn’t I can’t find anything that I can indulge in that’s safe for me safe for the baby …you know I think maybe that’s why I am struggling because everything, that, I, like or I want to do! I can’t do because of that pregnancy!” (Pippa)

Problematic ways of coping included waiting for the negative emotions to “go away”, isolating themselves, staying quiet about their emotions, closing up, creating a “protective shield”, and “putting on a happy face”. A popular way of dealing with low mood or with anxious feelings was to retreat to their bedrooms, alone and uninterrupted, where they could curl up, take a nap or cry it out. Several women shared that “thinking worst case scenario” enabled them to view reality in a better light and made them appreciate their current state and safeguard against the worst by preparing for it.
When disclosing to others about their mood and their experiences of depression and anxiety, women were strategic and very selective. Decisions about what to share, to what extent and to whom, were based on personal judgments about the potential consequences, and whether they would be understood, judged, or supported. There was universal agreement that there is a lot of stigma around admitting mental health issues which motivated women to opt out from speaking and seeking help:

“...but society still, I mean even though we have so much awareness of depression, society still is on hold I believe and has got this stigma attached to You just need to get happy you know what’s the big deal?” (Jade)

Although two of the women named their experience as “depression” in a straightforward manner, the rest were very careful in labelling their experience and used more implicit versions, such as “just mild depression”, “feeling low”, “not feeling too well”, or being “on the lowest dose of antidepressants”.

“I find it difficult to erm.. admit that I have been depressed and that I have been on antidepressants …when I do share that… is what kind of judgement am I gonna get from the other person… so yeah I think that’s one of the reasons why the messages around depression get coded trying to erm not to mask it but trying to well so it doesn’t look so obvious that oh no I am really quite depressed at the moment like I said it is definitely not of the words that I use erm because part of me still doesn’t like to admit that …you know… I get depressed” (Jade)

Participating in this type of research and being invited to speak freely about their experiences was described as a liberating opportunity and a source of relief. Women shared that they normally do not feel safe enough to reveal their experiences because it was “unacceptable to say these things” (Mila). Women preferred to keep it inside, because admitting that they had mental health problems or even that they have “fears and stresses” was stigmatizing and it provoked even greater anxiety, and ultimately it compromised their identity as mothers:

“We all think that we are aiming to be the good person and the good wife and the good mum, underneath we are all the same and we all have fears and stresses and erm…you talk to a stranger on Skype freely about what you think, but you will not tell your friend that really you are shitting your pants! It is so crazy” (Sarah)

Eight of the women were accessing various kinds of therapy, informal support or were seeking alternative (holistic) sources of help (see Table 1). Overall, therapy or mood
management was framed as a search of practical strategies and tools to deal with their “nerves”,
to learn more about themselves, or to process childhood trauma, so that they were better
prepared for motherhood. Women who were engaged in psychotherapy found benefit in the
opportunity to open up and talk in a safe place, where no judgement was expected.
Psychotherapy was available for women, but in order to access it, women had to be able to
admit that they had a problem, which as Sofia shared, was in itself problematic: “There are
people that think oh you are seeing a therapist you are crazy”. Some of the women thus found
accessing help and formal psychotherapy challenging and a potential source of further stigma.

The use of psychopharmacological medication was a particularly controversial topic in
women’s narratives; two of the women shared that they were currently prescribed
antidepressants or anti-anxiety medication, and three participants had recently discontinued
taking antidepressants (Table 1). A number of competing discourses informed women’s
decision making around the use of antidepressants during pregnancy within a risk-benefit
framework. It was very important for mothers to avoid risks and to protect their babies from
harm, a position favouring the good mother concept, with women’s choices largely determined
around the wellbeing of the baby. Alternatively, women felt the responsibility to take and act
on medical advice and to manage their mood with medication, because not doing so had other
implications both for themselves and for the baby. This created an unsettling confusion for
women about their choices. For Sasha, the choice not to stop her anti-anxiety medication was
so difficult that she felt “choice-less” because she perceived there were no alternatives between
either her own or her baby’s suffering.

“I feel a lot of guilt because I worry you know for the baby going through
withdrawals from the medication and what if they have something wrong with them
you know long-term … you know because of it. I feel terribly guilty about that! But
I feel like it’s not really a choice? You know? When I am off it was the same stuff,
I was having panic attacks every time and not able to sleep properly and it-…erm
you know you can’t live like that!” (Sasha, through tears)

For women who were explaining their depression through the biomedical framework
of chemical imbalance, taking medication was the responsible choice, and the only natural and
logical solution and a “life-saver” (Sofia). For some, taking medication meant “giving up too
easily” (Jasmine), which determined the decision to stop the medication and focus on the
reasons behind the depression (Brooke). Additionally, taking medication was not considered
the “natural” or “normal” (Margaret) because it involved chemicals and toxins seen to
potentially affect the baby; this did not fit well with women’s desire and perception of pregnancy as the most “natural” state of a woman. Thus, the conflict between the natural womanhood and pregnancy, and medicalized models of treating distress, had direct implications on the way women were managing their mood. For Margaret, there was an increased responsibility to ensure her baby is “natural and toxin-free”, which about potential harms during pregnancy that needed to be identified and avoided.

“The concern that I have is environmental toxins and diesel and lead that could get in there and I kind of wanted to be as prepared as possible makes for a very neurotic pregnancy” (Margaret)

As a result Margaret described that she is over-engaged with “attending alternative naturopathic health services, focusing on more natural activities, walks outside and avoiding industrialized spaces”, and paying special attention to a healthy natural and “green diet”. Overall, for most of the women, orienting towards the natural mum was an important aspect of their mothering identity.

Theme 2: Embodied distress

In this section we explore how women spoke about their bodies in view of expectations about physical changes and their experiences of a lost trust and of specific regulations.

2.1. Unmet expectations

Women reported an overwhelming amount of negative physical experiences related to pregnancy, for which they felt under-prepared. Although all women admitted that they had certain expectations about the physical changes associated with pregnancy, such as nausea, feeling sick and tired, they expressed that they were unaware of the extent to which it impacted on and limited their physical abilities, and their psychological well-being. As Vera put it:

“I really struggled […] and friends would say Yeah, welcome to motherhood! You bitches! You didn’t tell me any of that! So yeah, you sort of feel a bit, a bit ripped off. People don’t actually tell you the truth” (Vera)

Images of the “perfect baby bump” and expectations about popularly shared positive changes, such as enlarged breasts, shiny hair and strong nails, left women disappointed and doubtful of their bodies. These expectations had implications for women’s identity and contributed towards their at odds experience of not fitting into a specific set of criteria of a certain pregnancy look, in which women gain weight only in their stomach and the rest of their body remains fit.
“I feel like they should actually say that may not happen as well so that’s like wrong information and it kind of makes you feel like something is wrong with your body” (Jasmine)

For three of the women it was particularly difficult to deal with and accept the bodily changes associated with pregnancy:

“And it was just an explosion of stretch marks and erm and that was pretty hard you know cos you can’t get rid of those once they are there, that’s been hard to deal with and I had to accept that … I am not gonna be in a bikini anytime in this lifetime” (Sasha)

An exception was Mila who had found the physical changes to be very positive. Nevertheless, her explanation could be interpreted as again striving towards the ideal feminine pregnant body:

“This may sound weird but before my first pregnancy I hated how I looked naked and I was convinced I needed surgery. I actually prefer my body post pregnancy. I feel like a proper grown up woman” (Mila)

An added challenge for women during pregnancy was that they could no longer access exercise to manage their mood. For half of the women regular physical activity was very important not only for the sake of fitness and appearance, but in the context of mental health, as a key coping strategy for mood management. Feeling tired, exhausted, nauseated or being labelled as a “high risk pregnancy” due to medical conditions, meant that they could no longer use this stress-relieving tool which had a direct effect on their mood and women reported that it was difficult to find suitable alternatives. For women who had struggled with their weight in the past, physical fitness had become an identity marker. Pregnancy then presented a specific challenge to women’s identity. For Silvia, pregnancy weight gain made her feel “fat again”, “vulnerable”, and “stuck” with no choices because she could not exercise any longer based on her doctor’s advice. For Pipa, not looking as good and glowing as always, and not being able to exercise (something she regularly used to do with her partner) meant questioning her relationship with her partner who continued to exercise without her, thus increasing her worries and her vigilance over his attitude and choices.

2.2. A lost trust
Despite the fact that eleven of the women had planned pregnancies, common feelings of shock and surprise to have conceived quickly, were identified. Women either had an expectation that conception would take a much longer time and would be much harder, or they did not believe that their bodies would be capable of conception. The concept of trust in the body was a powerful pattern shared by women, particularly in terms of a “lost trust” (Kara). Women who were considered at risk due to various factors (e.g., age, past miscarriages, terminations, hospitalisation, past C-sections, or medical conditions) experienced a particularly heightened sense of a lost trust. Doubting their bodies made women feel insecure and anxious about their ability to carry through the pregnancy, to provide an optimal environment for their babies, to bond with them, and to have a positive birth. For Margaret, who had relied on assisted reproductive technologies or for others, who had previous losses or terminations, trusting their body had even greater implications and provoked feelings of guilt, inner conflicts and insecurity.

“I don’t trust my body (10 sec pause) well at the start I was like worried that I wouldn’t be able to conceive cos I had terminations? […] everything was fine but I do find myself sometimes, I guess it is not physical I guess it’s in my mind again? I am just thinking and worried… that …my body won’t look after the baby for some reason… in utero” (Simone)

2.3. The regulated body
Although having a sense of control in the context of pregnancy is a concept that women struggled with, they were still striving to hold on to any possible ways of feeling in control, physically and emotionally. Having a sense of control was of great importance not only when it came to their birth choices, but also in relation to questioning the hospital system and the institutionalization and medicalization of pregnancy and contemporary birth perceived as claiming full rights over the female body, managing and controlling women, and making them doubt “whose flow is it anyway, yours or the doctors?” (Margaret).

Women expressed a general agreement that current practices within the hospital system involved a lot of unnecessary monitoring and intervention, assessment and checking, which removed their ability to exert any control over their bodies. Without exception, women expressed dissatisfaction with “the status quo of birthing” (Silvia) in Australia. The system was described as patronizing, oppressive and intimidating, relying on “scare tactics” (Simone) and coercing women to follow what has always been done without accounting for individual circumstances, with choices tailored exclusively around the wellbeing of the baby and dismissing those of the mother: “they just wanted the baby out pretty much” (Susanna). For
women who had previously experienced a traumatic birth in a hospital setting, there was an added stress and pressure, as well as a shared determination to birth differently this time compared with the passive style of “you don’t ask any questions, you just do it” (Kara). Women attributed this problem mostly to themselves, that they were ignorant and uninformed about their choices, and that they were responsible for their past traumatic birth experiences: “… and so she said well if there is anything wrong with your baby this is your fault!” (Mila).

Women shared that they worried about retaliation if they expressed an opinion, or that they would not be treated in an individual manner in the hurried process of birthing in a hospital setting, meant feeling a greater pressure to seek alternatives.

While for some women, being in control meant having an unassisted birth in their homes, for others control was interpreted as a stress- and surprise-free birth, and a “peace of mind” C-section (Vera, Maia, Pippa). These women demanded qualified staff and an individually focused genuinely caring provider. The role of the midwife was very important in providing this “balance between the hospital system and the person” (Silvia). Dealing with the hospital system meant a lot of distress and added anxiety to women’s experiences:

“I think it is a controversy… all the interventions around pregnancy and childbirth? That’s why we should be asking questions and investigating instead of just accepting what authorities say. I feel really persecuted for having these questions and daring to ask and it’s just adds to the stress again when I think about it. I’d rather not” (Margaret)

**Theme 3: Rethinking relationships**

In order to better understand women’s experiences of distress it is important to explore how women related to significant others in their lives. A general pattern shared by most women was a sense of feeling *pulled in all directions*.

3.1. Insecurities about the future and revisiting the past

All women in the study were in hetero-normative relationships, with the exception of Lina, who was in a polyamorous relationship and lived with two male partners. All women in the study articulated that the involvement and support of their partner was a key factor in their well-being. All but two of the 18 women described issues in the way their partners were involved in supporting the pregnancy, their future role as fathers, or a lack of understanding, listening to their worries and openly discussing concerns. In particular, women expressed the need to share parenting responsibilities, decision making, financial and practical arrangements around the
household, and above all to feel cared for by their partners. A pattern of inequality in terms of parenting was a shared concern, in that women were relying on traditional gendered narratives about the greater involvement of women in both the physical care and the emotional work in child-rearing.

“I still think that men expect that even if the wife works fulltime she is going to cook and do like dinner at night and that she’ll do most of the house work and that type of thing” (Jasmine)

Many shared that their financial responsibility was either equal to or greater than that of their partners, and that becoming mothers and staying home even for a short period of time, would affect the financial stability of the family. This created a great deal of distress for women who also felt like they needed to be emotionally available for their partners. This put them in a particularly trying position of attending to others’ needs before they could care for themselves. Envisioning life with a baby, Sarah shared:

“…it is about the woman at the end who needs to look after not just baby but a husband as well … so…I am concerned about probably hm… how my big spoiled child is going to react with having another child and then not having my attention, and then maybe how I’ll react to him being that spoiled child, I think” (Sarah)

A predominant narrative for 16 of the women was one about an impaired bond between the women and their own mothers. They spoke of a lack of closeness, difficulties, distance, and at the same time of a deep need for real closeness with their mothers. Some women spoke of being treated in abusive or indifferent ways by their mothers when they were children and that they continued to have a difficult or conflicted relationship. Sophia shared the following: “I really feel like I missed out on the experience of being you know a normal mother-daughter relationship”. Three of the women shared how they have created a “wall around” themselves (Brooke, Vera, Simone) to stay safe and protect themselves from the negative influences and comments made by their mothers. For women who experienced a poor maternal bond, it was a particular fear that they would recreate this with their own children and that they would be disengaged and not able to bond and attach. This strong and reactive awareness about the type of mother they strived to be seemed to add to their distress because in striving to overcome their past they were reliving it and dreading the inevitability of becoming an unfit, bad mother to their own babies:
“She (mother) wasn’t all that interested in us …so erm I am hoping that I am not gonna be anything like her (voice breaking down) sometimes I am worried that I am” (Susana)

Therefore, women placed attaching to their babies as central process during pregnancy. As discussed earlier, women’s sense of their pregnancy was predominantly one of disbelief that they would soon become mothers and hold a newborn. Women engaged in various forms of making the baby real. For some this took the shape of practical and visible acts, such as decorating the baby’s room, buying clothes, putting together a baby cot. For others, especially when pregnancy was unplanned, thinking about the baby was a source of distress and unease and women were not feeling ready and comfortable. This inevitably produced a lot of anxiety and a sense of guilt, particularly because women believed that attachment to their baby was a key aspect of being a good mother and having a happy child. A persistent concern was the inability to feel a bond with their babies. Framing bonding as a key aspect of good mothering and recognizing their inability “to feel the baby” (Lina, Mandy) resulted in expressing guilt and self-criticism:

“I am very disconnected and that worries me because you look at all those pregnant ladies and instantly they’ve got a giant belly and they are happy and they are glowing and it is not what I have experienced” (Lina)

For women like Lina, who have experienced previous pregnancy losses, bonding was a double-edged sword: it was something that she valued as very important, but also problematic, because of a potential loss. As part of the positive expectations about a fulfilling life with a baby, for some women having a baby was laden with great expectations of bringing a deep connection with another human that they craved, as having a close companion that they would always be around.

3.2. “Mummy wars” and relationships with other women
Pregnancy was experienced as a time of an increased awareness of otherness, and also of being assessed by others’ watchful gaze. All mothers shared an inevitable sense of having to compare themselves against other women, either pregnant, or friends with babies, as well as pregnant celebrities. They experienced this as judgemental and stress-provoking. A particularly poignant theme was the one of a stress-provoking relationship with their partner’s mothers. Women shared the pressure of feeling monitored and watched in terms of what they ate, drank, whether
they smoked, how they cared for their bodies, how they looked during pregnancy, and importantly how they felt, particularly by other women.

“Other women are our own worst enemy! […] someone may comment if you are in a restaurant having a sip of wine ah, you can’t drink that! Haven’t you read the research? Well again, this is my body, this is my baby and who are you to tell me what I can and I can’t do and you don’t even know who I am. We judge each other so much” (Sarah)

Women’s comparison against other women who were visibly experiencing the “happy and glowing pregnancy” served to highlight a self-awareness of otherness and of feeling very different, which increased their sense of guilt:

“My other girlfriends they just love being pregnant and they are like ‘Oh it is so great’ …it’s like I don’t feel that way! And I feel like it will come across as I am not grateful to be pregnant” (Sasha, crying)

It was a widely shared opinion that women in general are publically bombarded with images of happy, healthy and excited expectant mothers. Furthermore, there was a shared understanding that although other women looked very happy and thrilled about their pregnancy, “what they truly felt inside” was being hidden and that reality was actually different “behind closed doors” (Sarah).

**Theme 4: In and out of time**

4.1. The life plan

An important concept of time and timeliness of the pregnancy transition was prevalent in women’s stories. The concept of feeling suspended in time, between previous pre-motherhood life and self and motherhood (regardless of parity), was a problematic area for most women and added to their distress. Additionally, distress was frequently worded in terms of feeling “rushed” (Jasmine, Pippa, Stella), “out of time” (Jade, Susana, Margaret), and “hurried” (Vera, Simone, Silvia, Pippa) in view of many social, economic, age-related or subjective pressures. The concept of time related to various perceptions around agency, control, decision-making and the ability to prepare and to feel ready for such substantial life change.

Whether the pregnancy was planned reflected different levels of feeling emotionally, physically, financially and logistically ready for both the pregnancy and for motherhood. It was
also important for women to time key milestones in a specific, right order, not too early and not too late in life. Anything outside of this order was perceived as wrong and was regretted:

“When you reach a certain age erm like this year I will be 30 you imagine that at 30 you would have had a really good job and have a really good career and be married and if you had a baby then you know you are not gonna have all these money worries” (Jasmine)

The experience of having an unplanned pregnancy was described as a struggle to find meaning and justifications, and to make peace with conflicting and ambivalent emotions: “It wasn’t a road that I chose to go down, it’s kind of a little bit of an internal warfare going on” (Jade). Even with planned pregnancies, women shared uncertainty and doubt about the inevitability of thier decision. Perhaps this paradox of having planned a pregnancy because this is a socially normative life event, and then realising that they may not really want this, is in the core of women’s experiences of at odds.

“It was a planned pregnancy erm… kind of once I woke up the day I reckon I fell pregnant … I kind of…just didn’t want it anymore. I don’t know why it’s just this feeling that I didn’t want any more kids so yeah […] (breaking down) you are not supposed to hope for a miscarriage erm…and all that kind of thing (through tears) especially if the baby is planned” (Susana)

4.2. Maternal lineage
Overall, pregnancy was viewed within a specific time frame, both physiologically predetermined, and psychologically bookmarking a specific time for the “becoming of a mother”. This tangible time frame was experienced as a firm deadline for some of the women requiring that they “sort out” (Kara) their previous selves and their issues in preparation for their new role. However, it was also about putting things into perspective and situating their own developing sense of self within generations of mothers and grandmothers:

“It is just the circle of life I guess… and one time my mum was my age, and she was pregnant like me, and she was excited and scared …so this brings confidence that you know most people get through it and are ok and you know it’s not it’s not all that bad” (Sarah)

Discussion
In this paper, we sought to critically examine how women view, experience and interpret psychological distress during pregnancy, within a slow-to-emerge field of scholarship, which usually focuses on categorical and quantifiable risk factors. We identified four themes across women’s stories of pregnancy distress which reflected women’s process of making sense of their mood, their experiences of an embodied distress, their ways of rethinking relationships, and lastly, their interpretations of time. We showed how women who experienced depressive and anxiety symptoms struggled to find and to narrate their fit within the popular concept of the good mother. The findings from our study provide a novel way of understanding how women construct mothering identities in light of an apparently idealized and unrealistic concept of mothering.

Women’s narratives about their mood gravitated around the sense of self-doubt, loss of control over their emotions, guilt and stigma, which were perceived at odds with what pregnancy should feel like. Findings from our study resonate with the literature on perinatal depression and anxiety which has identified important links between distress and stigma. Stigma has been identified as a factor exacerbating isolation and the ability for people to identify a problem and access help (Beck, 2002; Bennett et al., 2007; Goffman, 1963). Women’s narratives indicated a struggle to reflect on their own ambivalent emotions around coping with negative emotions, treatment, and self-care and were confronted with a sense of loss of identity. Thus, an unobtainable maternal ideal was serving as a magnifier of maternal ambivalence creating a deeper sense of internal conflict and of feeling deviant. Furthermore, our findings align well with Goffman’s (1963) theory about a “spoiled identity” as a result of social stigma, in which “stigma management” is held to be a general feature of social interactions occurring in relation to identity norms. We argue that not living up to the good mother idealizations had an impact on how women perceived themselves as bad mothers.

Another aspect contributing to women’s inner conflict of not fitting in was the use of antidepressant medication. Managing the decision about taking or not taking antidepressants during pregnancy is a process requiring several considerations from women, with regards to identity, the unborn baby, and socially acceptable norms (Price & Bentley, 2013). Pharmacological treatment during pregnancy, a highly debated (Bonari et al., 2005) topic within perinatal mental health research, has been widely problematized in both the scientific literature and media as a particularly contended topic (Lupton, 1999; McDonald, Amir, & Davey, 2011). While for some women in our study antidepressant medication use was unproblematic, others experienced being faced with all the responsibility for making such a decision. Indeed women faced a dilemma in which the only resolutions available to them were
perceived as polar opposites with benefits for either the mother or the fetus (McDonald et al., 2011).

In addition, women were confronted with the added stigma and self-stigma around using medication during pregnancy because antidepressants were constructed as the unnatural “easy way out” compared with a moral self-control and discipline to “snap out of it [depression]” (Jade); with no easily accessible alternatives offered to women to manage their mood. It can be argued that this anxiety-provoking dilemma stems from a pervasive biomedical understanding of depression which ignores the various psychosocial influences in women’s lives (Lafrance & Stoppard, 2006; Scattolon & Stoppard, 1999; Stoppard, 1999). This model is then easily internalized by women themselves and their perceptions around reasons for their distress and strategies to manage their mood. In a study exploring medicalized accounts of depression (LaFrance, 2007) women similarly constructed depression as a medical condition so that they could validate their pain and legitimize their identity.

In his qualitative work on the experience of living with depression and identity, David Karp (1994) proposes a complex process that people undergo when dealing with depression: from an uncertain sense of distress, through having a crisis, coming to grips with an “illness identity”, to defining depression as a condition one can get past. Similarly, the developmental process of loss of identity and grief as a result of the transitioning to mothering, described by Staneva et al. (2015) in their qualitative meta-synthesis on psychological distress during pregnancy, could be drawn upon, suggesting that only when women have managed to access meaningful and judgement- and stigma-free care, could they find a way to recover (Cornford, Hill, & Reilly, 2007) and regain certain control over their mood and their body.

Feeling conflicted and at odds within their body was another key aspect of women’s experience of distress. This was mostly due to the unmet expectations that women held about the physical aspect of pregnancy. The experience of embodied distress resulted in a loss of trust and control over one’s body, as well as an increased doubt and fear of the medical system involved in pregnancy care and labour. When pregnancy and birth are framed as highly medicalized processes with a strong focus on prevention, interventions, screenings, and monitoring (Chadwick & Foster, 2014), there is the risk for women to feel disempowered and forced to either relinquish their control or to become anxiously involved in opposing the established models of care (Chervenak & McCullough, 2005; Johanson, Newburn, & Macfarlane, 2002; Barker, 1998). Indeed women who perceived themselves as different and stigmatized (and self-stigmatized as a result too) shared a lowered self-esteem, which is directly
linked to loss of sense of control and further psychological disorders in the perinatal period (see Jomeen & Martin, 2005).

With very few exceptions, we found that most of the women in our study spoke of impaired relationships with significant others in their lives, such as their own mothers, partners, and close friends. Lack of social support and partner involvement are widely established risk factors in parenting and maternal mental health both during pregnancy and postnatally, and these were all factors that women shared in their accounts (Stapleton et al., 2012; Blanchard, Hodgson, Gunn, Jesse, & White, 2009; Oakley, Hickey, Rajan, & Rigby, 1996; Rajan & Oakley, 1993). A novel finding from our study was that women who described difficult relationships with their own mothers expressed a heightened need to connect and bond with their unborn baby, which in turn placed a huge value on the relationship they had with their unborn baby.

Women who felt that their mothers were distant with them as children were struggling to narrate their current experience as an attempt to “compensate for this relationship” and struggling to ensure a “perfect” connection with their babies. This was indicated in women’s stories of “trying to always feel positive, ready and welcoming towards the baby”. However, women expressed that this was unrealistic and shared a common concern when this was not the case. This, along with popular beliefs around attachment parenting and a belief that solid prenatal attachment to the fetus equals good mothering and a healthy child in the future (Faircloth, 2013) may place unbearable pressure on women, already vulnerable in their own attachment. Classic psychoanalytic texts on mother-daughter relationships (Klein, 2002; Raphael-Leff, 2001, 2010) illustrate how the need to repair one’s own relationship with one’s mother and their own childhood through the birth of one’s baby is a part of the dynamic process of transitioning into a more positive image of themselves as mothers, now capable of love and care. Future research could benefit from exploring how such relationships with other women and other mothers affect women’s distress during pregnancy.

Lastly, women expressed that pregnancy was a substantial life change that required significant and time-specific readiness and adjustment, for which, at times, they felt very under-prepared, especially when comparing themselves against a high standard of a perfectly equipped mother. Whether pregnancy was planned or not was very important because it reflected different levels of feeling ready for both pregnancy and motherhood. It was also important for women to time key milestones in a specific “right order”, not too early and not too late. This is in line with research on family planning, showing higher levels of distress
when pregnancy was not planned (Bennett, Einarson, Taddio, Koren, & Einarson, 2004) and also highlights the prescriptive nature of a socially constructed expectations around the “perfect timing” of a pregnancy.

Acknowledging the complex and fluctuating process of emotional preparations for motherhood has been similarly highlighted as problematic in the area of parental expectations and beliefs (Staneva & Wittkowski, 2012; Deave, Johnson, & Ingram, 2008). It is important to note that modern parents share an increased sense of feeling over-educated but psychologically and socially under-prepared for parenting (Choi, Henshaw, Baker, & Tree, 2005). Perhaps a greater focus on subjectivity, ambivalence and contradicting emotions, would be beneficial to the transitioning to motherhood, acknowledging not only the positives of parenting but also the difficulties and the diverse emotions involved in pregnancy (Parker, 1997), without the taboos of anger, frustration, and feelings of regret and unease, all socially unacceptable but widely shared emotions. This change needs to be addressed not only by mothers themselves, but also within the attitudes of healthcare professionals and importantly, within a wider cultural and social setting.

Thus, findings from this study may have specific consequences on how researchers and health care providers can listen and support women’s attempts to find their own meaning of distress, and to assist with safeguarding women’s sense of agency confronting stigma, shame, and guilt, by normalizing their experiences without offering platitudes such as solely hormonal explanations. It would be valuable to investigate whether mental health stigma is reduced when alternate beliefs about mental health are shared and when more realistic expectations about motherhood are adopted. There would be benefit in future research exploring representations of mental health and illness during pregnancy within and beyond the biomedical model and identifying ways in which these impact women’s choice-making around pregnancy and self-care, emphasizing the social aetiology of mental health (Walters, 1993) and acknowledging the authentic and embodied experiences of women (Stoppard, 1999).

Limitations

Due to the structure of our project and the nature of our inquiry into women’s experiences of distress we were only able to explore distress within the sample of women who participated in our survey and whose depressive and anxiety symptoms were assessed on self-reported measures after pregnancy had progressed, which could potentially increase participation and selection bias. We are also mindful that our study consisted of an exclusive homogeneous
section of Australian women because all participants but one identified of white Australian or New Zealander origin and in a de facto relationship (again with one exception). Women from other races (including Australian Aboriginal women) or alternative family structures may view their experience of distress differently. However, the value of using qualitative data was to provide an in depth exploration of women’s experiences of distress, without making generalisations to the broader population. These results lay the groundwork for future qualitative research to examine distress during pregnancy within clinical samples, or to inform the design of clinical trials within quantitative research.

Conclusion

The transition towards motherhood is not a uniform straightforward process. On the contrary, it can be a challenging milestone for women, complicated by emotional, physiological, relational, and temporal realizations and adjustments. In the context of mental health, it is crucial for women to be able to share their experience in non-stigmatizing ways and to recognize the damaging effects of an idealized, perfect and unrealistic mother. Moreover, a much needed societal shift is needed in the understanding, defining and representation of modern mothering.
Chapter 7: Revisiting the link  
Maternal psychological distress during pregnancy is not associated with adverse birth outcome  

While the previous chapter explored in-depth the experience of pregnancy distress for women, this final empirical chapter draws from the longitudinal data study to revisit the relationship between antenatal distress and adverse birth outcomes. Initially, this study was conceptualized to employ high level statistical analyses, precisely structural equation modelling, in the exploration of the complex relationships that may mediate the relationship between antenatal distress and birth outcomes. This methodological approach was deemed most appropriate not only because it has gained a rightful fame in the social sciences of recent years, but also because it promises to conceptually test hypothesis and to depict relationships between variables on various levels or structures, and most importantly, to unveil potential latent factors that underlie the phenomenon of interest (Kline, 1999). Another reason why I aimed at applying this method was a result of the epidemiological review of the existing literature (Chapter 3) where I suggest the use of such rigorous techniques when exploring the link between distress and adverse birth outcomes. One of the premises and initial steps of such analyses is to determine whether the variables of interest are related to each other, through a set of preliminary explorations of the covariance and correlation matrices. This step, however, indicated that there are no statistically significant correlations between any of the variables of interest.

Therefore, I set out to depict what is the best predictor of adverse birth outcomes out of the indicated factors, and to answer the question if antenatal distress is linked to adversities at birth. This study is presented in the remainder of this chapter in the form of a manuscript that has been submitted for a journal peer review process.

Staneva, A., Morawska, A., Bogossian, F., & Wittkowski, A. (under review) “Maternal psychological distress during pregnancy does not increase the risk of adverse birth outcomes”.

Title: Maternal psychological distress during pregnancy does not increase the risk of adverse birth outcomes

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Key words: pregnancy, adverse birth, risk, antenatal distress
Abstract

Background: Maternal psychological distress during pregnancy has been identified as a potential risk factor for various complications at birth. This study aimed to explore risk factors associated with adverse birth outcomes focusing on psychological distress during pregnancy and maternal mothering orientations.

Method: Symptoms of depression and anxiety, perceived stress and individual characteristics, along with medical complications were assessed at two time points during pregnancy in 285 women from Australia and New Zealand and birth outcomes were assessed postpartum, between January 2014 and September 2015. In order to examine their impact on adverse birth outcomes, such as preterm birth, low birth weight, emergency labour and medical complications for the mother and baby, hierarchical multiple regression analyses were conducted.

Results and conclusions: Medical complications during pregnancy, such as serious infections, placental issues and preeclampsia, as well as antenatal cannabis use were the strongest predictors of adverse birth outcomes, accounting for 22% of the total variance (p<.001). Higher symptoms of depression and/or anxiety, low social support, and low sense of coherence were not predictive of birth complications. A reported diagnosis of anxiety disorder during pregnancy and an orientation towards a Regulator mothering style were associated with adverse birth; however, after controlling for medical complications, these were no longer predictive. Our study indicates that antenatal depressive and/or anxiety disorders are not an independent risk factor for adverse birth, suggesting a reassuring finding for women who are already psychologically vulnerable during pregnancy.
Introduction

Preterm birth (PTB, <37 weeks of gestation) and infant low birth weight (<2500 grams) have been identified amongst the most debilitating of adverse birth outcomes, related to infant mortality, morbidity, and health problems persisting throughout the lifetime (Butler & Behrman, 2007; Schellong, Schulz, Harder, & Plagemann, 2012). Moreover, maternal and newborn birth complications requiring medical interventions, including admission to a neonatal intensive care units, have also been associated with suboptimal trajectories for both mother and the child (McKenzie-McHarg et al., 2015; Mwaniki, Atieno, Lawn, & Newton, 2012; Clark & Silver, 2011). Low birth baby weight has been directly linked with maternal infections during pregnancy, a series of genetic factors and exposure of the fetus to smoking, alcohol consumption, and tobacco chewing (Kramer, 1987). Additionally, emergency induced labour, such as Caesarean section has been associated with a substantial 4-fold increase in mortality rates (Zelop & Heffner, 2004), and long term effects of overall health and reproductive life (Bergholt, Stenderup, Vedsted-Jakobsen, Helm, & Lenstrup, 2003). Notwithstanding decades of investigations, the incidence of adverse birth outcomes, particularly preterm birth (PTB) and low birth baby weight, has not declined; on the contrary, reports suggest an increase in PTB rates in developed countries, ranging from 5% to 18% worldwide (Butler & Behrman, 2007).

Despite well-evidenced scientific and medical advances in the understanding that emotions affect physical health, modern medicine has largely continued to treat the mind and body as two separate entities (Brower, 2006). Similar claims can be made regarding the study of pregnancy and its impact on birth outcomes, and adversity at birth in particular (see Butler & Behrman, 2007). When exploring factors which contribute to the increased rates of adverse birth, a strong and almost exclusive emphasis has been placed on medical, genetic and neuroendocrine factors. Indeed a substantial proportion of preterm births have been associated with physiological issues and biological markers (Berkowitz & Papiernik, 1993), such as preeclampsia, infection, inflammation, and shortened cervical length (Goldenberg, Culhane, Iams, & Romero, 2008). However, with reports that over 40% of preterm births still remain unexplained by physiological medical problems (Goldenberg et al., 2008), there is a clear need to expand the scope of research onto more comprehensive and integrated models which could potentially offer more predictive power in explaining preterm births (Lederman, 2011).
A growing body of literature has demonstrated that maternal mental health during pregnancy may impact not only on immediate birth outcomes (Dunkel-Schetter, 2011), such as preterm birth (Grote et al., 2010; Staneva, Bogossian, Pritchard, & Wittkowski, 2015), low birth weight (Hall, Stoll, Hutton, & Brown, 2012; Heaman et al., 2013), increased emergency caesarean births (Chung, Lau, Yip, Chiu, & Lee, 2001; Martini, Knappe, Beesdo-Baum, Lieb, & Wittchen, 2010; Subramanian et al., 2012), and increased risk of medical complications at birth (Bansil et al., 2010), but also on long-term psychological and developmental outcomes for children (Bergman, Sarkar, O'Connor, Modi, & Glover, 2007; Stein et al., 2014; Talge, Neal, & Glover, 2007). Moreover, a multilevel bio-psychosocial theoretical approach has been proposed to explain adverse birth outcomes by integrating well-established risk factors at the individual, interpersonal and wider socio-cultural levels (Lobel, 1990; Schetter & Tanner, 2012), where stress is theorized to affect birth outcomes through a variety of biological and behavioural mechanisms, and to be mediated by various personal and social resources (Collins, Dunkel-Schetter, Lobel, & Scrimshaw, 1993; Dunkel-Schetter, 2011; Oz, Sarid, Peleg, & Sheiner, 2009).

The most frequently explored psychosocial factors predictive of premature birth have been anxiety, depression and stress, in both their clinical and sub-clinical presentations; all suggesting an association between psychological distress and adversity at birth (Grote et al., 2010). Additionally, personal characteristics such as optimism (Catov, Abatemarco, Markovic, & Roberts, 2010), self-esteem and resiliency (Bödecs et al., 2011; Rini, Dunkel-Schetter, Wadhwa, & Sandman, 1999), or a sense of coherence (Oz et al., 2009), have also been associated with uncomplicated birth outcomes.

An interesting personality construct, informed by the psychoanalytic work, the clinical experience and qualitative research of Raphael-Leff (1983) called mothering orientations, provides a model that describes how a woman envisions herself as a mother during pregnancy, her relationship with the baby and her plans for her future life with her newborn. This framework may provide more insights into personal constructs that may affect birth outcomes (Raphael-Leff, personal communication, 2015). The original model was constructed to represent a range of possible maternal orientations during pregnancy with two distinct and polar opposites, called Facilitator and Regulator mothering orientations. Women, who orient towards a facilitator maternal orientation, consider pregnancy and motherhood as the utmost fulfilment of their female identity, and their
disposition is to fully adapt themselves to the baby’s needs, while a *Regulator* orientation represents the opposite of expectations that the baby would adapt to the needs of the mother and that pregnancy and birth would be ‘under control’. Research has evidenced an association between mothering orientations and maternal mental health such as ante- and postnatal depression, anxiety and early adjustment to motherhood (Sharp & Bramwell, 2004; van Bussel, Spitz, & Demyttenaere, 2009a, 2009b). Additionally, a *Regulator* orientation has been theorized to be associated with prolonged labour, forceps, inductions and caesarean births, greater use of epidural analgesia and longer stay in hospital (Raphael-Leff, 1983).

Despite an overall consensus on the potential risks associated with maternal mental health during pregnancy, findings on specific risks for adverse birth outcomes remain inconclusive. Some studies have not supported the relationship between antenatal mood disorders and birth outcomes (Bödecs et al., 2011; Andersson et al., 2004; Perkin, Bland, Peacock, & Anderson, 1993) for various reasons. Contradictions between such findings have been explained by methodological issues relating to the design (longitudinal versus cross-sectional), sample size, assessment type (symptoms versus clinical presentation or a diagnosis for mood disorders; stressful life events versus perceived stress), timing and cut-off points (one versus multiple assessments during pregnancy as well as clearly defined measurements along gestational month), and controlling for confounders of the effect (Staneva et al., 2015). For example, research suggests that it is critical to specify and differentiate between the types of psychological distress (Dunkel-Schetter, 2011). Schetter and Tanner (2012) propose that pregnancy-specific anxiety acts as a key risk factor in the etiology of preterm birth, while chronic stress and depression take part in the etiology of low birth weight (Dunkel Schetter, 2011). Another important factor to be considered is related to timing or the point in time during pregnancy at which distress has the greatest effect on adverse birth outcome. For example, Mancuso, Schetter, Rini, Roesch, and Hobel (2004) found that pregnancy-specific distress, as measured during the second trimester (between 18 and 20 weeks), was not predictive of gestational age while last trimester of pregnancy distress was the best predictor of preterm birth.

Therefore, it remains critical to provide a deeper understanding of the complex mechanisms of pregnancy risk factors which may contribute to a better understanding of
adversities at birth and most importantly around factors that can be modified and thus potentially effective in the development of adequate support and reduction of adversity.

The present study aims to address these contradictory findings by examining the effects of psychosocial factors during pregnancy on complications at birth. The primary hypothesis we set out to test was if higher levels of antenatal distress, measured twice during pregnancy and operationalized as depressive symptoms, pregnancy-specific anxiety and stressful life events, would be associated with higher levels of adverse birth outcomes. Secondly, we aimed to explore the psychological predictors of adverse birth outcomes, which explain adverse outcomes above and beyond the well-established medical and physiological issues. We hypothesized that increased levels of psychological distress during pregnancy at either second or third gestation trimester as well as orienting towards a Regulator mothering style would be associated with increased adversities at birth.

Method

Design

This study employed a prospective longitudinal design. Data were obtained from an online mixed-methods study on the transition to motherhood (antenatal mood, birth and early adjustment to motherhood). Participating women were assessed at three time points, starting from the second trimester of their pregnancy (12 to 26 weeks of gestation), through the third trimester (after week 26), and after the birth (3 to 6 months postpartum) on various psychosocial self-reporting measures.

Participants

The sample included 316 women from Australia and New Zealand. Participants were recruited via various online pregnancy and parenting platforms between February and October 2014. Participants were referred to a secure University-based website for information on the study and participation, and after obtaining informed consent, eligible women were forwarded to a secure Qualtrics™ survey system. Women were eligible if; they resided in Australia and/or New Zealand, their pregnancy had progressed to the second trimester, and they had not experienced any severe suicidal ideation. Only those women with complete data on birth outcomes were included for the analysis of this study. The Research Ethics Committee of the University [omitted for blind review] granted approval.
for this study. A total of 316 women expressed interest in the study by registering in the online system, which was set up to exclude participants from continuing within the website on the basis of above-mentioned inclusion criteria. Matched full data sets for all three time points of participation (time 1 n=316; time 2 n=302; time 3= 295) were obtained from a total of 285 women.

Measures

Socio-demographic and pregnancy status. Information collected included maternal age, education, marital status, employment and perceptions of financial security (adapted from The Family Background Questionnaire, Sanders, Mazzecchelli, & Studman, 2003). Participants were asked to report in the following factors (adapted from the PRAMS, Pregnancy Risk Assessment Monitoring System, CDC, Beck et al., 2002); the number of previous pregnancies, mode of conception, previous and current pregnancy complications, current gestation type (one or more), history of medical or psychological and psychiatric problems, and whether their current pregnancy was planned and/or wanted. Various physiological complications during the current pregnancy, such as excessive and prolonged bleeding, serious infections, gestational diabetes, high blood pressure, placenta issues, were also examined at the two time points during pregnancy, along with health habits, including exercise, illegal drug intake, alcohol and caffeine consumption, and smoking (adapted from the Prenatal Health Behaviours, Lobel & DeLuca, 1995). Women were asked about the quality of their relationship with their mother, as well as their relationship satisfaction with their partner (adapted from the Couples Satisfaction Index; Funk & Rogge, 2007) via 5-Likert scale questions with responses ranging between “Poor” and “Very happy”. Lastly, for the purposes of this study, participants were asked whether they experienced any level of domestic violence.

Antenatal anxiety symptoms were assessed at two time points (during second and third trimesters (referred to as time 1 and time 2) with the Revised Prenatal Distress Questionnaire, (NuPDQ, Lobel et al., 2008), a 17-item self-report scale measuring the extent to which they were feeling “bothered, upset, or worried at this point” about pregnancy issues, including physical symptoms, bodily changes, parenting, infant and mother’s health, medical and financial problems. Responses are on a 3-point scale, ranging from 0 (not at all) to 2 (very much). The scale has demonstrated adequate reliability ($\alpha = 0.65$) in the past (Lobel et al., 2008) and has been identified as an optimal instrument measuring anxiety and
distress related to pregnancy and birth outcome (Nast, Bolten, Meinlschmidt, & Hellhammer, 2013); Cronbach’s $\alpha$ for time 1 and time 2 were 0.79, and 0.80, respectively. Additionally, average and total pregnancy-specific distress scores were calculated to range between 0 and 34, and a cut-off point of 16 was adopted for the purposes of this study to indicate moderate to high levels of distress.

Antenatal depressive symptoms were assessed during time 1 and time 2 with the Edinburgh Postnatal Depression Scale (EPDS) a 10-item self-report scale measuring depressive symptoms experienced within the previous week (Cox, Holden, & Sagovsky, 1987). Responses to statements are scored on a 4-point Likert scale ranging from 0 to 3, with higher scores indicative of greater intensity of depressive symptoms. Beyond its use postnatally, the EPDS has been validated for use antenatally, and has been extensively used with sensitivity levels of 0.86, specificity levels of 0.76 and strong reliability $\alpha = 0.87$ (Bergink et al., 2011). In the present study $\alpha$ was .86 for both time points. Additionally, a cut-off score above 11 was established as indicative of moderate and high levels of depressive symptoms (Eberhard-Gran, Eskild, Tambs, Opjordsmoen, & Ove Samuelsen, 2001).

Social support was assessed at time 1 and time 2 with the Multidimensional Scale of Perceived Social Support (MSPSS, Zimet, Dahlem, Zimet, & Farley, 1988) which is a 12-item scale measuring social support from family, friends, and significant others. Responses to statements are scored on a 7-point Likert scale ranging from 1 to 7, with higher scores indicative of greater social support. The MSPSS has been extensively validated across various countries and settings, including obstetric populations demonstrating strong reliability with $\alpha = 0.90$ (Skouteris, Wertheim, Rallis, Milgrom, & Paxton, 2009) and $\alpha = 0.95$ for the present study.

Sense of coherence was measured at time 1, with Antonovský’s 13-item Sense of Coherence scale (SoC, Antonovský, 1993) which assesses an overall life orientation towards stress management and perceptions of health, environment and well-being on a 7-point Likert scale with higher scores indicative of higher sense of coherence, however for the purposes of this study, we modified it to a 5-point Likert scale, ranging from 1 to 5, to facilitate participants’ responses and to make it consistent with other measures. The SoC has been widely used and validated in various cultural and health care contexts, including pregnancy (Oz et al., 2009). Cronbach’s alphas on studies using SoC show good internal
consistency ranging from \( \alpha = 0.74 \) and 0.91 (Antonovsky, 1993). Internal consistency for this modified scale remained high with a Cronbach \( \alpha = 0.90 \).

Mothering orientations were assessed at time 1 and time 2 with the 18-item Antenatal Maternal Orientation Measure-Revised (AMOM-R, Roncolato & McMahon, 2011) which identifies and differentiates between two distinct styles of mothering (Facilitator or Regulator). Although the model has subsequently implemented two additional orientations (Reciprocator and Conflicted, Raphael-Leff, 2001), the current study explores the Facilitator and Regulator dimensions per the original model in order to rely on empirically tested scales (Roncolato & McMahon, 2011; Sharp & Bramwell, 2004; Van Bussel, Spitz, & Demyttenaere, 2010). The AMOM-R scale assesses beliefs and expectations about pregnancy, the child, and motherhood (Raphael-Leff, 1983, 1986; Sharp & Bramwell, 2004); \( \alpha \) scores for Facilitator and Regulator Scales were 0.79 and 0.68 respectively.

Stressful life events. Participants were asked to indicate (yes or no) if they had experienced any stressful life events from a presented list of 15 events (such as divorce, death of a close friend or family member, serious accidents, moving to a new address, etc.) experienced in the past 12 months (adapted from the PRAMS, Pregnancy Risk Assessment Monitoring System, CDC; Beck et al., 2002).

Adverse birth outcomes. For the purposes of this study an index of complications at birth was calculated to reflect a risk of adverse birth outcomes as a sum of the presence or absence resulting in a 0-6 scale, indicating a higher level of adverse birth outcome for higher scores. The index consisted of a combined score derived from the following categorical factors: 1) pre-term birth (\(<37 \) weeks gestation; including stillbirth in utero and neonatal deaths) (as per Beck et al., 2010); 2) emergency induced onset of labour (including an emergency induced labour, and emergency C-section); 3) emergency related non-vaginal delivery (such as forceps, vacuum extraction and other non-vaginal delivery types); 4) low birth weight (below 2500 grams (as per Kramer, 1987); 5) any maternal medical complications immediately after birth which required a medical intervention; and 6) any newborn medical complications immediately after birth which required medical interventions and/or admission to a neonatal care unit. Similar indices of level of adversities have been widely used in epidemiological research of obstetric and neonatal outcomes (see Andersson et al., 2004; Bansil et al., 2010).
Statistical analyses

Analyses were conducted using SPSS software version 22.0. Prior to analysis, data were examined for accuracy and normality. The data distribution for adverse birth outcome had high kurtosis (k=2.9) and was positively skewed (x=1.5), which is expected as almost half of the sample (n=137, 48%) presented with no adverse birth outcomes. Correlation matrices (Spearman rho’s are reported for non-parametric tests (Sheskin, 2003) were explored and only the variables from both time 1 and time 2 that correlated significantly with the outcome variable were included in the final regression analyses.

Multicollinearity among the independent variables was assessed with the variance inflation factor (VIF) statistic through an iterative process (Tabachnick & Fidell, 2013); values from 1.02 to 2.12 were within the acceptable range (<5) (Field, 2013). Initially datasets from 316 participants were available, but only full datasets on the outcome variable were included in this analysis (n=285). A sample size of 285 was deemed adequate given all independent variables to be included in the analysis (Tabachnick & Fidell, 2013). The first block contained the “physiological and health” determinants: gestation, serious infections, excessive and prolonged bleeding, preeclampsia and placental issues, and cannabis use during pregnancy. The second block consisted of the “psychological” determinants of interest: a diagnosis of anxiety disorder and a Regulator mothering orientation during pregnancy.

A series of one-way between subjects ANOVA tests was conducted to explore differences in mean scores between time 1 and 2 measures (Tabachnick & Fidell, 2013) and to test whether there was a substantial change of scores as pregnancy progresses. Hierarchical multiple regression analysis was used to determine which bio-psychosocial factors predicted of adverse birth outcomes index while controlling for other well-established factors, and thus exploring the unique contribution of the variables of interest (Tabachnick & Fidell, 2013).
Results
Sample characteristics, including demographic information and birth outcomes are provided in Table 1. The majority of women were aged between 30 and 34 years, multiparous, with planned singleton pregnancies, were married or cohabiting and identified as White Australians.
<table>
<thead>
<tr>
<th>Variables</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>15-19</td>
<td>4 (1)</td>
</tr>
<tr>
<td>20-24</td>
<td>27 (10)</td>
</tr>
<tr>
<td>25-29</td>
<td>100 (35)</td>
</tr>
<tr>
<td>30-34</td>
<td>104 (37)</td>
</tr>
<tr>
<td>35-39</td>
<td>41 (14)</td>
</tr>
<tr>
<td>40-45</td>
<td>6 (2)</td>
</tr>
<tr>
<td>45-49</td>
<td>1 (&lt;1)</td>
</tr>
<tr>
<td><strong>Parity</strong></td>
<td></td>
</tr>
<tr>
<td>Primipara</td>
<td>92 (32)</td>
</tr>
<tr>
<td>Multipara</td>
<td>193 (68)</td>
</tr>
<tr>
<td><strong>Planned pregnancy</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>225 (79)</td>
</tr>
<tr>
<td>No</td>
<td>60 (21)</td>
</tr>
<tr>
<td><strong>Pregnancy</strong></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>280 (98)</td>
</tr>
<tr>
<td>Multiple</td>
<td>5 (2)</td>
</tr>
<tr>
<td><strong>Conception mode</strong></td>
<td></td>
</tr>
<tr>
<td>Natural</td>
<td>234 (82)</td>
</tr>
<tr>
<td>Natural, but took more than a year to conceive</td>
<td>31 (11)</td>
</tr>
<tr>
<td>Assisted (IVF, ICSI, IUI)</td>
<td>20 (7)</td>
</tr>
<tr>
<td><strong>Relationship Status</strong></td>
<td></td>
</tr>
<tr>
<td>Married, Cohabiting</td>
<td>279 (98)</td>
</tr>
<tr>
<td>Divorced/Separated; Single; Widowed</td>
<td>6 (2)</td>
</tr>
<tr>
<td><strong>Country of residence</strong></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>240 (84)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>45 (16)</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>White Australian</td>
<td>195 (68)</td>
</tr>
<tr>
<td>White New Zealander</td>
<td>41 (14)</td>
</tr>
<tr>
<td>Asian</td>
<td>8 (3)</td>
</tr>
<tr>
<td>Aboriginal/Torres Strait Islander; Maori</td>
<td>3 (&lt;1)</td>
</tr>
<tr>
<td>American</td>
<td>10 (4)</td>
</tr>
<tr>
<td>European</td>
<td>15 (6)</td>
</tr>
<tr>
<td>Other</td>
<td>13 (3)</td>
</tr>
</tbody>
</table>
Table 1. Participant characteristics (N=285) (Cont.)

<table>
<thead>
<tr>
<th>Variables</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>Some high school</td>
<td>15 (5)</td>
</tr>
<tr>
<td>Completed high school</td>
<td>39 (14)</td>
</tr>
<tr>
<td>Trade/technical college</td>
<td>47 (16)</td>
</tr>
<tr>
<td>University degree</td>
<td>111 (39)</td>
</tr>
<tr>
<td>Post-graduate degree</td>
<td>71 (25)</td>
</tr>
<tr>
<td><strong>Employment status</strong></td>
<td></td>
</tr>
<tr>
<td>Full time</td>
<td>102 (36)</td>
</tr>
<tr>
<td>Part time</td>
<td>78 (27)</td>
</tr>
<tr>
<td>Not working, but looking for a job</td>
<td>8 (3)</td>
</tr>
<tr>
<td>Not working (stay at home parents, etc.)</td>
<td>80 (28)</td>
</tr>
<tr>
<td>Home based paid work</td>
<td>15 (5)</td>
</tr>
<tr>
<td><strong>Financial status</strong></td>
<td></td>
</tr>
<tr>
<td>Financial 1(not meeting household essential needs)</td>
<td>60 (21)</td>
</tr>
<tr>
<td>Financial 2(not enough after essential needs met)</td>
<td>67 (24)</td>
</tr>
<tr>
<td><strong>Couple satisfaction</strong></td>
<td></td>
</tr>
<tr>
<td>Unhappy</td>
<td>16 (6)</td>
</tr>
<tr>
<td>Happy</td>
<td>269 (94)</td>
</tr>
<tr>
<td><strong>Relationship with own mother</strong></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>266 (93)</td>
</tr>
<tr>
<td>Negative</td>
<td>19 (7)</td>
</tr>
<tr>
<td><strong>Domestic abuse</strong></td>
<td>5 (2)</td>
</tr>
<tr>
<td><strong>Past psychological history</strong></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>89 (31)</td>
</tr>
<tr>
<td>Depression</td>
<td>100 (35)</td>
</tr>
<tr>
<td>Bipolar disorder</td>
<td>1 (&lt;1)</td>
</tr>
<tr>
<td><strong>Mood (time 1)</strong></td>
<td></td>
</tr>
<tr>
<td>Distress (Pregnancy-related anxiety)</td>
<td>32 (11)</td>
</tr>
<tr>
<td>Depression symptoms</td>
<td>50 (17)</td>
</tr>
<tr>
<td><strong>Mood (time 2)</strong></td>
<td></td>
</tr>
<tr>
<td>Distress (Pregnancy-related anxiety)</td>
<td>26 (9)</td>
</tr>
<tr>
<td>Depression symptoms</td>
<td>44 (15.4)</td>
</tr>
<tr>
<td><strong>Prescription medication</strong></td>
<td></td>
</tr>
<tr>
<td>Of which - antidepressants</td>
<td>13 (19)</td>
</tr>
<tr>
<td>Other (thyroid, asthma, etc.)</td>
<td>55 (80)</td>
</tr>
<tr>
<td><strong>Smoking</strong></td>
<td>15 (5)</td>
</tr>
<tr>
<td><strong>Cannabis use</strong></td>
<td>5 (2)</td>
</tr>
<tr>
<td>Variables</td>
<td>N (%)</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Alcohol intake</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>243 (85)</td>
</tr>
<tr>
<td>&lt;1 standard drink per month</td>
<td>28 (10)</td>
</tr>
<tr>
<td>1-2 standard drinks per month</td>
<td>7 (3)</td>
</tr>
<tr>
<td>1 per week</td>
<td>3 (1)</td>
</tr>
<tr>
<td>1-3 standard drinks per week (and over)</td>
<td>4 (1)</td>
</tr>
<tr>
<td>Caffeine intake (2 cups and over of caffeinated drinks per day)</td>
<td>64 (22)</td>
</tr>
<tr>
<td>Gestational diabetes</td>
<td>22 (8)</td>
</tr>
<tr>
<td>Hypertension (high blood pressure)</td>
<td>28 (10)</td>
</tr>
<tr>
<td>Preeclampsia</td>
<td>12 (4)</td>
</tr>
<tr>
<td>Placenta issues</td>
<td>12 (4)</td>
</tr>
<tr>
<td>Serious infections</td>
<td>5 (2)</td>
</tr>
<tr>
<td>Excessive and prolonged bleeding</td>
<td>13 (5)</td>
</tr>
<tr>
<td>Stressful life events during pregnancy, incl. last 12 months</td>
<td></td>
</tr>
<tr>
<td>1 and more events</td>
<td>179 (69)</td>
</tr>
<tr>
<td>3 and more</td>
<td>45 (17)</td>
</tr>
<tr>
<td>Birth outcomes</td>
<td></td>
</tr>
<tr>
<td>Birth week</td>
<td></td>
</tr>
<tr>
<td>Preterm birth (&lt;37 weeks)</td>
<td>14 (5)</td>
</tr>
<tr>
<td>Between 37 and 40 weeks</td>
<td>143 (49)</td>
</tr>
<tr>
<td>At term (40 weeks; 40+)</td>
<td>137 (46)</td>
</tr>
<tr>
<td>Stillbirth</td>
<td>2 (&lt;1)</td>
</tr>
<tr>
<td>Birth type</td>
<td></td>
</tr>
<tr>
<td>Emergency induced labour</td>
<td>31 (11)</td>
</tr>
<tr>
<td>Emergency C-section</td>
<td>25 (9)</td>
</tr>
<tr>
<td>Elective C-section</td>
<td>34 (12)</td>
</tr>
<tr>
<td>Vaginal without any intervention</td>
<td>179 (63)</td>
</tr>
<tr>
<td>Low birth baby weight (&lt;2500 g)</td>
<td>34 (12)</td>
</tr>
<tr>
<td>Birth place</td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td>235 (83)</td>
</tr>
<tr>
<td>Birth centre</td>
<td>18 (6)</td>
</tr>
<tr>
<td>Home</td>
<td>32 (11)</td>
</tr>
<tr>
<td>Complications at birth</td>
<td></td>
</tr>
<tr>
<td>Maternal</td>
<td>67 (24)</td>
</tr>
<tr>
<td>Newborn</td>
<td>48 (17)</td>
</tr>
</tbody>
</table>
The highest number of adverse birth outcomes that a woman in the sample could experience was six, with half of the participants (52%) experiencing at least one, and 48% experiencing no adversities; 60 women (21%) had two or more adverse factors, while only one woman experienced all six; median score for adversity risks was 1.

As compared with the general population rates in Australia and New Zealand the women who participated in this study were a representative sample on pregnancy distress level scores and birth outcomes. Based on cut-off scores of over 11 on the EPDS for the two time points during pregnancy respectively, 15.8% (n=45) and 15.4% (n=44) of the women in this study were experiencing symptoms of depression. Similarly, a cut-off level of over 16 for the NuPDQ pregnancy-specific distress scores indicated that 14.4% (n=41) of women at time 1 and 9.1% (n=26) at time 2 were experiencing higher levels of distress. These findings are comparable to latest Australian (Leigh & Milgrom, 2008) and New Zealand (Waldie et al., 2015) prevalence rates for depressive symptoms during pregnancy. Additionally, according to the latest world incidence report on preterm birth, the Australia and New Zealand rate of 6.3% (Beck et al., 2010) is represented in this sample with a slightly lower rate (PTB = 5%).

There were no statistically significant differences between time 1 and time 2 scores for any scales with the exception of pregnancy-specific distress (NuPDQ) scores which had significantly decreased from time 1 to time 2 [F (1,276) = 6.48, p =0.001].

Having a Regulator orientation was correlated with adverse birth outcome, while depressive symptoms, pregnancy-specific distress, social support, and sense of coherence were not associated with birth outcome. Significant correlations were observed between antenatal depressive (EPDS) and anxiety (NuPDQ) symptoms, as well as between experiencing antenatal anxiety at both time points antenatally and having a Regulator orientation. In comparison, a Regulator orientation was not associated with depressive symptoms throughout pregnancy. Negative relationships between all higher depressive and anxiety symptoms and a Regulator orientation and lower sense of coherence was indicated, while having a strong social support was correlated with a higher sense of coherence. Lastly, social support and experiencing both depression and anxiety during pregnancy were correlated. Scale metrics are presented in Table 2; correlation coefficients, means, and standard deviations for the factors, associated with adverse birth outcomes appear in Table.
3. Furthermore, none of the health habits, such as exercise levels, tobacco smoking, and caffeine and alcohol consumption were linked with adversity.

**Table 2.** Descriptive statistics for study variables

<table>
<thead>
<tr>
<th>Measure</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edinburgh Postnatal Depression Scale (EPDS) Time 1</td>
<td>6.23</td>
<td>4.65</td>
<td>0-24</td>
</tr>
<tr>
<td>Edinburgh Postnatal Depression Scale (EPDS) Time 2</td>
<td>6.00</td>
<td>4.46</td>
<td>0-24</td>
</tr>
<tr>
<td>New Pregnancy-specific Distress Questionnaire (NuPDQ) Time 1</td>
<td>9.04</td>
<td>4.88</td>
<td>0-29</td>
</tr>
<tr>
<td>New Pregnancy-specific Distress Questionnaire (NuPDQ) Time 2</td>
<td>8.52</td>
<td>4.85</td>
<td>0-31</td>
</tr>
<tr>
<td>Sense of Coherence (SoC)</td>
<td>48.46</td>
<td>7.86</td>
<td>30-65</td>
</tr>
<tr>
<td>Antenatal Maternal Orientation Measure (AMOM-R, Regulator subscale)</td>
<td>2.52</td>
<td>0.70</td>
<td>1-4.75</td>
</tr>
<tr>
<td>Antenatal Maternal Orientation Measure (AMOM-R, Facilitator subscale)</td>
<td>4.56</td>
<td>0.66</td>
<td>2.40-6</td>
</tr>
<tr>
<td>Social support (SS)</td>
<td>70.66</td>
<td>12.89</td>
<td>12-84</td>
</tr>
<tr>
<td>Adverse birth outcome index</td>
<td>0.85</td>
<td>1.08</td>
<td>0-6</td>
</tr>
</tbody>
</table>

*Note.* Time 1 – second gestational trimester; Time 2 – third gestational trimester
Table 3. Study variables and correlations with adverse birth outcomes

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Adverse birth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. EPDS (time 1)</td>
<td>0.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. NuPDQ (time 1)</td>
<td>0.05</td>
<td>0.49**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Regulator orientation</td>
<td>0.15*</td>
<td>0.06</td>
<td>0.27**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Facilitator orientation</td>
<td>-0.12</td>
<td>-0.07</td>
<td>-0.23**</td>
<td>-0.74**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Social support</td>
<td>-0.09</td>
<td>-0.38**</td>
<td>-0.27**</td>
<td>0.02</td>
<td>0.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sense of coherence</td>
<td>-0.01</td>
<td>-0.64**</td>
<td>-0.54**</td>
<td>-0.19**</td>
<td>0.21**</td>
<td>0.48**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. EPDS (time 2)</td>
<td>0.01</td>
<td>0.62**</td>
<td>0.36**</td>
<td>0.07</td>
<td>-0.19**</td>
<td>-0.30**</td>
<td>-0.52**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. NuPDQ (time 2)</td>
<td>0.07</td>
<td>0.46**</td>
<td>0.67**</td>
<td>0.24**</td>
<td>-0.26**</td>
<td>-0.29**</td>
<td>-0.50**</td>
<td>0.49**</td>
<td></td>
</tr>
</tbody>
</table>

Note. Time 1 – second gestational trimester; Time 2 – third gestational trimester

*p<0.05;  ** p<0.001
Regression analysis

The first model, containing the “physiological and health” block of predictors, was statistically significant and explained 22% of the variance in adverse birth ($\Delta F (6, 278) = 12.75, p < .001, \Delta R^2 = 0.22$). The second model, consisting of the psychological factors, was not statistically significant ($\Delta F (8, 276) = 9.81, p = 0.37, \Delta R^2 = 0.22$). About one fifth (22%) of the variability in adversity at birth is predicted by biomedical and physiological problems during pregnancy. Adding the second block did not significantly improve the overall model suggesting that there was no significant increase in prediction of adversity by adding psychosocial factors to the model (Table 4.).
Table 4. Hierarchical multiple regression analysis for adverse birth outcomes

<table>
<thead>
<tr>
<th></th>
<th>$R$</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
<th>$T$</th>
<th>95% CI $\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serious infection</td>
<td>0.47</td>
<td>0.22</td>
<td></td>
<td>1.53</td>
<td>0.44</td>
<td>0.19</td>
<td>3.51</td>
<td>0.08 -0.29</td>
</tr>
<tr>
<td>Excessive bleeding</td>
<td></td>
<td></td>
<td></td>
<td>0.46</td>
<td>0.29</td>
<td>0.09</td>
<td>1.60</td>
<td>0.33 - 1.48</td>
</tr>
<tr>
<td>Preeclampsia</td>
<td></td>
<td></td>
<td></td>
<td>0.85</td>
<td>0.29</td>
<td>0.16</td>
<td>2.95</td>
<td>0.05 -0.26</td>
</tr>
<tr>
<td>Placenta complications</td>
<td></td>
<td></td>
<td></td>
<td>1.33</td>
<td>0.31</td>
<td>0.25</td>
<td>4.32</td>
<td>0.14 - 0.36</td>
</tr>
<tr>
<td>Cannabis use</td>
<td></td>
<td></td>
<td></td>
<td>0.92</td>
<td>0.41</td>
<td>0.12</td>
<td>2.24</td>
<td>0.02 - 0.24</td>
</tr>
<tr>
<td>Multiple gestation</td>
<td></td>
<td></td>
<td></td>
<td>1.50</td>
<td>0.44</td>
<td>0.18</td>
<td>3.40</td>
<td>0.08 - 0.29</td>
</tr>
<tr>
<td><strong>Model 2</strong></td>
<td>0.47</td>
<td>0.22</td>
<td>0.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serious infection</td>
<td>0.47</td>
<td>0.22</td>
<td></td>
<td>1.50</td>
<td>0.45</td>
<td>0.18</td>
<td>3.34</td>
<td>0.08 -0.29</td>
</tr>
<tr>
<td>Excessive bleeding</td>
<td></td>
<td></td>
<td></td>
<td>0.40</td>
<td>0.29</td>
<td>0.08</td>
<td>1.36</td>
<td>-0.03 -0.19</td>
</tr>
<tr>
<td>Preeclampsia</td>
<td></td>
<td></td>
<td></td>
<td>0.86</td>
<td>0.29</td>
<td>0.16</td>
<td>2.98</td>
<td>0.05 - 0.27</td>
</tr>
<tr>
<td>Placenta complications</td>
<td></td>
<td></td>
<td></td>
<td>1.29</td>
<td>0.31</td>
<td>0.24</td>
<td>4.16</td>
<td>0.13 - 0.36</td>
</tr>
<tr>
<td>Cannabis use</td>
<td></td>
<td></td>
<td></td>
<td>0.96</td>
<td>0.41</td>
<td>0.13</td>
<td>2.32</td>
<td>0.02 - 0.25</td>
</tr>
<tr>
<td></td>
<td>R</td>
<td>R²</td>
<td>ΔR²</td>
<td>B</td>
<td>SE</td>
<td>β</td>
<td>T</td>
<td>95% CI β</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td>-----</td>
<td>-------</td>
<td>------</td>
<td>----------</td>
</tr>
<tr>
<td>Multiple gestation</td>
<td>1.44</td>
<td>0.44</td>
<td>0.18</td>
<td>0.18</td>
<td>0.04</td>
<td>3.23**</td>
<td>0.07</td>
<td>-0.28</td>
</tr>
<tr>
<td>Diagnosis of anxiety</td>
<td>0.80</td>
<td>0.21</td>
<td>0.02</td>
<td>0.02</td>
<td>0.09</td>
<td>0.37</td>
<td>-0.09</td>
<td>-0.13</td>
</tr>
<tr>
<td>disorder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulator orientation</td>
<td>0.11</td>
<td>0.09</td>
<td>0.07</td>
<td>0.07</td>
<td>0.08</td>
<td>1.31</td>
<td>-0.04</td>
<td>-0.18</td>
</tr>
</tbody>
</table>

**Table 4. Hierarchical multiple regression analysis for adverse birth outcomes (Cont.)**
Discussion

This paper aimed to explore whether psychological distress during pregnancy would contribute to prediction of adverse birth outcomes in a longitudinal study of 285 Australian and New Zealand women. Results indicate that the greatest predictors of adverse birth outcome were biomedical factors, related to physiological problems during pregnancy, such as infections, issues with the placenta, preeclampsia and cannabis use. This finding is in line with epidemiological research on adversity at birth (Berkowitz & Papiernik, 1993; Fergusson, Horwood, & Northstone, 2002; Sheiner et al., 2001).

In terms of psychosocial predictive factors associated with adversity, there was a statistically significant correlation for a Regulator mothering orientation during pregnancy and adverse birth. This association can be interpreted in line with Raphael-Leff’s (2001) descriptions of the experiences of a premature birth, C-sections and overall problematic births for women orienting towards the Regulator dimension. According to Raphael-Leff (2001), such attitudes include the need of the mother to be in control of her body and to attain ‘separateness’ from the baby as quickly as possible, because of her perception of the fetus as a threat to her body; speculated by (Raphael-Leff, 1986) to be related to shortened gestation and prematurity. Regulator mothering style is also described to be linked with specific expectations about labour, such as increased rates of non-vaginal labour and greater complications for the mother immediately following birth, which was confirmed in this study.

Our initial hypothesis that higher scores on self-reported depressive and anxiety symptoms would be also predictive of adverse birth was not confirmed. Several other studies have reported similar findings (Husain et al., 2014; Littleton, Breitkopf, & Berenson, 2007; Andersson et al., 2004; Perkin et al., 1993), with no clear association between maternal antenatal psychological distress and birth outcomes. Other psychosocial factors including social support, relationship with partner and with the woman’s mother were not associated with adversity. Furthermore, various health habits which could potentially explain adverse birth outcomes were not related either.

There are several potential explanations for these findings. While a clinical diagnosis of mood disorder was linked to birth adversity, a sub-clinical presentation of a milder mood disorder, assessed by a self-measure on symptoms only, were not associated with birth outcomes. Although it is appealing to suggest that future research should focus on obtaining
full clinical diagnoses for each participant when assessing depression, this may be insufficient, together with concerns for time-and cost-efficiency. For example, Field, Diego, and Hernandez-Reif (2008) whose research examined the difference between dysthymia (mild depression) and major depressive disorder (full clinical presentation) during pregnancy and their link with birth outcomes, indicated that it was the dysthymic group who experienced higher adversity at birth because this group presented with elevated cortisol levels compared to the clinical one. This leaves numerous questions to be explored in the operationalization of antenatal mood disorders.

Additionally, women in our sample experienced an improvement in their pregnancy-specific anxiety during the third trimester (time 2), which could have potentially served as a protective factor against adversity. This supports the findings suggested by (Mancuso et al., 2004) on time-specific distress. Furthermore, most women had reported a high level of social support experienced throughout pregnancy from partners and significant others, and high levels of personal sense of coherence; both of these factors have been shown to predict uncomplicated delivery (Collins et al., 1993; Oz et al., 2009).

Perhaps the most salient finding in our results is the fact that despite accounting for numerous variables in our model, informed by the latest research on obstetric complications, it still failed to account for more than one fifth of the total variance, suggesting that more research is needed so that we can better understand and therefore prevent adverse birth outcomes. Overall, our study supports a reassuring finding for women who are already vulnerable during pregnancy and tend to ruminate about their negative mood, thus increasing their distress further (Staneva et al., 2015b); and therefore, regardless of maternal antenatal mood, women can still achieve uncomplicated birth.

Limitations and future research

Findings from this study need to be interpreted in light of several potential limitations. Although the sample size for this study was in line with requirements for multivariate analyses, almost half of the women did not experience any complications at birth, and only 5% of the women experienced PTB (slightly lower than the latest data on PTB from Australia and New Zealand). In addition, we chose only critical and high risk factors to be included in the outcome index for adverse birth. It would be valuable to explore suboptimal risks, such as birth week between 37 full gestational weeks and less then optimal 40 weeks gestation, elective C-section, use of medical pain relief, or any non-vaginal type of birth. Additionally, self-report measures
particularly in reporting birth outcomes such as emergency C-sections or inductions could potentially be under-reported, biased or erred compared to formal medical information.

Furthermore, sampling bias could have contributed to the findings. As is commonplace with research conducted via online surveys, the data of this study are self-reported and the respondents are self-selected. Use of self-reported data may affect the results as the participants are presumably actively engaged with obtaining information online and participating in online support groups or parenting forums. Therefore, the results may represent women who were already well informed around perinatal risks, and who did not have problems during pregnancy were more willing to engage with this study, while women who had more complications may have actively avoided participation as a way of coping with distress associated with their complications. Future research may expand recruitment via hospital settings in order to address this potential sampling bias. Additionally most of the women (over 75%) had either a technical or university degree which has been an established protective factor against obstetric issues (Moster, Lie, & Markestad, 2008). Finally, over 90% of the women had received prenatal care in a timely manner.

Future research needs to expand its theoretical scope to include unexplored factors which may offer a better understanding of potential risk factors. Such factors need to take into account a wider social, cultural, economic and environmental view of the preconception and perinatal period, such as maternal residential status, job status and satisfaction, gendered and racial discrimination, intent to go back to work and viable access to affordable childcare, which could better capture potential links with adverse birth outcomes; Moreover, the degree of change in terms of physiological, social and psychological adaptation between preconception and pregnancy to which women need to adjust may further explain adversity.

Methodologically, a longitudinal study design which includes systematic and better operationalized measurements in a large cohort of women, beginning prior to conception could additionally present with a wider perspective on various bio-psychosocial changes that occur at pregnancy and affect birth.

**Conclusions**

Given the strengths and the limitations to the interpretation of our findings, this study suggests that in overall healthy populations with well-established and accessed antenatal care, depressive and anxiety factors per se appear not to increase the risk of adverse birth outcomes. Women with medical complications during pregnancy are at highest risk for adversity. Further research
is needed to explore better predictive models within a wider bio-psychosocial framework from pre-conception to birth.

**Chapter 8: Discussion**

The main aim of this thesis was to explore the nature of antenatal distress and to broaden the understanding of mental health and women’s experiences during pregnancy. Through the application of a mixed-methods study, grounded in a critical realist epistemology, this program of work addressed what constitutes antenatal distress and examined the implications of such experiences for both the woman and for the birth of her baby. This final chapter begins with a discussion of the findings of this thesis, particularly in view of the mind-body paradigm of pregnancy distress. I then proceed to highlight the implications of the way antenatal distress has been understood, theorized and managed. These implications include but are not limited to: the way distress has been defined (both in lay and expert language); the medicalization of pregnancy, birth and psychological distress; the triple stigma experienced by women, who are pregnant and psychologically distressed. Lastly I elaborate on the prescriptive (and harmful) role that cultural imperatives play in demanding women to perform good mothering. I conclude this final chapter with a discussion of the ways to move research forward, and an epilogue consisting of the main message of this work.

**There is much more to the mind-body relationship: an overview**

This thesis started with a comprehensive review of both epidemiological and qualitative literature on the nature of antenatal distress. While the first review (Chapter 3), which examined the relationship between antenatal distress and preterm birth (PTB), indicated certain trends and a positive relationship between these two phenomena, the evidence is not definitive. Independent effects were found to be mediated by bio-medical markers, health care practices and the use of medication – antidepressants in particular. Whether mood was at a diagnostic level for a clinical disorder or a symptomatological level presented further limitations to interpretations, specifically in the way these differentiations were associated with birth outcomes. Further reasons for the variability in results included not only design and methodological limitations but importantly, the lack of adequate definitions of mental health and of mental disorders.
Socio-cultural factors were also important moderators of the effect in most of the included studies, suggesting that race/ethnicity as well as low socio-economic status were related to several other variables that influence PTB, such as self-care, smoking, drug and alcohol abuse, and accessing adequate antenatal care. Specifically, the association of ethnicity to PTB was mediated through lower levels of personal resources, language barriers, economic difficulties, separation from friends and family, racial and neighbourhood discrimination for migrants. The lack of such important knowledge could potentially explain why there have not been major advancements in the clinical practices and interventions that target perinatal mental health and obstetric issues.

In order to advance a more in-depth understanding of the experience of psychological distress for pregnant women, I then conducted a meta-synthesis of the existing qualitative literature (Chapter 4). Overall, findings indicated that women undergo a complex process of negotiating the transformations in pregnancy, conceptually related to the process of grieving and loss of identity and previous roles (Barclay, Everitt, Rogan, Schmied, & Wyllie, 1997; Nicolson, 1999). The five overarching themes of this synthesis offered a novel conceptual analytic framework for antenatal distress, by providing a deeper understanding of the intricate ways, and the processes, within which women could experience the transition to motherhood (both inherent and socially prescribed). An important conclusion from the review was that women negotiate the transition to pregnancy within cultures (mostly, USA, UK and Canada) that promote an idealized and prescriptive view of motherhood. This makes some women more vulnerable during the childbearing years than others by promoting an unachievable image of the good mother. As a result, I argued that women framed their experiences of pregnancy distress as deviant and viewed their future selves as inadequate mothers. This synthesis highlighted the importance of the role of cultural messages operating directly on personal beliefs and perceptions in terms of mental health, mood management and help-seeking behaviours beyond the findings from epidemiological research.

In response, three subsequent experimental studies presented the nature of pregnancy distress (Chapters 5, 6, and 7). In Chapter 5, apart from the widely researched and known risk factors for antenatal distress, I focused on examining the importance of two alternative psychosocial constructs, maternal orientation and sense of coherence, in the development of antenatal depression and anxiety in a sample of over 290 pregnant Australian and New Zealand mothers. It can be argued that these constructs draw from opposing theoretical discourses; psychoanalysis (an individual construct of mothering orientations) and health psychology (a global sense of coherence concept). While mothering orientations represent a woman’s view of
her pregnancy and body, her expectations about her life with a baby and her role as a mother, the focus remains within the individual woman, thus potentially dismissing or omitting the role of essential aspects of wellbeing, such as culture, society, and context, or her sense of coherence which relates to her global sense of fitting into the world, her culture and society, which is arguably a limitation of the Maternal orientations model. This study found that, although mothering orientations were correlated with distress, a lower sense of coherence best predicted women’s increased distress during pregnancy. Thus the transition towards parenthood is characterized by a re-examination of both internal and external ways of relating to one’s self and, more globally to others, highlighting the role of personal beliefs and orientations, situated within a specific social context in the development of psychological distress.

Consequently in Chapter 6, I critically examined how women view, experience and interpret psychological distress during pregnancy, within the accounts of 18 pregnant Australian women who reported high levels of distress. I presented four main themes across women’s stories of pregnancy distress which reflected: women’s process of making sense of their mood, their experiences of an embodied distress, their ways of rethinking relationships, and lastly, their interpretations of time. In a detailed exploration of each theme (and its sub-themes) I showed how women who experienced depressive and anxiety symptoms struggled to find and to narrate their fit within the popular concept of the good mother. Thus, an unobtainable maternal ideal was serving as a magnifier of maternal ambivalence for women creating a deeper sense of internal conflict and of feeling deviant. Women’s narratives about their mood gravitated around the sense of guilt about not fitting into the good mother discourses. Narratives illustrated a sense of self-doubt in regards to positioning their self-care between conflicting discourses of selflessness and self-ishness, loss of control over their emotions, their body, and their reproductive choices, and self-stigma.

Overall, I argued that women’s experience could be described as being *at odds* with what women culturally (and publically) perceived that pregnancy *should* feel and look like. However, important insights into women’s experiences can be drawn from their private accounts of problematic relationships with their partners, lack of support from doctors and obstetricians, employers and peers, traumatic childhood experiences, and social exclusion – all of which are important factors when understanding antenatal distress. Asking women how they orient themselves within their context (material conditions and bodily experiences), their discursive (good mothering ideologies), and their intrapsychic (individual and psychological aspects) enabled for a much richer elaboration of pregnancy distress, which may promote more meaningful and individualized support and care for women.
Lastly, in the study presented in Chapter 7, the hypothesis that antenatal distress is linked with obstetric adversities was not supported. Within our sample of over 290 women from Australia and New Zealand, who took part in the longitudinal study, there was no direct association between high levels of psychological distress (including symptoms of depression and anxiety, perceived stress) and adverse birth outcomes (including preterm birth, low birth weight, and complications for mother or newborn). This study recognized the main predictors of adverse birth outcome to be medical conditions during pregnancy, re-confirming the predominantly bio-medical precursors for obstetric issues, identified our systematic review (Chapter 3).

This final empirical study also indicated a potential trend that both a clinical diagnosis of anxiety disorder and a Regulator style mothering orientation, albeit indirectly, may be indicative of birth outcomes. Thus, at this stage, I argue that biomedical and diagnostic/clinical approaches also have a role in the holistic approach to understanding health overall. Taking into account the strengths and limitations of conducting such final work, this study ultimately offered a positive message for women who are already vulnerable during pregnancy, that despite their negative mood they are still able to have an uncomplicated birth, while acknowledging the important trends in better understanding medical and psychosocial risks.

Taken together, the findings of my empirical and theoretical research propose that although there is an association between experiencing distress and physical health or obstetric adversities, there is no uniform understanding as to how these mechanisms work but only potential directions; and while science embraces new and versatile ways of answering these conundrums, it is important not to problematize and pathologize women for experiencing distress during pregnancy. Levels of distress can be attributed to many complex reasons but they could also be a natural response to changes which pregnancy requires, where hormonal and endocrinal changes are inevitable. It can be argued that certain levels of pregnancy-specific anxiety are both normal and needed at times of great adjustment; urging women to rearrange their sense of self within shifting new roles. This poses, yet again, important questions around expert opinions which inform assessment, diagnosis and medicalization of distress; how these are clinically applied, and clinically relevant to each woman in her own context of both private and public discourses of risk, health and mothering.
Limitations and recommendations for future research

One of the major limitations of this thesis was that the interview and survey questions focussed on women’s experiences of distress and less in-depth attention was paid to the broader context of their lives, including relevance of family, work and environmental context, in-depth understanding of the interactions with partners, midwives and doctors, and the community. Additionally a repeated interviews approach (Lyons & Chamberlain, 2006) would have provided a much wider understanding of the nuanced transition toward parenthood during its different stages. Another potential limitation of the empirical research is the nature of the sample. Predominantly white and middle class women participated in the survey and interviews, which is typical of the recruitment bias for research studies. Hence self-selection bias needs to be noted when generalizing the findings, particularly the ones from the quantitative studies. Additionally, the sample size for the final empirical study, which explored the relationship between antenatal distress and its effect on adverse birth outcomes, could present as a limitation as overall women did not experience many adverse birth outcomes. This can be partially explained with the relatively low incidence rates for preterm birth in Australia and New Zealand, and for adverse birth outcomes as a whole, and with the high level of antenatal care which women were accessing. Lastly, it should not go without mention that the subjectivity of the researcher needs to be acknowledged at all levels of the research process, from the design of the questions of study, recruitment, data collection, the interviewer-interviewer interaction effect analysis and the interpretation of all findings.

In considering recommendations for future research, the strengths and limitations of this thesis offer some important directions. The use of mixed-methodology offered an opportunity to examine different research questions surrounding the nature of antenatal distress. Consistent with feminist methodology, such triangulation of methodological approaches attempts to provide a more holistic picture of the phenomenon of pregnancy. Equally, we can begin to acknowledge the systematic issues that surround such complex choices that pregnant women are faced with, such as more subtle and invisible cultural messages around what is considered normal (i.e., pronatalism vs. child-free choices), also what is perceived as ‘natural’, ‘caring’ or ‘risky’ in view of the good mother, what is at stake when making decisions around medication, and what is being disclosed to others and health care providers as a result of stigma.
Pregnancy distress: state of affairs and implications

Defining distress

This thesis has engaged in broad explorations of the term distress. I have looked into both biomedical and socially constructed models of explaining distress related to pregnancy. I began by offering an umbrella construct which I named antenatal DAS (the experience of antenatal depression, anxiety and perceived stress). This clinical diagnostic label is grounded in the premises of medical naturalism, which assumes the existence of a finite external reality of natural disease entities (Hoff, 1995). This is by far the dominant way of understanding significant changes in an individual’s life and one’s reactions to changes in their identity and mood (Lafrance & McKenzie-Mohr, 2013). Through this model, distress is understood as an expression of individual dysfunction. The American Psychiatric Association (APA) has claimed expertise and dominance of this model particularly through the development of the Diagnostic and Statistical Manual of Mental Disorders (DSM), used to demarcate and frame various forms of distress and challenge as illness. In a strong critique of the DSM, Lafrance and McKenzie-Mohr (2013) explore how and why the DSM holds cultural currency for individual speakers, and unpacks what is being accomplished in their “taking up the language of psychiatric diagnosis” (p. 119). In particular, it is argued that a biomedical construction of distress offers a “lure, or promise, of validating persons’ pain and legitimizing their identities” (p.120). This issue was well reflected in the systematic review of the literature (Chapter 3) and consequently in our own empirical undertaking, where a solid DSM definition could not provide a uniform operationalization for psychological distress experienced by women, and could not account for birth consequences in a straightforward manner.

I argue that there are at least two implications as a result of this: 1) the lack of a uniform operationalized definition of antenatal mental health problems makes generalisation about the outcomes unreliable; 2) the use of “legitimised” DSM-criteria to define distress may serve negatively, especially when pregnant women take such labels upon themselves, thus accepting all responsibility for their distress and hence all responsibility for a potentially problematic birth. Additionally, framing antenatal distress as an illness limits women’s mood management to either antidepressant use, or excruciating internal struggles between competing discourses of care options for either self or the baby, which I elaborated on in the qualitative project, presented in Chapter 6.

Problems with definitions around mental illness relate to the physical body as well. For example, Pilgrim (1999) argues against drawing a solid line between depression and
normal functioning, particularly at times of great life changes. This can be relevant in the discussion of pregnancy, which inherently involves a major psychological and physiological adaptation, and was widely shared by the women in our study. For example, when depression is viewed or diagnosed in the context of pregnancy which naturally comprises somatic issues (e.g., changes in sleep and appetite patterns, fatigue, etc.) then there is the possibility of attributing these issues to depression in the absence of overtly negative mood. This issue was well represented in Chapter 6, where I explored the variability of meanings women ascribed to the physical changes during pregnancy. All narratives of psychological distress were interwoven within stories about embodied experiences.

An alternative and second position in defining distress, situated within social constructionism (Burr, 1995) offers an explanation of distress within pluralist representations of the human experience, co-created by humans themselves. In its essence distress is understood as entirely constructed through the use of language, and thus outside of the individual. However, in its extreme interpretation this framework has been critiqued for denying the “realness” of women’s suffering and experience (Nightingale & Cromby, 1999). For example, when applied to this thesis’ overall aims, such framework could potentially omit or limit a wider and more holistic (and inevitably material and embodied) understanding of pregnancy distress by promoting the nature of distress to be understood only within language.

Ultimately, the definition of distress of this thesis has been grounded within a third or middle position of critical realism (Bhaskar, 1990) which had supported the argument that multiple and diverse descriptions of distress exist that comprise of contextualized, embodied, cultural, and gendered experiences. The nature of distress is intertwined with embodied sense of intensified self-surveillance and body management, care and personal preservation to ensure health of the fetus. The material-discursive-intrapsychic model adopted in this research acknowledges that pregnancy distress is not at all a fluid process but is influenced by layered factors, thus it cannot be reduced to a single umbrella explanation.

Lastly, when discussing the definitions of distress it is important to note that regardless of the context, the struggling to define their own distress had direct implications on the way women chose to disclose their negative mood. This is particularly challenging and problematic during a time, socially-framed as a period of joy and celebration. Thus, within the rhetoric of the happy mother, particularly strong for the mother-to-be, women’s narratives indicate discursive struggles over an “untellable” story of distress, (Staneva & Wigginton, in prep.) especially, in a context of academic research such as this doctoral project.
Therefore, the academic language on pregnancy distress inevitably becomes part of the way we define distress, and also forms a part of the operating cultural discourse. Importantly, this program of work is also part of such knowledge creation around the nature of pregnancy distress. Both during the research process of conducting this work and during the process of dissemination I became increasingly aware of the fact that the way an inquiry was positioned within a legitimized scientific knowledge had direct implications for the women in this study, who also took up these “expert” findings upon themselves. Findings from the studies were of interest to the media (see Appendix C 1-4) and it was important to accentuate in this discussion the sensitive nature of representing distress without decontextualizing women’s experiences from the larger public, material and discursive context.

In sum, the choices we make about defining distress will have implications for how depression is understood, explained and even experienced. I agree with Janet Stoppard (2000) who offers a resolution to the definition debate by suggesting that all definitions should be viewed as *partial*, local and situated rather than timeless and general (2000, p.39). Thus, each approach of examining pregnancy distress emphasizes some aspects of experience and not others. By suggesting that any knowledge of a phenomenon is provisional and deeply set in the circumstances of each individual woman, we manage to de-pathologize each woman’s experience, and by implication reduce her distress. The language of science needs to accommodate a versatile discourse of conflicting rather than mutually exclusive definitions, and meanings equally grounded within lay knowledge.

*Factors contributing to pregnancy distress*

In view of the findings from this thesis it would be simplistic to offer an overall prescriptive list of the risk factors associated with pregnancy distress. As discussed earlier, the experiences of pregnancy distress are highly individual while embedded in a social network of influences both explicit and invisible. Additionally, personal past history, which has influenced each woman’s maternal subjectivity towards what it means to be a mother exerts an added nuance to a woman’s current experience; other material, medical, environmental, relational and embodied factors, along with race, class and cultural messages of motherhood all work to affect maternal perceptions of self, the baby, pregnancy and future parenting. Keeping in mind this both fixed but also dynamic and temporal depiction of the phenomenon, I have developed a list with recommendations about the factors that may need to be explored to better understand maternal distress during pregnancy, both based on the findings from this project an also identified as factors which welcome future exploration (Table 1.)
Table 1. Factors influencing pregnancy distress

<table>
<thead>
<tr>
<th>Social Context</th>
<th>Historical</th>
<th>Political</th>
<th>Economic</th>
<th>Cultural sexuality, birth control and reproductive discourses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social norms</td>
<td>Pronatalism and beliefs about femininity and motherhood</td>
<td>Good woman ideology</td>
<td>Good mother and Intensive motherhood</td>
<td>Pregnancy <em>shoulds</em> and <em>shouldn’ts</em></td>
</tr>
<tr>
<td>Background</td>
<td>Ethnicity</td>
<td>Race</td>
<td>Class</td>
<td>Financial status</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gender identity</td>
<td>Sexual Orientation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Family structure</td>
</tr>
<tr>
<td>Relationships</td>
<td>Everyday context</td>
<td>Other women</td>
<td>Woman’s own mother</td>
<td>Partner’s mother</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Other family members</td>
<td>Partner</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Other children</td>
<td>Baby</td>
</tr>
<tr>
<td>Past experiences</td>
<td>Childhood trauma</td>
<td>Experiences of sexual violence, abuse</td>
<td>Past miscarriage, baby loss</td>
<td>Past pregnancy and/or postnatal distress</td>
</tr>
<tr>
<td>Mental health</td>
<td>Stressors (current and chronic)</td>
<td>Past diagnosis and experiences of treatment</td>
<td>Experiences of stigma</td>
<td>Current mental health experiences and management</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>Mode of conception</td>
<td>Planned (unplanned) pregnancy</td>
<td>Wanted (unwanted) pregnancy</td>
<td></td>
</tr>
<tr>
<td>Birth culture</td>
<td>Politics of birth</td>
<td>Medicalization</td>
<td>Relationships with doctors, midwives, etc.</td>
<td>Access to antenatal care</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ideas about birth (fears, empowerment)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Social norms about birth (good vs bad birth stories)</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Previous birth experiences</td>
</tr>
<tr>
<td>Body</td>
<td>Medical conditions</td>
<td>Pain and nausea</td>
<td>Body image and Weight gain perceptions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sexuality</td>
</tr>
<tr>
<td>Maternal subjectivity</td>
<td>Individual experiences and perceptions of pregnancy</td>
<td>Perceptions of time(-liness; -lessness)</td>
<td>Self-care</td>
<td></td>
</tr>
</tbody>
</table>
Medicalization

Related to the discussion of antenatal distress is the way women perceive their pregnancy and physical body within a context of expertise and medical care. Prenatal care, screening, testing, and monitoring related both to the physical and emotional aspects of the health of the mother and the fetus, have been framed within the discourse of risk (Lupton, 1999, 2012). Pregnant women are increasingly expected to take full responsibility of their mental and physical health in regards to the implications these bear on their babies (Bell, McNaughton, & Salmon, 2009; Ettorre, 2002). Overall, popular and expert opinion has focused intensely on advocating pregnant women’s engagement in reproductive asceticism (Ettorre, 2002, p. 246), which means to stringently monitor and control their body for the sake of their foetuses, or to be reduced to a womb environment. Lupton (2012) has argued that as a result of this focus on maternal responsibility for the sake of the unborn baby, pregnant women have become the centre for polemics in the public sphere and are now more than ever experiencing the critical public gaze upon themselves. Furthermore, as a result of this thesis, I argue that this focus on full maternal responsibility, also phrased as maternal blame, adds substantially to the development and the increase of emotional distress in mothers.

Additionally, the proliferation of medical research and the scientific progress within human reproductive medicine in the last decades has rendered pregnancy outside of the ‘normal’ human experience and inside a rhetoric of medicalized risk, sterility and set standards for optimal health. Indeed my qualitative work (Chapters 4 and 6) indicated that women shared an increased self-consciousness of their bodies, especially when in public and their concerns about losing (or having lost) control over their body, and most importantly, over their mood. Women’s accounts revealed how they were highly aware of the plethora of possible risks related to pregnancy and birth. Ironically, pregnant women shared increased anxiety about “feeling anxious” because they had the understanding that experiencing distress is risky and harmful. Women’s accounts were also characterized by concerns over the monitoring and interventions that are part of normal pregnancy care, even when medical risk is not present. While women shared an understanding that the wellbeing of their baby is of paramount importance, the over-medicalization of their pregnancy and future birth was experienced by
most women as limiting their own sense of feeling in charge and in control of their pregnancy, which again, served to increase their distress (Chapter 4 and 6). Thus, women who had not yet had their babies experienced themselves as inadequate and bad mothers.

Furthermore, positioning themselves in the middle of the polemic of taking control over their mood and taking care of their unborn babies, women were faced with the conflicting discourses around the use of antidepressants during pregnancy. Recent reports suggest that there has been a dramatic increase in the prescribing of selective serotonin reuptake inhibitor (SSRI) worldwide (Horwitz & Wakefield, 2007), with Australia ranking second-highest prescriber of antidepressants in the world (OECD, report33). Moreover, twice as many psychotropic drugs including antidepressants are being prescribed to women worldwide since the first major SSRI, Prozac, was introduced in 1980s (Currie, 2005; Meijer et al., 2004) thus supporting and legitimizing the biomedical understanding of depression. When such a framework of distress is prevalent, the potential of other available treatment is very limited and usually overlooked. Therefore, it becomes difficult for women, who are pregnant to settle on a solution. It is particularly problematic to ascribe all risks to the individual mother, while burdening her with even more anxieties as a result of this responsibility and the nature of the competing interests that take place during pregnancy and that are being placed onto women.

Women’s descriptions of their experiences of distress included both medical and social dimensions. When accounts of depression and anxiety were located within a biomedical discourse that asserts stress to be ‘unhealthy’ or ‘risky’, women’s talk indicated that they perceived themselves to be potentially harmful for their babies. Given the dominant meanings surrounding fetal and maternal discourse, it is very difficult for a pregnant woman to resist the imperatives of reproductive asceticism and the maternal-fetal conflict (Lupton, 2012) and mother-blame. Thus, when interpreting the findings from the final study (Chapter 7) it is important to shift the focus on the complexity of factors that take part in the aetiology of adversity, and not to underestimate findings which do not support that maternal distress leads to adverse birth. Such findings could play a very powerful role especially for women who already feel overly responsible for the wellbeing of their baby.

Normalizing experiences of common distress and negative mood during pregnancy and framing them into a constructive framework which allows for variability and multiplicity of experiences and maternal subjectivities, has the potential of giving back the power of women’s emotions and bodies into their own hands.
Stigma

The role of stigma in both disclosing mental health problems and accessing help is well evidenced, especially in qualitative research (Corrigan, 2004; Gawley, Einarson, & Bowen, 2011). Shame, guilt and self-stigma along with fear of being labeled mentally ill have been identified among the main reasons why women do not seek help in the postnatal period (Corrigan, 2004; Dennis & Chung-Lee, 2006; Gawley et al., 2011; Jesse, Dolbier, & Blanchard, 2008; Murphy, 2012; Schreiber & Hartrick, 2002). Pregnant women, experiencing distress, are not immune to experiencing stigma, which is arguably three-fold: through the way mental disorders are already fraught with negative connotations; through the socially constructed expectation that pregnant women are to experience solely positive mood; and through the way women are held morally responsible to ensure the fetus’ wellbeing and therefore to fix all that is deviant within themselves.

Drawing from the work of Erving Goffman (1963) I offered an in-depth perspective of women’s experiences of such stigma in the qualitative explorations of pregnancy distress (Chapter 4 and 6) where I argue that the predominant concept in women’s accounts was one of a problematic and troubled maternal identity (a “spoiled identity”) as a result of experiencing such stigma, which was then turned inwards into self-criticism and self-stigma (Chapter 6).

In this thesis I claim that it is the pertinent concept of the culturally constructed good mother through which stigma operates. The good mother cannot experience ambivalence, difficulties or distress. Stigma was central to the understanding of women’s experiences of guilt and shame of feeling other(ed) and unable to provide the best environment for their developing baby. Cultural imperatives around how pregnancy should feel, look, be experienced, planned, supported, timed and eventually culminated in the ideal prescribed birth, were pervasive in women’s talk (Chapter 4 and 6). Together these narratives indicate the complex yet narrow definitions within which women had to position themselves. I argue that the “spoiled identity” of a depressed pregnant woman worked to limit women’s identifications with a positive, caring and able mother who is in control of her emotions; ultimately resulting in women self-labelling as unfit and bad mothers.

Performing the good mother

Pregnancy motivates women to pull all of their efforts in preparation for motherhood (Barclay et al., 1997; Hollway, 2016; Lederman, 1996; Raphael-Leff, 2001). Undoubtedly, women feel the need to react to such life change is various ways. It can be argued that over-engaging with
preparations, pregnancy-care, and self-monitoring all aspects of the experience (feeding, exercise, mood management, birth arrangements, housing, child-care, etc.) could be positively viewed in light of the *good woman* and *good mother* who excessively devotes herself to the needs of her baby. For example being over-productive and effective in managing all roles has been increasingly praised and indicative in our society for successful and good mothering (Hays, 1996). In view of neoliberal values and a culture of regulation, a highly productive individual is expected to be stressed as a result of engaging in all possible actions and ensuring optimal achievement and performance (Ennis, 2014); the neoliberal mothers are furthermore “positioning children as social capital to be invested in” starting during pregnancy (Vandenbeld Giles, 2014; p.297). This potential interpretation of distress offers yet another way of illustrating pregnancy distress.

It can be argued that orienting towards a Regulator mothering style (generally described as the more rigid and controlling mothering style) explored in the empirical studies (Chapters 5, 6, and 7) is a reflection of this dominant discourse towards a mother, in charge of her mood, her future life with a baby, and her career. At a reflective level, taking up such a controlling maternal style can be also interpreted in view of a mere necessity to stress over arrangements for life with a baby. I argue that in developed societies, and specifically within Australian and New Zealand context, where paid maternity leave is scarce (Baird, 2003; Pocock, 2005), childcare is not freely available, and the family budget depends increasingly on women, taking up a Facilitator (or the Natural/Organic mother who does not stress, but easily accommodates to a life with a newborn) can be understood as a privilege denied to many. This bears direct implications around the need for understanding the intersectionality of race, class and gender in the context of pregnancy and motherhood. Good motherhood, as was noted in the introduction, is a privileged, class based construct and the findings from this program of work certainly appear to represent this, promoting a middle-class, child-centred approach to mothering. What is lacking through the discourses of motherhood are class based discussions. As was discussed in the introduction, the ‘good mother’ is often constructed in class-based terms as a middle-class woman, noted through the activities and practices that she is involved in (i.e. Facilitator mothering orientation). As Gillies (2007) notes, middleclass mothers are more likely to see parenting as a ‘project’, i.e. invest time into planning pregnancy, attending antenatal classes, preparing for parenting in much more intensive, time-consuming, financially expensive ways. This is a position of privilege as the mother needs both the time and material resources to do so, something that many working class families do not have. Arguably, Raphael-Leff has subsequently expanded her theory on mothering orientations to include a balanced type, which
she calls Reciprocator, or a mother who engages in both Regulator and Facilitator behaviours while negotiating and accepting her own and her baby’s ambivalent feelings (Sharp, 2004). However, it would be useful to critically examine the model in view of the intersectionality between maternal ideologies, maternal orientations and social class. Such exploration might provide a more complex and useful view of the intersecting factors that influence maternal distress.

Acknowledging the complex and fluctuating process of emotional preparations for motherhood has been similarly highlighted as problematic in the area of parental expectations and beliefs (Staneva & Wittkowski, 2012; Deave, Johnson, & Ingram, 2008). It is important to note that modern parents share an increased sense of feeling over-educated but psychologically and socially under-prepared for parenting (Choi, Henshaw, Baker, & Tree, 2005). Perhaps a greater focus on subjectivity, ambivalence and contradicting emotions, would be beneficial to the transitioning to motherhood, acknowledging not only the positives of parenting but also opening up the space for discussions around the diverse emotions involved in pregnancy (Parker, 1997) and the difficulties of pregnancy and parenting. Such shift in the construction of modern prenting needs to acknowledge and normalize the diversity of experiences without the taboos of anger, frustration, and feelings of regret and unease, all of which are socially unacceptable but widely shared emotions. This change needs to be addressed not only by mothers themselves, but also within the attitudes of healthcare professionals and importantly, within a wider cultural and social setting.

Cultural messages about what it means to be a good woman have an implicit effect on how we form understandings of woman’s nature; and these are often varied and conflicting. Thus, to be a good mother could mean negotiating multiple conflicting roles; a strong dedicated woman who successfully balances career and baby-care, who is in charge of her household and emotions, but a good mother could also mean an earth, natural instinctive mother, who ‘plays it by ear’, and successfully adjusts to all fluctuations of her emotions while exclusively attending to her baby’s needs. Such binary definitions of good: bad mothering, however, do not offer much in terms of understanding the multiple realities of pregnancy and mothering, but remain within prescriptive gender roles and expectations that women need to take upon. Rather, the route to an emancipatory and woman-centered approach lays in the understanding that pregnancy distress is an entirely subjective experience grounded in each woman’s social reality. Such understanding is vital and can be promoted through various individual, intra-personal and societal advances.
Moving forward

This thesis demonstrates the way in which a material-discursive-intrapsychic approach and a critical realist epistemology acknowledge the multi-faceted nature of pregnancy and of pregnancy distress. The embodied experience of pregnancy distress needs to be positioned within a wide context but with an individualized focus on the woman herself in order to advance our knowledge and progress into the development of theory, research and practice that move beyond the body-mind divide. We need to find ways to enable informative, helpful and constructive conversations around mental health during the perinatal period that do not stigmatize women but contribute to their physical and wellbeing. Stories that include distress and negative mood, stories of resisting and decentering the dominant discourses of the good mother are a much needed aspect of framing the reality of mothering (McKenzie-Mohr & Lafrance, 2014).

Indeed, women’s stories demonstrated examples of counter stories, such as the phrase “Pregnancy is shit!” (used by six of the 18 women participating in the qualitative interviews). This arguably missing discourse of not enjoying aspects of pregnancy is absent from lay language despite being heavily voiced and reproduced in various alternative forms by women/feminist scholars. Public narratives that reflect the multiplicity of the experience of pregnancy, including stories of dislike, ambivalence, loss, pain, struggle and distress are emerging especially with the advancement of social media in the form of personal blogs (e.g., www.dooce.com), b(v)logs and websites (e.g., www.scarymommy.com) and are equally central to providing a much needed alternative representations of mothering.

Feminism and motherhood/mothering studies have effectively advanced awareness of these issues and progressed understandings of maternal subjectivity. Maternal studies and a mother-centered feminist movement or matrocentric feminism (O’Reilly, 2008) have gained recent academic popularity and have opened up various spaces for re-visioning motherhood and destabilizing the good mother discourse. Motherhood is increasingly depicted as a choice, despite strong pronatalist public opinions (Gillespie, 2000; Maher & Saugeres, 2007). Although in very slow increments, women are taking agency in their reproductive choices (e.g., accessing alternative forms of assisted reproduction; living in alternative family structures, etc.) and in their birth stories (e.g., home birth activism, Chadwick & Foster, 2014), and thus slowly disrupting the status-quo of how mothering is being, or should be, done.
Advances in woman-centred midwifery care, which focuses not only on the safe birth of the baby, but also on the wellbeing of the pregnant mother recognizing her personal circumstances along with her social, emotional, physical, spiritual and cultural needs (Leap, 2009) are also beginning to be implemented in pregnancy and birth practices worldwide. Alternative ways of doing research from a participatory driven framework, such as visual research methods (Liamputtong & Rumbold, 2008) and practices and interventions that promote health in a non-stigmatizing way, such as expressive writing (Baikie & Wilhelm, 2005; Gortner, Rude, & Pennebaker, 2006), photo-voice (Russinova et al., 2014; Wang, 1999), yoga, mindfulness meditation, and imagery (Marc et al., 2011; Vieten & Astin, 2008) have also gained needed popularity in contemporary feminist approaches.

Similarly, social activism and advocacy play a big role in bringing about change and improving the conditions of women’s lives, which are vital for women’s wellness. Distress would be ameliorated if all women had the opportunity to make informed decisions in family planning, to access safe and affordable pregnancy-, maternity- and child-care, as well as flexible and fair employment arrangements that accommodate mothering. Importantly, the role of partners in child-care cannot be stressed enough. Paternal involvement during pregnancy has been recognised to have impact on maternal health behavior practices, optimal birth experiences, improved birth outcomes, and reduced maternal distress (Alio, Lewis, Scarborough, Harris, & Fiscella, 2013; Pilkington, Whelan, & Milne, 2015); much efforts remain needed to elucidate this topic, and to promote shared parenting, not only within the nuclear family, but also within the wider community.
Epilogue

"There is no such thing as a baby ... if you set out to describe a baby, you will find you are describing a baby and someone."

(Winnicott, 1947 in Tuber, 2008).

Historically, the focus of perinatal research has been solely fetus- (and baby/child) oriented. Maternal experiences of pregnancy and mothering have been studied and even framed as such for the next generation’s sake. Similarly, on a reflexive note, it has been only natural for people to react to my research interests in antenatal distress in terms of its implications around the wellbeing of the baby. Maternal mental health and wellbeing come second. Admittedly, I too, was academically swayed to explore maternal experiences of antenatal distress in view of its effects on the developing baby. There seems to be the need for a reason when framing maternal mental health as a public health priority, beyond the woman herself.

With this thesis, I attempted to challenge this approach and to rearticulate the Mother and the importance of her own pregnancy experiences beyond the limiting framework of a baby container; I also attempted to bring about a rich and nuanced understanding of why the mother who is experiencing distress is worth exploring and listened to, for her own sake and for the implications that are important for herself as much as the ones relating to her baby.

Furthermore, by disrupting taken-for-granted notions of the perfect mother, I aimed to promote a shift in a paradigm that does not work, into a more meaningful and normalized discourse of the distressed mother; a discourse that in my belief provides a genuine and empowering source of identification for mothers. I believe that such a balanced shift in the attention and the responsibility that society has towards women who mother, is critical in supporting strong and competent mothers.
References


and lower-middle-income countries: a systematic review. *Bulletin Of The World Health Organization, 90*(2), 139-149.


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Schellong, K., Schulz, S., Harder, T., & Plagemann, A. (2012). Birth weight and long-term overweight risk: systematic review and a meta-analysis including 643,902 persons from 66 studies and 26 countries globally.


*Social Science & Medicine, 36*(4), 393-402.


## Appendix A
### Study Measures

<table>
<thead>
<tr>
<th>Domain of assessment</th>
<th>Measure</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TIME 1:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-demographics</td>
<td>adapted questions from the Family Background Questionnaire (Sanders et al., 2003)</td>
<td>Incl. age, ethnicity, education, occupational status, etc.</td>
</tr>
<tr>
<td>Pregnancy History (current and past); Health Behaviours</td>
<td>adapted questions from the Health Behaviours during Pregnancy Questionnaire (Lobel, 1996)</td>
<td>Smoking, alcohol/caffeine intake, drug use, sport, etc.</td>
</tr>
<tr>
<td>Antenatal depression</td>
<td>EPDS Edinburgh Depression Scale (Cox &amp; Holden, 1987)</td>
<td>Depressive symptoms</td>
</tr>
<tr>
<td>Pregnancy-specific distress</td>
<td>PDQ Prenatal Distress Questionnaire (Yali, Lobel et al., 1999)</td>
<td>Stress, originating from issues common in pregnancy</td>
</tr>
<tr>
<td>Sense of coherence</td>
<td>SOC Sense of Coherence Scale (Antonovsky, 1989) Brief version SOC13</td>
<td>Global orientation to one’s inner and outer environments, hypothesized to be a significant determinant of location and movement on the health ease/dis-ease continuum. 3 dimensions: comprehensibility, manageability, and meaningfulness</td>
</tr>
<tr>
<td>Perceptions about social support</td>
<td>MSPSS Multidimensional Scale of perceived Social support (Zimet et al., 1990)</td>
<td>Family, friends and significant others</td>
</tr>
<tr>
<td>Adult attachment style</td>
<td>RQ The Relationship Questionnaire (Bartholomew &amp; Horowitz, 1991)</td>
<td>Attachment styles in adults: secure, preoccupied, dismissing, fearful</td>
</tr>
<tr>
<td><strong>TIME 2:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mothering orientation</td>
<td>AMOM Antenatal mothering orientations measure</td>
<td>Maternal orientations</td>
</tr>
<tr>
<td>Attachment to fetus</td>
<td>MAAS The Maternal Antenatal Attachment Scale (Condon, 1993)</td>
<td>Quality of the mother’s affective experiences towards the foetus and intensity of preoccupation with the foetus.</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>TIME 3:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birth outcomes</td>
<td>self-report on items from the Queensland Perinatal Data Collection Form (2012)</td>
<td>gestational length, PTB (birth before 37 weeks), type of premature birth (spontaneous or medically indicated), baby weight (over or below 2500 grams), delivery mode (vaginal, C-section, etc), use of anaesthesia (yes/no), place of birth (hospital vs home), baby’s admission to NICU (yes/no), mother’s further medical complications (yes/no)</td>
</tr>
<tr>
<td>Postnatal depression</td>
<td>EDPS Edinburgh Postnatal Depression Scale (Cox &amp; Holden, 1987)</td>
<td>Depressive symptoms after birth</td>
</tr>
<tr>
<td>Adjustment to motherhood</td>
<td>MAQ (Maternal attitudes questionnaire) Warner et al., 1997</td>
<td>Cognitions regarding role change, expectations of self and of motherhood in postnatal women</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>MSES (Maternal Self-Efficacy Scale) (Teti et al. 1991)</td>
<td>Mother's expectations about the degree to which she is able to perform competently and effectively as a mother</td>
</tr>
<tr>
<td>Attachment to the newborn</td>
<td>MPAS (Maternal Postnatal Attachment Scale) (Condon &amp; Crokindale, 1998)</td>
<td>Parent-infant attachment pleasure in proximity, tolerance, need gratification and knowledge acquisition</td>
</tr>
</tbody>
</table>
Appendix B
Interview Schedule

Opening
Researcher presents herself and her academic and personal background and proceeds to explain the purpose and objectives of this study focusing on the personal experiences that women share in similar interview settings, around “the mixed bag of experiences” involved in pregnancy and motherhood.

Pregnancy
1. Tell me about your pregnancy?
2. How do you feel about being pregnant?
3. Is there any previous experiences (pregnancies) or losses that may be affecting how you feel at this moment towards this pregnancy
4. Could you tell me how a typical day goes for you now that you are pregnant
5. How has this pregnancy changed you?
6. Is this how you expected pregnancy to be like?
7. How do you take care of yourself, your body?
8. Are people reacting to your pregnancy? In what way?
9. Body changes– experiences, feelings, any aches, concerns, worries, treatments, scans

Antenatal care and birth
10. What is your pregnancy care like? Who is involved?
11. What is it like to going to the clinic?
12. What were your expectations regarding antenatal care?
13. What do you think labour would be like for you?
14. Expectations about labour, fears, experiences, pain control; Any plans?
15. How do you prepare for labour? Any antenatal activities, classes?
16. Are these important to you and in what way?

Relationships
17. Are you comfortable at home? What is it like in your household?
18. Partner – any concerns, his reaction to pregnancy, to fatherhood, involvement, how do you see him? Do you feel safe, understood
19. Mother – past and present; relationship with/your experience of being mthered/grand-mothered; Do you know about how you have been born; your mother’s pregnancy and how you were taken care of as a baby?
20. Do you feel like you are supported through this pregnancy?
21. What do you think most often when you think about this baby?
22. How do you imagine life with a baby? How do you envision the future (do you?)
23. What kind of mother would you like to be? Do you imagine yourself as a mother?
24. What is a ‘good’ mother to you?

Mood
25. How would you describe your mood?
26. In the survey some of the responses you provided could potentially indicate that you are experiencing some level of distress…? What do you think about that?
27. Do you have any concerns, worries?
28. What do you believe is the source of your worries, concerns, low mood?
29. How did you come to understand that you are distressed or depressed?
30. How do you explain your depressive experience? What does it feel to be depressed?
31. What is the meaning of distress for you?
32. How would you name/label your feelings?
33. Did you disclose how you are feeling to anyone?
34. How do you think others perceive you?
35. Do you think other women go through pregnancy in a similar way?
36. What is your opinion on treatment (medications)?
37. What are you doing to cope?
38. What are your views on professional/popular treatment of psychological distress, depression?
39. Who provides support? Is this good for you?

Closing
40. How did talking about all this make you feel?
41. Is there anything you would like to add/ask me? Feel free if you’d like to contact me with further explanations.
The awful insult mothers direct at themselves

- June 3, 2015

Tanya Plibersek says she’s not a perfect mother, but neither is anyone else.

- GINGER GORMAN
- news.com.au

IT’S the ultimate insult: You’re a bad mother.

By way of evidence, I present to you Exhibit A: “Oh, God I feel so sorry for any kids you might have.”
This tweet, clearly designed to wound, was received by Greens Senator Sarah Hanson-Young, mother of eight-year-old Kora.

Free critiques of her mothering are not uncommon. Ms Hanson-Young remembers yet another comment directed at her from a stranger: “I just couldn’t leave my daughter behind. Oh, I don’t know how you do it.”

While Ms Hanson-Young acknowledges the latter opinion might be an attempt to “sympathise”, she says: “There’s enough mother guilt there as it is, without having people remind you.”

This is the “bad mother” trope, a category we’ve all been placed in at one time or another — even if we did it ourselves.

Maybe it’s been a long week and you feed your children fast food on a Friday night. Or you are late to pick up your child from daycare. Again. Perhaps you are struggling to breastfeed and give up in favour of formula. Or, in the morning rush, you forget to put your kid’s water bottle in their school bag. You can feel the pressure rising in your chest and you can’t help judging yourself as a “bad” mother.

Greens Senator Sarah Hanson-Young has a busy schedule, but says she doesn’t need the mother guilt. Picture: Kym Smith Source: News Corp Australia

According to Aleksandra Staneva, a PhD scholar at the University of Queensland School of Psychology, the “bad mother” concept is so common, it goes unquestioned.

“Motherhood discourse, starting with the required pregnancy glow, does not allow for anything but perfection. Women struggle with living up to the ideal of the good mother,” Ms Staneva says.

“If you look into popular understandings, to be a mother is the most natural and instinctive thing.
“[But] if you have other interests or if you’re not fully enjoying it then you feel like a total pariah, like an outcast,” she says.

We need to start a “new type of conversation about motherhood, that acknowledges both the glory and the lows, which are only natural for parenthood”, she continues.

Deputy Opposition leader Tanya Plibersek, who has three children Anna, 14, Joseph, 10 and Louis, 4, has copped a decent amount of criticism about her mothering but says she “just can’t take any notice”.

“I don’t care because I love my kids. They have their moments but they’re not little axe murders, despite the hours that I work,” Ms Plibersek says.

“We are a very happy family, so what do I care what other people think?”

Tanya Plibersek with husband Michael Coutts-Trotter and their three kids, in 2013. Source: Supplied

For Ms Hanson-Young though, it’s harder to deflect unsolicited appraisals of her parenting.

“Any criticism about the way I parent my daughter or whether I’m putting enough energy into being a mother … those things do tend to hit home the hardest,” she says.

Ms Hanson-Young found out just how hard it is to mother in public back in 2009 when Kora, who was two-years-old at the time, was ejected screaming and crying from the
Senate. Plenty of people lashed out at the young mum for having her child at work, including other mums.

She describes the incident as a “massive learning experience”.

“People will criticise the decisions you make as a mum in the public eye. You can’t stop that but what you can do is manage your own response,” she says.

Ms Hanson-Young explains she has been forced to “develop a bit of a thick skin”.

“I’ve learned to be very comfortable with my decisions on things, whether that’s policy, or the decisions I make about Kora’s life,” she says.

“I just couldn’t survive if I was constantly questioning myself.”

Sarah Hanson-Young was ejected from the Senate in 2009, because her daughter Kora was seen as a ‘stranger in the house’. Source: News Limited

Despite this, when she’s at the supermarket with her daughter and a stranger peers into their trolley, Ms Hanson-Young does wonder whether she’s being judged.

“I must say, there’s an element of me that always thinks, ‘Oh, gosh. What have I got in there?’, ” she says with a laugh, adding, “I can’t help that. That’s human nature.”

During our short but wideranging conversation, Ms Plibersek refers to the “outsider looking in making a judgment by partial and imperfect information”.

That outsider would not know, for example, that despite the demanding, around-the-clock nature of politics, Ms Plibersek breastfed each of her children until they were a year old. If she was working, the baby was brought to her in the middle of the day. And now her kids are older, Ms Plibersek’s children frequently attend functions or school fetes with her on weekends.

“It’s a very seven-day-a-week kind of a job but it’s also a job that can make space for kids if you need to,” she says.

Tanya Plibersek at work in her parliamentary office with daughter Anna in 2001. Picture: Ray Strange Source: News Corp Australia

Ms Plibersek says while she finds her work “incredibly interesting and rewarding” but it’s also “very high conflict”.

Parenting is a “great counterbalance to the stress of work”, she says.

She points to the joy of “being able to come home to a family and just have to be completely present as a mother and be interested in homework and the funny, long rambling stories kids tell you”.

Likewise, even though it’s a constant “juggle”, Ms Hanson-Young ensures that she prioritises her daughter.
“All the staff in my office, they all know that Kora and I are a package. We get booked on flights together,” she says, adding that she has great support.

Even so, both women are quick to point out they aren’t supermums.

“It’s not that I think I’m a perfect mother … I’ve got every short coming there is, on occasion,” Ms Plibersek says.

“But I just hold onto the fact that there are no perfect families, there are no perfect mothers, all of us have our imperfections and the most important thing is to love your kids.

“I think they’ll forgive you a lot … as long as there’s a lot of love in the family.”

It’s all about being honest with yourself, Ms Hanson-Young says.

“There’s no point being good or bad, you just want to be the best you can be,” she says.

Ginger Gorman is an award winning print and radio journalist, and a 2006 World Press Institute Fellow. Follow her on twitter: @freshchilli
Breaking the prenatal depression taboo

Women can go through a grief-like process on the path to motherhood, say researchers

By Lucy Goodchild-van Hilten Posted on 4 November 2015

“Grief is a normal part of any transition or change, so experiencing these emotions and going through this process is a normal part of a big change like becoming a mother.”

Mood swings go hand in hand with pregnancy for millions of women around the world. But when it comes to talking about emotions, it’s mostly the high points of the rollercoaster that women tend to share, and so far research hasn’t delved very deep into the emotional downs.

A motherhood researcher in Australia is working to change that.
I’ve been researching motherhood and the traditions of motherhood since becoming a mother myself,” said Aleksandra Staneva, a PhD student in psychology at The University of Queensland in Australia.

“I work with pregnant women who are experiencing depression and anxiety. What really happens in the heads of these women? What do they really feel like? What’s their lived experience like? We don’t know much about these things, but they are very important for the mother and the baby.” Staneva wanted to find out more about distress and anxiety during pregnancy, so she started by working with colleagues at the University of Queensland and the University of Manchester in the UK on a meta-analysis of published research. In their study published in Midwifery, the researchers focused on the qualitative research, aiming to gain a deeper insight into women’s emotional responses. However, the search came up disappointingly empty.

“When we started looking more deeply into the studies that have been done on this topic, we found a shockingly small number,” recalled Staneva, the lead author. “It was no surprise really – qualitative studies are usually more scarce than quantitative studies; science loves numbers, and unfortunately, in a white-male-dominated society, experiences and feelings are not taken as seriously as they should be compared to numbers.” The team searched many databases to identify studies to analyze. To be eligible, the studies had to be qualitative, focus on pregnancy and talk about levels of distress, such as stress, anxiety and depression. The researchers identified eight eligible studies from a starting pool of 3,000 and compared them to draw out the core themes. The results confirmed that women who experience distress during pregnancy go through a grief-like process on the path to motherhood – a process previously identified by prominent feminist scholar Dr. Paula Nicolson, Emeritus Professor of Social Work at Royal Holloway University of London, when she explored the
The studies also indicated that the notion of the “perfect mother” can exacerbate distress and cause feelings of inadequacy in expectant mothers.

The grief-like process of pregnancy

The studies Staneva and her colleagues analyzed revealed an overarching process of grief or loss that the women went through during pregnancy. In the transition, many women experience senses of loss in terms of time, appearance, body image, roles around sexuality, career and themselves as women.

The team identified five core themes of the experience of pregnancy distress. According to the meta-analysis, women first recognize that things are not right, then deal with the stigma attached to that feeling. They then negotiate the transformation they go through into motherhood and spiral down before and regaining control.

“I believe this whole process of becoming a mother starts way before you give birth,” said Staneva. “Grief is a normal part of any transition or change, so experiencing these emotions and going through this process is a normal part of a big change like becoming a mother.”

Through this grief-like process, women isolate themselves and let go of all expectations, all roles and identities, and end up being ok with that. The key, Staneva said, is being able to grieve in a supportive environment in which it’s ok for the woman to say, “I’m going to miss being carefree and single.”

Sugarcoated expectations

The grief-like process results in part from women’s inability to place the experiences they’re having in the typical picture of the “perfect mother.” There are huge taboos around anything that strays from the picture of the glowing pregnant—rubbing-their-belly—mother-to-be. Women whose experiences don’t match this picture due to feelings of distress are more likely to go through this transition during pregnancy. According to the researchers, this process is exacerbated by women’s interpretation of their experience as deviant and often as inadequate.

“We all go about our lives in very different ways, but this image of the perfect mother, which is a socially constructed device that women use to measure themselves against, can make women feel like they’re
never good enough,” Staneva said. “That’s a good reason to feel stressed and we can see from the studies we analyzed that it often has an impact on the transition women go through to motherhood.”

Keeping quiet about taboo feelings had a further negative effect on women; the evidence showed that women were spiraling down emotionally as a result of their silent distress.

One major factor was not being able to find a supportive network to share their experiences. Criticism from midwives and carers – and not enough understanding from partners, other family members or other mothers – all had an impact, Staneva said: Only women who found this so-called safety net where they could talk freely about their experience of distress could regain self-care, control and feel better. Women were feeling ashamed and guilty for having felt unhappy.

There are not enough conversations around that; expectations around motherhood are always sugarcoated and there is hardly any talk of experiencing ambivalence. It’s actually a great achievement for infant and mother to allow whole range of different emotions.

**Breaking the taboo**

Healthcare professionals have an important role to play in providing women with an emotional safety net during pregnancy, and opening up a dialogue about stress, depression and anxiety. In revealing the process of transformation women can go through during pregnancy, Staneva said she hopes to shine a light on a hidden topic.

Midwives, obstetricians, general practitioners, psychologists and counselors all have a part to play in encouraging women to talk about feelings of distress. Healthcare professionals should help women understand that certain levels of anxiety and distress are normal during pregnancy, and they should also be aware that women may be reluctant to talk due to stigma.

A more genuine, supportive approach would open up a whole new dialogue for women in which they feel supported and safe, Staneva said: Sensible psychological assessment should be a normal part of antenatal care. But women are quite terrified to share and seek information in formal pathways such as through their GPs and carers. Instead, they go online and share how they feel in online forums; many
of the women I talk to are thankful for Facebook, where they can be part of support groups anonymously.

Staneva also hopes the topic will filter into women’s dialogue around distress during pregnancy. Despite many mothers experiencing these feelings, there is a huge taboo to share the idea that pregnancy isn’t always magical.

As a result, mothers can be reluctant to highlight their own experiences and only share information that fits the norm. There is a huge taboo to share the idea that pregnancy isn’t always magical.

“It’s so important to start this conversation and this dialogue. Parenting is really hard and pregnancy is really challenging – it’s such a huge transition,” she explained. “Stress is part of modern life; at the same time, stigma increases around the smallest sign of not feeling right. I’m glad the conversation is happening; I hope it gets to the women themselves rather than being read in academic journals.”

Read the study
Elsevier has made the following article freely available until 6 January 2016.

The Lead Author
Aleksandra Staneva is a PhD student in Psychology at The University of Queensland in Australia. She is interested in women’s studies, perinatal psychology, mothering and feminism. Her research interests have taken her from the USA to the UK and, most recently, to Brisbane, where she was awarded an IPRS and UQ Centennial scholarship to explore the mechanisms of pregnancy depression, anxiety, and perceived stress, birth and early adjustment to motherhood. Aleksandra aspires to identify and provide alternative ways for women to share their experiences of mothering in healthy and meaningful ways. She has a 7-year-old son.

The Journal
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**Elsevier Connect Contributor**
Lucy Goodchild-van Hilten

After a few accidents, Lucy Goodchild van Hilten discovered that she’s a much better writer than a scientist. Following an MSc in the History of Science, Medicine and Technology at Imperial College London, she became Assistant Editor of *Microbiology Today*. A stint in the press office at Imperial saw her stories on the front pages, and she moved to Amsterdam to work at Elsevier as Senior Marketing Communications Manager for Life Sciences. She’s now a freelance writer at Tell Lucy. Tweet her @LucyGoodchild
Misunderstood mothers-to-be internalise stress

Pregnancy: A discrepancy between the ideal and reality has been established as a known trigger for depression and anxiety.

The role that stigma around mental health plays in the stress of a pregnancy – and birth complications - has been thrust into the spotlight by a study from researchers at The University of Queensland.

PhD candidate Aleksandra Staneva from UQ’s School of Psychology collaborated with Associate Professor Fiona Bogossian from UQ’s School of Nursing, Midwifery and Social Work on the study.

Among the key findings was a need for psychological assessment to place greater importance on the environment surrounding the mother-to-be, rather than focusing solely on her own coping mechanisms.

“In our research the women who felt misunderstood by their partners, alone, and lacking support and resources chose to silence their true voices,” Ms Staneva said.

“This appears to have profound impact on their emotional state, and potentially on their birth experiences and postnatal adjustment to motherhood.
“Possible outcomes include poor attachment with the baby, postnatal depression and stress-related risks to the child of preterm birth, low birth weight and various other birth complications.”

Canvassing input from 128 women, The experience of psychological distress, depression and anxiety during pregnancy appears in the journal Midwifery.

Gaps in previous literature on the subject are highlighted, particularly the absence of research using a “feminist lens”.

“The review provides further understanding on the sometimes unrealistic and romantic expectations of motherhood and pregnancy,” Ms Staneva said.

“These can result in feelings of inadequacy, defeat and isolation, all of which may contribute to and perpetuate distress.

“A discrepancy between the ideal and reality has been established as a known trigger for depression and anxiety.”

Research uncovered several points of conflict for mothers, with the responsibility of their infant's well-being described as both frightening and empowering.

Some women also reported that being informed about the risks and apprehensions of pregnancy only increased their anxiety, rather than creating a sense of preparedness.

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Appendix C. 4
Media 4

Your local Families Brisbane Magazine (October issue)

Pregnancy Distress
Revisiting some myths around the “glowing bump”

Expecting a baby is usually experienced as a source of utmost joy, excitement and glorious expectations for parents. New evidence, however, is having us rethink some myths surrounding the “glowing bump”. Pregnancy, once believed to be a time of greater emotional wellbeing for women, has been linked to a range of mood disorders. Research shows a growing number of depression, anxiety, and stress rates for pregnant women worldwide. The most common symptoms include loss of interest in previously enjoyable activities, isolation, prolonged sadness and crying, and uncontrollable worrying about the pregnancy, the baby, labour and parenthood.

Psychological disorders during pregnancy have been linked to a number of potentially adverse consequences for both bub and mum, such as problematic birth, prematurity, low birth weight, less than optimal adjustment to motherhood, bonding, and postnatal depression. Furthermore, new mums find themselves doubting their own abilities to take care of a newborn, thus enabling a vicious circle of insecurity and low self-esteem.

Many women, however, make the tough choice not to seek help. This is the result of a complex mix of factors:

1. Nobody talks about this! Popular beliefs work subconsciously in shaming any other experience different from the perfect, settled, fully-prepared mum-to-be, whom we face every place we turn – magazines, GP’s waiting rooms, and mostly within other women. Australian women, participating in an ongoing study on Pregnancy Mood, Birth and Early Motherhood*, shared a common understanding that “other women could be each other’s worst enemy”, suggesting that there is a great deal of subversive lack of support and openness when it comes to the reality of pregnancy and motherhood. As a result of this “keeping it quiet” attitude, once women become mothers, realize how underprepared they are about the impact and the changes associated with bringing up a human, especially if they have not had the opportunity to experience first-hand parenting through their sisters or close family members and friends.

2. Mental disorders continue to be perceived and labelled in modern society. Self-stigma is the main reason why most women decide to isolate themselves from friends and family, either by putting the “perfect mum” mask or by minimising contact with others. What is worse this happens not only after a
clinical diagnosis of depression, but even in experiences of temporary sadness or irritation, as these are not easily accepted by our culture, again due to the common belief that pregnancy entails only a positive glow. In reality even for well-planned pregnancies of women, who are financially secure, in a long-term relationship pregnancy and adjustment to the maternal role can present with the unexpected sadness.

Apart from becoming a mother and experiencing a great sense of achievement and fulfilling a grand purpose in life, modern motherhood comes at a high price. There are many psychological losses associated with motherhood – losses of identity, autonomy, appearance, and various alternative roles. Therefore, it comes to no surprise the increasing worldwide tendency towards smaller families or even an elective childlessness.

The transition to parenthood is a time for many physiological, social and psychological adjustments. While many women cope with the changes relatively well, others are more vulnerable to experiencing psychological distress. We need an increased awareness towards maternal mental health and symptoms of depression and anxiety in order to be able to negotiate parenting in an optimal way, and to also offer a meaningful advice, support and understanding to other women. Above all we need to share an understanding that pregnancy, as much as any other human experience, is a mixed bag and it comes in all colours and shapes, over and above the pink cheeks, ribbons and glowing hearts.

Take good care of yourselves mummas and let go of the pressure! There is no perfect way of doing the motherhood thing!

Aleksandra Staneva is a PhD Scholar at The University of Queensland in the School of Psychology, researching the experience of pregnancy, birth and motherhood in Australian and New Zealand mothers.

E: a.staneva@uq.edu.au
W: *Pregnancy Mood, Birth, and Early Motherhood Project:
https://exp.psy.uq.edu.au/pregnancy/
https://www.facebook.com/pregnancymood
twitter: @pregnancyMood
Appendix D

Human Research Ethics Committee approval letter

THE UNIVERSITY OF QUEENSLAND

Institutional Human Research Ethics Approval

<table>
<thead>
<tr>
<th>Project Title:</th>
<th>Maternal Depression, Anxiety And Psychological Distress During Pregnancy And Associations With Birth Outcomes And Adjustment To Motherhood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Investigator:</td>
<td>Ms Aleksandra Staneva</td>
</tr>
<tr>
<td>Supervisor:</td>
<td>A/Prof Fiona Bogossian, Dr Alina Morawska, Dr Anja Wittkowski</td>
</tr>
<tr>
<td>Co-Investigator(s):</td>
<td>A/Prof Fiona Bogossian, Dr Alina Morawska, Dr Anja Wittkowski</td>
</tr>
<tr>
<td>School(s):</td>
<td>School of Psychology</td>
</tr>
<tr>
<td>Approval Number:</td>
<td>2013001559</td>
</tr>
<tr>
<td>Granting Agency/Degree:</td>
<td>IPRS and UQ Centennial Scholarships</td>
</tr>
<tr>
<td>Duration:</td>
<td>31st December 2015</td>
</tr>
</tbody>
</table>

Comments/Conditions:

Expedited Review - Low Risk

Permission required from clinics and sites before placement of recruitment materials

Note: If this approval is for amendments to an already approved protocol for which a UQ Clinical Trials Protection/Insurance Form was originally submitted, then the researchers must directly notify the UQ Insurance Office of any changes to that Form and Participant Information Sheets & Consent Forms as a result of the amendments, before action.

Name of responsible Committee:

Behavioural & Social Sciences Ethical Review Committee

This project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research and complies with the regulations governing experimentation on humans.

Name of Ethics Committee representative:

Associate Professor John McLean
Chairperson
Behavioural & Social Sciences Ethical Review Committee

Signature [Signature] Date 10/12/2013

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Appendix E

Participants Information Sheet

“Pregnancy Mood, Birth and Motherhood”
Participant Information Sheet

Investigator: Aleksandra Staneva, PhD Candidate
Supervisors: A/Prof Fiona Bogossian, Director of Research, School of Nursing and Midwifery, UQ
Dr Alina Morawska, Deputy Director of Research PFSC, School of Psychology, UQ
Dr Anja Wittkowski, School of Psychology, University of Manchester

Thank you for considering taking part in this project!

The purpose of the study
The purpose of this research study is to understand how women feel throughout their pregnancy and shortly after the birth of their baby, and the type of birth they had. Pregnancy and the transition to parenthood are very exciting times for women, but this is also a time of great emotional and physical transformations. This study investigates if mood during pregnancy may be related to labour and mood after birth.

Eligibility
To be eligible for participation, you need to be:
- pregnant, between 12 and 26 completed weeks, and
- to understand English, and
- to have access to a computer with internet connection and an email, and
- to currently live in Australia or New Zealand

If you are willing to participate you will be asked to indicate your consent after reading this information sheet.

Participation and withdrawal
Participation in this study is completely voluntary and you are free to withdraw from this study at any time without prejudice or penalty. If you wish to withdraw, simply stop completing the survey.

What is involved
You will be asked to complete three online surveys at different times in your pregnancy and after birth. The first time can be today, right after you consent for participation you will be linked to a web-survey. The next time, will be after week 26 of your pregnancy (roughly during your third trimester) when you will be asked to complete some of the same questions along with some new ones; the third and last time will be at 6 to 12 weeks after you have had your baby and you will be asked to
answer just a few short questions about the type of birth you had and how you are feeling.

These questionnaires ask about a range of individual and family issues and will take approximately 30-40 minutes to complete. You are free to leave out any questions you do not wish to answer.

You will also be able to choose to be contacted to talk about your pregnancy and your experience face to face at a time and place convenient to you or using Skype if this suits your needs better. This interview will be audio-recorded. A copy of this recording can be provided to you at the conclusion of your involvement in the study. At the end of the research project, the recording will be archived and stored confidentially.

As a form of a thank you for your time and participation, if you wish your email will be entered for the chance to win a $35 gift card (Coles/Myers group). Your email address will be stored separately from the survey data and will be used only to determine the winners of the prizes.

**Risks**

Participation in this study should involve no physical or mental discomfort, and no risks beyond those of everyday living. If, however, you should find any question to be invasive or offensive, you are free to end participation in the study at any time without consequences. Please note that the researcher is not able to provide health advice and concerns about your own or your baby's well-being should be directed to your general practitioner (GP).

**Confidentiality and security of data**

All data collected in this study will be stored confidentially and will be kept secure in locked filing cabinets at the School of Psychology at The University of Queensland. Only members of the research team will have access to identified data. All data will be coded in a de-identified manner and subsequently analysed and reported in such a way that responses will not be able to be linked to any individual. The data you provide will only be used for research purposes and the overall findings of the study might be published. The data collected during this research study may be used for another purpose by the researcher for which further ethical approval will be sought. Any information stored on computers will be secured by a password.

The research team may only breach confidentiality if there is a risk of harm to you or others. This means that should neglect, harm or potential harm to the baby, yourself, your partner or others be identified, relevant services will be contacted.

**Ethics Clearance and Contacts**

Your participation in this project is voluntary and unrelated to your care at any hospital or organization. If you wish to withdraw from this study, your care will not be compromised in any way.

This study has been reviewed and approved by the ethical review processes of the University of Queensland and within the guidelines of the National Statement on Ethical Conduct in Human Research. This study adheres to the Guidelines of the ethical review process of The University of Queensland and the National Statement on Ethical Conduct in Human Research. Whilst you are free to discuss your participation
in this study with project members, if you would like to speak to an officer of the University not involved in the study, you may contact the Ethics Coordinator on 3365 3924.

Thank you for your participation in this study!

Aleksandra Staneva  
Main Investigator  
E-mail: a.staneva@uq.edu.au  
Phone: 0415538362  
McElwain Building  
School of Psychology  
University of Queensland  
St Lucia, QLD 4072
Appendix F

Participants Consent Form

“Pregnancy Mood, Birth and Motherhood”

Consent Form

Investigator: Aleksandra Staneva, PhD Candidate
Supervisors: A/Prof Fiona Bogossian, Director of Research, School of Nursing and
Midwifery, UQ
Dr Alina Morawska, Deputy Director of Research PFSC, School of Psychology, UQ
Dr Anja Wittkowski, School of Psychology, University of Manchester

I have read the information letter about the research and consent to participate in the
study on the understanding that:

1. I am aware of the general purpose, methods and demands of the study, including the
   following:
   a) there will be three online surveys to be completed throughout the study;
   b) if I wish to I can participate in a face to face or SKYPE interview and this
      interview will be audio-recorded.

2. My participation in this study is entirely voluntary and I am free to withdraw from
   the study or refuse to take part at any time, without penalty.

3. Taking part in this study does not involve any risks or discomfort.

4. I am aware that information I provide will be used for data in a research study only.

5. I might be contacted by a member of the research team if clarifications of my
   responses are needed.

6. I have been assured that the information I provide will be treated confidentially,
   and will be reported anonymously. Confidentiality will only be breached when a
   person is deemed at risk for harm in order to ensure their safety. Should this occur,
   the appropriate authority will be notified.

7. I will receive information of the overall progress of the project at the end of the
   project.

Participant: ____________________________

___________________________   __________
Signature                               Date
Appendix G
Advertisement materials

Expecting a Baby?
Tell us how you feel

We want to better understand how women feel throughout their pregnancy and shortly after their baby is born

Are you a woman, who is:

1) Living in Australia or New Zealand?
2) Using the internet and email?
3) Between week 12 and 26 of your pregnancy?

Researchers invite you to participate in a study which involves completing three online surveys (twice during your pregnancy, and then once, a few weeks after you have had your baby).
You can also talk to us directly about your thoughts and feelings in a face-to-face or Skype interview.

This study will assist specialists caring for pregnant women to provide meaningful support for mothers in the future.
For more information and to complete the survey, please click or copy/paste this link:

https://exp.psy.uq.edu.au/pregnancy/

Facebook: https://www.facebook.com/pregnancymood
Twitter: https://twitter.com/PregnancyMood

Please pass this survey link to any friends!

Contacts:
Lead Researcher: Mrs Aleksandra Staneva
Email: a.staneva@uq.edu.au Ph: 0415 538362
Project Supervisors: A/Prof Fiona Bogossian, Dr Alma Morawska & Dr Anja Wittkowski

★ If you participate you could ★
win a $35 Gift Card for Coles/Myer
Recruitment letter

Dear …

My name is Aleksandra and I am a researcher at the University of Queensland, Brisbane. As part of my PhD degree, I am conducting a psychological project involving:

- Pregnant women
- who live in Australia or New Zealand and
- have access to internet/email

The Project is:

- Apr. 20 minutes to fill out
- Twice during pregnancy and once after the baby is born
- Participants may win $35 Coles/Myer Gift Card
- No risks involved (Approved by UQ Human Ethics Committee)

It would be of great help to us if you could disseminate the Brochure that I have attached to this email.

It is hoped that this study will assist specialists caring for pregnant women, such as Psychologists and Midwives in providing meaningful support for mothers. Participating might help mothers feel more aware of their own experience and also more connected to the growing baby!

Many thanks in advance for your cooperation!

Kindest regards,

Aleksandra Staneva
PhD Scholar

a.staneva@uq.edu.au
Facebook advertisement

This is a CALL for all expecting AU and NZ mummas (bw week 12 and 26 of pregnancy) who would like to take part in an online project on Maternal Health (body and mind) via 3 surveys.

The main goal is to promote a better, meaningful and sensitive care to ALL WOMEN, regardless of their financial status, mental health, orientations, beliefs or lifestyles across AU and NZ, and to have our voices heard and matter!

To participate, just follow this link: https://exp.psy.uq.edu.au/pregnancy/ We’ve had an overwhelming response and I am forever grateful to all of you, lovelies! Spread the word! Thank you in advance,

Aleksandra.