Fatherhood and Psychological Distress: Paternal Depression, Anxiety, and Stress in the Perinatal Period

by

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Submitted in partial fulfillment of the requirements for the degree of Doctor of Psychology (Health)

Deakin University, January 2016

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**Fatherhood and Psychological Distress: Paternal Depression, Anxiety and Stress in the Perinatal Period**

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Abstract

Studies examining perinatal mental health have found that a significant proportion of fathers experience symptoms of depression during their partner’s pregnancy and in the year following the birth of their child. The rates of depression in men during the perinatal period have also been found to be higher than rates of depression amongst the general adult male population. The overall aim of this thesis was to examine correlates and predictors of depressive symptoms in fathers with dependent children, and to expand on current knowledge of paternal mental health issues by examining predictors of paternal anxiety and stress symptoms, as well as depressive symptoms, in the perinatal period. This thesis also aimed to examine “male depressive syndrome” in the context of perinatal mental health. Male depressive syndrome is a hypothesis developed by researchers and clinicians based on evidence that many men suffering from depressive disorders report symptoms of distress that are not included in Depression diagnostic criteria. A systematic review of papers that have compared depressive symptoms in both fathers and childless men was conducted, to examine whether fatherhood itself is a potential risk factor for increased depressive symptoms. Both fathers and childless men reported similar rates of depressive symptoms, however this also depended on a father’s marital status and living arrangements with his children. The first empirical study of this thesis examined whether antenatal relationship satisfaction and adjustment and perceived social support are predictive of postnatal depressive symptoms, anxiety and stress. Ninety expectant fathers volunteered to participate in the study and were recruited from the general Australian population. The proportion of men experiencing elevated postnatal depressive, anxiety and stress symptoms, as measured with the DASS-42, increased four-fold between 18 weeks gestation and 6 months post-birth. Lower levels of antenatal relationship adjustment, perceived social support, and satisfaction with his sexual
relationship, as measured by the Dyadic Adjustment Scale, Multidimensional Scale of Perceived Social Support, and the World Health Organisation Quality of Life survey, respectively, were predictive of depressive symptoms, anxiety, and stress. The second empirical study examined paternal mental health in the context of “male depressive syndrome” during the first postnatal year, to determine whether elevated paternal depressive symptoms were associated with externalising and potentially risky behaviours that are not included as part of a typical depression symptom screen. Male depressive syndrome symptoms were measured using the Gotland Male Depression Scale, and “typical” depressive symptoms were measured using the Edinburgh Postnatal Depression Scale. Of the 87 fathers, whose partners had given birth during the previous 12 months and were recruited from the general Australian population, 17 (19%) fathers were considered to be at risk of depression. Depressive symptoms were also associated significantly with increased anxiety and stress, as measured by the DASS-21, and poor sleep quality, as measured by the Pittsburgh Sleep Quality Index. Fathers with elevated depressive symptoms were also more likely to use avoidance-based and emotion-based coping behaviours, measured by the Coping Index for Stressful Situations. Depressive symptoms were not associated with alcohol consumption behaviour, as measured by the AUDIT. Overall, the findings of this thesis have extended our knowledge about the mental health of fathers in the first year after the birth of a child. Fatherhood itself may not be a risk factor for depression; however, distressed fathers not only report symptoms of depression, but also high levels of anxiety and stress. The circumstances of his relationship and his partner relationship satisfaction, as well as the support he receives from those close to him, appear to all influence his psychological wellbeing. The findings of this thesis also revealed that distressed fathers utilise different coping styles to cope in stressful situations than fathers who are not experiencing psychological distress. Further research into parental perinatal mental health should screen for symptoms of anxiety and
stress, as well as depression, and should also focus on developing interventions for those men who are struggling with their wellbeing during their partner’s pregnancy and following birth of their child.
CHAPTER ONE

Introduction and Overview of Thesis

The overall aim of this thesis was to examine correlates and predictors of men’s mental health in the postnatal period. Why is this area of study important? The answer is simple. Paternal mental health issues in the postnatal period, such as depression and anxiety, represent a significant public health concern. For most men, becoming a father is a wonderful and rewarding experience; however the transition to fatherhood from childlessness necessitates a change in lifestyle and responsibility that can at times be difficult. The arrival of a second or subsequent child may also increase life stressors (Helbig, Lampert, Klose, & Jacobi, 2006). Feelings of pride, happiness, excitement and being loved can be dampened by a lack of sleep, difficulties in caring for an entirely dependent infant, financial concerns, and changes in their emotional and sexual relationship with their partner. Most men will cope with and adapt to these and other stressors during the transition to fatherhood without developing any serious or debilitating emotional and psychological problems, however a small, but significant, proportion of fathers will experience ongoing symptoms of depression following the birth of their child (Paulson & Bazemore, 2010). Whilst we know, as a result of vast research, that between 9.2 – 19.2% of mothers will experience depression following the birth of their baby (O'Hara & McCabe, 2013), and postnatal, or postpartum, depression is recognised as serious mental health condition requiring specialist treatment (Highet, Gemmill, & Milgrom, 2011), the mental health of men during the postnatal period has received much less focus in the research literature (Tuszyńska-Bogucka & Nawra, 2014). Despite this, the research to date has revealed that 7.7 – 25.6% of men will experience levels of depressive symptoms above normal levels in the first year following the birth of their child (Paulson & Bazemore, 2010). These elevated depressive symptoms have been associated
with relationship problems between men and their female partners (Goodman, 2004) and a decrease in positive interaction with the infant such as playing and singing (Paulson, Dauber, & Leiferman, 2006). In the longer-term, children whose fathers are depressed during in the postnatal period are more likely to have behavioural issues as toddlers and pre-schoolers, such as more intense temper-tantrums (Davé, Sherr, Senior, & Nazareth, 2008; Hanington, Ramchandani, & Stein, 2010), and conduct disorders in primary school (Ramchandani et al., 2008).

The majority of research into paternal mental health has focussed on symptoms of depression that are experienced in the year following birth, and the correlates and risk factors that are associated with these symptoms (Habib, 2012; Tuszyńska-Bogucka & Nawra, 2014; Wee, Skouteris, Pier, Richardson, & Milgrom, 2011). The correlates that have been most strongly associated with paternal depression in the postnatal period include concurrent postnatal depression experienced by their partner, low levels of satisfaction with their relationship with their partner, and low levels of social support (Wee et al., 2011). Risk factors for depression in new fathers include a decrease in steroid hormones and cortisol in the following their partner giving birth, neurotic personality traits, unplanned pregnancy, lower socio-economic status, a personal history of depression, and high levels of anxiety during pregnancy (Habib, 2012; Tuszyńska-Bogucka & Nawra, 2014).

What has been known for some time in the maternal mental health literature, and which has been recognised in the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013), is that depressive disorders not only develop following birth, but may also occur during pregnancy. Antenatal depression has also been recognised in fathers (Habib, 2012), with prevalence rates of paternal depression during the antenatal period estimated at 11 – 12% (Paulson & Bazemore, 2010). However, estimates of depression prevalence in expectant fathers can vary greatly
depending on the demographic characteristics of the sample, the time during the antenatal period at which a study is conducted, and the screening or diagnostic measure used to determine mental health status. This is also the case for the prevalence of depression post birth in men, that is, prevalence rates can vary significantly in the postpartum for the same reasons (Dudley, Roy, Kelk, & Bernard, 2001; Wynter, Rowe, & Fisher, 2013). Chapter Two of this thesis is a review of the literature that had outlined the issues surrounding estimates of prevalence of paternal perinatal depression, the different methods used to measure depressive symptoms or to diagnose depression in new fathers, the correlates, predictors and consequences of paternal depression during the perinatal period and why conducting research in this area is important.

Irrespective of whether the prevalence of depression in expectant or new fathers differs across studies, the fact remains that a significant minority of men will experience symptoms of depression above normal levels during the perinatal period (during their partner’s pregnancy and in the year following birth), and there are a number of factors that are associated with increases in depressive symptoms during these life phases. There is also evidence that the 12-month period prevalence of elevated depression symptoms in expectant and new fathers is higher than the 12-month period prevalence of depression in the general male population (Gawlik et al., 2014), and that the prevalence of depression is highest amongst males during the time in their lives when they are likely to be parenting children (20-45 years), than during adolescence or when older in age (Jorm et al., 2005; Kessler et al., 2010). Similarly, Paulson and Bazemore’s (2010) meta-analysis revealed that across all studies to date, and over 30 years of research, the risk of depression in men during the antenatal and postpartum periods appears to be as high, if not higher, than other times during this life phase, especially during the early to mid first year post birth. This begs the question: Is fatherhood itself a risk factor for depression?, which was the focus of the first specific aim
of the thesis. A systematic review was conducted to answer this question. The review examined studies that have measured and compared rates of depressive symptoms in both fathers and childless men, to evaluate whether there is a link between fatherhood and the reported lower levels of wellbeing amongst men of parenting age. The findings of this systematic review are presented in Chapter Three.

Despite the large amount of research that has examined the prevalence, correlates and risk factors, and consequences of depression experienced by expectant and new fathers, there has been a paucity of research on interventions to treat or prevent paternal depression. A recent systematic review by Wee et al. (2013) found only four published paternal depression intervention studies (Feinberg & Kan, 2008; Hynd, Skeffington & Cook, 2007; Salonen et al., 2008; Thome & Skuladottir, 2005), all of which had significant limitations in their methodology and effectiveness. Only one of these studies (Thome & Skuladottir, 2005) found a significant improvement in paternal depressive symptoms, and the limitations included a lack of randomised sampling, imprecision of measurement time points, and differences in the mode by which the programs were delivered. This highlights a significant gap in the literature that needs to be filled. What is also missing is the theoretical basis on which psychological interventions for paternal depression could be developed. Chapter Four of this thesis begins with a review of some of the research that has aimed to establish theoretical causes for the causes of perinatal depression. A number of theories have been proposed to explain why mothers experience perinatal depression, including biomedical theories, sociocultural or feminist theories, and adult attachment theory (Beck, 2002). Other than the biomedical model, there has been virtually no theoretically-based research that has examined why new fathers experience such comparatively high rates of depression during the perinatal period. Drawing from quantitative research, and father’s experiences reported in previous qualitative
studies, theories of maternal postnatal depression were examined for their suitability to understand the development of depression in new fathers.

As stated above, most of the research on mental health in the perinatal period has focussed on prevalence, correlates, risk factors, and consequences of symptoms of depression experienced by new parents. It has been argued, however, that only focussing on depressive symptoms in paternal mental health research is both limiting and inaccurate (Wynter et al., 2013), and that mental health research focused on the postnatal period should be expanded to include anxiety and stress symptoms, and renamed postnatal distress (Miller, Pallant, & Negri, 2006). This proposed change has followed epidemiological evidence that: (1) depression and anxiety are more frequently co-morbid in psychiatric patients than they are separate (Silverstone & von Studnitz, 2003); (2) the increasing recognition that high levels of anxiety are just as prevalent in new parents as depression is, including psychiatric disorders such as Generalised Anxiety Disorder and Panic Disorder (Matthey, Barnett, Howie, & Kavanagh, 2003); and (3) high levels of stress, while not a diagnosable psychiatric disorder in itself, may also be a common experience for new fathers due to lifestyle changes that accompany new parenthood (Anderson, 1996; Barclay & Lupton, 1999; Letourneau et al., 2012). Increased stress can influence other aspects of mental health but has only received limited attention in the paternal perinatal mental health literature (Perren, von Wyl, Bürgin, Simoni, & von Klitzing, 2005).

Chapter Five includes the first empirical study in this thesis (Study One), the aim of which was to examine levels of depression, anxiety, and stress amongst new fathers during the perinatal period. Symptoms of perinatal distress were assessed in a sample of expectant fathers from 18 weeks pregnancy through to six months post-birth at six time-points. Given that the quality and satisfaction with the relationship between the parents, and the levels of social support available to the father have been identified frequently as correlates of
depression in fathers during the perinatal period (Wee et al., 2011), these factors were also examined as antenatal and postnatal risk factors for depression, anxiety and stress in the fathers following birth. It is important that a longitudinal study such as this is conducted for a number of reasons: 1) symptoms of paternal distress can be examined that extend beyond the potentially narrow or restrictive symptoms associated with depression; 2) the time/s during the perinatal period that have the highest prevalence, or that fathers are most likely to experience distress, can be identified; and 3) antenatal risk factors for postnatal psychological distress can be identified to inform prevention strategies. To my knowledge, this also is the first study to examine symptoms of stress, as well as anxiety and depression, in a longitudinal perinatal study, and the first to examine how relationship adjustment, satisfaction with the couple’s sexual relationship, and levels of perceived social support, change over the perinatal period and how they predict postnatal psychological distress.

Clearly, it is important that paternal mental health and wellbeing is examined in a broader scope than just the diagnostic symptoms of depression, in order to better understand fathers’ experiences of early parenthood. This examination is continued in Chapter Six with a review of literature that has compared the differences in men’s and women’s experiences of depression and distress, to develop the theory of “male depressive syndrome”. Male depressive syndrome (Rutz, Wålinder, Von Knorring, Rihmer, & Pihlgren, 1997), or “masked depression” (Lynch & Kilmartin, 1999) has been posited as an explanation for the consistent findings that prevalence of Major Depressive Disorder is 1.5 – 2 times higher in women than in men (Marcus et al., 2005), however alcohol and drug addiction (Slade et al., 2009), violent crime (Australian Institute of Criminology, 2014), and suicide (Hee Ahn, Park, Ha, Choi, & Hong, 2012) is much more common amongst men than women. It is argued that the “acting in” behaviour that constitute the symptoms of Major Depressive Episode (MDE), such as crying, guilt and self-blame, may describe most depressed females accurately, however many
men who are distressed engage in “acting out” behaviour, such as displaying anger, irritability and risk-taking behaviour through speeding and road-rage, increase alcohol consumption, and distraction or escape (Brownhill, Wilhelm, Barclay, & Schmied, 2005). If depression is conceptualised as a behavioural response to loss, crisis or existential conflict, instead of just a checklist of symptoms (Davidsen & Fosgerau, 2014), then men who are engaging in destructive externalising behaviour are also likely to be depressed, just as are women who experience five of the 9 MDE symptoms for several weeks following childbirth. A cause of these behavioural differences between men and women is thought to stem from cultural views around masculinity, where young boys are frequently told to “toughen up”, and depression is seen as a feminine disorder (Brownhill, Wilhelm, Barclay, & Parker, 2002). The second empirical study of this thesis, Study Two, is presented in Chapter Seven, was focused on examining male depressive syndrome amongst new fathers. Previously, Madsen and Juhl (2007) screened a sample of fathers for depressive symptoms using a traditional postnatal depression measure, and a measure developed to screen for symptoms of male depressive syndrome at 6 weeks post-birth. In their sample, 5% of fathers scored above the cut-off on the traditional depression measure, while an additional 1.3% of fathers scored above the cut-off only on the male depressive syndrome measure. The implications for these findings were that a small, but significant, proportion of distressed fathers may be overlooked when using measures of “typical” depression symptoms, such as the Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987), and therefore not referred for intervention. Despite Madsen and Juhl’s (2007) findings, male depressive syndrome has not been examined further in any subsequent studies of new fathers, nor has their study been replicated. The aim of Study Two was to examine male depressive syndrome symptoms in a sample of fathers who had a child under 12 months of age using the Gotland Male Depression Screen (GMDS; Rutz et al., 1997), and to replicate Madsen and Juhl’s study by comparing
the results from the GMDS with the EPDS. Other factors that are thought to be different in depressed males compared to depressed females, or males experiencing male depressive syndrome symptoms, were examined. These include styles of coping behaviour when placed in stressful situations, and increased alcohol use. Continuing on from Study One, anxiety and stress symptoms were also assessed, and the relationship to between the three factors that encompass psychological distress (depression, anxiety and stress) was examined. Finally, Study Two also examined the relationship between subjective sleep quality and depression symptoms amongst new fathers. Even though sleep problems are a common and unpleasant experience for most parents with an infant, there have been no studies to date that have examined relationship between subjective sleep quality and depression symptoms.

Chapter Eight of this thesis reviews the findings of the systematic review and the two empirical studies and examines the implications that they may have for future research and treatment of psychological distress experienced by fathers of infant children.
CHAPTER TWO

Literature Review

2.1 - Parental Perinatal Depression

Symptoms of depression associated with parenthood were first formally identified in a study by Brice Pitt (1968), who reported that 50% of new mothers had “transitory tearfulness”, or “the Blues” in the 6-8 weeks following the birth of their child, including while they were staying in hospital. In the year following birth, 10.8% of these mothers reported significant depressive symptoms. These mothers said they felt despondent and tearful, but also anxious over a perceived inability to cope with their new baby despite the baby’s good health, and feelings of guilt over not loving or caring enough for the infant. In a follow-up of 28 of the 33 women who reported depression, 57% had fully recovered within a few weeks to several months. The remainder, who constituted 3.9% of the total number of new mothers screened, had not shown an improvement of depressive symptoms one year after birth.

Research in the decades following Pitt’s (1968) study has established that postnatal depression is a serious psychological condition that affects approximately 12 to 20% of mothers in the weeks and months following childbirth (O'Hara & McCabe, 2013). It is a distinct and more pervasive disorder than postnatal blues, or “baby-blues”, a common condition that is experienced by up to 84% of women following birth (Buttner, O'Hara, & Watson, 2012) and is categorised by symptoms similar to depression such as sleep problems, emotional instability, concentration problems and reduced appetite (Glavin, 2012). “Baby-blues” typically arises and passes in 3-10 days after childbirth and is believed to be associated with hormonal changes and the readjustment of the woman’s body from the physical and emotional stresses of giving birth (beyondblue, 2006). Public awareness and research interest in mental health issues associated with new parenthood is more heavily focussed on the
postnatal period, but it is also known that a significant proportion of women also experience high rates of depression during pregnancy. Prevalence of antenatal depressive symptoms in women has been estimated to range from 7.4% to 12.8% over the three trimesters, with highest rates in the second trimester (Bennett, Einarson, Taddio, Koren, & Einarson, 2004). Prevalence estimates of maternal perinatal depression, which generally encompasses the period from the second trimester of pregnancy to one year post-birth, depend on the screening or diagnostic methods used, the nationality and demographics of the sample that is being investigated, and the time point/s during the perinatal period at which the study was conducted, hence the broad range of prevalence estimates that have been calculated (O'Hara & McCabe, 2013).

The transition to parenthood, or the arrival of subsequent children, can be a stressful time for both parents. For fathers, the feelings of happiness, love, meaning and purpose that often accompany the birth of their child can be dampened by a lack of sleep, changes in the emotional and sexual relationship they have with their partner, financial pressures, and unexpected lifestyle changes (Bradley & Slade, 2011; Chalmers & Meyer, 1996; Genesoni & Tallandini, 2009). Just as some mothers will experience severe depression during pregnancy and following birth, it is now known that a significant proportion of fathers will also experience mental health problems during the perinatal period, often when their partners are also suffering ante- or postnatal depression (Wee et al., 2013). The mental health of fathers has received much less focus in the literature than maternal mental health (Tuszyńska-Bogucka & Nawra, 2014), but it has been established that rates of elevated depressive symptoms amongst fathers of infants is higher than major depression prevalence amongst adult males in the general population (Kessler et al., 2010; Paulson & Bazemore, 2010).
2.2 - Prevalence of paternal depression in the perinatal period.

In the same way that maternal perinatal depression prevalence varies, the prevalence estimates of elevated depressive symptoms experienced by fathers varies depending on the time frame, the sample, and the screening or diagnostic method that it used. A review of 20 studies of community samples in Western countries found elevated depressive symptoms were experienced by 1.2-25.5% of fathers during the first postnatal year (Goodman, 2004). A later meta-analytic review by Paulson and Bazemore (2010) of 43 paternal perinatal depression studies, from pregnancy to one year post-birth, estimated that 10.8% (95% CI, 8.5%-12.7%) of men will suffer significant depressive symptoms during this period. Paulson and Bazemore also calculated three-month period prevalence estimates, with the first 3 postnatal months showing the lowest estimate of depression, at 7.7% (95% CI, 5.3%-11.1%), and the period from 3-6 months post-birth had the highest estimate (25.6%; 95% CI, 17.3%-36.1%). The reasons for such wide variability were numerous, including: (1) whether the data were collected using screening questionnaires or clinical interviews, and then, which screening questionnaires were used; (2) variability in the screening questionnaire cut-off score to designate a participant as depressed or not-depressed; (3) whether the sample was representative of a population, demographic variables, sample recruitment methods, or the nationality of the sample. Paulson and Bazemore’s meta-analysis also considered the country in which the studies took place, and found that studies conducted in the United States reported an average prevalence of 14.1%, despite other international studies reporting an average rate of 8.2%, such as studies conducted in the United Kingdom, Canada and Australia that share a similar Western culture with the United States. Two of the studies that best highlight the great variability in estimating paternal postnatal depression rates are studies of Australian men. Wynter et al. (2013) conducted diagnostic interviews using the Composite International Diagnostic Interview (CIDI; World Health Organization, 1997) based on DSM-
IV (American Psychiatric Association, 2000) major depression criteria with 172 fathers at six months post-birth, and found that no men met the criteria for diagnosis of a major or minor depressive episode. In contrast, Dudley et al. (2001) used three depression symptom screening measures - the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), Edinburgh Postnatal Depression Screen (EPDS; Cox et al., 1987), and the General Health Questionnaire (GHQ; Goldberg et al., 1997) - on a community sample of 92 men between 1-6 months post-birth, and found that 45 (48.9%) fathers exceeded the cut-off score on at least one of these measures. In other Australian studies, the proportion of fathers experiencing high levels of depressive symptoms in the first year post-birth has varied greatly, from 1-2% (Matthey et al., 2003), 1.9-5.2% (Condon, Boyce, & Corkindale, 2004), 5.3% (Fletcher, Vimpani, Russell, & Sibbritt, 2008), 10% (Giallo et al., 2013), and 18.6% (Boyce, Condon, Barton, & Corkindale, 2007).

Most of the research into paternal perinatal depression prevalence has been conducted in developed or Western countries, while studies involving low income, ethnic minority, or non-Western fathers have been relatively scarce (Roubinov, Luecken, Crnic, & Gonzales, 2014). Those studies that have examined depression in non-Western fathers, however, have found that prevalence rates do not differ greatly from studies involving Western fathers. For example, Pinheiro et al. (2006) examined a sample of urban Brazilian parents and found that 11.9% of fathers exceeded the cut-off score on the BDI, with moderate to severe depression present in 4.1% of fathers. A study of fathers who identified as Mexican American found 9% of men exceeded the Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987) cut-off rate at both 15 and 21 weeks post-birth (Roubinov et al., 2014). In China, Mao, Zhu and Su (2011) found 12.5% of first-time South-Eastern Chinese fathers exceeded the cut-off score on the EPDS, while 10.8% of fathers in Guangzhou exceeded the cut-off. Nishamura and Ohashi (2010) studied a sample of Japanese parents at one month post-birth and found that
prevalence of postnatal depression differed depending on which screening measure was used, with 11.6% of fathers exceeding the cut-off score of the EPDS, but only 7.5% of fathers exceeding the cut-off score using the Centre for Epidemiological Depression Studies Depression Scale (CES-D; Radloff, 1977). Despite the fact that the findings of these five studies cannot be generalised to all men living in each respective country, they highlight that paternal depression in the postnatal period is not a condition that is specific to Western, Caucasian, or first-world cultures.

2.3 - Assessment of paternal depression in the perinatal period

The current edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013) does not recognise perinatal depression as a distinct disorder, but lists it as a specifier for a major depressive episode during pregnancy or within four weeks post-birth. Therefore, the symptoms for diagnosis of antenatal or postnatal depression do not differ from symptoms of a Major Depressive Episode (MDE).

The symptoms of an MDE as listed in the DSM-5 are:

A. Five or more of the following symptoms that have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

1. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad, empty, hopeless) or observation made by others (e.g., appears tearful).

2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective count or observation).

3. Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day.
4. Insomnia or hypersomnia nearly every day

5. Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).

6. Fatigue or loss of energy nearly every day

7. Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick).

8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others).

9. Recurrent thoughts of death (not just fear of dying) recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

B. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

C. The episode is not attributable to the physiological effects of a substance or to another medical condition.

The “with peripartum onset” specifier may also be applied to Bipolar Disorders or Psychotic episodes that occur in the perinatal periods, however these are much less common than depression “with peripartum onset”, and are not a focus of this thesis. Also note that while the DSM-5 refers to the “peripartum period”, this thesis will use the –natal suffix when referring to the pregnancy and post-birth period. The –partum and –natal suffixes are interchangeable and refer to the same thing, however the –natal suffix is used more frequently in Australian clinical settings, research, and by the general public, while the –partum suffix is more commonly used in North America.
There have been a number of criticisms of the time-frame used to define the onset of depression in the postnatal period, as research into both maternal and paternal depression has indicated that the 4 week post-birth onset criterion is restrictive and should be extended (Sharma & Mazmanian, 2014). A study by Munk-Olsen, Laursen, Pedersen, Mors, and Mortensen (2006) of the Danish health system found that there was a threefold increase in psychiatric admissions for mothers suffering depression between days 31-60 post-birth compared to other periods over the first postnatal year. During the development of DSM-5 it was proposed that the time-frame for the postnatal depression specifier be extended to 6 months (American Psychiatric Association, 2012; Jones & Cantwell, 2010), however this recommendation was not implemented. Another criticism has been that the “peripartum onset” specifier should be broken down to recognise depression symptoms that occur during pregnancy, which for example may be the result of an expectant mother ceasing antidepressant medication, and depression symptoms following birth, which may be due to hormonal and lifestyle changes. A significant change in weight, sleep disturbance, and fatigue are also very common experiences for mothers following birth. Furthermore, if researchers in the future are defining their research based on DSM-5 criteria, having a pre-birth/post-birth distinction may allow more specific study of the aetiology of mental health issues associated with new parenthood (Sharma & Mazmanian, 2014).

Despite the criticisms, DSM-5 is an improvement over DSM-IV-TR (American Psychiatric Association, 2000), which only recognised postnatal depression symptoms. The DSM-5 also notes that many women will also experience severe anxiety and panic attacks concurrent with depression symptoms. It is hoped that the inclusion of pregnancy into the diagnostic criteria will allow more women experiencing psychological issues to be recognised and guided towards treatment options, as well as stimulating research into the
aetiology and treatment of antenatal and postnatal mental health problems (Sharma & Mazmanian, 2014).

While the diagnostic notes in the DSM-5 that accompany the “with peripartum onset” specifier for MDE (p. 187) only refer to women, nowhere in the diagnostic criteria does it state that a father could not receive a diagnosis of MDE with peripartum onset from a qualified health professional. Indeed, the most reliable way to detect the presence of depressive symptoms and establish a diagnosis of a depressive or other psychiatric disorder is through a clinical interview (Zanarini et al., 2000). As described previously, there has been substantial variability in prevalence estimates of depression symptoms in fathers during the first postnatal year, due to location, sample characteristics, the amount of time that has passed since birth, but also due to the methods used to determine which fathers are depressed, at risk of depression, or are experiencing a decrease in wellbeing. Unfortunately, for most quantitative research it is unfeasible to interview every participant, and in busy healthcare settings, such as maternity wards or maternal and child health centres, it is also not feasible for every new parent to undergo a lengthy diagnostic interview. For reasons of efficiency and cost-effectiveness, a number of brief self-report psychometric instruments have been developed to screen new parents for symptoms consistent with a diagnosis of a depressive disorder, and identify those parents who might be at risk so they can be referred for a more comprehensive assessment and intervention. The most frequently used screening measure is the Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987), a 10 item questionnaire that was developed to quickly and easily identify behaviours and thoughts in postnatal women that are associated with depression symptoms. The EPDS is not designed to be a diagnostic tool and cannot be used to predict whether a parent will experience a major depressive episode in the future, but it can identify parents who are at risk and who should then be referred for specialist care (Glavin, 2012). Clinical Practice Guidelines for perinatal
care developed by Australian mental health advocacy group Beyondblue recommend that the EPDS be used as part of ongoing assessment for depression and co-occurring anxiety in all women during pregnancy and in the postnatal period (Beyondblue, 2011). The advantage of using the EPDS over other depression screening measures (such as the Center for Epidemiological Studies Depression Scale (CES-D) or the Beck Depression Inventory (BDI) which are also commonly used in perinatal research) is that it does not consider symptoms such as sudden changes in weight and appetite and increased fatigue, which are expected as normal experiences of being a new mother but may be indicators of a decrease in wellbeing amongst the general population (Matthey, Barnett, Kavanagh, & Howie, 2001).

A further advantage of the EPDS not assessing the somatic symptoms normally experienced post-childbirth and amongst new parents, is that it is able to be used effectively to screen for perinatal depression symptoms in men. Matthey, Barnett, Kavanagh and Howie (2001) validated the use of the EPDS for men at 6-7 weeks post-birth by comparing it against the Diagnostic Interview Schedule. Internal consistency and split-half reliability of the EPDS in Matthey et al.’s male sample was comparable to the female sample that the EPDS developers originally used, however reliability was improved when cut-off scores to determine at risk cases were two points lower for fathers than for mothers. They found that at a cut-off score of 10, 71.4% of depressed men were classified correctly as depressed, and 93.8% of non-depressed men were classified correctly. Only 7% of the sample was misclassified. These findings were replicated by Edmonson et al. (2010), who calculated sensitivity and specificity of the EPDS at 77.3% and 92.9%, respectively, in a sample of fathers at seven weeks post-birth.

The EPDS has also been validated for screening both mothers and fathers in non-western and non-English speaking backgrounds (Figueiredo, Pacheco, & Costa, 2007; Lai, Tang, Lee, Yip, & Chung, 2010; Small, Lumley, Yelland, & Brown, 2007; Taiwo &
Olayinka, 2007; Thach Duc, Tuan, & Fisher, 2012; Vivilaki, Dafermos, Kogevinas, Bitsios, & Lionis, 2009). Lai et al. (2010) evaluated the EPDS, the BDI, and the Patient Health Questionnaire – Depression Module (PHQ-9; Kroenke & Spitzer, 2002), another short depression screen, against the results from diagnostic interviews in a large sample of Chinese men at eight weeks post-birth. The EPDS was found to be a superior screening measure over the BDI and PHQ-9, with specificity of 91% and sensitivity of 97%.

As discussed previously, there can be vast differences in prevalence or frequency of perinatal depression symptoms depending on the diagnostic or screening measure used. Paulson and Bazemore (2010) noted in their meta-analysis that prevalence estimates were generally higher in studies that used self-report questionnaires compared to studies that used diagnostic interviews, although they also commented that very few studies had used diagnostic interviews, so reliability comparisons were not able to be made. In the two empirical studies reported in this thesis, the EPDS, the Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995), and the Gotland Male Depression Scale (GMDS; Rutz et al., 1997) were used. The DASS has only been used in one previous study in a paternal perinatal sample (Feeney, Alexander, Noller, & Hohaush, 2003), but it has the advantage of screening for symptoms of anxiety and stress, as well as depression, in a single short questionnaire. The GMDS is designed to screen for symptoms of “male depressive syndrome” behaviours that are not included in MDE diagnostic criteria but are thought to be common amongst men who are experiencing distress (Cochran & Rabinowitz, 2000; Lynch & Kilmartin, 1999; Strömberg, Backlund, & Löfvander, 2010). The reasons for using these specific questionnaires are explained in the Introduction of each empirical study.
2.4 - Predictors and correlates of Paternal Perinatal Depression

Researchers have also investigated the factors that are associated with, or increase the risk of, fathers developing perinatal depression. A systematic review examining the psychosocial correlates and factors associated with paternal depression was conducted by (Wee et al., 2013), who found that the most reliable correlates of paternal depression over the perinatal period were having a concurrently depressed partner, the strength of the relationship between the mother and father, and the perceived level of social support available to the father.

With regards to the relationship between maternal and paternal depression, significant positive correlations ranging between 0.2 (Fisher, Brock, O’Hara, Kopelman, & Stuart, 2015; Matthey, Barnett, Ungerer, & Waters, 2000) and 0.76 (Bielawska-Batorowicz & Kossakowska-Petrycka, 2006) have been reported. According to Pinheiro et al. (2006), the odds of a father suffering postnatal depression increased 8.4 times if his partner was also suffering moderate or severe depression. In addition to this, Matthey, Henshaw, Elliott, & Barnett (2006) found that the correlation between paternal and maternal depression increased throughout the first postnatal year. In contrast, Nishimura and Ohashi (2010) found that there was no association between maternal and paternal postnatal depression at 4 weeks postbirth; however, this result may be due to the time at which the study was conducted. As shown in the paternal perinatal depression prevalence meta-analysis by Paulson and Bazemore (2010), the highest percentage of fathers reporting elevated depression symptoms peaked at six months post-birth, so it may be that Nishamura and Ohashi’s study was conducted too early for any association to be established. Also, over 30% of parents in the study practised the Japanese cultural perinatal care method of Satogaeri, where a new mother will live away from her partner and stay with her parents for several weeks after the birth. All of the studies that have reported associations between maternal and paternal depression have been
conducted at different times in the first postnatal year, and some studies were cross-sectional (Bielawska-Batorowicz & Kossakowska-Petrycka, 2006; Dudley et al., 2001; Gao, Chan, & Mao, 2009; Matthey et al., 2003; Pinheiro et al., 2006; Roberts, Bushnell, Collings, & Purdie, 2006; Zelkowitz & Milet, 1997), while others were longitudinal (Areias, Kumar, Barros, & Figueiredo, 1996; Deater-Deckard, Pickering, Dunn, & Golding, 1998; Matthey et al., 2000; Soliday, McCluskey-Fawcett, & O'Brien, 1999). This may account for the large variation in the reported correlations.

Further studies have shown that the weeks and months following the birth of a child is not the only time that is stressful for new fathers. In fact, distress or depression in the antenatal period has also been found to be a predictor of postnatal depression in longitudinal studies that have examined both the pre- and post-birth period. Matthey et al. (2000) found that for men who were depressed in the antenatal period there was a 65% higher probability of depression in the postnatal period, compared to a 25% probability for men who were not depressed antenatally. Morse, Buist and Durkin (2000) conducted a study over the pre- and post-birth period and found that high levels of negative affect in mid-pregnancy, a short (less than two years) relationship with their partner, and a perceived sense of being controlled by their partner were the best predictors of paternal postnatal distress. Men who have been with their partner for longer than 2 years may feel more secure in their relationship and better able to adjust to having their partner’s focus shift from themselves to the infant. A study that examined relationship adjustment in the postnatal period by Condon, Boyce and Corkindale (2004) found that from the man’s perspective, significant changes that occur in the quality of the relationship over the period from pregnancy to 12 months post-birth are all negative. These changes included satisfaction with the progress of the relationship, and agreement and cohesion between the couple on decisions and activities. Three-quarters of the men were
highly satisfied with their sexual relationship pre-pregnancy, however post-birth only one-third were highly satisfied, and one-third had low levels of satisfaction.

Other investigations into the predictive factors of paternal postnatal depression have examined the personality or disposition of the father, the socioeconomic status of the family, and cultural factors specific to the society in which the family lives to determine whether there is an increased risk of psychological distress. Dudley et al. (2001) and Matthey et al. (2000) found depressed fathers scored significantly higher on measures of neuroticism than non-depressed fathers, although this was not a strong predictor and a neurotic personality was not a prerequisite for depressive symptoms. Bielawska-Batorowicz and Kossakowska-Petrycka (2006) found no association at all between neuroticism and postnatal depression. Personality may also have a role in how well a father copes with the stress of his partner’s pregnancy. Morse, Buist and Durkin (2000) found that negative affect and a perceived sense of being controlled by their partner during the pregnancy were among the best predictors of paternal distress in the postnatal period. Negative affect, and feelings of inadequacy or being controlled are also characteristics associated with neuroticism.

Edhborg, Matthiesen, Lundh and Widström (2005) found that high scores on a measure of baby-blues symptoms were predictive of high scores on the EPDS at two months post-birth, in both mothers and fathers. As described previously, baby blues are thought to be associated with the hormonal changes that women undergo during, and in the few days after, childbirth. For new fathers, higher scores on the baby blues measure are most likely indicative of the stress and worry they experience about the birth, but may also indicate the man is more prone to excessive worry and anxiety, and consequently more prone to depression.

The link between lower socio-economic status and higher rates of mental illness has long been established. In a large scale longitudinal study of Belgian households, increases in
subjective financial strain and objective deprivation, such as income and rental status, were associated with an increase in the likelihood of major depression (Lorant et al., 2007). The perinatal period may also involve both subjective and objective economic strains as one parent, usually the mother, ceases working. Consequently, economic circumstances have been found to be a factor in the severity of paternal depression post birth, with fathers in one study who described their economic situation as “bad” scoring significantly higher EPDS scores than those fathers who had “good” or “very good” incomes (Bielawska-Batorowicz & Kossakowska-Petrycka, 2006). Nishamura and Ohashi (2010) also found that employment status was correlated significantly with depressive symptoms, specifically unemployment or temporary employment. Part-time employment has also been associated with postnatal depression (Buist, Morse, & Durkin, 2003).

Cultural issues specific to the country in which the family live may also have an effect on postnatal mood. In a study of Chinese parents, Mao, Zhu and Su (2011) showed that perceived levels of stress and available social supports were predictors of depression symptoms, similar to studies in Western countries. However, preference for a male child was also a significant predictor for postnatal distress, as only male children are able to provide for their parents in old age and participate in important aspects of traditional Chinese culture. This stress was also compounded by the one-child policy in mainland China. In another parenting study that examined the effect of the infant’s gender on father’s wellbeing, Kohler, Behrman, and Skytthe (2005) found that the while having children increased father’s levels of happiness overall, the positive effect that having a first-born son had on happiness was 75% greater than the effect on happiness associated with a first-born daughter.

Wee et al.’s (2010) systematic review found only one study, by Davè, Nazareth, Sherr and Senior (2005) that examined the relationship between infants’ behaviour, such as temperament or sleeping patterns, and paternal mental health. Temperament is described using
three categories: easy, difficult, and slow-to-warm up (Thomas & Chess, 1977). Difficult, or fussy, infant temperament is defined as an aversion to or slow adaptability to environmental changes, irregular biological rhythms such as sleeping and feeding times, intense mood expression and frequent negative mood (Thomas, Chess, & Birch, 1968), and has been shown to be a risk factor for behavioural and emotional problems later in childhood. Fussy infants grow up to be children who have difficulty adapting to change and show moderate levels of negative mood (Guerin & Gottfried, 1994). In Davé et al.’s (2005) study, parents were asked to report on how fussy, demanding or difficult they thought their baby was at six months after birth. Incidence of paternal depressive symptoms had been assessed at 4-6 weeks post-birth. It was found that low paternal mood was significantly and positively correlated with higher levels of fussiness, as well as with relationship difficulties between the mother and father. However, Davé et al.’s study only had a very small sample size, and none of the fathers who responded to the infant temperament questionnaire at six months had a level of distress serious enough for a diagnosis of depression. Since the publication of Wee et al.’s review in 2010, a limited number of other studies have sought to investigate relationships between infant behaviour and paternal depression. deMotigny et al. (2013) found that fathers with elevated depressive symptoms viewed their child as significantly more difficult to handle, and reported more distress in their role as a parent, than fathers who were not depressed. A potential problem with studies that examine whether infant behaviour impacts on parental mental health is determining the quality of the relationship between the infant’s behaviour and the parent’s wellbeing. That is, does difficult temperament cause a decrease in parental wellbeing, or do parents who are depressed report higher levels of difficult behaviour, because parents’ coping abilities are compromised due to depression. In recognition of this problem, Cockshaw, Muscat, Obst, and Thorpe (2014) conducted an analysis of predictors of paternal depression in which the mother’s assessment of the infant’s temperament was
entered into the regression model. They did not find that the inclusion of “mother reported infant temperament” accounted for any significant change in variance in the model, however they did find that infant breastfeeding problems were positively associated with paternal depressive symptoms. Cockshaw et al. theorised that this decrease in wellbeing is due to incongruence between their idealised fatherhood role of breadwinner and provider, and an inability to provide instrumental support to their partner when there are breastfeeding issues. Men’s parenting practices and their identity and role as fathers has changed over the second half of the 20th Century to become more involved with their children’s development (Dempsey & Hewitt, 2012), so that many men report now that they want to take a more hands-on role to parenting, including “being there” for their partners and children. They are determined to avoid being the absent father that they perceive their own fathers or grandfathers were (Barclay & Lupton, 1999). Furthermore, modern fatherhood has developed into a distinct role, rather than just being a support to the mother, and includes having a strong bond with a child, being physically and emotionally present and available, as well as traditional roles of economic responsibility as a breadwinner and provider (Draper & Ives, 2013).

2.5 - Consequences of Paternal Postnatal Psychopathology

Experiencing a depressive disorder at any period during an individual’s lifetime creates suffering that impacts on many aspects of life, such as employment, relationships and physical health. Parents who are experiencing depression during pregnancy and following birth not only feel its effects on these areas of life, but also have the additional responsibility of caring for a dependent infant. For mothers, the overall decline in wellbeing associated with depression symptoms that are not identified and treated, has been found to have negative consequences for the care and developmental trajectory of the infant (Glavin, 2012).
Psychological distress is a negative predictor of breastfeeding self-efficacy and the duration of exclusive breastfeeding (de Jager et al., 2014), and depressed mothers are less likely to engage in important developmental practices such as following routines, and talking, reading and playing with their baby (McLearn, Minkovitz, Strobino, Marks, & Hou, 2006). Infants with a depressed or mentally ill mother may develop insecure attachment to their mother (Hayes, Goodman, & Carlson, 2013), which may affect not only their relationship with their mother but also close relationships throughout their lifetime. In Australia, depression is the most commonly recognised postnatal mental health condition amongst the general public (Highet et al., 2011). The potentially significant consequences of postnatal depression are also recognised, with around one-third of people in Highet et al. (2011) study recommending that depressed mothers seek specialist treatment from counselling services or medical professionals.

The research that has examined the consequences of paternal perinatal depression indicates that depression not only affects their internal state-of-mind, but also their ability to fulfil the idealised role of a modern father. The concept of “being there” as an important aspect of modern fatherhood was described previous in Section 2.4. A negative relationship between depressive symptoms in new fathers and enriching parenting behaviour, such as reading, singing songs and telling stories was found in a study by Paulson et al. (2006), and in a study of fathers of one-year-old children, Davis, Davis, Freed and Clark (2011) reported that fathers who were depressed were less than half as likely to read their children stories, and were four times more likely to report smacking their children, compared to non-depressed fathers. A significantly higher percentage of depressed fathers in this sample also had a substance abuse problem, compared to non-depressed fathers. Links between substance use (alcohol) and paternal postnatal mental health are explored in Study Two of this thesis. In contrast, Field, Hossain, & Malphurs (1999) did not find a relationship between depressive
symptoms experienced by fathers and their interaction with their infant child in a study that observed couples’ interactions with their babies. Furthermore, they often observed that depressed fathers interacted more with their children than their non-depressed partners. They considered that because most of the fathers spent much less time with their infants than their partners, presumably due to employment demands, they were more actively engaged during the time they spent with their baby than the mothers were, who were with the babies the majority of the time.

Paternal mood has not only been found to impact on the father’s behaviour towards his child, but also to affect the behaviour of their children, even in infancy. As discussed in Section 2.4, Davé, Nazareth, Sherr and Senior (2005) found that low paternal mood at 4-6 weeks post-birth was significantly and positively correlated with infant temperament problems at 6 months post-birth. A large longitudinal study focussing on infant temperament and parental depression was conducted by Hanington, Ramchandani and Stein (2010) using data from the Avon Longitudinal Study of Parents and Children (Golding, Pembrey, Jones, & The Alspac Study, 2001). Parents completed a self-report questionnaire on the temperament of their children at 6 months and 24 months of age; 2-year-old boys whose fathers who were depressed at six months post-birth generally displayed more negative affect than boys whose fathers did not experience postnatal depression, and the intensity of mood displays (screaming, yelling) was greater. Interestingly, there were no significant effects found between paternal postnatal mood and the temperament of daughters.

Depressive symptoms experienced by fathers in the postnatal period may also have ongoing effects on children’s behaviour, many years after father’s mood has improved. An earlier study that also used data from the Avon Longitudinal Study by Ramchandani et al. (2008) examined whether paternal depression in the postnatal period was associated with the development of psychiatric disorders in children. Fathers’ mood was assessed at eight weeks
post-birth, and their children’s development was tracked until they were 7-years-old. By the age of 7 years, 12% of the children of depressed fathers had developed a psychiatric disorder, compared to 6% of the children with non-depressed fathers. After adjusting for the presence of maternal depression and the fathers’ educational levels, there was still a 66% percent increase in the odds of developing a psychiatric disorder. Disorders that were of significant concern were oppositional defiant and conduct disorders, and increases in the rates of hyperactivity, peer problems, and prosocial difficulties (which are deficiencies in thinking about other people and expressing empathy). Very similar results were found by Fletcher, Feeman, Garfield and Vimpani (2011), who examined three cohorts of children, ages 3-19 months, 2-3 years and 4-5 years from 2620 Australian families. Clinically significant depressive symptoms were found in 1.3% of the fathers according to a self-report questionnaire. After controlling for socio-economic status, employment status and whether the mother was also depressed, early paternal depression was associated significantly with increased hyperactivity and prosocial difficulties in boys, and emotional and conduct difficulties in girls. Girls whose fathers reported elevated depressive symptoms were three times more likely to have overall difficulties in emotional and behavioural functioning than girls without depressed fathers.

It appears that paternal depression does not only affect the developmental trajectory of children when they are infants, but paternal depression after the postnatal period can also negatively affect older children. For pre-school children, aged 4-6 years, Davé, Sherr, Senior and Nazareth (2008) found that the children of fathers who were currently experiencing a major depressive syndrome were 8 times more likely to have prosocial behaviour problems, and 36 times more likely to have problems with their peers. Children of this age who have problems relating to their peers are more likely to have problems in adolescence such as delinquency and underachievement, and unemployment in adulthood (Woodward &
Fergusson, 2000). The effects on the children of parents with mood disorders may also have lifelong consequences. Such children have been shown to develop depression, phobias, panic disorders and alcohol dependence in later life at a higher rate than the children of non-depressed parents (Beardslee, Versage, & Gladstone, 1998). Furthermore, up to 90% of people who suffer an acute depressive episode are likely to experience a relapse or recurrence of depressive symptoms within 15 years (Nierenberg, Petersen, & Alpert, 2003), so fathers who suffer from depression post-birth are likely to have a relapse while their child or children are still dependant on their care. Because of this, not only are the infants of depressed fathers at risk of developmental and behavioural problems as outlined above, but there is a significant chance that they will suffer from depression themselves.

Paternal depression postnatally therefore affects both the ongoing development of the child, and the relationship between the parents (Goodman, 2004). People who are suffering from a major depressive episode often report that they withdraw from regular contact with friends and family, as they may not have the energy to socialise, or feel that they are a burden and are not enjoyable to be around. Previous studies have shown that the most significant predictor for the development of men’s depression post birth is whether his partner is also suffering mood problems (Wee et al., 2011). Likewise, Gjerdingen and Center (2003) reported that the most significant factor associated with a mother’s mental health was how satisfied she was with her partner, and her partner’s own mental health. They did not examine postnatal depression specifically, but their findings indicate that persistent negative mood and affect in fathers has an impact on relationship quality. In support of this idea, Ramchandani et al. (2011) found that a sample of depressed fathers reported lower levels of affection and overall relationship satisfaction with their partner, and were less confident in the future of their relationship; this was also evident after controlling for maternal depression symptoms.
The association between relationship cohesion, satisfaction and paternal depression symptoms is explored in more depth in the first empirical study of this thesis, Study One.

2.6 - Summary

As demonstrated in the literature review here, and also by recent published reviews into perinatal mental health (Habib, 2012; Tuszyńska-Bogucka & Nawra, 2014; Wee et al., 2013), the research into depression experienced by fathers during the perinatal period has revealed fairly consistent findings. It has demonstrated that elevated depressive symptoms in new fathers is reasonably common and can be easily detected, and has significant consequences for the health and wellbeing of the father and his family. As the evidence relating to the prevalence and consequences of paternal perinatal depression has accumulated over the past few years, Australian mental health advocacy groups such as beyondblue and the Post and Antenatal Depression Association (PANDA) have included fathers in their perinatal awareness and education campaigns with the aim to increase public recognition and encourage screening of fathers who are having difficulties. This is an encouraging step forward, but service providers have in the past been ineffective at engaging fathers or providing services that are father specific (Fletcher, Vimpani, Russell, & Keatinge, 2008; Price-Robertson, 2015). Evidence for this was highlighted by Wee et al. (2013), who found that only four studies had been published that evaluated interventions for the treatment of paternal postnatal depression. Furthermore, these studies were limited methodologically, did not include any randomised controlled trials, and overall there was little evidence that the treatment protocols that were undertaken were effective, nor did any of these studies incorporate any preventative intervention. This lack of published intervention studies clearly demonstrates that there is a need for further research into paternal mental health, in order to develop interventions to help fathers manage their mental health, and to examine predictors
and risk factors for depression that would provide a framework for interventions. Ultimately the aim of any research into perinatal psychological disorders should be to help to establish a potential intervention framework for treatment or prevention of paternal perinatal mental health issues. The first step in developing an effective intervention is to establish theories of the cause of paternal depression, and consider how the correlates and risk factors that have been identified by previous research may impact on the course of a perinatal depressive episode. An examination of theoretical bases for paternal depression, based on maternal perinatal depression theory and the findings of qualitative and quantitative paternal depression research, is conducted in Chapter 3. If, however, mental health service providers have been ineffective at engaging fathers in general (Fletcher, Vimpani, Russell, & Keatinge, 2008; Price-Robertson, 2015), before examining theoretical perspectives for the development of depression in fathers in the months before and after the birth of their child, it is worth considering the broader impact that fatherhood itself has on mental health. Depression prevalence rates are not only higher amongst expectant and new fathers than the general male population (Paulson & Bazemore, 2010), but depression prevalence has been found to be highest amongst young adult men, who often have dependent children (Jorm et al., 2005; Kessler et al., 2010). Sadly, suicide rates are also highest amongst young adult males, up to three times higher than any other age group of males or females, in many countries around the world (Hee Ahn et al., 2012), and depression is the most common mental illness amongst individuals who suicide (Hawton, Comabella, Haw, & Saunders, 2013). Although many changes are happening during men’s lives between ages 18-45, such as romantic relationships, career and financial responsibilities, parenthood is arguably the most life-changing of all events during this time. Contemporary fathers also now take an active and engaged role in the care and development of their children, in comparison to fathers in past decades (Craig & Mullan, 2012; Genesoni & Tallandini, 2009). For these reasons, a
systematic review was conducted of studies that compared rates of depression between fathers of dependent children and childless men to examine whether fatherhood itself has an impact on men’s mental health. If prevalence rates of depression, or levels of depressive symptoms, are higher in fathers than childless men of comparable socio-economic status or ethnic background, it should be considered whether fatherhood itself is a potential risk factor for depression. There is an assumption, often portrayed in popular culture, that fatherhood is an unconditionally positive, natural and rewarding experience (Barclay & Lupton, 1999). The systematic review aimed to test this assumption, and the results can be used to develop interventions developed to treat or prevent depression in new fathers.
CHAPTER THREE

Comparison of Depressive Symptoms between Fathers and Childless Men: A Systematic Review

3.1 - Introduction

Why do some young adults, often with no history of mental illness, develop depression following the birth of a child? New parenthood is a time full of emotional extremes. Happiness, pride and love are accompanied by great upheaval due to changed responsibilities and uncertainty (Price-Robertson, 2015). Prevalence of depression and elevated depressive symptoms during pregnancy and in the 12 months following birth has been estimated to be between 7-20% in women and around 10% in men (Bennett et al., 2004; O'Hara & McCabe, 2013; Paulson & Bazemore, 2010). There has been some discussion in the literature as to whether depression experienced during pregnancy and early parenthood has a different clinical presentation or symptom profile to depression experienced at other times or life stages, or whether there is higher prevalence of depression in new mothers compared to other women (Jones & Cantwell, 2010). A study of Norwegian women by Eberhard-Gran, Eskild, Tambs, Samuelsen, and Opjordsmoen (2002) compared a group of postnatal women with women who had older children and women who were childless aged 18-40. Overall, the percentage of postnatal women who reported elevated depression symptoms was significantly lower than the percentage of non-postnatal women, however after accounting for a number of factors including partner attachment, premenstrual tension symptoms, and a history of significant life events, they concluded that postnatal women are at higher risk of mental health problems than non-postnatal women.

The symptom profile of postnatal depression has been found to differ from depression experienced in non-postnatal women in some studies. Eberhard-Gran, Tambs, Opjordsmoen, Skrondal, and Eskild (2003) found that postnatal women reported no suicidal ideation, fewer
somatic symptoms, and less anhedonia, but reported that they cried more frequently and had less interest in sexual activity. Other studies have found that postnatal women report significantly fewer appetite problems and less frequent early morning waking than non-postnatal women (Cooper et al., 2007) and less ability to cope with stressful events (Evans, Heron, Francomb, Oke, & Golding, 2001), however the authors of all of these studies concluded that overall there was little difference in the symptom presentation of postnatal depression compared to depression in non-postnatal women, and any apparent differences are due to the unique circumstances of childbirth and infant care during the postnatal period. The findings from these studies suggest that despite the innumerable individual circumstances that each mother experiences during pregnancy and early parenthood, and the influence that her personal history has on her perinatal mental health, motherhood itself is a potential risk factor for depression.

Likewise, it is worth asking similar questions about depression experienced by fathers; that is, do new fathers experience higher rates of depression than men who are childless, or men with older children? There is a great deal of change that occurs during men and women’s lives at around the same time as becoming parents, including marriage or long-term relationships, buying a first home and managing a mortgage and other financial obligations, and establishing a career. Ongoing stress and difficulties during this time may contribute to elevated depression symptoms (Paykel, 2003). The transition to fatherhood has been identified as a period during which men are at greater risk of experiencing symptoms of physical and mental health issues. A review by Bartlett (2004) found that fathers with young children were at higher risk of physical health problems, such as a greater incidence of heart attack, lower self reported health status, and more frequent physical injury than childless men or men with older children, however; there have been no recent reviews conducted looking at whether fatherhood presents a higher or lower risk of mental health problems such as
depression. Earlier studies conducted between the 1950’s and 1970’s into the effects of parenthood on mental health and wellbeing found that parents experience higher levels of stress, depression, and anxiety than childless adults, and that the amount of stress that mothers and fathers experience has increased over the second half of the 20th Century (McLanahan & Adams, 1989). On the other hand, childless men may not experience the stress of responsibility and lifestyle change that fathers have, but may also experience depressive symptoms and a sense of loss for not meeting the cultural expectations to have children (Hadley & Hanley, 2011).

As described earlier, prevalence of paternal depression symptoms has been estimated at 10.4% (Paulson & Bazemore, 2010), which is higher than the 12-month period prevalence of depression symptoms in men of childrearing age in the general population, estimated at 7.2% - 7.4% (Kessler et al., 2010). Furthermore, Kessler et al.’s. research found that prevalence of depression was highest amongst men of parenting age, ages 35-49, than men at any other age. Similar results have been found in Australian men, with men aged 20-24 and 40-44 reporting significantly higher levels of depression and anxiety than men aged 60-64 (Jorm et al., 2005). Unfortunately, this study did not include men aged 25-40, when men are most likely to be fathers of infants. Based on this evidence, the higher rates of depression amongst young adult men, as well as the higher rates of depression amongst fathers in the perinatal period compared to the general male population beg the question: Is fatherhood associated with increased levels of depression; that is, are increased levels of depression amongst men of parenting age specifically due to parenting status? Few studies examining prevalence of depressive disorders have distinguished between fathers and childless men. A study by Munk-Olsen et al. (2006) did make this distinction in a study of mental health admissions to Danish Hospitals, and found that fatherhood was not associated with an increased risk of inpatient or outpatient contact, but they included all patients diagnosed with
any psychiatric disorder and not just unipolar depression, only included first time fathers whose partners were pregnant, and only included data up to one year post birth.

The aim of this systematic review was to examine the possibility that fatherhood is itself a cause of depression in new fathers, and to explore whether there is a potential link between fatherhood and lower levels of wellbeing by systematically reviewing studies that have compared fathers and childless men on measures of depression. Given that the focus of this thesis is on paternal perinatal mental health, studies that have compared the wellbeing of fathers in the postnatal period (up to one year post-birth) to childless men were sourced and included here. To my knowledge, this is the first systematic review to synthesise and compare the findings of these studies.

3.2 - Method

Articles for inclusion in this review were sourced from six databases: Medline, PsycINFO, CINAHL, Academic Search Complete, Psychology and Behavioural Sciences Collection, and Health Source: Nursing/Academic Edition. The search was limited to articles published between 1990 and June 2015. Studies were included if the majority of the men in the sample, or their mean age, were below age 45 years. Forty-five was considered as the cut-off age to limit the focus of the studies to fathers with minor or dependent children. Search strategy terms are shown in Figure 3.1.
Database searches returned 6245 publications, from which 2534 duplicates were removed. The titles and abstracts of the remaining 3711 publications were screened, and were discarded if they did not meet the following criteria: the study included at least one group of childless adults and one group of parents and the participants were assessed on their mental health or wellbeing. Non peer-reviewed publications such as news stories were also discarded. This screening resulted in 117 studies that were potentially suitable. These 117 studies were read by myself and a Doctor of Psychology student colleague of mine, in their entirety, and discarded if they did not meet the following criteria: independent samples of fathers and childless men were compared on measures of mental health, and the men in the sample were predominantly less than 45 years of age. This final screening yielded eight studies that were included here. The reference lists of these eight studies were also screened, however this did not yield any further relevant studies. A flow diagram of the selection process is shown in Figure 3.2.

**Figure 3.1.** Search terms used in database search

father* OR parenthood OR “parent* status”
OR childless* OR dad* OR paternal
AND
depression OR depress* OR “mental health”
OR psychopathology
3.3 - Results

Summary of included studies

Details of the eight studies, including the country in which the study took place, the aim and research question(s), participant sample, measures of depression and the findings are summarised in Tables 3.1 and 3.2, for cross-sectional and longitudinal studies, respectively. Alpha levels of significance tests and confidence intervals are included where they were
reported. Four of the eight studies included data sets that were taken from population studies that analysed a participant sample representative of the socioeconomic and cultural state of the jurisdiction in which the study took place (Garfield et al., 2014; Helbig et al., 2006; Nomaguchi & Milkie, 2003; Rimehaug & Wallander, 2010; Su, 2012); consequently, these studies all had large sample sizes. Five of the reviewed studies were longitudinal (Biello, Sipsma, & Kershaw, 2010; Feeney et al., 2003; Garfield et al., 2014; Nomaguchi & Milkie, 2003; Su, 2012), however Helbig et al. (2006) and Rimehaug and Wallander (2010) consisted of data from larger longitudinal studies that was analysed only at a single time-point.

**Measures of depressive symptoms**

Various measures were used to assess depressive symptoms, including diagnostic interviews for depression, depression screening tools, and questionnaires examining depression symptoms. Only one study (Helbig et al., 2006) used diagnostic clinical interviews based on DSM-IV (American Psychiatric Association, 2000) criteria. The other six studies used full and shortened versions of validated depression screening tools. These included: the Centre for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) used by Garfield et al. (2014), Kato and Yamakazi (2009), Nomaguchi and Milkie (2003), Su (2012); the Short Form 36 (SF-36; Ware, Snow, Kosinski, & Gandek, 1993), used by Biello et al. (2010); the Depression and Anxiety Stress Scale (DASS-21; Lovibond & Lovibond, 1995) utilised by Feeney et al. (2003); and the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983), was used by Rimehaug and Wallander (2010).
Rates of Depression in Fathers compared with Childless Men

To determine whether fatherhood was associated with lower wellbeing, reported rates of depressive symptoms amongst fathers and childless men were compared. A meta-analysis was considered, however the information required to calculate effect sizes was not consistently available. Some studies included more than two comparison groups, such as Garfield et al. (2014) who reported depression levels for resident fathers, non-resident fathers, and childless men, while the longitudinal studies reported depression levels at multiple time points. Helbig et al. (2006) was the only study to compare prevalence of diagnosed depressive disorders between fathers and childless men using a diagnostic interview and representative population sample, while the seven other studies compared mean scores or the percentage of men who exceeded a cut-off score on a depression questionnaire. Table 3.3 summarises these findings. Only two studies (Biello et al., 2010; Su, 2012) found that fathers had significantly higher rates of depression than childless men. Su (2012) found that rates of depressive symptoms were higher overall for fathers, but only significantly higher amongst fathers whose children were unintended births and Helbig et al. (2006) found that single fathers reported significantly higher rates of depression than partnered fathers. Levels of depressive symptoms in Garfield et al. (2014) were highest in fathers who did not live with their children, followed by childless men, and fathers who lived with their children reported the lowest levels of depression symptoms.
Table 3.1

Cross-sectional studies comparing levels of depression symptoms in fathers and childless men

<table>
<thead>
<tr>
<th>Authors and country of study</th>
<th>Aim</th>
<th>Sample</th>
<th>Measures of depression/depressive symptoms</th>
<th>Findings</th>
</tr>
</thead>
</table>
| Helbig, Lampert, Klose and Jacobi (2006) Germany | To examine the associations between parenthood and mental health in the general population. | sample size = 2,801
n of childless men = 1,308
Mean age of fathers (SD) = not stated.
Mean age of childless men (SD) = not stated
Sample recruited from the 1998-99 German Health Interview and Examination Survey (GHS) and its Mental Health Supplement (GHS-MHS). | Twelve month prevalence rates of depression assessed with the Munich-Composite International Diagnostic Interview (M-CIDI; Wittchen, Lachner, Wunderlich, & Pfister, 1998). | Prevalence of depression, in fathers was 6.7%, while prevalence of depression in childless men was 11.2%. Childless men were significantly more likely to report a depressive disorder (OR = 1.76, p < .05), than fathers. |
| Kato & Yamazaki (2009) Japan | To examine the relationship between work-to-family conflict (WFC), and fatigue and depression, and the role of family togetherness as a factor in WFC and health. | sample size = 738
n of childless men = 163
Mean age of fathers (SD) = 39.5 (7.5)
Mean age of childless men (SD) = 36.8 (8.5)
Sample recruited from workers belonging to a labour union in the | Japanese translation of the Centre for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) | No significant differences in mean depression scores were found between fathers, 4.9 (5.0) and childless men, 5.4 (6.0). Researchers did not assess whether participants had been previously diagnosed with a depressive disorder |
Rimehaug and Wallander (2010) in Norway

To examine whether parenthood is associated with prevalence of depression and anxiety in a society with family- and parenthood-friendly social politics

Sample size = 11,455
n of childless men = 5062
Mean age of fathers (SD) = not stated
Mean age of childless men (SD) = not stated
Sample recruited from the Nord-Trøndelag Health Study (HUNT2).

Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983)

Researchers did not assess whether participants had been previously diagnosed with a depressive disorder

Prevalence of depression was 0.3% higher in married childless men and 0.9% higher in cohabiting childless men, compared to married and cohabiting fathers. Depression prevalence was higher overall in single men compared to partnered men, and was 2% higher in single fathers compared to single childless men.
### Table 3.2

Longitudinal studies comparing levels of depression symptoms in fathers and childless men

<table>
<thead>
<tr>
<th>Author and country of study</th>
<th>Aim</th>
<th>Sample</th>
<th>Design</th>
<th>Measures of depression/depressive symptoms</th>
<th>Findings</th>
</tr>
</thead>
</table>
| Biello, Sipsma, & Kershaw (2010) | To examine the effect of teenage parenthood on mental health in later years. | *sample size = 1,426*  
*number of childless men = 330*  
*Mean age of fathers (SD) = not stated*  
*Mean age of childless men (SD) = not stated*  
*Sample recruited from the National Longitudinal Survey of Youth, 1997 (NLSY97)* | Four interviews were conducted at two year intervals over 6 years. | Short Form 36 (SF-36; Ware, Snow, Kosinski, Gandek, & Institute, 1993). | Fathers experienced significantly higher levels of depression and anxiety immediately after birth (fathers = 10.31, childless = 10.99, $p < .05$) and two years after birth (fathers = 9.89, childless = 10.71, $p < .001$). |
| Feeney, Alexander, Noller and Hohaush (2003) | To examine how the transition to parenthood affects a couple's attachment security, relationship anxiety, and depressive symptoms | *sample size = 150*  
*number of childless men = 74*  
*Mean age of fathers (SD) = 31.6 (6.1)*  
*Mean age of* | Measurement points were the second trimester (T1), six weeks (T2), and six months post birth (T3). | Depression Anxiety Stress Scale (DASS-21; Lovibond & Lovibond, 1995). | Both the fathers and the childless men recorded similar mean scores on the depression measure across all three time points (fathers; T1 = 2.25, T2 = 2.20, T3 = 2.10. Childless; T1 = 2.24, T2 = 2.11, T3 = 2.71). |
childless men (SD) = 30.5 (5.9)
• sample recruited from the general population in Queensland, Australia.

previously diagnosed with a depressive disorder

Garfield et al. (2014) United States To determine how the transition to fatherhood may be associated with depression symptoms.

• sample size = 10,263
• n of childless men = 6828
• Mean age of fathers = 23
• Mean age of childless men = 23
• Sample recruited from four waves of the National Longitudinal Study of Adolescent Health (Add Health).

Wave 1 interviews were conducted in 1994-95, with subsequent interview waves in 1996, 2001-02, and 2007-08. Comparisons were made between men who reported having children at each time point and those who had remained childless.

10-item CES-D.

Researchers did not assess whether participants had been previously diagnosed with a depressive disorder

Standardised depressive symptom scores for childless men, non-resident fathers, and resident fathers were -0.01 (0.97), 0.29 (1.02), and -0.08 (0.95), respectively. Childless men report significantly lower depressive symptoms than non-resident fathers ($p < .001$), but significantly higher than resident fathers ($p < .01$). Increased depression symptoms amongst fathers were associated with lower levels of physical health, income, employment, education, and being in a racial minority. Number of children was positively associated with depression symptoms.
### Nomaguchi and Milkie (2003)

**United States** To examine how new parents differ from childless adults in psychological wellbeing, daily stress and social connectedness.

- **Sample size** = 1,036
- **n of childless men** = 686
- **Mean age of fathers (SD) = 31.3 (4.7)**
- **Mean age of childless men (SD) = 31.8 (6.9)**
- Sample recruited from individuals who were childless and aged 18-44 in at the first wave (1987-1988) of the National Survey of Families and Households (NSFH).
- Longitudinal data was drawn from the 1992-1994 NSFH. Comparisons were made between parents and childless adults who had changed marital status only once between waves of the survey.
- 12-item CES-D. Researchers did not assess whether participants had been previously diagnosed with a depressive disorder
- Mean depression scores for men who remained childless decreased between Wave 1 (1.24) and Wave 2 (0.88). Depression scores for men who became fathers decreased between Wave 1 (1.15) and Wave 2 (1.00). Mean scores adjusted for socioeconomic variables indicated that fatherhood was associated with higher levels of depression, especially for men who had never married.

### Su (2012)

**United States** To compare the psychological wellbeing of parents who have unintended pregnancies with parents with intended pregnancies and childless adults.

- **Sample size** = 889
- **n of childless men** = not stated
- **Mean age of fathers (SD) = not stated**
- **Mean age of childless men (SD) = not stated**
- Sample recruited
- Longitudinal data was drawn from the 1992-1994 NSFH. All participants were childless at the first wave. At the second wave, 71% of participants remained childless, 19% had an intended birth, and 10% had an unintended pregnancy.
- 12-item CES-D
- Researchers did not assess whether participants had been previously diagnosed with a depressive disorder
- Mean depressive symptom scores were 7.17, 9.04 and 11.89 for childless men, intended fathers, and unintended fathers, respectively.
from the first waves of the National Survey of Families and Households (NSFH), conducted in 1987-1988.
Table 3.3

Comparative rates of Depressive Symptoms in Fathers (reference group childless men)

<table>
<thead>
<tr>
<th>Study</th>
<th>Type of Father</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biello, Sipsma, &amp; Kershaw (2010)</td>
<td>Fathers (all types)</td>
<td>+</td>
</tr>
<tr>
<td>Faeney, Alexander, Noller and Hohlrauch (2003)</td>
<td>Married/partnered fathers</td>
<td>ø</td>
</tr>
<tr>
<td>Garfield et al. (2014)</td>
<td>Single/lone fathers</td>
<td>+</td>
</tr>
<tr>
<td>Helbig, Lampert, Kluse and Jacobs (2006)</td>
<td>Postnatal fathers</td>
<td>ø</td>
</tr>
<tr>
<td>Kato &amp; Yamazaki (2009)</td>
<td></td>
<td>+/-</td>
</tr>
<tr>
<td>Nomaguchi and Miki (2003)</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

*Note:* + = Higher rates of depression, - = Lower rates of depression, Ø = No significant difference in rates of depression
Fathers in the postnatal period compared to childless men.

Two of the eight studies (Biello et al., 2010; Feeney et al., 2003) specifically examined depression in the postnatal period (up to one year post-birth). Biello et al.’s (2010) study followed young men who had become fathers while they were teenagers, and found that new fathers experienced significantly higher levels of depressive symptoms during the postnatal period than their childless peers. Feeney et al. (2003) found that new fathers reported higher levels of depressive symptoms at six weeks post birth than childless men; however, they experienced fewer depressive symptoms than childless men at six months post birth.

3.4 - Discussion

The aim of this systematic review was to examine whether parental status could itself be a cause of depression in men new fathers, and whether there is a link between fatherhood and higher rates of depression in young males. The evidence suggests that prevalence of depressive disorders is higher amongst fathers in the perinatal period than in the general male population, and young men of parenting age also have higher depression prevalence rates than men in other age brackets (Jorm et al., 2005; Kessler et al., 2010; Paulson & Bazemore, 2010). Following the database search, eight studies were identified that had compared rates of depressive symptoms between fathers and childless men, and the findings revealed that, when taken together, both groups reported similar levels of psychological distress (see Table 3.3), and based on these results, it was not found that the comparatively higher prevalence of depression in men of parenting age is itself due to parental status. However, there was evidence to suggest that fathers of infants, single fathers, and fathers of children from unplanned pregnancies experienced higher rates of depressive symptoms than childless men,
while married or co-habiting fathers reported similar or lower levels of depressive symptoms than childless men.

There were a number of limitations to this review. Although over 100 studies were returned that compared depression symptoms between childless adults and parents, only eight studies compared depression in young adult males based on parental status. Most of the literature into the impacts of childlessness on mental health is focussed on older or elderly adults, or evaluates the impact that childlessness (due to infertility) has on wellbeing. Even amongst the eight studies that met the review criteria, in Tables 3.1 and 3.2 it can be seen that no two studies were comparable with regards to their research question and research methodology between groups of fathers and childless men. Furthermore, only five studies focused specifically on determining whether there were differences in levels of depressive symptoms between childless men and fathers (Biello et al., 2010; Garfield et al., 2014; Helbig et al., 2006; Nomaguchi & Milkie, 2003; Rimehaug & Wallander, 2010), and not all of these studies reported the comparative frequency of the number of men who reported elevated depression symptoms. The other three studies (Feeney et al., 2003; Kato & Yamazaki, 2009; Su, 2012) examined differences between fathers and childless men in the context of other psychological constructs or life events, which meant that differences in wellbeing between fathers and childless men were mediated by other variables. Three studies reported rates of depressive symptoms between fathers and childless men but did not conduct analyses to determine whether the differences were significant (Feeney et al., 2003; Nomaguchi & Milkie, 2003; Rimehaug & Wallander, 2010). Furthermore, Feeney et al., (2003) and Nomaguchi and Milkie (2003) only examined fathers caring for children under 6 years old in their sample.
There was also inconsistency in the way depression and depressive symptoms were measured and reported, and two used measures that had been translated from English into the native language of the participant sample (Kato & Yamazaki, 2009; Rimehaug & Wallander, 2010). In a previous study of older English, Finnish and Japanese parents, Chandola et al. (2004) noted that the higher levels of depressive symptoms and anxiety reported by the Japanese participants may have been due to differences in meaning following translation from English, even though the measures used were validated for a Japanese sample.

There may also be concerns about the validity of the measures used in these eight studies, such as the CES-D, with a male participant sample (Bazargan-Hejazi, Ani, Gaines, Ahmadi, & Bazargan, 2010; Strömberg et al., 2010). Researchers and clinicians theorise that symptoms of depression and psychological distress manifest differently in men compared to women, and that the symptoms used to diagnose depression in the DSM-5 (American Psychiatric Association, 2013), such as prolonged periods of sadness, apathy and anhedonia, are more applicable to depressed women rather than men (Cochran & Rabinowitz, 2000; Wålinder & Rutz, 2001; Winkler, Pjrek, & Kasper, 2005). If there are a significant proportion of men who are experiencing psychological distress but do not report traditional symptoms of depression, then the studies in the current review that screened for depressive symptoms may have overlooked the externalising behaviour that many men display in response to distress, and hence underestimated the frequency or severity of problems that fathers may be experiencing. The theory of “male depressive syndrome”, that is, that distressed men display more externalising behaviour than distressed women, will be examined in Chapter Five, and Study Two of this thesis focuses on male depressive syndrome in the postnatal period.

Another limitation of this review is that few studies examined whether the participants had been previously diagnosed with a psychological disorder, or experienced extended periods of psychological distress before the study took place. Up to 90% of people who suffer
an acute depressive episode are likely to experience a relapse or recurrence of depressive symptoms within 15 years (Nierenberg et al., 2003). Two studies examined the psychological wellbeing of the men in their sample before they became fathers: up to six years before their first children were born (Nomaguchi & Milkie, 2003), and during their partner’s first pregnancy (Feeney et al., 2003); however, they did not assess for lifetime history of major depressive disorder. Early onset of major depressive disorder has been found to be a predictive factor for childlessness in men (Yates, Meller, Lund, Thurber, & Grambsch, 2010). The findings of the current review suggested that single or lone fatherhood was associated with elevated depressive symptoms, however further research is required to determine whether this is due to grief and loss due to separation and insufficient contact with their children, or if these men experienced relationship breakdown because they were depressed; that is, fatherhood may have little impact on their overall wellbeing.

Overall, this review was inconclusive in determining whether the increased prevalence of depression amongst men of parenting age was due to parenting status. The study by Helbig et al. (2006), which involved a large sample taken from the German population and utilised a diagnostic interview to determine depressive disorders, found that childless men reported much higher prevalence of depressive disorders than fathers, however most of the other studies reported no differences in levels of depression symptoms. The obvious explanation for the inconclusive finding is that there are a number of factors that influence wellbeing amongst fathers and childless young adult men beyond parental status. Garfield et al. (2014) study found that while childless men reported higher levels of depression symptoms than fathers who were living with their children, non-custodial fathers reported higher levels again. Other studies that have examined the association between fatherhood and depressive symptoms have found that being married or living with a romantic
partner was a protective factor against depression (Eggebeen & Knoester, 2001; Galambos & Krahn, 2008), while being a lone father, or being a non-custodial father was a risk factor for depression (Cooper et al., 2008; Eggebeen & Knoester, 2001; Helbig et al., 2006; Knoester & Eggebeen, 2006; Nomaguchi & Milkie, 2003; Ringbäck Weitoft, Burström, & Rosén, 2004; Woo & Raley, 2005). Men who are separated or divorced from the mother of their children often see their children less frequently, and the quality of the relationship with their children often declines (Marsiglio, Amato, Day, & Lamb, 2000). Fathers who never marry their children’s mother are even less likely to see their children than divorced fathers (Marsiglio et al., 2000). Mothers, however, are not always given custody of children following a divorce. In Australia, 16% of single parent families with dependent children are single father families (Australian Bureau of Statistics, 2012), while in the United Kingdom and the United States, 9% and 8% of families are single father families, respectively (Office for National Statistics, 2012; Pew Research Center, 2013). Given that sole custodial parents are required to take on all the responsibilities that married or co-habiting parents would share, such as caring for children, housework, and maintaining income and employment, this may be contributing to higher levels of distress in fathers. In their study of lone fathers, Cooper et al. (2008) found that although lone fathers had a higher likelihood of mental disorder diagnosis than partnered fathers or childless men overall, being employed was a protective factor against mental illness in lone fathers. Helbig et al. (2006) also found that fathers who worked part-time were not significantly more likely to report depressive symptoms than full-time working fathers.

### 3.5 - Conclusion

The findings of this review were ostensibly inconclusive, although it was hoped that it would expand on the research into potential causes of paternal postnatal depression to test a theory that fatherhood itself is a risk factor for lower wellbeing in young adult men, given the
Evidence from epidemiological studies and meta-analyses into male depression. Even the two studies that specifically compared fathers with infant children to childless men, had limitations to the applicability of their findings. Feeney et al. (2003) did not conduct statistical group comparison tests, and Biello et al. (2010) only included men who had become fathers during adolescence. Biello et al.’s study revealed that those men who were parents in late adolescence/early adulthood had higher levels of depressive symptoms than their childless peers. In other research that has examined the effect of early fatherhood on wellbeing, Mirowsky and Ross (2002) found that middle aged men who had had children before the age of 23 reported higher rates of current depression symptoms than men who were fathers after age 23. Becoming a father before a man is in his mid-twenties could mean that tertiary education is postponed, because of the need to obtain full-time work to support one’s family. Limited education is usually associated with limited earning capacity, which might lead to housing and financial stress. Given that many men value their self-worth by their ability to provide for their family (Fildes, Cass, Wallner, & Owen, 2010), restricted opportunities due to early parenthood may be a cause of depression in young fathers, as well as increasing risk of depression in middle age; further research is needed explore these possibilities.

So far, the focus of this thesis has been on symptoms of depression that are experienced by fathers, which may include sadness, lack of motivation and loss of enjoyment in life, and as described in Section 1.5, the children of fathers who are depressed are at risk of not receiving adequate care as infants, and developing emotional and behavioural problems as older children. The most serious risk is that severe, untreated depression experienced by fathers may lead to self-harm and suicide. Hence, the research focus on depression symptoms is justifiably important for the health and safety of fathers and their children, especially as
society’s views and expectations about parenthood shifts from focusing solely on mothers to appreciating and embracing the vital role that men have as parents.

Given that at this point, with the available literature at hand, there is little evidence that parental status itself is a risk factor for increased depression prevalence in young men, what are some of the other potential risk factors for depression in new fathers? In order to provide frameworks for clinicians to work from when developing and delivering interventions to treat maternal perinatal depression, researchers have proposed different theories as to why perinatal depression develops and why prevalence of depression is high in new mothers (Barnes, 2006; C. T. Beck, 2002). Given that very few effective interventions have been developed to prevent or treat paternal perinatal depression (Wee et al., 2013), it is also important to explore theoretical perspectives into the development of depression in fathers. The next Chapter of this thesis summarises the research that has been conducted, albeit this literature base is not extensive, and also examines how theoretical perspectives proposed to explain the development of maternal perinatal depression could apply to fathers.
CHAPTER FOUR

Theoretical Explanations for the Development of Depression in the Postnatal Period for Men and Women

Many studies have been conducted examining predictors, correlates and factors associated with paternal perinatal depression, some of which were described previously and have been covered in detail in previously published systematic reviews (Schumacher, Zubaran, & White, 2008; Wee et al., 2013). This information may help clinicians and healthcare professionals to identify fathers who are at risk of developing a mood disorder before symptoms and behaviour become problematic and significantly impact on their own and their family’s wellbeing. It is still not clear however why mothers and fathers develop depression and mood disorders following the birth of a baby. Western culture paints a picture of early parenthood as a happy and exciting time, albeit tempered by lack of sleep and changes to routine, with any difficulties overcome with the support of close friends and family (Everingham, Heading, & Connor, 2006). New parents do not expect to develop depression, especially if they have no personal history of mental illness (Whiffen, 2004). Despite this, the evidence suggests that new parents experience rates of depression higher than the general adult population. A number of theoretical perspectives have been proposed to explain the onset and course of maternal postnatal depression. This chapter describes these perspectives as they relate to maternal depression, and then considers how they might apply to the development of elevated depressive symptoms in new fathers. A potential limitation of this approach is that by trying to overlay fathers’ experience of depression onto maternal based theoretical perspectives, certain unique factors of paternal depression could be overlooked or compromised in order to maintain the integrity of the theory. Ideally, novel theoretical perspectives on paternal depression should be developed, however that is beyond the scope of this thesis. This chapter reviews the most prominent theoretical perspectives of
maternal perinatal depression: the Medical model, the Feminist or Sociocultural model, and Attachment Theory (Barnes, 2006; Beck, 2002; Kim & Swain, 2007), and examines how they could apply to fathers. Ecological factors, or lifestyle changes that are brought about following the birth of a child, are also discussed as a potential cause of postnatal depression amongst fathers.

4.1 - Medical Model

According to the medical model of psychological disorders, mental illnesses such as depression have biological origins. These include the monoamine hypothesis, in which a depressive state is associated with a reduction in the levels of the monoamine neurotransmitters serotonin and noradrenaline in the brain, and is thought to be caused by structural deficits in the brain (Garrett, 2011). Genetic factors have also been investigated; a meta-analytic review of studies that examined familial heritability of depression found that heritability of major depression was in the range of 31-42%, and having a family history of increased the risk of clinical referral for depression treatment by 2.8 times (Sullivan, Neale, & Kendler, 2000). A study by Murphy-Eberenz et al. (2006) suggested that perinatal depression may also have a familial component. They reported that amongst a cohort of families with history of unipolar depression, if a mother had experienced perinatal depression, it was significantly more likely that her sister had also experienced perinatal depression during her own pregnancy and post-birth. There were a number of limitations to the study however; the sample of depressed women was small, and the results may have been affected by recall bias and cohort effects. Unfortunately, there have been no large studies that have examined genetic factors associated with perinatal depression (Shyn & Hamilton, 2010).

Perinatal depression may also be associated with the dramatic hormonal changes a woman’s body goes through during pregnancy and in the days and weeks after birth.
Oxytocin, a neuro-hormone which is released during breastfeeding has been shown to have anti-depressant effects in humans and other mammals, and its release has been shown to reduce stress by moderating the effects of cortisol and other stress hormones (Donaldson-Myles, 2012; Uvnäs-Moberg, Widström, Nissen, & Björvell, 1990). In line with theories of the effectiveness of oxytocin as an antidepressant in the postnatal period, women who breastfeed have significantly less occurrence of postnatal depression than women who feed their babies with formula (Dennis & McQueen, 2009). The other major hormones associated with pregnancy and the postnatal period are oestrogen, progesterone and prolactin. Research has shown that these hormones effect the expression of monoamine neurotransmitters (Behnke, 2003) and are associated with postnatal depression (Donaldson-Myles, 2012).

To date, there has been no research conducted into biological causes for depression in men that manifests in the postnatal period, albeit changes in hormone levels occur in men during their partner’s pregnancy and the postnatal period, despite the fact that men undergo no apparent physical changes during this period. Storey, Walsh, Quinton, and Wynne-Edwards (2000) found that men’s testosterone levels were 33% lower in the early postnatal period compared to late pregnancy, and Wynne-Edwards (2001) found that testosterone levels in some men decreased in the second half of the pregnancy and stayed at low levels until several months post-birth. Storey et al.’s study also found that men with lower testosterone levels were more responsive to infant behavioural cues. It has been proposed that lower testosterone levels lead to lower aggression and stronger attachment to the infant, greater expression of sympathy, and a need to respond to a crying infant. A study by Gordon, Zagoory-Sharon, Leckman and Feldman (2010) measured levels of paternal prolactin and oxytocin at two and six months post-birth and compared it against the behaviour of the father when he was playing with his child. Prolactin was associated moderately with how positively the father engaged with the infant when he presented the infant with new toys, and oxytocin
was associated moderately with synchronicity of affect between father and infant. However, no significant correlations were found between hormone levels and stress or anxiety related to the parenting role. From the empirical evidence presented here, it would appear that there is a potential association between biochemistry and the quality of the father/infant relationship, however more research is needed to determine any association between hormone levels and paternal perinatal depression.

4.2 - Sociocultural Factors

The adoption of the medical model to explain postnatal depression has been criticised in feminist literature due to its focus on pathology. Specifically, it treats postnatal depression as a disease that can be treated in the individual without considering the social and cultural context in which a mother lives (Barnes, 2006; Beck, 2002). Western society has created an idealised image of the perfect mother, that Nicolson (1999) has called the *myth of maternal instinct*, and Giustardi, Stablum and De Martino (2011) have called the *myth of maternal bonding*. These myths around early motherhood pressure women to feel that it should be one of the happiest and most fulfilling times of their life and that they should love their child unconditionally. There is also an assumption that being a good mother is instinctual and they should not need to ask for help or advice in caring for their child. From the feminist perspective, postnatal depression arises because fulfilling these expectations completely is impossible, so when the reality of motherhood falls short of the ideal, those mothers who are vulnerable to depressive symptoms, and cannot resolve this incongruence, may develop a depressive disorder (Berggren-Clive, 1998).

Societal expectations of the ideal parent are not only limited to women; this burden is increasingly placed on men. The traditional role of men as providers who work during the day and leave parenting duties to their wives at home is becoming anachronistic. Fathers may still be the predominant family bread-winners, but they are increasingly expected to take
an active role in parenting and household duties. Barclay and Lupton (1999) conducted a series of qualitative interviews with new fathers over a number of occasions up until 6 months after birth. The men described a wide variety of unique experiences as fathers, but there was a consensus that the most important thing was “being there”. This had a wide variety of vague interpretations, but contrasted with the “absent” father of previous generations. For the men in Barclay and Lupton’s study, an adequate amount of “being there” was determined by their child, their partner, and what they thought society expected of them. However, and most importantly, they felt this was ultimately unachievable.

In another qualitative study by Davey, Dziurawiec and O’Brien-Malone (2006), fathers who were attending a support group to discuss issues they had as a parent reported that they felt the need to remain stoic, and not reveal that they were having difficulties as a parent. There was also reluctance and embarrassment to disclose to others that they were attending a men’s support group, despite finding the experience valuable and enjoyable. The feminist or sociocultural perspective suggests that mothers suffer postnatal depression because of an inability to live up to societal and cultural expectations; indeed new fathers may suffer depression for similar reasons.

4.3 - Attachment Theory

Attachment theory has traditionally focussed on the bond between an infant and their primary caregiver; however concepts taken from attachment theory that focus on the quality of the relationship between an infant’s parents have also been put forward as an explanation for the development of depression in the perinatal period (Barnes, 2006; Beck, 2002; Whiffen & Johnson, 1998). Infant attachment theory (Bowlby, 1991) posits that when an infant is fearful, anxious, or stressed, he/she will look to a parent or primary caregiver for support and reassurance. Over time, the infant will develop conclusions about their parent as
a source of security and stability, depending on the consistency of the support they receive during uncertain situations. Infants who have parents who provide reliable and frequent support when they are distressed will learn based on their experiences that support is consistently available and effective; these infants are thought to develop a secure attachment style. Two insecure attachment styles were also identified for infants. Infants who have parents who consistently reject or do not provide support will develop an insecure avoidant attachment style, while infants who receive inconsistent support, being available at some times and rejecting in others, will develop an insecure ambivalent attachment style (Ainsworth, Blehar, Wall, & Waters, 2014). Infants whose attachment styles are avoidant or ambivalent develop maladaptive coping strategies that include clingingness, anger, or emotional detachment, ultimately to the psychological detriment of the growing child.

The original attachment theories that focussed on an infant’s relationship with a parent or primary caregiver where extended by Hazan and Shaver (1987) to suggest that secure, ambivalent and avoidant attachment styles displayed during uncertain situations continue throughout adulthood, and apply not only to the relationship with our parents, but to other people with whom we have close relationships. This includes a romantic partner or spouse. An individual’s attachment style moderates the affective and behavioural responses they have internally, and towards their partner, when presented with an uncertain or stressful situation (Mikulincer & Florian, 1998; Mikulincer & Shaver, 2003). Studies that have examined attachment style and mental health have found consistently that individuals with insecure attachment styles report higher levels of depressive symptoms than individuals with secure attachment styles (Wilkinson & Mulcahy, 2010). A study by Pielage, Luteijn, and Arrindell (2005) compared a community sample of Dutch adults with a sample of individuals who were undergoing psychotherapy treatment, all of whom were in a current relationship. They found that participants in the clinical sample had less secure attachment to their partner
than the community sample. The level of intimacy in the relationship was also a mediator of the relationship between attachment and psychological distress, especially in the clinical sample. Caring for an infant, especially for first-time parents, or an infant with a difficult temperament, can be a highly stressful and unfamiliar situation (Davé, Nazareth, Sherr, & Senior, 2005). Whiffen and Johnson (1998) proposed that there is a link between attachment processes and the development of maternal postnatal depression, due to the inherent uncertainty that accompanies new parenthood. It could be argued that the postnatal period is the most sustained uncertain situation that young adults will experience. For couples that are securely attached, the relationship itself is available as a resource to help cope with negative emotions, so at times when this uncertainty, anxiety and stress results in symptoms of depression, the parents may look to each other for support, and reliably expect to receive support (Simpson, Rholes, Oriña, & Grich, 2002). Bifulco, Jacobs, Bunn, Thomas, and Irving (2008) conducted a study that investigated attachment style and depression amongst new mothers. They found an association between insecure attachment styles and perinatal depression, and an anxious attachment style was a predictor of postnatal depression. Parents who have had mixed or negative experiences from their partner at previous times may not see the relationship as a reliable source of support, which may bring additional stressors; they may also not see themselves as being worthy of support. For adults whose own attachment experiences as a child were insecure, becoming a parent may trigger distress symptoms as they recall the experiences of abandonment or rejection by their own parents (Whiffen, 2004).

To date there have been few studies that have examined paternal perinatal mental health and attachment theory. Ferketich and Mercer (1995) found that inexperienced fathers had significantly higher father-infant attachment than experienced fathers, but did not examine a relationship between depression and attachment. Condon, Corkindale, Boyce, and
Gamble (2013) reported that there was a strong association between a father’s antenatal attachment to the unborn infant, his psychological wellbeing, and the quality of the couple’s relationship during pregnancy, but again did not attempt to establish a clear relationship between father-infant attachment and depression. Neither of these studies assessed attachment strength or styles between the parents. Even though some studies have shown a link between maternal depression and attachment style, attachment is difficult to determine retrospectively or without direct observation of the couple, and studies examining maternal postnatal depression and attachment have involved small sample sizes (Wilkinson & Mulcahy, 2010). However, attachment theories may explain why rates of paternal postnatal depression are highest when the man’s partner is concurrently depressed. A mother’s inability to take care of the infant due to her own depression means that the father is required to take on the main caring responsibilities; and as reported by fathers whose partners were experiencing postnatal depression in a qualitative study by Davey et al. (2006), his partner may also be unwilling or unable to provide support for him in this role. If he is not prepared to take on this responsibility, or has conflicting responsibilities due to employment or caring for older children, then higher levels of stress and anxiety may eventually overwhelm the father, which may also lead to him also developing depression (Davidsen & Fosgerau, 2014).

4.4 - Ecological factors

Irrespective of a father’s genetic predisposition or history of mental illness, the quality of his past and present close relationships, or whether a new father feels any pressure to conform to what society expects of him, fatherhood is accompanied by a significant change in lifestyle that may be difficult to adjust to. Focus of responsibility shifts from himself to the care of the infant and the mother, and there is an associated loss of freedom as opportunities to socialise and engage in regular activities is restricted. Ferketich and Mercer (1995) found
that experienced fathers (with an older child/children) reported significantly less depression and anxiety symptoms than first-time fathers at 4 and 8 months post-birth. They hypothesised that this was due to experienced fathers expecting changed responsibilities and lifestyle, and could adjust to this more easily than first-time fathers. Goodman (2005) conducted a meta-synthesis of qualitative studies that previously examined men’s experiences of new fatherhood and found that men’s expectations about what life would be like with an infant were consistently found to be unrealistic, especially in the first few weeks after birth. Although fatherhood was found to be a positive experience overall, the role adjustment was accompanied by feelings of frustration, disappointment, distress, and disruption to other aspects of their lives. Letourneau et al. (2011) conducted a series of qualitative interviews with Canadian men whose partners had suffered postnatal depression. Many of the men in this study also suffered depressive symptoms themselves, including anxiety, fatigue, trouble sleeping, and feelings of self doubt and concern about an inability to cope as a father. These men identified that a lack of awareness about potential problems, not knowing where to get accurate information, and being excluded from their partners’ treatment by health professionals as adding to their distress. They also reported that friends and family neglected to inquire about how the fathers were coping with parenthood, focussing instead on the partners and the infant, which also made them feel excluded. Unfortunately, there is little understanding of how health services might provide support for expectant fathers who are uncertain about how they will cope their impending parenthood. Fletcher, Vimpani, Russell, and Sibbritt (2008) conducted a series of interviews with expectant fathers to identify their needs and provide a starting point for assessment of fathers for depression. The main areas of uncertainty that the expectant fathers identified were not being able to identify what the infant needs when it is crying, or how to settle it for sleep, having an untidy or messy household, and issues relating to whether the pregnancy was planned. Emotional issues and needs were
identified, including support from friends and family (other than their partner), and fathers who scored highly on the EPDS were more likely to have experienced other major life stressors in the past 12 months, such as grief or financial issues. Financial stress is a common experience for many families following the birth of a child, particularly for low income families (Bradley & Slade, 2011; Seguin, Potvin, St-Denis, & Loiselle, 1999). Often the mother stops working in the weeks and months before and after the birth, which may accompany an increase in expenses due to the new family member. Stress from work or needing to work longer hours has been found to impact on the time a father has available to bond with the infant (Anderson, 1996; Barclay & Lupton, 1999). The bond that a mother has with the infant, particularly related to breastfeeding, means that many men feel isolated or excluded from the caretaker role, and are sometimes jealous of that bond until breastfeeding ceases (Kim & Swain, 2007). Fathers of breastfeeding infants also report feelings of helplessness and inadequacy as they are not able to settle a hungry child without the assistance of their partner, especially if they are not also bottle-fed or are refusing a bottle (Henderson & Brouse, 1991).

4.5 - Conclusion

From this review of the predictors, correlates, and theoretical causes of maternal and paternal postnatal depression, two things are clear: (1) researchers remain unsure about why parents develop mood disorders following the birth of a child, and (2) prevention and treatment methods need to concurrently consider biological, psychological and social factors. The biopsychosocial model of mental illness is a way of conceptualising and understanding that mental health issues, such as depression, are affected at multiple levels, from the molecular to the societal (Borrell-Carrió, Suchman, & Epstein, 2004). The development, duration, and severity of depression in a new parent may be, for example, due to a
combination of a genetic predisposition to depression, medical complications during childbirth, anxiety about parenting based on their own experiences as a child, and financial pressure due to the expense of buying baby clothes and furniture, infant medical check-ups, and reduced work hours. Ross, Sellers, Gilbert Evans, and Romach (2004) sought to examine the complexity and determinants of maternal perinatal depression by developing a statistical model incorporating biological, psychological and social variables. Despite a number of limitations to the study, such as a small sample size and non-normal distribution in the dependent variables, they found that biological factors had an indirect influence on antenatal depression symptoms; this meant that having a biological risk for depression, such as non-normal hormone levels during pregnancy and a family history of psychiatric disorders was not directly associated with depression pre-birth, but instead influenced antenatal anxiety levels and other psychosocial factors such as social support, which in turn were associated with depression. Attempts to establish a similar model for postnatal depression symptoms were unsuccessful, which although disappointing, is somewhat expected given the multitude of factors that influence a mother’s wellbeing following birth.

To date, no studies have been conducted which have concurrently examined the influence of biological, psychological, and social factors on father’s perinatal wellbeing, although it is probable that the findings would be similarly complicated. If, however, biological causes, such as a personal or family history of depression, are excluded, it is possible that having strong and supportive personal relationships are vitally important to paternal wellbeing. Strong and supportive relationships not only need to exist between the parents, as discussed in the section on attachment theory, but also between a father and his wider support network such as his own parents, his friends and work colleagues, and relevant healthcare professionals, as discussed in the section on ecological theories. Based on the socio-cultural perspective, a father may even feel a societal expectation to have a strong and
close relationship with his partner, but if their relationship is struggling this may further contribute to any distress he experiences. Many quantitative studies have been conducted to examine how a father’s satisfaction with his romantic relationship, and his perception of the quality of the relationship, is associated with paternal depression. Romantic relationship quality and satisfaction are consistently found to be correlated negatively with depressive symptoms (Bielawska-Batorowicz & Kossakowska-Petrycka, 2006; Bower, Jia, Schoppe-Sullivan, Mangelsdorf, & Brown, 2013; Bronte-Tinkew, Moore, Matthews, & Carrano, 2007; Davé et al., 2008; deMontigny, Girard, Lacharité, Dubeau, & Devault, 2013; Dudley et al., 2001; Giallo et al., 2013; Kerstis, Engström, Sundquist, Widarsson, & Rosenblad, 2012; Roubinov et al., 2014; Zelkowitz & Milet, 1997). There has, however, been a paucity of quantitative research that has examined how the strength of a father’s wider support network influences depressive symptoms, even though this has been identified as an important factor in the qualitative studies reviewed in this chapter (Bartlett, 2004; Davey et al., 2006; Letourneau et al., 2011). Both Mao et al. (2011) and Gao et al. (2009) found that perceived levels of social support were significant predictors of depression symptoms in the postnatal period, as measured by the EPDS, but their analysis did not distinguish between the sources of support, such as partner, friends or family, and to date, these two studies are the only studies that have examined social support networks and paternal depression in the postnatal period.

The findings of the qualitative research that was reviewed in this chapter also indicated that depressive symptoms, such as sadness, apathy and anhedonia, are not the only negative emotions that fathers experience following birth. Goodman (2005), Letourneau et al. (2011) and Fletcher, Vimpani, Russell, and Sibbritt (2008) identified that a significant number of fathers report frustration with the challenges of new parenthood, and both expectant and postnatal fathers experience uncertainty and have concerns about how they will
cope with parenting. This suggests that high levels of anxiety and stress may be common experiences for fathers, as well as depression. Studies of psychiatric patients have found that the majority of patients with depression will also experience co-morbid anxiety disorders (Silverstone & von Studnitz, 2003), and there have been similar findings amongst studies of fathers in the perinatal period (Buist et al., 2003; Field et al., 1999; Matthey et al., 2003). Hence, the research question for the first empirical study, Study One, of this thesis was based on these two conclusions from this exploration of the theoretical causes for paternal depression: 1) that fathers experience anxiety and stress, as well as depressive symptoms, during the perinatal period, and 2) perceived relationship satisfaction and social support are factors that influence fathers wellbeing during the perinatal period. Study One was conducted with a sample of expectant fathers who were tracked from 18 weeks in their partner’s pregnancy to six months post-birth. It is important that longitudinal studies such as this are conducted for a number of reasons: 1) Symptoms of paternal distress (depression, anxiety and stress symptoms) can be examined that extend beyond the potentially narrow or restrictive symptoms associated with depression; 2) the time/s during the perinatal period that have the highest prevalence, or that fathers are most likely to experience distress, can be identified; and 3) antenatal risk factors for postnatal psychological distress can be identified and preventative interventions can be implemented ahead of time. (Fletcher, Vimpani, Russell, & Sibbritt, 2008) identified that it is still unclear what the needs and support requirements of fathers are with regards to depressive symptoms, so that assessment and intervention protocols can be developed. It is also important to examine whether depressive symptoms are the only mental health issues that fathers may struggle with, or do assessment and intervention protocols also need to consider anxiety and stress symptoms too?
CHAPTER FIVE

Study One: Perinatal Relationship Adjustment, Social Support and Paternal Depression, Anxiety, and Stress

5.1 - Introduction

The perinatal period, typically categorised as the time period from pregnancy through to one year following the birth of their child, has been identified as a period in which both men and women experience higher rates of depression than other times of their lives (O'Hara & McCabe, 2013; Wee et al., 2013). The vast majority of perinatal mental health research has focussed on symptoms of depression, however in a study of first time mothers, Miller, Pallant and Negri (2006) argued that screening of postnatal mental health issues be broadened to include anxiety and stress, along with depression, to encompass a broader concept of postnatal distress. Of their sample, they found that 29% of women experienced symptoms of postnatal distress; however 10% of mothers reported that they were experiencing significant symptoms of anxiety and stress that were not indicated using traditional postnatal depression screening methods. As with women, there is also evidence that men experience increased psychological distress including anxiety and stress during the perinatal period (Goodman, 2005), and anxiety and stress may present in fathers both concurrently and independent of depression symptoms. Wynter, Rowe, and Fisher (2013) found that 4.1% of new fathers had a diagnosable anxiety disorder at some time in the first six months post-birth, and 12.2% had significant anxiety symptoms, however none of the men experienced both anxiety and depression symptoms. Furthermore, Field et al. (2006) and Buist, Morse, and Durkin (2003) found that depressed expectant fathers reported significantly higher anxiety symptoms than expectant fathers who were not depressed. Prevalence of elevated paternal depressive symptoms have been found to be highest at six months post-birth (Paulson & Bazemore, 2010), however the proportion of men experiencing above normal levels of anxiety over the perinatal period has not been shown to change significantly (Figueiredo & Conde, 2011a);
furthermore, primiparous fathers will experience anxiety at different times over the perinatal period compared to multiparous fathers (Figueiredo & Conde, 2011b).

Research has also identified that fathers experience elevated levels of stress, and the degree of stress that is experienced changes throughout the perinatal period. Although the research into paternal perinatal stress is limited, expectant fathers have been found to experience the least stress, and perceived stress levels increase throughout the postnatal period (Perren, von Wyl, Bürgin, Simoni, & von Klitzing, 2005). It is not surprising therefore, that becoming parents can have both positive and negative impacts on a couple’s relationship. Fathers often report that the relationship they have with their partner changes even before birth, coupled with awareness for first-time parents that the relationship is changing form dyadic to triadic (Genesoni & Tallandini, 2009). The overall aim of the current study was to examine the association between antenatal and postnatal relationship adjustment and perinatal psychological distress following the birth of the baby. Relationship adjustment is a theoretical construct that includes an individual’s subjective satisfaction with their relationship, along with levels of cohesion, agreement and conflict, and intimacy, between the couple (Heyman, Sayers, & Bellack, 1994; Spanier, 1976). The level of satisfaction the father has in his relationship with his partner has been identified as a correlate of depression symptoms in the perinatal period (Wee, Skouteris, Pier, Richardson, & Milgrom, 2011), and a large study of expectant Norwegian couples found that declining relationship satisfaction was the strongest predictor of emotional distress in both men and women during pregnancy (Røsand, Slinning, Eberhard-Gran, Røysamb, & Tambs, 2012). The arrival of a new baby may not be the cause of declining relationship satisfaction, but merely a catalyst to bring underlying relationship issues into prominence. Prospective studies have found that relationship satisfaction in the antenatal period (Bergström, 2013), and low levels of consensus and agreement in the relationship between parents (Kerstis, Engström,
Sundquist, Widarsson, & Rosenblad, 2012), are indicators of depressive symptoms at three months post-birth. Low relationship satisfaction (Giallo et al., 2013) and lower relationship adjustment (Roubinov, Luecken, Crnic, & Gonzales, 2014) following birth have also been associated with depressive symptoms in the postnatal period. Relationship satisfaction fluctuates throughout the perinatal period, with the father’s return to work identified as a significant time point for a decrease in relationship satisfaction (Barclay & Lupton, 1999).

The final component of new fathers’ relationship adjustment, intimacy and sexuality, has not received a great deal of research focus to date. While most new fathers are accepting that circumstances necessitate a change in sexual intimacy, and their desire and attraction to their partner remains unchanged, they still experience a decrease in satisfaction about the reduced frequency of sexual intimacy with their partner (Knauth, 2000). Condon, Boyce and Corkindale (2004) found that expectant and new fathers’ sexual drive remained virtually unchanged throughout late pregnancy and up to 12 months post-birth, but there was a significant decrease in sexual satisfaction during this time. So far there have been no studies that have examined a relationship between paternal perinatal mental health and sexual satisfaction.

The relationship that a new father has with his partner is not the only important relationship in the perinatal period. A lower level of perceived support that a father receives from family, friends, and health professionals has also been shown to be a risk factor for perinatal depressive symptoms (Forsyth, Skouteris, Wertheim, Paxton, & Milgrom, 2011; Wee et al., 2011). During the postnatal period, mothers may rely on their partner, friends and family for emotional and instrumental support, while fathers’ predominant source of emotional support is their partner (Henderson & Brouse, 1991; Zelkowitz & Milet, 1997). Some fathers also report that friends and family neglect to inquire about how they are coping
with parenthood, focussing instead on their partner and the infant, making the father feel excluded (Letourneau, Duffett-Leger, Dennis, Stewart, & Tryphonopoulos, 2011). Previous studies into perceived social support and perinatal wellbeing have shown that depression (Mao, Zhu, & Su, 2011) and stress (Gao, Chan, & Mao, 2009) symptoms are associated with lower levels of perceived social support.

The specific aim of this study was to examine the association between expectant fathers’ mental health and levels of perinatal distress over the perinatal period and the perceived quality and satisfaction of their relationship with their partner, friends, and family. To address this aim, five questions were considered: 1) Do fathers experience elevated levels of anxiety and stress, as well as depression, throughout the perinatal period? 2) What is the course of depression, anxiety and stress symptoms experienced by fathers from pregnancy through to the postnatal period? 3) Are there changes in relationship adjustment, perceived social support and sexual satisfaction following birth compared to pre-birth levels? 4) Is antenatal relationship adjustment, satisfaction and social support a predictor of postnatal psychological distress? 5) Is postnatal relationship adjustment, satisfaction, and social support associated with postnatal psychological distress?

5.2 - Method

Participants

Men whose partners were between 12 to 17 weeks pregnant were invited to participate in a study examining the well-being of men through pregnancy and up to 6 months post-birth. Participants completed a series of online questionnaires six time points: 18 weeks (Time 1 (T1); \( M = 18.31, SD = 1.03 \)), 25 weeks (Time 2 (T2); \( M = 25.70, SD = 1.16 \)) and 33 weeks (Time 3 (T3); \( M = 33.91, SD = 2.15 \)) gestation, and 6 weeks (Time 4 (T4); \( M = 6.25 \))
SD = 1.07), 12 weeks (Time 5 (T5); M = 25.87, SD = 1.74), and 6 months (Time 6 (T6); M = 6.12, SD = 0.43) post-birth. All participants were English speaking residents of the Eastern states of Australia and were recruited from the general population through advertisements in local media, online and through local government Maternal and Child Health Centres. The initial sample at 18 weeks gestation consisted of 115 men who responded to the study advertisement and agreed to take part; however 25 men did not continue to participate in the study following birth and were removed from the analyses; this left 90 men in the final sample.

Ethics approval was granted by the Human Research Ethics Committee at Deakin University and the management of data from the online questionnaires was conducted through Deakin University. The participants were not compensated for their participation in the research. Participants were directed to contact psychology staff at Deakin University or Mensline for advice and support if they found that they were experiencing discomfort or distress after completing the questionnaires.

Measures

**Psychological Distress.** Psychological distress, was measured using the Depression Anxiety Stress Scale (DASS-42; Lovibond & Lovibond, 1995) and was administered at all six time points. The DASS is a self-report questionnaire designed to measure negative symptoms of depression, anxiety and stress. The full 42 question version of the DASS was used. Participants are asked to recall the frequency at which they experienced symptoms of depression (“I felt down-hearted and blue”), anxiety (I felt scared without any good reason), and stress (“I found it difficult to relax”), during the previous week. Items are scored on a 4-point scale from 0 (did not apply to me at all) to 3 (applied to me very much, or most of the time) with higher scores indicating increased levels of symptoms. The scores from each scale
are totalled separately and symptom severity is categorised as normal, mild, moderate, severe, and extremely severe according to validated cut-off points. For the purposes of this study, comparisons were made between participants who scored in the normal score range and those who scored in the mild to extremely severe range on each of the scales. Above normal levels of depression symptoms are indicated by a score of ≥10; ≥7 for anxiety; and ≥14 for stress. Cronbach’s alpha reliability coefficients for each of the DASS subscales at each time point are shown in Table 5.1, and indicate a high level of internal consistency.

**Relationship Adjustment.** Relationship adjustment was measured with the Dyadic Adjustment Scale (DAS; Spanier, 1976). It is a 32-item questionnaire consisting of 5-point Likert scales that incorporates four factors of relationship adjustment; Dyadic Consensus (agreement on matters important to the relationship), Dyadic Satisfaction (satisfaction the couple has with the relationship), Dyadic Cohesion (closeness and shared activities), and Affective Expression (affection and sexual relationships). A total score of is obtained by combining the subscales, with higher scores indicating a greater degree of dyadic adjustment. A meta-analysis of DAS reliability studies (Graham, Liu, & Jezioriski, 2006) found that the Consensus, Satisfaction, and Cohesion scales all have acceptable internal consistency and reliability across studies (0.79 – 0.87), however the Affective scale was found to have an unacceptable level of internal consistency (0.71). Because of the lack of reliability in the Affect subscale, Reliability coefficients were calculated for the current study and shown similar results both in the antenatal and postnatal periods (Table 5.2). The DAS was administered at T3 (antenatal) and T4 (postnatal). Exploratory analysis of the data distribution of the DAS subscales indicated that the subscales were highly negatively skewed, whereas the DAS total score distribution was closer to a normal distribution. Because of this, the DAS total score was used in the regression analysis.
**Social Support.** The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) is a measure of the degree to which an individual perceives the amount of social support that is available to them. Items are scored on a 7-point Likert scale from 1 (Very strongly disagree) to 7 (very strongly agree), with items divided into factor groups relating to the source of support, from *friends*, *family*, or *significant other*. Higher scores indicate a greater level of perceived support. Psychometric studies in pregnant women, adolescents, and paediatric residents indicated good internal reliability and strong factorial validity of the three subscales (Zimet, Powell, Farley, Werkman, & Berkoff, 1990). Antenatal and postnatal internal consistency estimates for the MSPSS are shown in Table 5.2. The MSPSS was administered at T1 (antenatal) and T6 (postnatal).

**Sexual Satisfaction.** Four items assessing sexual satisfaction were taken from the World Health Organisation Quality of Life survey (WHOQOL-100; World Health Organization, 2014). These items were measured on a 5-point Likert scale, with higher scores indicating greater satisfaction with an individual’s sexual relationship. Antenatal and postnatal internal consistency estimates are shown in Table 5.2. The questionnaire was administered at T1 (antenatal) and T6 (postnatal).
### Table 5.1

*Cronbach’s Alpha Reliability Co-efficients for the DASS-42 Subscales*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>0.88</td>
<td>0.91</td>
<td>0.95</td>
<td>0.91</td>
<td>0.97</td>
<td>0.97</td>
</tr>
<tr>
<td>Anxiety</td>
<td>0.83</td>
<td>0.90</td>
<td>0.89</td>
<td>0.87</td>
<td>0.85</td>
<td>0.87</td>
</tr>
<tr>
<td>Stress</td>
<td>0.89</td>
<td>0.93</td>
<td>0.95</td>
<td>0.91</td>
<td>0.93</td>
<td>0.91</td>
</tr>
</tbody>
</table>
### Table 5.2

*Cronbach’s Alpha Reliability Co-efficients for Relationship Adjustment, Sexual Satisfaction, and Social Support Measures*

<table>
<thead>
<tr>
<th></th>
<th>Antenatal</th>
<th>Postnatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHOQOL-100</td>
<td>0.90</td>
<td>0.86</td>
</tr>
</tbody>
</table>

**MSPSS**

<table>
<thead>
<tr>
<th></th>
<th>Antenatal</th>
<th>Postnatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant Other</td>
<td>0.94</td>
<td>0.98</td>
</tr>
<tr>
<td>Family</td>
<td>0.95</td>
<td>0.96</td>
</tr>
<tr>
<td>Friends</td>
<td>0.95</td>
<td>0.97</td>
</tr>
</tbody>
</table>

**DAS**

<table>
<thead>
<tr>
<th></th>
<th>Antenatal</th>
<th>Postnatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affection</td>
<td>0.69</td>
<td>0.77</td>
</tr>
<tr>
<td>Cohesion</td>
<td>0.85</td>
<td>0.89</td>
</tr>
<tr>
<td>Consensus</td>
<td>0.93</td>
<td>0.91</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>0.90</td>
<td>0.87</td>
</tr>
<tr>
<td>Total</td>
<td>0.94</td>
<td>0.95</td>
</tr>
</tbody>
</table>

### Data Analysis

Eighteen negative binomial regression analyses using SPSS version 22 were conducted to determine whether antenatal and postnatal relationship satisfaction, perceived social support and sexual satisfaction were predictors of postnatal depression, anxiety and stress. The dependent variables were participants’ scores from each of psychological distress subscales, and the independent variables were participants’ self-reported relationship
adjustment, social support, and sexual satisfaction. Exploratory analysis of the distribution of the dependent variables indicated that they followed a poisson distribution with over-dispersion (i.e., the variance of the data was greater than the mean). Because of this, negative binomial regression was decided upon as the most appropriate method of analysis. Negative binomial regression is typically used for count variables where the dependent variable consists of positive integers with a high proportion of zero values (Gardner, Mulvey, & Shaw, 1995). All of the psychological distress scale scores, at each time point, had an over-dispersed count distribution. Negative binomial regression coefficients model the log of the dependent variable as a function of the predictor variable, so that for a single unit change in the predictor variable, there is a corresponding change in the log of the dependent variable equal to the value of the regression coefficient. Negative binomial regression coefficients are often also reported alongside Incident Rate Ratios (IRR), which are the exponential of the regression coefficient. The IRR indicates the multiple that the dependent variable changes by when there is one unit of change in the independent variable. Each of the relationship satisfaction variables were entered as single independent variables into the model. Regression models involving multiple independent variables were considered for analysis, as were interaction models, however there was concern about a lack of power in a model that used multiple predictors with such a small sample size. Interaction effects for negative binomial regression can only be modelled when at least one of the variables in the model is categorical. All of the IV’s were continuous data, and there is no published protocol for converting the DAS, MSPSS or WHOQOL-100 to categories, e.g. high/med/low relationship quality. The DASS-42 can be converted to categories, however analysis comparing normal symptom levels with mild-severe were prohibited by the small size of the mild-severe sample.
5.3 - Results

Demographic Information

Demographic information was obtained from the participants at the first time point (T1) when their partners were approximately 18 weeks pregnant. This information is shown in Table 5.3. The majority of the participants were first-time fathers, married and living with their partner, tertiary educated, employed, born in Australia, and spoke English at home. A small proportion of the participants had previous psychiatric diagnoses, predominantly depressive disorders.

Frequency and Course of Perinatal Depression, Anxiety and Stress Symptoms

Scores from the DASS-42 were analysed at each time point, and the mean scores from each of the depression, anxiety and stress scales are shown in Table 5.4. At each time point the percentage of men who reported a score indicating mild-severe levels of depressive, anxiety and stress symptoms was also calculated and shown in Table 5.4. The number of men experiencing mild-severe levels of depressive symptoms increased roughly 4-fold over the period, with the highest proportions at T5 and T6. Mean anxiety scores remained consistent, however the percentage of men experiencing above normal levels of anxiety peaked at T5. The mean score on the stress measure peaked at T6, albeit the percentage of men experiencing above normal levels of stress peaked at T3 and T4, just before and closely following the birth of the baby.
### Table 5.3

Demographic characteristics of expectant fathers at 18 weeks pregnancy

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean or n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (SD)</td>
<td>33.74 (4.95)</td>
</tr>
<tr>
<td>Pregnancy No.</td>
<td></td>
</tr>
<tr>
<td>First</td>
<td>63 (70.0)</td>
</tr>
<tr>
<td>Second</td>
<td>18 (20.0)</td>
</tr>
<tr>
<td>Third</td>
<td>8 (8.9)</td>
</tr>
<tr>
<td>Fourth</td>
<td>1 (1.1)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>73 (81.1)</td>
</tr>
<tr>
<td>De Facto</td>
<td>16 (17.8)</td>
</tr>
<tr>
<td>Living together (not married or de facto)</td>
<td>1 (1.1)</td>
</tr>
<tr>
<td>Education Completed *</td>
<td></td>
</tr>
<tr>
<td>Did not finish secondary school</td>
<td>1 (1.1)</td>
</tr>
<tr>
<td>Secondary School</td>
<td>9 (9.2)</td>
</tr>
<tr>
<td>Diploma/Certificate</td>
<td>24 (26.6)</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>37 (41.1)</td>
</tr>
<tr>
<td>Postgraduate Degree</td>
<td>17 (18.9)</td>
</tr>
<tr>
<td>Employed *</td>
<td>87 (96.7)</td>
</tr>
<tr>
<td>Location of birth *</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>72 (80.0)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>3 (3.3)</td>
</tr>
<tr>
<td>Western Europe</td>
<td>8 (8.9)</td>
</tr>
<tr>
<td>Other</td>
<td>5 (5.5)</td>
</tr>
<tr>
<td>Speak English at home *</td>
<td>85 (94.4)</td>
</tr>
<tr>
<td>Previous Psychiatric Diagnosis</td>
<td></td>
</tr>
<tr>
<td>Depressive Disorder</td>
<td>8 (8.9)</td>
</tr>
<tr>
<td>Anxiety</td>
<td>2 (2.2)</td>
</tr>
<tr>
<td>Alcohol/Substance Use</td>
<td>1 (1.1)</td>
</tr>
</tbody>
</table>

*Not all participants provided this information
Table 5.4

*Mean Depression, Anxiety and Stress scores (DASS-42) at each time point, and percentage of participants reporting mild to severe (M-S) symptom levels*

<table>
<thead>
<tr>
<th></th>
<th>Depression</th>
<th>Anxiety</th>
<th>Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td><strong>Antenatal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1 (18 weeks)</td>
<td>2.30 (3.50)</td>
<td>1.48 (2.67)</td>
<td>5.71 (5.20)</td>
</tr>
<tr>
<td>n = 89</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2 (25 weeks)</td>
<td>2.17 (3.80)</td>
<td>1.46 (3.36)</td>
<td>5.54 (5.82)</td>
</tr>
<tr>
<td>n = 84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3 (36 weeks)</td>
<td>2.38 (4.81)</td>
<td>1.61 (3.47)</td>
<td>6.20 (6.82)</td>
</tr>
<tr>
<td>n = 80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Postnatal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T4 (6 weeks)</td>
<td>2.74 (4.24)</td>
<td>1.80 (3.10)</td>
<td>6.75 (5.89)</td>
</tr>
<tr>
<td>n = 81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T5 (12 weeks)</td>
<td>3.23 (6.08)</td>
<td>1.64 (3.08)</td>
<td>5.91 (5.77)</td>
</tr>
<tr>
<td>n = 77</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T6 (6 months)</td>
<td>3.97 (7.35)</td>
<td>1.42 (2.81)</td>
<td>7.07 (5.93)</td>
</tr>
<tr>
<td>n = 72</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Relationship Quality, Perceived Social Support and Sexual Satisfaction over the Perinatal Period

Each of the relationship measures were assessed once in the antenatal period and once in the postnatal period. Mean scores from each of the measures are shown in Table 5.5. Mann-Whitney tests were conducted to examine differences in reported levels of relationship satisfaction during pregnancy and in the postnatal period. Sexual satisfaction, perceived social support from his partner and his family were significantly lower post-birth, and perceived social support from friends was significantly higher. There were no significant differences on any of the dyadic adjustment measures.

Relationships between postnatal distress symptoms and perinatal relationship adjustment, social support and sexual satisfaction.

Missing data screening. Of the 90 men who were included in the final sample, 55 provided complete data at all six time points. There was an overall decrease in the number of participants with data at each time point, however analysis of the missing data patterns indicated that missingness was due to both attrition and wave non-response (Graham, 2012). One participant did not complete T1 but completed T2, T4 and T5, and seven participants did not continue to participate after T4. Of the 35 participants who completed some or most of the six time points, 19 missed one time point, 12 missed two time points, and four missed 3 or more. Due to the high proportion of missing data, especially at T6, multiple imputation (MI) procedures in SPSS version 22 were used to provide a dataset for regression analysis.
Table 5.5

Mean levels of Sexual Satisfaction, Relationship Adjustment and Social Support over the perinatal period

<table>
<thead>
<tr>
<th></th>
<th>Antenatal</th>
<th>Postnatal</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sexual Satisfaction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13.58 (3.59)</td>
<td>12.06 (3.39)</td>
<td>.006</td>
</tr>
<tr>
<td><strong>Social Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significant Other</td>
<td>24.76 (4.33)</td>
<td>21.09 (4.33)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Family</td>
<td>21.05 (5.92)</td>
<td>19.41 (5.91)</td>
<td>.037</td>
</tr>
<tr>
<td>Friends</td>
<td>20.66 (5.36)</td>
<td>23.44 (5.81)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Total</td>
<td>66.48 (13.77)</td>
<td>63.96 (16.21)</td>
<td>.448</td>
</tr>
<tr>
<td><strong>Relationship Adjustment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affection</td>
<td>8.56 (2.18)</td>
<td>8.66 (2.33)</td>
<td>.756</td>
</tr>
<tr>
<td>Cohesion</td>
<td>16.88 (3.83)</td>
<td>16.77 (4.26)</td>
<td>.843</td>
</tr>
<tr>
<td>Consensus</td>
<td>49.23 (8.55)</td>
<td>50.35 (7.28)</td>
<td>.261</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>41.65 (5.42)</td>
<td>42.27 (5.32)</td>
<td>.363</td>
</tr>
<tr>
<td>Total</td>
<td>116.37 (16.19)</td>
<td>118.07 (16.28)</td>
<td>.277</td>
</tr>
</tbody>
</table>

*Mann-Whitney non-parametric test.
Conducting MI on a data set of this size, and with high proportions of missing data have been shown to be reliable (Schafer & Graham, 2002), however reliable MI data replacement using assumes that missing data are *missing completely at random* (MCAR) or *missing at random* (MAR), while data missing not at random (MNAR) can result in biased parameter estimates (Graham, 2009; Rubin, 1976). There are statistical tests to determine whether missing data is MCAR, however no reliable methods exist to determine whether data are MAR or MNAR. For the current data set, Little’s MCAR test was non-significant, indicating that the data were MCAR. Inspection of missing data patterns indicated that an individual participant’s score on any of the measures was not predictive of the likelihood that they would not complete subsequent time points. Participants who reported mild-severe depressive, anxiety and stress symptoms were no more likely to miss the next time point or drop out entirely than participants who reported normal levels of psychological distress. Table 5.6 shows the role that each variable had in the MI procedure and in the subsequent analysis. Five imputed data sets were produced, with each data set consisting of 40 imputations, as recommended by Graham, Olchowski, and Gilreath (2007). SPSS provided pooled estimates of means and standard errors from the 40 imputations in each data set. For every variable, in each of the imputed data sets, there was less than 10% difference between the imputed means and standard errors and the means and standard errors of the original incomplete data set. The standard errors of each of the imputed variables in each data set were averaged, and the data set with the smallest average standard error was used in the regression analyses.
### Table 5.6

*Percentages of Missing Data and Role of each Variable in Imputation Process*

<table>
<thead>
<tr>
<th>% missing</th>
<th>Role in imputation</th>
<th>Role in regression analysis</th>
</tr>
</thead>
</table>

#### Antenatal variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>% missing</th>
<th>Role in imputation</th>
<th>Role in regression analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1 DASS</td>
<td>1.1</td>
<td>Predictor</td>
<td>None</td>
</tr>
<tr>
<td>T2 DASS</td>
<td>6.7</td>
<td>Predictor</td>
<td>None</td>
</tr>
<tr>
<td>T3 DASS</td>
<td>11.1</td>
<td>Predictor</td>
<td>None</td>
</tr>
<tr>
<td>DAS</td>
<td>11.1</td>
<td>Predictor and imputed</td>
<td>IV</td>
</tr>
<tr>
<td>MSPSS</td>
<td>1.1</td>
<td>Predictor and imputed</td>
<td>IV</td>
</tr>
<tr>
<td>WHOQOL-100</td>
<td>1.1</td>
<td>Predictor and imputed</td>
<td>IV</td>
</tr>
</tbody>
</table>

#### Postnatal variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>% missing</th>
<th>Role in imputation</th>
<th>Role in regression analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4 DASS</td>
<td>10.0</td>
<td>Predictor and imputed</td>
<td>DV</td>
</tr>
<tr>
<td>T5 DASS</td>
<td>14.4</td>
<td>Predictor and imputed</td>
<td>DV</td>
</tr>
<tr>
<td>T6 DASS</td>
<td>20.0</td>
<td>Predictor and imputed</td>
<td>DV</td>
</tr>
<tr>
<td>DAS</td>
<td>10.0</td>
<td>Predictor and imputed</td>
<td>IV</td>
</tr>
<tr>
<td>MSPSS</td>
<td>20.0</td>
<td>Predictor and imputed</td>
<td>IV</td>
</tr>
<tr>
<td>WHOQOL-100</td>
<td>20.0</td>
<td>Predictor and imputed</td>
<td>IV</td>
</tr>
</tbody>
</table>
**Antenatal Predictors of Postnatal Psychological Distress.** As shown in Table 5.7, antenatal relationship adjustment (measured at T3) was a significant and negative predictor of depressive symptoms at all three postnatal time points. Antenatal relationship adjustment was only a predictor of anxiety at T4, but did not predict postnatal stress. Lower levels of social support from friends and family during pregnancy (measured at T3) predicted depressive symptoms at T5 and T6, and decreased support from friends was a predictor of anxiety at T6. Antenatal social support was not a predictor of postnatal stress.

The level of satisfaction that an expectant father had in his sexual relationship during pregnancy (measured at T1) predicted depressive symptoms and stress only at T5, but did not predict postnatal anxiety.

**Postnatal Relationship Adjustment, Satisfaction and Support and Postnatal Distress.** Postnatal relationship adjustment (measured at T4) was associated negatively with depressive, anxiety and stress symptoms at T4, but was not associated with these variables at T5 and T6. The amount of support that a new father received from family members and his partner (measured at T6) was associated with increased depressive symptoms at T5 and T6, but postnatal social support (measured at T6) was not associated with anxiety or stress. Postnatal sexual satisfaction (measured at T6) was not associated with postnatal psychological distress (see Table 5.7).
Table 5.7
Negative binomial regression analyses for predictors of postnatal depression, anxiety and stress across the 3 postpartum time points

<table>
<thead>
<tr>
<th></th>
<th>Depression</th>
<th></th>
<th></th>
<th></th>
<th>Anxiety</th>
<th></th>
<th></th>
<th></th>
<th>Stress</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>IRR</td>
<td>p</td>
<td>B</td>
<td>SE</td>
<td>IRR</td>
<td>p</td>
<td>B</td>
<td>SE</td>
<td>IRR</td>
<td>p</td>
</tr>
<tr>
<td><strong>Antenatal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship Adjustment (T3)</td>
<td>-0.03</td>
<td>0.01</td>
<td>0.97</td>
<td>.008</td>
<td>-0.03</td>
<td>0.01</td>
<td>0.97</td>
<td>.021</td>
<td>-0.01</td>
<td>0.01</td>
<td>0.99</td>
<td>.489</td>
</tr>
<tr>
<td>Social Support (T1)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>-0.05</td>
<td>0.03</td>
<td>0.95</td>
<td>.092</td>
<td>-0.03</td>
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*Bold text indicates significant values, p < .05*
5.4 - Discussion

The results of this study indicated that a small but significant proportion of expectant and new fathers experienced symptoms of depression (up to 10.4%), anxiety (up to 7.4%) and stress (up to 12.5%) above normal levels. Relationship adjustment in the antenatal period, which incorporates a father’s perceived relationship satisfaction, cohesion, agreement, and intimacy between the couple, was a predictor of psychological distress post-birth. Postnatal relationship adjustment was associated with postnatal depressive symptoms, anxiety, and stress, however satisfaction with the sexual relationship following birth was not associated with depressive, anxiety or stress symptoms. A decrease in perceived support from a partner, friends and family, were associated with increased postnatal depressive symptoms and anxiety, but only from 12 weeks post-birth onwards; increases in depressive and anxiety symptoms were also dependent on the source of social support.

Mean depressive symptom levels peaked at six months post-birth (10.4%), and the highest proportion of men reporting above normal levels of depressive symptoms was at 12 weeks and 6 months post-birth. These results are similar to those in Paulson and Bazemore’s (2010) meta-analysis of perinatal depression, which found that depression was most prevalent in fathers at 3-6 months after birth. However, previous perinatal longitudinal studies of Australian men have reported higher rates of depressive symptoms in the antenatal period. Buist et al. (2003) found that 12% of men were classified as depressed at 36 weeks gestation, and this decreased to 5.8% at 4 months post-birth. Both Matthey, Barnett, Ungerer, and Waters (2000) and Condon et al. (2004) found that the highest proportion of men experiencing above normal levels of depressive symptoms were at 20-24 weeks gestation, and this proportion halved in the six months following the birth of their child. Other studies involving Australian postnatal fathers have indicated that rates of depressive symptoms vary depending on the depression measure that was used. Dudley, Roy, Kelk, and Bernard (2001)
found that 48% of fathers scored above the cut-off score on at least one of three depression screening questionnaires, however Wynter et al. (2013) conducted a diagnostic interview with 172 new fathers and found that no men had experienced a uni-polar depressive disorder in the six months post birth, and only 1.2% of men had depressive symptoms associated with an adjustment disorder.

The current study was the first to report rates of psychological distress symptoms in Australian postnatal men using all three scales of the DASS. However, the mean scores from the DASS depression, anxiety and stress scales in this study were much lower than the adult male normative sample means for depression (6.55), anxiety (4.60), and stress (9.93) determined by the developers of the DASS-42 (Lovibond & Lovibond, 1995). The only other study to utilise the DASS in a perinatal sample (Feeney et al., 2003) also reported mean depression and anxiety scale scores much lower than those indicated in the normative sample. Both Feeney et al.’s study and Lovibond and Lovibond’s validation study were conducted with Australian samples. Together, these findings suggest that being an expectant or new father may be protective against symptoms of psychological distress for the majority of men, however Feeney et al.’s study included a comparison group of childless men and found that they had similar levels of depression and anxiety to the men who became fathers. To date, there have been no other studies that have used the DASS in a non-clinical sample of men of comparative age and socioeconomic status, so further research is needed to explore why DASS scores were much lower in this study compared to the published normative scale scores.

The highest proportion of men who reported above normal symptoms of anxiety was found at 12 weeks post-birth. The findings of previous studies into rates of perinatal anxiety have been mixed, with Figueiredo and Conde (2011a) finding that about 8% of men reported elevated anxiety levels throughout pregnancy and childbirth, but this percentage halved at 3
months post-birth. Amongst Australian fathers, Matthey, Barnett, Howie, and Kavanagh (2003) reported rates of anxiety disorders at 9.7% and 4.4% for two different samples 6 weeks post-birth, and Tohotoa et al. (2012) found that 2.6-2.8% of fathers reported mild to severe levels of anxiety symptoms at 6 weeks post birth, down from rates of 4-7% in the antenatal period. In the current study there was an increase in mild-severe levels of anxiety throughout the antenatal period, while fewer men reported above mild-severe anxiety at T4. This may indicate that fathers experience the most anxiety during the pregnancy due to concerns about childbirth and the health of their partner and baby. Levels of anxiety symptoms may reduce following the birth of a healthy baby. Childbirth, particularly for men who are present at the birth, is an anxious and stressful time, as it is a time when men have little control over an unfamiliar situation and environment (Johnson, 2002). The proportion of fathers with mild-severe stress symptoms was also found to be highest in the transition period from T3 to T4. Again, this may be due to concern about the health of the mother and baby during childbirth, but following birth symptoms of stress, such as, an inability to relax and low frustration tolerance will persist, while fear and the physical symptoms of anxiety will reduce. Johnson (2002) found that new fathers experienced significantly higher levels of stress in the 48 hours following birth compared to average stress levels during pregnancy, especially for fathers who were present at the birth. Stress levels decreased over the following weeks, so there was no difference between expectant fathers average stress levels during pregnancy and at six weeks post-birth.

The current study has extended our knowledge of men’s perinatal mental health by incorporating comparable measures of depression, anxiety and stress with the aim of establishing a broader understanding of men’s perinatal wellbeing. The results here indicate that the proportion of men who experience above normal stress symptoms is higher than the
proportion that experience elevated depressive symptoms. As this is the first study to examine paternal stress over the perinatal period, it is unclear whether the levels of stress experienced by this sample of men are typical for new fathers. The caring for an infant may be a stressful experience, especially for first time parents, so further research should establish the level of stress that new fathers would normally expect. Other commonly reported sources of stress for new fathers are work and economic pressures, especially for fathers who are experiencing other mental health issues (Zelkowitz & Milet, 1997).

Bower et al. (2012) also found a small change in total dyadic adjustment between the antenatal and postnatal periods, however they reported a decrease in dyadic adjustment, while the current study found a non-significant increase. Although there were no significant changes in dyadic adjustment between the antenatal and postnatal periods, there was a significant association between men’s reported dyadic adjustment during pregnancy and the level of depression and anxiety symptoms they experienced in the postnatal period. Lower antenatal dyadic adjustment was associated with higher levels of depression symptoms at all three postnatal time points. Antenatal dyadic adjustment was also associated with higher levels of anxiety symptoms at T4, but as the mean level of anxiety symptoms decreased over the postnatal period, so did the association between dyadic adjustment and anxiety. By measuring relationship adjustment before and after the birth of the baby, there is the potential to determine whether changes in paternal postnatal mental health are due to pre-existing relationship problems, or whether the arrival of the newborn results in a change in relationship adjustment, and this change impacts on paternal mental health. The evidence from this study points towards the former, as antenatal dyadic adjustment was a significant predictor of depression at all postnatal time points, and anxiety at T4, while postnatal dyadic adjustment was only associated with depressive, anxiety, and stress symptoms at T4, but was not associated with symptoms of psychological distress at later time points. Antenatal sexual
satisfaction, but not postnatal sexual satisfaction, was also associated negatively with postnatal depression and stress, despite an overall decrease in sexual satisfaction. This may indicate that for couples who have tension in their relationship during pregnancy, and perhaps even prior to conception, the arrival of a baby exacerbates these tensions and increases psychological distress post-birth. Further studies examining the relationship between relationship adjustment and perinatal mental health could also include an assessment of mothers’ wellbeing and her perceived relationship adjustment, with the data from the mother used as a controlling variable to better understand how depression in one partner affects the other’s view of the relationship.

Previous studies of new fathers have also found that sexual satisfaction decreases in the postnatal period (Condon et al., 2004; Knauth, 2000), and there is evidence that that lower levels of sexual satisfaction are correlated strongly with increased depression symptoms amongst young men (Offman & Matheson, 2005). A review of the literature regarding sexual activity in the perinatal period by von Sydow (1999) found that the frequency of sexual activity declines significantly in the third trimester, and less than 20% of couples report having any sexual intercourse in the 6 weeks post-birth. Many of these couples were advised, however, to avoid sex in the first 6 weeks. By three months post-birth, almost all couples reported having had intercourse. Qualitative studies of Australian (Williamson, McVeigh, & Baafi, 2008) and Swedish (MacAdam, Huuva, & Berterò, 2011) fathers indicated that tiredness, waiting for the baby to settle into a routine, and their partner’s physical recovery from giving birth, were all factors that influenced the frequency of sexual intercourse in the first 6 weeks. The results in the current study indicate that despite previous evidence suggesting a decrease in sexual satisfaction is associated with depression in younger men, it may be that the unique circumstances that can complicate sexual activity following birth are protective against a decrease in emotional wellbeing that might be expected at other times in
a man’s life; sex may be desired, but there are other things, or more important things, to be concerned about.

There was a significant reduction in the level of support that new fathers received from their partner and their family over the perinatal period, similar to findings by Castle, Slade, Barranco-Wadlow, and Rogers (2008). Despite the larger role that men have, or are expected to have, as a modern parent, infant care is still predominantly the role of the mother. Men often feel somewhat excluded from the relationship with their partner as she is focused on the care of the infant (Barclay & Lupton, 1999; Kim & Swain, 2007). A decrease in the support that a mother is able to provide to her partner is perhaps to be expected, but as in the current study, new fathers often report that support from family decreases post-birth (Letourneau et al., 2011). There was, however, an overall increase in perceived support from friends. Despite the stereotypes around men’s reluctance to discuss emotional difficulties they experience with their mates, many new fathers report that they find understanding and sympathy from friends or work colleagues who are also fathers (Davey et al., 2006; Letourneau et al., 2011; Premberg, Hellström, & Berg, 2008). Future investigations into the role that perceived social support has on paternal perinatal mental health should distinguish between the sources of support. As the current study has shown that a lack of support from friends is a predictor of depression symptoms, facilitating social and education programs amongst new fathers could also be the aim of future interventions to help men cope with the transition to parenthood.

Although there is an increasing number of studies that have examined correlates and predictors of paternal perinatal depression (Wee et al., 2011), and the cause of maternal and
paternal perinatal depression, the reasons for increased prevalence compared to other life stages is still unclear (Beck, 2002; Kim & Swain, 2007). A number of theories have been considered and were discussed in Chapter Four of this thesis. With regards to the association between relationship satisfaction and attachment theory, an individual’s relationship attachment style may be a predictor of postnatal distress (Barnes, 2006; Feeney et al., 2003; Whiffen & Johnson, 1998; Wilkinson & Mulcahy, 2010). Put simply, attachment theory proposes that the experience an individual has with caregivers and romantic partners in the past affects the way they function in their current relationship. An individual’s attachment style moderates the affective and behavioural responses they have internally, and towards their partner, when presented with an uncertain or stressful situation (Mikulincer & Florian, 1998; Mikulincer & Shaver, 2003). Caring for an infant, especially for first-time parents, or an infant with a difficult temperament, can be a highly stressful and unfamiliar situation (Davé, Nazareth, Sherr, & Senior, 2005). Studies that have examined attachment style and postnatal mental health have consistently found that mothers with insecure attachment styles report higher levels of depression symptoms than mothers with secure attachment styles (Wilkinson & Mulcahy, 2010), although attachment style is difficult to determine retrospectively and without direct observation of the couple, and studies examining maternal postnatal depression and attachment have involved small sample sizes. A study comparing a community sample and a clinical sample of individuals in a current relationship found that participants in the clinical sample were less securely attached than the community sample (Pielage, Luteijn, & Arrindell, 2005). The level of intimacy in the relationship was also a mediator of the relationship between attachment and psychological distress, especially in the clinical sample. To date there have been no studies to date that have examined paternal postnatal mental health and attachment style.
There were a number of limitations with this study. The small number of participants recruited to the sample initially, and the subsequent attrition of participants limited the power of the analyses that were able to be performed. There were also issues in using a mental health questionnaire designed for a clinical sample on a sample of presumably healthy expectant fathers. Up to 40% of participants at each time point indicated that they experienced no symptoms of depression, anxiety or stress over the previous week. The effect of this was that the data was highly negatively skewed and violated many assumptions for statistical analyses based on the general linear model. Other studies that have used the DASS in a non-clinical sample have reported similar issues with distribution of data (Apostólo, Tanner, & Arfken, 2012; Feeney et al., 2003). The voluntary nature of participation in this study should also be considered. Previous studies of paternal perinatal depression have reported significant difficulties in recruiting and retaining male participants for longitudinal studies (Condon et al., 2004). Furthermore, the nature of depressive symptoms, such as lack of motivation and energy, means that men who are experiencing psychological distress are less likely to maintain interest in participating in longitudinal studies.

5.5 - Conclusion

The implications for this study are that a small but significant proportion of men experience above normal levels of anxiety and stress, as well as depressive symptoms, over the perinatal period. The proportion of men who experience elevated symptoms of distress varies during this time, and decreasing levels of perceived social support and relationship satisfaction are predictors of increased depression symptoms. Given the number of men who reported elevated stress levels was higher than those with elevated depressive or anxiety symptoms, future research should aim to explore paternal postnatal distress in a broader scope than just symptoms of depression and anxiety. It also indicates that paternal postnatal
mental health problems may be more complicated than just the limited set of symptoms that are used to define depression. Feeling agitated or irritable, over-reacting with aggression or mood-swings response to certain events or situations, or feeling unable to relax and wind-down are symptoms that were assessed as part of the DASS Stress Scale in this study and were endorsed by many of the fathers, but they have generally been overlooked in studies of paternal perinatal mental health. In other studies of young men, men who are asked to describe symptoms of depression they have experienced themselves or have observed in other men will frequently report behaviours that are not included in the nine symptoms listed for major depressive episode. These may include; anger which is kept to themselves until they finally “snap”, detachment and indifference, risky behaviour, drug and alcohol abuse, escaping from family and friends, and changes in character or attitude. (Brownhill et al., 2002; Brownhill et al., 2005). This qualitative difference between men’s behaviour when they are depressed and the MDE diagnostic criteria is thought be a factor in explaining the gender difference in depression and substance use disorder prevalence, and differences in rates of suicide amongst men and women (Rutz et al., 1997). This may also explain the gender differences in rates of perinatal depression. Many studies that have assessed perinatal mental health in couples have found that a higher proportion of mothers than fathers were above the EPDS cut-off score, or that mothers report significantly higher mean EPDS scores than fathers (Castle et al., 2008; Figueiredo & Conde, 2011a; Perren et al., 2005; Wynter et al., 2013). Assessing prevalence of perinatal depression in men and women is complicated, as discussed in Chapter One, but reviews of maternal and paternal depression symptoms have found similar gender differences (O'Hara & McCabe, 2013; Paulson & Bazemore, 2010). These differences may be physiological in nature, or due to comparatively greater lifestyle changes that women experience following childbirth than men, but they also may be due to these differences in the way men and women behave when distressed. The symptoms
assessed on the EPDS may not tell the whole picture about fathers’ emotional experience following during pregnancy and following childbirth. The current study identified that many men report high levels of stress symptoms during the perinatal period, and at times the proportion of men experiencing stress was higher than the proportion of men reporting depression. The next Chapter in this thesis examines the theories that have been developed to explain why there is a gender difference in prevalence of depression, and provides background to Study Two which examines “male depressive syndrome” in a sample of postnatal fathers.
CHAPTER SIX

Boys Don’t Cry: Depression and Gender

Mental health epidemiological research has reported consistently that prevalence of depressive disorders, such as Major Depressive Episode (MDE), is higher in women than in men. Recent studies of American, Canadian, and Australian populations have found that 12-month period prevalence of major depression was 1.6 times higher in women than in men (Kessler et al., 2003; Romans, Tyas, Cohen, & Silverstone, 2007; Slade et al., 2009), and this higher female to male ratio has remained consistent over several decades (Kessler, Brown, & Broman, 1981; Kessler et al., 1994; McLennan, 1998). This higher female to male ratio has also been found amongst expectant and new parents, with period prevalence estimates of perinatal depression up to 20% in mothers (O’Hara & McCabe, 2013), and around 10% in fathers (Paulson & Bazemore, 2010), however, prevalence of perinatal depression is much more difficult to establish due to reasons outlined in Chapter Two.

Numerous theories have been put forward to explain why this gender difference in unipolar depression prevalence exists, and in accordance with the theories relating to the development of perinatal depression presented in Chapter Four, biological, psychological, and social reasons have been proposed (Hammarström, Lehti, Danielsson, Bengs, & Johansson, 2009). Compared to men, women are subject to much greater variation in hormone levels that alter brain structure and function across their lifespan, and reproductive hormones produced during pregnancy and lactation have also been found to improve the function of the Hypothalamic-pituitary-adrenal (HPA) axis that modulates adaptive responsiveness to stress (Altemus, 2006). From a social or cultural perspective, all around the world women experience higher rates of poverty and victimisation compared to men, and due to cultural views about the role of women as mothers and carers, are often restricted in the education and employment opportunities that are available to them (Norman, 2004). From a
psychological perspective, women are thought to be more prone to symptoms and behaviours associated with depression, such as negative self-image, low self-esteem, helplessness, hopelessness (Koss-Chioino, 1999), and there may be differences in the way men and women attempt to control their mood in difficult and stressful situations (Cosway, Endler, Sadler, & Deary, 2000; Endler & Parker, 1990; Higgins & Endler, 1995; Rafnsson, Smari, Windle, Mears, & Endler, 2006). For example, women are more likely than men to use emotional expression or emotion-oriented coping styles when distressed, which encompasses behaviour and symptoms associated with major depressive disorder such as guilt, worthlessness, and a loss of motivation and interest in activities (Angst et al., 2002; Tremblay & King, 1994).

There is a wealth of literature that has been published to explain the gender difference in depression prevalence (Altemus, 2006; Parker & Brotchie, 2010), and the theories proposed appear to be based on two assumptions: 1) that men do not experience depression as much as women, and 2) that this gender difference is due to fundamental differences in biology, socio-cultural experiences, and the comparative behaviour of men and women in stressful situations.

Some researchers and clinicians have challenged these assumptions, and at the core of this challenge is the question “what is depression?” A qualitative study by Davidsen and Fosgerau (2014) posed this question to a group of general practitioners (GPs) and a group of psychiatrists, with the findings reflecting considerable differences between the two groups’ views. Psychiatrists typically saw depression as a disorder defined by the presence of symptoms corresponding to DSM diagnostic criteria, detached from social or environmental influences, whereas the GPs’ role as primary care providers meant they saw depression as a variety of emotional and somatic symptoms, and questioned the usefulness and arbitrary nature of screening and diagnostic cut-offs they were required to use for depression diagnosis. While psychiatrists saw depression as a checklist of symptoms, GPs viewed of
depression as a reaction to changed life circumstances, existential crisis, or ongoing physical health problems. Some psychologists have also questioned the validity of the symptoms used diagnose depression, and argue that men do experience distress just as frequently as women, for the reasons highlighted by the GP’s in Davidsen and Fosgerau (2014) study, but it is not recognised due to a gender bias in the depression diagnostic criteria, and gender socialisation means that men and women behave differently when they are distressed (Brownhill et al., 2005; Lynch & Kilmartin, 1999). Lynch and Kilmartin theorised that one of the reasons that men are diagnosed less frequently with depression is not because men don’t experience distress or react in negative ways to changed circumstances, but it is because this cluster of diagnostic symptoms for MDE, such as guilt, crying, worry and self-blame, are gender-biased. These symptoms are the typical behaviour of a woman who is experiencing loss, crisis or conflict, described as “acting in” behaviours because their focus is on internal emotions. In their clinical experience, Lynch and Kilmartin found that men who are experiencing emotional distress more often engaged in “acting out” behaviours, such as anger and irritability, risk-taking behaviour, distraction through intense involvement in work or other activities, and alcohol and drug use. This doesn’t mean that men never experience sadness, guilt and other introspective or “acting in” emotional responses, but MDE diagnostic symptoms apply more accurately to depressed women than to depressed men. This theory is supported by empirical research that has found gender differences in the ways individuals respond to distress. When distressed, women are more likely to than men to engage in rumination, which is the persistent focus on one’s negative emotions and the causes and consequences of these emotions, and is also reflected in the internalising behaviours in MDE diagnostic criteria (Nolen-Hoeksema, 2012). Angst et al. (2002) found gender differences in the symptoms associated with distress, and in methods used to cope with distress. Women, more often than men, reported tiredness, a lack of energy and sleep, crying, a change in
appetite, and more women than men acknowledged they were feeling depressed. Men who were distressed were more likely to engage in distraction-oriented behaviour to cope, such as participating in hobbies or sport, and consume more cigarettes and alcohol, than distressed women, who found outlets in emotional expression and engagement with religion.

Anger may also be a common symptom of depressed mood in males. In studies involving psychiatric patients, Winkler et al. (2005) found that depressed males suffered outbursts of anger and irritability at minor annoyances about twice as often as depressed females, and Azorin et al. (2014) found that male patients were more likely to have impulse control disorders and display hyperthymic temperament than female patients, and were less likely to display a depressive temperament than female patients. Men are also more likely to engage in road-rage than females (Rice & Fallon, 2008). Depressed males have also been shown to engage in risky alcohol consumption more frequently compared to females (Angst et al., 2002; Azorin et al., 2014; Bazargan-Hejazi et al., 2010; Marcus et al., 2005; Strömberg et al., 2010). The changes in men’s behaviour as they become more distressed was conceptualised by Brownhill et al. (2005) in a qualitative study of Australian tertiary education teachers and students. They called this linear pattern of behaviour change, as distress increased, the “big build”. Unlike the women in the study who reported that they were likely to cry, reach out to others, and seek comfort in food when they were depressed, men’s patterns of behaviour encompassed internalising behaviour when experiencing mild to moderate distress, such as avoidance of emotions, drug and alcohol use and escaping the source of distress, but as distress increased there was a progression towards externalising behaviour such as anger, breaking the law, and self-harm or suicide.

There are several potentially serious problems with having diagnostic criteria for depression that do not fully encompass the range of symptoms that men may experience. Firstly, risky drug use and violent behaviour displayed by a man be diagnosed accurately as a
substance use or conduct disorder based on the symptom profile, however, the cause of this behaviour may be the same change in lifestyle circumstances or existential crisis that would lead to a depressive disorder in a woman. A misunderstanding about the root cause of externalising behaviour in men may not only lead to misdiagnosis, but also impact on the effectiveness of any treatment or intervention program. The effectiveness of preventative programs or interventions aimed at males may also be compromised if substance use or anti-social behaviour is not recognised as symptoms of distress or depression. Australian population statistics indicate that drug use and violent behaviour are bigger issues amongst males. Twelve-month prevalence rates for substance use disorder, including alcohol consumption, are 7.0% in males and 3.3% in females (Slade et al., 2009) and the number of men sentenced for assault crimes is over 15 times higher than the number of women sentenced (Australian Institute of Criminology, 2014). In a study that examined gender differences in a large sample patients enrolled in treatment for Major Depressive Disorder (MDD), Marcus et al. (2005) reported that co-morbid drug and abuse was twice as frequent in male patients with depression than female patients. Evidence suggests that treatment for substance addiction in patients with “dual diagnosis”, in which a patient has a co-morbid psychiatric disorder such as depression, as well as addiction, is more effective than treating both disorders independently (Prodromou, Kyritsi, & Koukia, 2014).

The second serious problem presented by diagnostic criteria that may emphasise women’s distress symptoms over men’s was highlighted in a study of Swedish suicide data by Rutz et al. (1997). In the 1990’s, rates of suicide were also much higher amongst Swedish males than females, but following the introduction of a depressive disorders training program for physicians on the Swedish island of Gotland, there was a significant decrease in the number of female suicides; however, the rates of male suicides remained virtually unchanged. Rutz et al. also noted that only a minority of men who had suicided were known to health
professionals, but many men who were at risk of suicide were known to police and social services for drug and alcohol abuse. They concluded that medical service care providers only trained to recognise symptoms of depression listed in the diagnostic criteria were not detecting depression in men, were rejecting them due to abusive or aggressive behaviour, and therefore treatment such as anti-depressants which were effective in treating suicidal women were not being delivered to suicidal men. In Australia, death by intentional self-harm, which includes suicide, is three times higher amongst males than females (Australian Bureau of Statistics, 2014) and in a study of patients undergoing treatment for MDD, suicidal ideation reported more frequently in men than in women (Marcus et al., 2005).

Another hypothesis that has been put forward to explain the gender difference in the prevalence of depression is that men are reluctant to report that they are experiencing symptoms of depression, such as sadness, because of cultural norms around masculinity and emotional expression (i.e., depression is a sign of weakness), stigma associated with mental illness, and a reluctance to engage in help-seeking behaviour (beyondblue, 2012). From early childhood, boys are expected to be strong, independent, and to avoid talking about physical and emotional problems. Boys who fall over and hurt themselves in the playground are told to “be a man”, and avoid crying and express minimal discomfort (Brownhill et al., 2002). In Australian culture, a verbal retort that is directed at someone who is perceived to be complaining too much, is to “toughen up, princess”. When directed at women, this comment is both patronising and insulting, however when directed at men or boys there is an implication that expressing difficulties or discomfort is feminine and weak, and you will be viewed as such if you continue to express yourself. Other feminising insults that are frequently directed at boys who fail to conform to masculine type behaviours are particularly in a sporting context, are that they are “playing like girls” (Fitzclarence & Hickey, 2001). Sadly, the effect that insults and comments such as this have on boys is that they force them
to conform to narrow cultural ideals of masculinity, for fear of being ostracised from peer
groups for being seen as weak (Oliffe, Galdas, Han, & Kelly, 2013). The cultural ideals of
masculinity were defined by O’Neil (1990, p. 25), and although this is a relatively old
reference now, it was relevant when today’s adult men were young:

1. Men are superior to women and masculinity is superior to femininity.
2. Power, control, and competition are essential to prove masculinity.
3. Emotions, feelings, vulnerabilities, and intimacy are to be avoided because they are
   feminine.
4. Career success and sexual potency are measures of masculinity.

From a mental health perspective, the third point in this list is especially relevant. Expressing
that you are experiencing symptoms of depression, but also anxiety and stress, is not only
unadvisable, but you will be seen as “less of a man”, or worse, feminine, because of it. In a
qualitative study of Australian men who were interviewed about their experiences of
depression (Brownhill et al., 2002), the men frequently reported a reluctance to engage to
seek help from doctors or psychologists, for fear of being seen as weak, or they had
difficulties discussing emotional issues as they had little previous experience doing so. The
men reported that they needed a high level of trust in their doctor or mental health
professional before they would open-up, or expected that the clinician should be able be able
to detect that they are distressed and be the one to start this discussion. It is thought that
cultural norms around masculinity, the consequences of which are that many men are
reluctant to disclose mental health issues, and seek help or treatment, is a significant
contributor to the higher rates of externalising and risky behaviour amongst depressed men
compared to women. Men’s mental health promotion campaigns such as the “Real Men, Real
Depression” campaign in the United States (Rochlen, Whilde, & Hoyer, 2005) and the “Man
Therapy” campaign in Australia (beyondblue, 2015a) have utilised the findings from empirical research about masculinity and men’s attitude towards mental health issues and help-seeking, and have focussed on trying to break down stigma around mental health issues and “weakness” while maintaining men’s desire for control.

Based on the empirical evidence that has indicated that MDE prevalence is higher in women than in men (Kessler et al., 2010), the behavioural differences in the ways men and women respond to stress (Nolen-Hoeksema, 2012), the male over-representation in violent crime rates, drug and alcohol use and suicide, and the cultural norms around masculinity and male mental health stigma (Möller-Leimkühler, 2002), researchers and clinicians have developed a theory of men’s behaviour has been called “masked depression” (Cochran & Rabinowitz, 2000; Lynch & Kilmartin, 1999), or “male depressive syndrome” (Möller-Leimkühler, 2002; Rutz et al., 1997). This theory has also lead to the development of the Gotland Male Depression Scale (GMDS; Zierau, Bille, Rutz, & Bech, 2002), a 13 question screening measure that assesses symptoms of MDE, as well as symptoms male depressive syndrome such as excessive alcohol and drug use, irritable or aggressive behaviour, and a lower stress threshold, and deviations from normal behaviour.

To date, only one study has sought to examine male depressive symptom in postnatal fathers. Madsen and Juhl (2007) assessed a group of Danish fathers with the Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987) and the Gotland Male Depression Scale (GMDS; Zierau et al., 2002)), with the aim to improve detection of fathers who were experiencing distress but did not endorse the “typical” depression symptoms measured using the EPDS. Other studies have examined alcohol and drug use amongst fathers, however, paternal perinatal mental health research has typically only focussed on depressive symptoms as indicated by the EPDS. The first empirical study in this thesis (reported in Chapter Five) sought to broaden the somewhat narrow focus on depression in perinatal mental health.
research to encompass *perinatal distress* - symptoms of anxiety and stress, as well as depression. It was found that levels of stress and anxiety symptoms were above normal levels at a similar frequency to high levels of depressive symptoms. The aim of the second empirical study here, Study Two, was to further evaluate fathers’ experiences of distress following the birth of a child, by examining male depressive syndrome symptoms, postnatal distress, coping styles, and alcohol use in a sample of fathers whose partners had given birth in the past 12 months.
CHAPTER SEVEN

Study Two: Male Depressive Syndrome in the Postnatal Period

7.1 - Introduction

Prevalence of major depressive disorder is around 1.6 times higher in women of childbearing age (18-34), compared to men of the same age (Kessler et al., 2010; Romans et al., 2007; Slade et al., 2009). Meta-analytic estimates of depression prevalence during the postnatal period have also found similar differences between new mothers and new fathers. Up to 20% of mothers are thought to experience a depressive episode in the 12 months following birth (O'Hara & McCabe, 2013), while paternal depression prevalence estimates are around 10% (Paulson & Bazemore, 2010). As reviewed in Chapter Six, many researchers and clinicians have proposed a theory that this gender difference in depression prevalence, both during the perinatal period and at other life stages, is due to differences in the way men and women express themselves and behave when experiencing prolonged distress. Moreover, the symptoms of major depressive disorder, such as rumination, sadness, apathy and dysphoria, more accurately describe a typically depressed woman than they do a depressed man, as depressed men are more prone to irritability, aggressive or destructive behaviour, and increased drug and alcohol consumption. Empirical evidence for a “male depressive syndrome” or “masked depression” has been emerging following a number of studies (Angst et al., 2002; Azorin et al., 2014; Rice & Fallon, 2008; Winkler, Pjrek, & Kasper, 2005). A small number of studies have also examined whether the symptoms and behaviour that have been associated with male depressive syndrome also present alongside typical depression symptoms in new fathers who are experiencing distress in the transition to parenthood. These studies have been conducted to try and explain the gender gap in prevalence of postnatal depression (Madsen & Juhl, 2007), to examine whether alternative depression screening
methods should be used with fathers (Condon et al., 2004), and to develop more effective treatment interventions for fathers experiencing depression (Madsen, 2011).

Madsen and Juhl (2007) screened a group of 524 Danish fathers at six weeks post birth using both the Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987), the most commonly used measure of both maternal and paternal depression symptoms, and the Gotland Male Depression Scale (GMDS; Zierau et al., 2002), a measure that assesses both typical depression symptoms and symptoms associated with male depressive syndrome and was validated by the developers against established depression measures in a sample of Danish men undergoing treatment for alcohol dependence. Consistent with previous studies (Condon et al., 2004; Fletcher et al., 2011), 5% of fathers reported elevated depression symptoms with the EPDS; however a further 1.3% of their sample scored above the cut-off on the GMDS but not the EPDS. Although there some limitations with regards to the representativeness of their sample, the results indicated that a small but significant proportion of men who were experiencing depressive symptoms in the postnatal period were not being recognised with a traditional postnatal depression screen. Based on their findings, Madsen and Juhl recommended that paternal postnatal mental health issues should be assessed and with both traditional and the male specific symptoms of depression under evaluation. However, since Madsen and Juhl’s study was published, there has been a paucity of research examining male specific depression symptoms in fathers of infant children, no male specific measures of postnatal mental health issues have been developed, and there are very few published studies relating to prevention or treatment of paternal postnatal mental health problems (Wee et al., 2013).

Despite the lack of specific research into screening and prevalence of male depressive syndrome in the postnatal period, some studies have independently examined the symptoms that are associated with male depressive syndrome as part of studies into “typical” postnatal
depression. Pinheiro et al. (2006) found that Brazilian fathers who scored above the cut-off on the Beck Depression Inventory were 2.5 times more likely to report an alcohol use disorder, and longitudinal studies examining the perinatal period have found that during pregnancy and up to one year post birth, about one-quarter of men engage in risky alcohol consumption (Condon et al., 2004; Everett, Bullock, Longo, Gage, & Madsen, 2007). Boyce et al. (2007) reported that fathers with elevated symptoms of psychological distress reported significantly higher alcohol consumption than men with normal levels of distress, and the average level of alcohol consumption for the distressed group was at a risky level. Other behaviours associated with male depressive syndrome, such as anger and irritability have received less focus in the literature. Condon et al. (2004) reported that relative to the postnatal period, expectant fathers were more irritable, and Hedin (2000) found that 16% of new mothers experienced abuse or threats of abuse from their partner when they had not experienced any such abuse in the previous year or during pregnancy.

Studies that have examined male depressive syndrome have generally focused on distressed men’s externalising behaviour, however Brownhill et al.’s (2005) “big build” study found that externalising behaviour was a result of a failure of internalising coping strategies to reduce distress such as avoidance or distraction. There were also gender differences observed, with women more likely than men to express sadness or distress, and to reach out to friends to discuss their problems. Research into coping styles have identified that there may be differences in the way men and women control their mood in difficult and stressful situations (Cosway et al., 2000; Endler & Parker, 1990; Higgins & Endler, 1995; Rafnsson et al., 2006). Coping styles amongst depressed individuals have also been shown to vary according to gender, with men more likely to distract themselves with hobbies or sport, and consume more alcohol, while depressed women were more likely to use emotional expression, such as crying or laughing, as a coping mechanism (Angst et al., 2002). It is
important to understand how fathers cope with feelings of depression or distress in the postnatal period, both as a means of identifying which men may be experiencing distress, and to provide a basis for treatment of depression and other mental health issues.

Depression is not the only mental health issue that is of concern amongst new fathers. Increased levels of anxiety, including specific phobias, panic disorder and generalised anxiety disorder have been shown to affect new fathers, independent of a depression diagnosis (Figueiredo & Conde, 2011a; Matthey et al., 2003; Matthey et al., 2001; Wynter et al., 2013). Perceived stress has also been found to be a correlate of depression in the early postnatal period (Gao et al., 2009; Mao et al., 2011), with work and economic pressures being the most significant sources of stress for men suffering psychiatric disorders in the postpartum period (Zelkowitz & Milet, 1997). A number of authors have recommended that the view of postnatal mental health issues be expanded to the broader context “postnatal distress”, and include symptoms of anxiety and stress as well as depression symptoms (Madsen & Juhl, 2007; Miller et al., 2006; Wynter et al., 2013). Changes in sleep patterns are recognised as a diagnostic criterion for major depressive episodes, however disruptions to parents’ sleep, including night-time waking, are common until the child reaches toddlerhood (Goldberg et al., 2013). Retrospective subjective sleep quality has been found to be lower amongst mothers with elevated postnatal depression symptoms (Dørheim, Bondevik, Eberhard-Gran, & Bjorvatn, 2009; Park, Meltzer-Brody, & Stickgold, 2013). To date, no studies have examined the relationship between paternal subjective sleep quality and postnatal depressive symptoms, albeit Cockshaw, Muscat, Obst, and Thorpe (2014) found that there was no relationship between infant sleeping habits and depressive symptoms in new fathers. Despite this, disruptions to sleep patterns and lack of sleep can be both a cause of high levels of stress, and a symptom of high levels of stress.
In the current study, a sample of fathers whose partners had given birth in the past 12 months were assessed for elevated depressive symptoms associated with a major depressive disorder, as well as symptoms of anxiety, increased stress, and behaviour associated with male depressive syndrome. The primary aim of the study was to replicate Madsen and Juhl’s (2007) study that examined the proportion of fathers who experienced male depression syndrome symptoms but did not also experience “typical” depression symptoms. It was hypothesised that a significant proportion of fathers would report high levels of male depressive syndrome symptoms but not elevated “typical” depression symptoms. The secondary aims of the study were:

1. To determine whether there was a relationship between levels of anxiety, stress and male depressive syndrome symptoms and levels of “typical” depression symptoms.

2. To examine the relationship between depression, anxiety and stress symptoms and, coping behaviour, subjective sleep and alcohol use behaviour.

3. To examine whether depressed fathers were significantly more likely to report different styles of coping behaviour, alcohol consumption behaviours, and sleep quality, than fathers who were not depressed.

The second hypothesis was that high levels of anxiety and stress would be reported by fathers independently of high levels of depressive symptoms, following on from the findings of Wynter et al. (2013) and Matthey et al. (2003). It was also hypothesised, based on Brownhill et al. (2005), analysis of depressed men’s behaviour, that fathers with elevated “typical” depressive symptoms would be more likely to utilise coping strategies involving emotional expression, while fathers who reported elevated “male depressive syndrome” symptoms would be more likely to engage in avoidance based coping strategies than fathers who experience no or low levels of depressive symptoms. It was also expected that both
groups of fathers with elevated depressive symptoms would report higher levels of risky alcohol consumption behaviour than men who were not experiencing depressive symptoms. Given the association between sleep problems and depression, it was also predicted that fathers with elevated depressive symptoms would report lower quality sleep.

7.2 - Method

Participants

The sample consisted of 87 fathers, whose partners had given birth to their baby in the past 12 months. The participants were from the general population and had volunteered to participate in the study. All participants were English speaking Australian residents. Ethics approval was granted by the Human Research Ethics Committee at Deakin University and the management of data from the online questionnaires was conducted through Deakin University. The men were not compensated for participating in the research. Participants were directed to contact psychology staff at Deakin University or Mensline for advice and support if they found that they were experiencing discomfort or distress after completing the questionnaires.

Measures

Depression symptoms. “Typical” depression symptoms were measured using the Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987), a 10 item scale that was developed as a simple screen for maternal postnatal depression and is the most widely depression screen amongst fathers in the postnatal period (Edmondson et al., 2010; Matthey et al., 2001). The scale queries the frequency at which the respondent experienced cognitive and emotional symptoms associated with depression over the previous 7 days. Items are scored on a 4-point Likert scale from 0 to 3, with higher scores indicating increased distress, with a determined cut-off score above which participants are likely to be experiencing
significant depressive symptoms. There is debate in the research literature about what the ideal EPDS cut-off score for fathers should be, however the most widely cited study by Matthey et al. (2001) recommends that scores of $\geq 10$ are indicative that the father is experiencing depression, and this study was also conducted with an Australian community sample. Internal consistency analysis for the EPDS found a Cronbach’s alpha co-efficient of 0.89.

**Anxiety and stress.** The Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995) is a 21 item self report questionnaire designed to measure negative symptoms of depression, anxiety and stress. The depression scale was not utilised in the current study and was replaced by the EPDS. Participants are asked to recall the frequency at which they experienced symptoms of anxiety (I felt scared without any good reason) and stress (“I found it difficult to relax”) during the previous week. Items on the DASS are scored on a 4-point scale from 0 (did not apply to me at all) to 3 (applied to me very much, or most of the time) with higher scores indicating increasing severity of symptoms. The scores from each scale are totalled separately and symptom severity is categorised as normal, mild, moderate, severe, and extremely severe according to validated cut-off points. For the purposes of this study, comparisons were made between participants who scored in the normal score range, and those who scored in the mild to extremely severe range on each of the scales. To date, only one published study has used the DASS with a sample of fathers in the perinatal period (Feeney et al., 2003) and the scales were found to have high internal consistency, however they did not include the stress scale in their analysis. Internal consistency analyses for the current study found Cronbach’s alphas of 0.83 for the anxiety scale (DASS-A) and 0.87 for the stress scale (DASS-S).

**Male depressive syndrome.** Symptoms of “male depression syndrome” were assessed using the English translated version of Gotland Male Depression Screen
which was developed by to improve detection of psychological distress in men. Zierau et al.’s original validation study found that the GMDS had reliability co-efficient of .77 with the Major Depression Inventory in a sample of male patients with alcohol dependence disorder, and another study of male patients in primary care reported a reliability co-efficient of .80 with the Beck Depression Inventory (Strömberg et al., 2010). For the current sample, Cronbach’s alpha co-efficient was .90. As noted in the introduction, Madsen and Juhl (2007) found that the GMDS was effective at identifying distressed postnatal fathers who did not exceed the cut-off score on the EPDS. The GMDS consists of 13 items that ask participants whether they or others have noticed changes in their behaviour that are indicative of male depression syndrome symptoms. Items are scored on a Likert scale from 0 (not at all) to 3 (extremely so) with higher scores indicating increased distress. The GMDS also consists of two subscales, a depression subscale (e.g., Have you felt, or have others perceived you as being gloomy, negative, or characterised by a state of hopelessness in which everything looks bleak?), and a distress subscale (e.g., Do you feel your behaviour has altered in such a way that neither you yourself nor others can recognize you, and that you are difficult to deal with?). A cut off score of 13 or above for the complete GMDS, out of a maximum of 39, indicates male depression syndrome, however there are no guidelines regarding cut-off scores for the subscales.

**Alcohol Use** Alcohol consumption behaviour was assessed with Alcohol Use Disorders Identification Test (AUDIT); a 10 item screening tool developed by the World Health Organisation to assess whether an individual’s alcohol use is potentially risky or harmful. It includes three subscales measuring alcohol consumption, alcohol dependence, and problems related to alcohol use, as well as a total combined score that measures overall risky or hazardous alcohol use behaviour. A score of 6 or above on the consumption subscale indicates an increased risk of harm due to drinking, and a score of 4 or more on the
dependence subscale suggests that an individual may be dependent on the use of alcohol. A total AUDIT score of 8 or above (maximum possible score = 40) indicates that an individual’s current alcohol consumption behaviour is risky now and into the future.

**Sleep quality.** The subjective sleep patterns of the new fathers were measured using the Pittsburgh Sleep Quality Index (PSQI; Buysse, Reynolds, Monk, Berman, & Kupfer, 1989), a 15 item measure of subjective sleep quality, frequency of sleep disturbances, and bedtime and sleep habits over the previous month. Items are scored on a Likert scale with participants reporting the frequency of sleep related events from 0 (not during the past month) to 3 (three or more times per week), and are then asked to rate their subjective sleep quality over the past month from 0 (very good) to 3 (very bad). Items are totalled to produce a global sleep quality score, with increasing scores indicating poorer sleep quality. Cronbach’s alpha co-efficient for the PSQI was .72.

**Coping style.** The coping strategies that fathers use when under stress were assessed with the Coping Inventory for Stressful Situations (CISS; Endler & Parker, 1990). This 48 item scale consists of three 16 question subscales. Three different dispositional coping strategies were identified by Endler and Parker (1990) and have been validated in subsequent studies (Cosway et al., 2000; Rafnsson et al., 2006): task-oriented coping, emotion-oriented, and avoidance-oriented coping. Task-oriented coping (also known as problem-oriented coping) involves the individual taking action to alter the situation, reduce the amount of stress it provokes, or cognitively reframe the stressor. Emotion-oriented coping involves expressing emotions, including negative thought and self-blame about their response to the stressor, seeking emotional support, and worrying. Factor analyses have shown that the avoidance-oriented behaviour scale can be further categorised into an 8-item distraction scale and a 5-item social diversion scale (Cosway et al., 2000). Social diversion, involves doing activities in the company of others to avoid the situation (such as shopping with friends and
socialising), and distraction which involves engaging in a substitute activity or hobby instead of engaging with the stressor (Man, Dougan, & Rector, 2012). The CISS has been found to have adequate six-week test-retest reliability. Internal consistency analyses for the current study found Cronbach’s alpha of .92 for the task-oriented subscale, .90 for the emotion-oriented subscale, and .81 for the avoidance-oriented subscale.

**Procedure**

Participants were recruited through social media networks such as Facebook and Twitter, online parenting forums, posts in online newsletters from men’s health and fatherhood organisations, and printed flyers handed out at parenting associations. Any man whose partner had given birth in the previous year, irrespective of the number of children they already had, was invited to participate in research investigating the health and wellbeing of new fathers. Fathers were directed to a website hosted by Deakin University and asked to complete an anonymous online questionnaire. Participants were informed that the questionnaire took about 20 minutes to complete and could be done in their own time. One participant was excluded from the analysis as he reported that his child was 4-years-old.

**Data Analysis**

Data were analysed using SPSS version 22. There were no data missing from any of the dependent or independent variables. The dependent variables were the number of fathers who reported elevated levels of “typical” or major depressive episode symptoms, which was determined by an EPDS score ≥10, and the number of fathers who reported elevated male depressive syndrome symptoms, determined by a GMDS score ≥13. Although the EPDS is not a diagnostic measure for depression, for simplicity, fathers above the EPDS cut-off score were categorised as *depressed*, and those who scored below the cut-off as *not-depressed*. This also follows conventions used in current paternal depression research (eg. deMontigny et al.)
To examine if there was a relationship between frequency of scores above the EPDS cut-off and frequency of symptoms of anxiety, stress, and male depressive syndrome symptoms, as series categorical analyses were performed. Anxiety and stress symptoms were categorised according to DASS-A and DASS-S according to their respective cut-off scores, as was the GMDS score.

Relationships between EPDS, DASS and GMDS scores, and subjective sleep quality (PSQI), coping styles (CISS) and Alcohol use (AUDIT), using continuous data from each of these measures, were examined in a series of Spearman correlations and logistic regression analysis. Spearman correlations, rather than Pearson correlations, were used because preliminary data analysis reported significant (p < .001) Kolmogorov-Smirnov tests for all variables except the CISS task subscale, indicating a non-normal distribution. Examination of frequency plots for the EPDS, DASS and GMDS distribution, and the fact that the variance for each of these variables was greater than the mean (see Table 7.3), indicated that each of the psychological distress variables followed a Poisson distribution.

To examine whether there were factors that increased the likelihood of fathers experiencing depressive symptoms, and series of logistic regression analyses were conducted with EPDS depression status as the dependent variable and anxiety, stress, sleep quality, coping style, and alcohol use behaviour (total AUDIT score) as individual predictors (Table 7.4). The same analyses were repeated using GMDS depression categories (Table 7.5).

7.3 - Results

Sample Characteristics

Demographic variables for the sample are shown in Table 7.1. The majority of fathers were married or living with their partner, were first time parents, and were employed with some level of tertiary education. The majority of fathers were also born in Australia and
spoke English at home. Mean scores for each of the psychological variables, are included in
the correlation table (Table 7.3).
Table 7.1
Demographic Characteristics of Fathers

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean or percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (SD) Father’s age</td>
<td>33.47 (4.75)</td>
</tr>
<tr>
<td>Mean (SD) Baby’s age</td>
<td>215 (135) days</td>
</tr>
<tr>
<td>Number of children</td>
<td></td>
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<tr>
<td>1</td>
<td>66.3%</td>
</tr>
<tr>
<td>2</td>
<td>20.2%</td>
</tr>
<tr>
<td>3</td>
<td>10.1%</td>
</tr>
<tr>
<td>4+</td>
<td>3.3%</td>
</tr>
<tr>
<td>Married or de Facto</td>
<td>97.8%</td>
</tr>
<tr>
<td>Country of Birth</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>79.3%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>5.7%</td>
</tr>
<tr>
<td>Europe</td>
<td>6.8%</td>
</tr>
<tr>
<td>North America</td>
<td>3.3%</td>
</tr>
<tr>
<td>Asia</td>
<td>4.5%</td>
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<tr>
<td>Speak English at home *</td>
<td>94.4%</td>
</tr>
<tr>
<td>Highest level of education *</td>
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</tr>
<tr>
<td>Did not finish secondary school</td>
<td>1.1%</td>
</tr>
<tr>
<td>Secondary School</td>
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<td>Certificate/Diploma</td>
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</tr>
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<td>Undergraduate degree</td>
<td>34.8%</td>
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<tr>
<td>Postgraduate degree</td>
<td>16.9%</td>
</tr>
<tr>
<td>Currently employed</td>
<td>98.9%</td>
</tr>
</tbody>
</table>

N = 89

* Not all participants provided this information
Proportions of Fathers with “typical” depression and “male depressive syndrome”

Of the 89 fathers in the sample, 17 (19.1%) scored at least 10 on the EPDS, indicating that they experienced “typical” depressive symptoms above normal levels during the week prior to completing the questionnaire. Nine (10.1%) fathers scored at least 13 on the GMDS, indicating high levels of male depressive syndrome symptoms. One (1.1%) father scored above the cut-off on the GMDS, but reported normal levels of EPDS depression symptoms. Table 7.2 shows a series of 2x2 contingency tables that were used to determine whether elevated depression symptoms on the EPDS were related to high scores on the other measures of psychological distress. Fisher’s exact test of independence was used to test for significance instead Pearson Chi-squared tests, as many cells had expected cell count < 4 (Weaver, 2013). Fathers who scored <10 on the EPDS were categorised as low depressive symptoms, and those who scored ≥10 were categorised as elevated depressive symptoms. Fathers’ DASS-A, DASS-S, and GMDS scores were categorised as High or Low Anxiety, Stress, and Male Depression, according to the respective cut-off scores.
Table 7.2

2x2 contingency tables examining relationship between EPDS, DASS and GMDS cut-off scores.

<table>
<thead>
<tr>
<th>EPDS Category</th>
<th>Low Anxiety (%)</th>
<th>High Anxiety (%)</th>
<th>Total (%)</th>
<th>Fisher’s Exact Test (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Depressive Symptoms</td>
<td>71 (79.8)</td>
<td>1 (1.1)</td>
<td>72 (80.9)</td>
<td></td>
</tr>
<tr>
<td>Elevated Depressive Symptoms</td>
<td>6 (6.7)</td>
<td>11 (12.4)</td>
<td>17 (19.1)</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td><strong>Total (%)</strong></td>
<td>77 (86.5)</td>
<td>12 (13.5)</td>
<td>89 (100.0)</td>
<td></td>
</tr>
<tr>
<td>Low Stress (%)</td>
<td>69 (77.5)</td>
<td>3 (3.4)</td>
<td>72 (80.9)</td>
<td></td>
</tr>
<tr>
<td>Elevated Depressive Symptoms</td>
<td>5 (5.6)</td>
<td>12 (13.5)</td>
<td>17 (19.1)</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td><strong>Total (%)</strong></td>
<td>74 (83.1)</td>
<td>15 (16.9)</td>
<td>89 (100.0)</td>
<td></td>
</tr>
<tr>
<td>Low male depression (%)</td>
<td>71 (79.8)</td>
<td>1 (1.1)</td>
<td>72 (80.9)</td>
<td></td>
</tr>
<tr>
<td>Elevated Depressive Symptoms</td>
<td>9 (10.1)</td>
<td>8 (9.0)</td>
<td>17 (19.1)</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td><strong>Total (%)</strong></td>
<td>80 (89.9)</td>
<td>9 (10.1)</td>
<td>89 (100.0)</td>
<td></td>
</tr>
</tbody>
</table>
In total, 21 (24.1%) fathers scored above the cut-off on at least one of the measures shown in Table 2. One father scored above the cut-off on the DASS-A, but not on the EPDS, and three (3.4%) reported elevated stress symptoms, but not concurrent EPDS depression. Overall, five (5.6%) men reported that they were experiencing elevated levels of distress that were not detected with the EPDS. Significant Fisher’s independence tests indicated that the likelihood of a father being reporting high levels of anxiety, stress, and male depressive syndrome symptoms was dependent on whether he also reported concurrent high levels of depressive symptoms, measured by the EPDS.

**Relationships between postnatal distress symptoms, coping styles, alcohol use and sleep quality.**

Mean scores and standard deviations of each of the psychological variables and the correlations between them are shown in Table 7.3. There were strong positive relationships between the DASS anxiety and stress subscale and both of the depression measures. Scores on the PSQI were moderately and positively correlated with psychological distress symptoms, indicating that symptoms of distress increased as sleep quality decreased. Scores from the CISS indicated that an increase in levels of reported depressive, anxiety and stress symptoms were associated with a decrease in the use of task-based and social diversion-based coping strategies, and increases in emotion-based and distraction-based coping strategies, however these associations were generally weak (i.e., <0.3), and not statistically significant. Overall, alcohol use behaviour had very weak associations with depressive, anxiety and stress symptoms, and was also not associated with coping styles or subjective sleep quality.

Logistic regression analyses for EPDS and GMDS categories are shown in Tables 7.4 and 7.5. Given the small number of cases in each who scored above the cut-off for each measure relative to the number of possible predictor variables, a separate regression analyses
was conducted for each predictor. For logistic regression analyses it is recommended that each dependent variable cell has at least 10 cases (Tabachnick & Fidell, 2007). Because of this, results from the GMDS analysis may need to be interpreted cautiously, as there were only 9 fathers who exceeded the GMDS cut-off.

Results from the logistic regression analyses indicated that increases in anxiety and stress symptoms increased the likelihood that a father would experience both “typical” depression and “male depressive syndrome”. Decreased sleep quality also increased the likelihood that that a father would experience “typical” and “male depressive syndrome” depression. The use of task-based coping strategies was not a predictor of depressive symptoms. Emotional coping strategies were more likely to be used by fathers who with “typical” depression symptoms and “male depressive syndrome” symptoms. Father who reported elevated symptoms of “male depressive syndrome” symptoms were more likely to engage in avoidance-based coping strategies, however once the avoidance-based measure was split into its component sub-scales, it indicated that these “depressed” fathers were more likely to engage in distraction-based coping, but not social-diversion based coping. Similar results were reported for fathers who experienced elevated “typical” depression symptoms, however they were no more likely to engage in avoidance-based strategies in general. Fathers with elevated “typical” depression reported no significant difference in alcohol consumption behaviour compared to non-depressed fathers, nor did those fathers with elevated “male depressive syndrome” symptoms.
Table 7.3
Correlation Matrix of Psychological Variables

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<th>4</th>
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<td>.68**</td>
<td>.57**</td>
<td>.67**</td>
<td>.67**</td>
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<td>.20</td>
<td>.10</td>
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<td>.23*</td>
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<td>.66**</td>
<td>.66**</td>
<td>.66**</td>
<td>.66**</td>
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Mean (SD)

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* p < .05, ** p < .01
### Table 7.4

*Logistic regression analysis for predictors of typical depression symptoms (based on EPDS scores ≥10)*

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<th>Wald χ²</th>
<th>OR (95% CI)</th>
<th>p</th>
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<td>1.06</td>
<td>0.25</td>
<td>17.78</td>
<td>2.88 (1.76-4.71)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Stress</td>
<td>0.55</td>
<td>0.13</td>
<td>17.43</td>
<td>1.74 (1.34 -2.25)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Sleep Quality</td>
<td>0.42</td>
<td>0.11</td>
<td>13.71</td>
<td>1.53 (1.22 – 1.91)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Task Coping</td>
<td>-0.04</td>
<td>0.02</td>
<td>2.43</td>
<td>0.96 (0.92 – 1.01)</td>
<td>.964</td>
</tr>
<tr>
<td>Emotional Coping</td>
<td>0.13</td>
<td>0.03</td>
<td>15.31</td>
<td>1.14 (1.07 – 1.22)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Avoidance Coping</td>
<td>0.03</td>
<td>0.03</td>
<td>0.74</td>
<td>1.03 (0.97 – 1.10)</td>
<td>.390</td>
</tr>
<tr>
<td>Social Diversion Coping</td>
<td>-0.14</td>
<td>0.08</td>
<td>3.28</td>
<td>0.87 (0.75 – 1.01)</td>
<td>.070</td>
</tr>
<tr>
<td>Distraction Coping</td>
<td>0.19</td>
<td>0.06</td>
<td>9.68</td>
<td>1.21 (1.07 – 1.36)</td>
<td>.002</td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>0.05</td>
<td>0.05</td>
<td>0.98</td>
<td>1.05 (0.95 – 1.15)</td>
<td>.332</td>
</tr>
</tbody>
</table>
Table 7.5

Logistic regression analysis for predictors of male depressive syndrome symptoms (based on GMDS total score ≥13)

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>Wald $\chi^2$</th>
<th>OR (95% CI)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>0.70</td>
<td>0.18</td>
<td>15.15</td>
<td>2.04 (1.46 – 2.87)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Stress</td>
<td>0.52</td>
<td>0.14</td>
<td>13.01</td>
<td>1.68 (1.27 – 2.24)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Sleep Quality</td>
<td>0.52</td>
<td>0.16</td>
<td>10.76</td>
<td>1.67 (1.23 – 2.28)</td>
<td>.001</td>
</tr>
<tr>
<td>Task Coping</td>
<td>-0.05</td>
<td>0.03</td>
<td>2.03</td>
<td>0.96 (0.90 – 1.02)</td>
<td>.154</td>
</tr>
<tr>
<td>Emotional Coping</td>
<td>0.18</td>
<td>0.05</td>
<td>13.23</td>
<td>1.20 (1.09 – 1.32)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Avoidance Coping</td>
<td>0.10</td>
<td>0.04</td>
<td>5.55</td>
<td>1.11 (1.02 – 1.21)</td>
<td>.018</td>
</tr>
<tr>
<td>Social Diversion Coping</td>
<td>0.05</td>
<td>0.09</td>
<td>0.31</td>
<td>1.05 (0.88 – 1.25)</td>
<td>.649</td>
</tr>
<tr>
<td>Distraction Coping</td>
<td>0.30</td>
<td>0.09</td>
<td>11.63</td>
<td>1.35 (1.14 – 1.61)</td>
<td>.001</td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>0.07</td>
<td>0.06</td>
<td>1.65</td>
<td>1.08 (0.96 – 1.20)</td>
<td>.200</td>
</tr>
</tbody>
</table>

7.4 – Discussion

Research into the mental health of fathers following the birth of their child has predominantly focussed on symptoms of depression, while other symptoms indicative of psychological distress, such as anxiety and stress, have received comparatively little attention (Wynter et al., 2013). A number of researchers and clinicians have also proposed that many men, including new fathers, engage in “acting-out” behaviour such as aggression, drug and alcohol use, and risk-taking behaviour, when they are distressed (Angst et al., 2002; Brownhill et al., 2005; Cochran & Rabinowitz, 2000; Lynch & Kilmartin, 1999; Madsen &
Juhl, 2007), and that it is important that these symptoms and behaviours are also assessed when screening or diagnosing men for depressive disorders. The primary aim of this study was to replicate a previous study by Madsen and Juhl investigating male depressive syndrome symptoms in a group of new fathers, and to examine the relationship between anxiety, stress, and depression symptoms amongst these men. Following on from Madsen and Juhl’s findings, it was hypothesised that a significant proportion of fathers would report high levels of male depressive syndrome symptoms but not elevated “typical” depressive symptoms measured using the Edinburgh Postnatal Depression Scale (EPDS). This hypothesis was partially supported. Only one father scored above the cut-off on the GMDS but not on the EPDS, while eight fathers scored above the cut-off on both measures, so the expectation that there would be many fathers who were distressed but did not report diagnostic depression symptoms such as sadness and withdrawal, did not eventuate. In percentage terms however, both the current study and Madsen and Juhl’s study found that around 1% of new fathers will report high levels of distress or engage in problematic behaviour that is not detected with the EPDS. Although this percentage is small, the consequences for the children and partners of men who engage in this behaviour as a result of distress can be significant, not to mention the impact that this behaviour, which includes aggression, burn-out, and increased drug and alcohol use, may have on the fathers themselves.

Overall, almost one-fifth of fathers reported high levels of “typical” depression symptoms, as measured by the EPDS. The majority of these fathers also reported high levels of anxiety, stress and male depressive syndrome symptoms, however, over 5% of fathers reported high levels of anxiety, stress, or male depressive syndrome symptoms, but were not categorised as depressed according to their EPDS score. Previous studies examining both anxiety and depression in new fathers have found that the proportion of fathers with high
levels of anxiety was significantly higher than the proportion with high levels of depressive symptoms, while the percentage of fathers diagnosed with co-morbid depression and anxiety disorders approached zero (Abramowitz, Schwartz, & Moore, 2003; Figueiredo & Conde, 2011a; Matthey et al., 2003; Matthey et al., 2001; Wynter et al., 2013). The current study did not support these findings from previous research, as the number of fathers with high levels of both depression and anxiety symptoms was twice as high as the number of fathers only reporting high levels of anxiety symptoms. Because of this, the second hypothesis, that high levels of anxiety and stress would be reported by fathers independently of high levels of depressive symptoms, was not supported. However, these results do support the recommendations by Madsen and Juhl (2007) and Wynter, Rowe and Fisher (2013) that paternal postnatal mental health screening should include a broader spectrum of psychological distress symptoms than those measured by the EPDS and other commonly used depression measures such as the Beck Depression Inventory (BDI; Beck et al., 1961) and the Centre for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). The current study has shown that the use of additional measures, such as the stress and anxiety subscales from the DASS-21, which are quick to administer and easy to understand, should be used alongside the EPDS in both research and clinical settings.

The secondary aim of this study was to examine the relationships between depressive symptoms and other symptoms of postnatal distress, such as anxiety, stress, and male depressive syndrome symptoms. Table 7.3 shows significant positive relationships between depression symptoms measured by the EPDS, both DASS subscales, and both GMDS subscales. Fathers who had elevated depressive symptoms according to both the EPDS and GMDS were significantly more likely to report elevated symptoms of stress and anxiety. Uncertainty and anxiety are common experiences for new fathers, and self-doubt and concern about ability to cope in their new role was reported by many fathers in a qualitative study by
Fletcher, Vimpani, Russell, and Sibbritt (2008). The men, whose partners had yet to give
birth, described specific concerns and sources of anxiety, such as not knowing what to do
when their infant was crying, and how to settle it for sleep. Having a messy household was
also reported as a source of stress for new fathers in Fletcher’s et al.’s study. The time that a
father has to spend away from his family due to work, which decreases the amount of time a
father can spending with his child, can also be a source of stress (Anderson, 1996; Barclay &
Lupton, 1999). Financial stress, due to increased expenses or his partner ceasing employment
to care for the infant, is common, especially for low-income families (Bradley & Slade, 2011;
Seguin et al., 1999). Reporting symptoms of stress, such as restlessness and irritability, is also
common amongst men as a “mask” for deeper feelings of dysphoria, inadequacy and sadness
that they are reluctant to reveal (Cochran & Rabinowitz, 2000; Pollack, 1998). The traditional
cultural norms around masculinity, which many of the fathers in this sample would have
grown up with, encourage strength and discourage weakness. The verbal or behavioural
expression of depression symptoms, such as sadness, is viewed as a weakness from a
traditional masculine perspective (O’Neil, 1990). Furthermore, depression and other mental
illness often have an associated stigma amongst Australian men, while revealing that one is
“stressed” is often more culturally acceptable (beyondblue, 2012).

It was hypothesised that fathers who reported elevated depressive symptoms on the
EPDS would be more likely to engage emotion-based coping strategies than fathers who were
not depressed, while fathers who scored above the cut-off on the GMDS would be more
likely to engage in avoidance-based coping. Both of these hypotheses were supported,
however fathers who scored above the GMDS cut-off also engaged in emotion-based coping
strategies. This is not surprising, given that all but one of the fathers who scored above the
cut-off on the GMDS were also experiencing elevated depressive symptoms according to the
EPDS. Furthermore, the items on the emotion-based coping subscale of the CISS screen for
emotional responses to stress are consistent with depression symptoms, such as self blame and becoming upset. The CISS also assesses for anger and blaming others as coping strategies as part of the emotion subscale, which explains why there was a significant positive relationship between GMDS score and the use of emotion based coping strategies. The current study also supports previous findings by Man et al. (2012), who noted that individuals experiencing high levels of co-morbid anxiety and depression symptoms report increased use of emotion based coping strategies and decreases in the use of task-based strategies. This contrasts with results from a large community study by Rafnsson et al., (2006) who found that young men, who had no reported depression symptoms, endorsed task-oriented coping strategies more frequently than emotion-oriented coping strategies. To explain this apparent contrast between the coping styles of men who are distressed and those who are not distressed, Man et al. (2012) proposed that individuals who are depressed and anxious are less likely to engage in task-based coping strategies as they lack the confidence in themselves to effectively engage in problem solving tasks. A depressed individual may also find that engaging in a problem solving task may be difficult due to reduced concentration abilities, which may also be compounded due to reduced sleep quality. The use of task-based coping behaviours may also depend on how strongly a father endorses stereotypes around masculinity and gender-based behaviour. In a study exploring the association between gender role and coping style, Lipińska-Grobelny (2011) found that masculinity was positively associated with task-oriented coping styles and negatively associated with emotion-based coping styles amongst participants with no reported history of depression or mental health issues. Although the current study did not examine beliefs about gender-roles, the results suggest that high levels of psychological distress not only impact negatively on a father’s ability to cope, but a father’s utilisation of certain coping styles may change depending on his psychological wellbeing. There are possible implications of this finding for the treatment of
psychological disorders in men - interventions that are informed by the coping styles used by men in healthy community samples may not be as effective for men experiencing depression and anxiety.

As expected, fathers with elevated levels of depressive symptoms were also more likely to report lower sleep quality than fathers who scored below the EPDS and GMDS cut-offs. Insomnia and hypersomnia are listed in the criteria for Major Depressive Episode, and maternal postnatal depression is characterised by changes in sleep habits, among other symptoms (deMontigny et al., 2013). The impact that a change in sleep patterns over the postnatal period has on maternal wellbeing has received little research attention (Dørheim et al., 2009; Lee, 1998), even though anecdotal and empirical evidence suggests that a lack of sleep is a problem for many new parents (Thome & Skuladottir, 2005). Dørheim et al. (2009) found that depressed new mothers reported significantly poorer subjective sleep quality, using the PSQI, than mothers without depression, however the results from objective assessments of sleep quality, measured using sleep diaries and electronic activity monitors found no differences in depression symptoms between the groups. Parfitt and Ayers (2014) also found that parents with postnatal mental health problems, including co-morbid depression and anxiety, were more likely to report sleep deprivation, however their analysis did not distinguish between mothers and fathers. Just as the research into paternal mental health and sleep is limited, so is the literature that has examined male depressive syndrome and sleep problems. However, men report that sleep problems are an issue when they are experiencing distress or depression (Brownhill et al., 2005), and both decreased objective and subjective sleep quality have been associated with higher levels of hostility (Grano, Vahtera, Virtanen, Keltikangas-Jarvinen, & Kivimaki, 2008; Tsuchiyama, Terao, Wang, Hoaki, & Goto, 2013).
Contrary to expectations, there was no association between alcohol consumption behaviour and elevated depressive symptoms. Twenty percent of the fathers in the sample reported total scores on the AUDIT of $\geq 8$, which indicated alcohol consumption levels that may be harmful in the long-term. Alcohol abuse has been described as an “escape behaviour” amongst depressed men by Brownhill et al. (2005), and the higher prevalence of alcohol use disorders amongst men compared to women (Slade et al., 2009) is thought to be a reflection of this behaviour (Angst et al., 2002; Lynch & Kilmartin, 1999). Moller, Tait, and Byrne (2013) examination of alcohol consumption in the Australian community estimated that 67% of Australian males drink at below-risky levels using the AUDIT, however they did not report mean AUDIT scores, nor did they differentiate between groups of younger and older men. Previous studies examining alcohol consumption amongst new fathers have reported mixed findings. Condon et al. (2004) conducted a longitudinal study of Australian fathers from mid-pregnancy to 12-months post-birth and found that 14% of fathers were risky drinkers throughout the whole period, and both Boyce et al. (2007) and Pinheiro et al. (2006) reported significant associations between depressive symptoms and alcohol use. In contrast, Ramchandani et al. (2011) found no difference in mean AUDIT score between depressed and non-depressed fathers, and in a study comparing the alcohol consumption of new fathers whose partners were experiencing postnatal depression, with fathers whose partners were healthy, Roberts et al. (2006) found no differences in drinking behaviour. Despite the inconsistent findings between studies that have examined alcohol use amongst fathers, alcohol consumption, and the behaviour associated with alcohol consumption should be monitored amongst new fathers. The importance of doing this was highlighted by Lobato, Moraes, Dias, and Reichenheim (2012), who reported that high levels of alcohol consumption by the male partners of mothers with postnatal depression was associated with increased incidences of intimate partner violence.
There were a number of limitations to this study. The total number of participants in the sample was small, and this impacted negatively on the statistical power of the regression analyses, especially in the analysis of GMDS scores and the number of predictors that could be entered into the regression model. The GMDS itself has also been criticised as its initial reliability and validity studies were conducted with male samples who had already been diagnosed with depression, and there is little evidence that it detects symptoms and behaviours that are present amongst distressed males but are absent in distressed females (Magovcevic & Addis, 2008). The GMDS also contains a number of double- and triple-barrelled questions. For example, Question 9 asks if there were changes in “overconsumption of alcohol and pills in order to achieve a calming and relaxing effect. Being hyperactive or blowing off steam by working hard and restlessly, jogging or other exercises, under- or overeating”. Assessing at least five different maladaptive behaviours in one question is not ideal, not only because it impacts on scale psychometrics, but it also may confuse the individual completing the questionnaire. Other male depressive syndrome questionnaires include the Masculine Depression Scale (Magovcevic & Addis, 2008), however the GMDS has been the most widely used and is the only male depressive syndrome measure previously used in a postnatal sample.

7.5 - Conclusion

This study has shown that paternal mental health issues in the postnatal period encompass a broader range of symptoms and behaviours than just those associated with depression. Elevated levels of psychological distress also result in a change in coping styles amongst some fathers, and even though risky alcohol consumption was not found to be associated with distress, alcohol consumption amongst new fathers should still be monitored. Future research into paternal mental health issues should screen for symptoms of anxiety and
stress alongside depression, and paternal perinatal education programs and psychological interventions should consider addressing anxiety and stress amongst new fathers.
CHAPTER EIGHT

General Discussion

The aim of this thesis was to examine the predictors and correlates of paternal mental health issues in the perinatal period beyond what has already been established in the literature regarding depression. Following the overview presented in Chapter One, Chapter Two reviewed the research that has contributed to our current understanding on paternal perinatal mental health issues. Specifically, it has been established that despite the cultural expectation of early parenthood as a fundamentally positive, albeit demanding, time in young men’s lives, a significant proportion of fathers experience high levels of depressive symptoms during their partner’s pregnancy and in the year following the birth of their child. The most frequently cited estimate for the prevalence of paternal perinatal depression is 10.4%, following a meta-analytic review of 43 studies by Paulson and Bazemore (2010). This finding is significant, and a cause for concern, for a number of reasons. Firstly, the impact that paternal depression has on the behaviour and emotional expression of father can have significant negative effects of the behaviour and development of their children. Fathers who are depressed or experiencing high levels of depressive symptoms are less likely to engage in enriching parenting behaviours and activities, such as reading, singing songs, and telling stories (Davis et al., 2011; Paulson et al., 2006). Infants whose fathers are depressed have been also found to have a more difficult or fussy temperament (Davé et al., 2005), and this may continue throughout a child’s early years. Boys whose fathers are depressed at six months post-birth have been found to display more negative affect and greater intensity of moods and behaviour when they are two years old (Hanington et al., 2010). Secondly, the prevalence of depression amongst fathers during the perinatal period is higher than the depression prevalence estimates for young males in the general population (Jorm et al., 2005; Kessler et al., 2010). Young males also have the highest suicide rates compared to any other population group, male or
female (Hee Ahn et al., 2012), and experiencing a depressive disorder is one of the strongest predictors of suicidal behaviour (Hawton, Comabella, Haw, & Saunders, 2013). A further concern is that the vast majority of people, up to 90%, who experience an acute depressive episode are likely to experience a second episode within the following 15 years (Nierenberg et al., 2003), during which time a father will still be caring for his dependent children. These statistics regarding depression prevalence in young males and fathers is very concerning, and it begs the question: is fatherhood itself associated with, or predictive of, increased depression risk? In Chapter Three, a systematic review was conducted to answer this question. Eight studies that had compared rates or levels of depressive symptoms in fathers with dependent children, to depressive symptoms in childless men were reviewed. Overall, the findings from this review were inconclusive. Results also depended on the relationship status of the father, with single or lone fathers reporting higher rates of depressive symptoms than either childless men or married/partnered fathers.

The systematic review was not able to determine whether fatherhood itself, was associated with, or a predictor of, the increased prevalence of depression in young men and fathers in the postnatal period. However, a number of correlates and predictors have been associated with depression in fathers following the birth of their child. These were discussed in Section 2.4 and include concurrent maternal depression, the strength of the relationship between the parents, and a father’s perceived level of social support. Unfortunately it is still unknown, both for maternal and paternal perinatal depression, what actually causes depression to develop during pregnancy and in the months following birth. A number of theoretical perspectives have been proposed to explain the onset and course of maternal perinatal depression, including the medical model, attachment theory, and sociocultural or feminist theory (Beck, 2002). Chapter Four consisted of a review of the empirical research that has examined these theoretical perspectives, and also considered how they may apply to
the development and course of paternal perinatal depression. There has been comparatively little research conducted into the potential causes of elevated depressive symptoms in fathers following the birth of a child, but what also has been discovered, predominantly through qualitative research, is that ecological factors can also be a factor. Ecological factors that may cause fathers with no personal or family history of mental illness to develop depression were discussed in Chapter Three. They included: the sudden change in lifestyle that follows the birth of a child, especially for first-time fathers; expectations about fatherhood and their role as a father not meeting reality (Goodman, 2005), and the couple’s relationship changing from dyadic to triadic, with the focus shifting heavily towards the infant (Letourneau et al., 2011). It was also indentified that many men experience high levels of anxiety and stress in their role as a new parent. Factors that have been identified amongst expectant fathers that may contribute to high levels of anxiety and stress following birth include: uncertainty about how to care for an infant who won’t sleep or stop crying, major life events and stressors in the previous 12 months (Fletcher, Vimpani, Russell, & Sibbritt, 2008), and financial stress as one parent stops working or the pregnancy is unplanned (Bradley & Slade, 2011; Fletcher, Vimpani, Russell, & Sibbritt, 2008; Seguin et al., 1999), and a feeling of isolation or inadequacy due to the bond between the mother and infant if she is breastfeeding (Kim & Swain, 2007). Empirical studies have also identified that fathers experience high levels of anxiety during the perinatal period, and high levels of anxiety and depressive symptoms may be co-morbid (Buist et al., 2003; Field et al., 2006), or anxiety may be present independently of depression (Matthey et al., 2003; Wynter et al., 2013). Levels of anxiety in expectant fathers have also been found to decrease following birth (Buist et al., 2003; Condon et al., 2004; Matthey et al., 2000). What has not been identified previously in the literature are the predictors and correlates of high levels of anxiety and stress in fathers over the perinatal period. Given that relationship factors, such as dyadic adjustment and satisfaction, and
perceived social support, have been identified as among the strongest correlates of paternal perinatal depression (Wee et al., 2011), Study One of this thesis aimed to extend on this knowledge and examine relationship factors as correlates and predictors of perinatal anxiety and stress. It was found that the proportion of fathers who experience above normal levels of depressive symptoms increased four-fold over the perinatal period, with highest levels at 12 weeks and 6 months post-birth. Levels of anxiety symptoms peaked at 6 weeks post-birth, and stress levels peaked over the transition to parenthood from 36 weeks gestation to 6 weeks post-birth. There was a significant decrease in sexual satisfaction over the perinatal period, and although there was no overall change in levels of perceived social support, the fathers reported a decrease in support from their partner and their family, and an increase in support from their friends. Negative-binomial regression analyses found that both antenatal relationship adjustment and antenatal social support were negative predictors of postnatal depressive and anxiety symptoms, and antenatal sexual satisfaction was predictive of postnatal stress. Following birth, relationship adjustment was a significant negative correlate of depression, anxiety and stress, while decrease perceived social support following birth was associated with increases in postnatal depressive symptoms. The findings from Study One are significant not only because they show that fathers experience elevated levels of anxiety and stress, as well as depression over the perinatal period, but they show that the quality of a father’s close personal relationships is not only associated with changes in depressive symptoms, but is also symptoms of anxiety and stress.

The broader implications of the results of Study One are that perinatal mental health issues encompass more than just symptoms of depression, which has been the main focus of perinatal research. The DSM-5 lists nine symptoms that can be present to fulfil the criteria for a depression diagnosis, although as explained in Section 2.3, symptoms of depression such as rapid weight loss and changes to sleep patterns are a common occurrence during early
parenthood for mothers, and hence would not be a reliable indicator of a depressive disorder, or for depression risk. Just as weight change and sleep pattern changes in are not necessarily indicative of a mood disorder in perinatal women, many researchers and clinicians consider that the current diagnostic symptoms of depression do not tell the whole story in regards to men’s experience of depression (Cochran & Rabinowitz, 2000; Lynch & Kilmartin, 1999; Möller-Leimkühler, 2002; Nolen-Hoeksema, 2012; Rutz et al., 1997). It has been proposed that many men exhibit “masked depression” (Cochran & Rabinowitz, 2000), and this mask consists of an increase in drug and alcohol use, anger and irritability, increases in risk taking behaviour, and avoidance of distressing situations, and other “acting out” behaviours (Brownhill et al., 2005). The term “male depressive syndrome” (Rutz et al., 1997) has been coined to explain these additional acting-out behaviours that are thought to be common amongst depressed men, in addition to the diagnostic symptoms of a major depressive episode. There has been some exploration of male depressive syndrome symptoms, such as alcohol use, in perinatal fathers, however only one study (Madsen & Juhl, 2007) has specifically aimed to investigate this. The aim of Study Two in this thesis was to attempt a replication of Madsen and Juhl’s study, and to investigate other behaviour that is thought to be associated with depression and distress in men. Similar to the findings in Study One, many of fathers in Study Two reported high levels of anxiety and stress, and additionally, Study Two showed that elevated anxiety, stress and male depressive syndrome symptoms frequently existed co-morbidly with elevated depressive symptoms. Furthermore, a small percentage of men reported elevated symptoms of anxiety, stress, and male depressive syndrome symptoms independently of depressive symptoms. Study Two also found that depression in fathers was associated with a decrease in sleep quality, and fathers with elevated depressive symptoms were more likely to use emotion-based, and avoidance-based, coping strategies to cope with stress than fathers who are not experiencing depression, and
less likely to use task-based coping strategies. This may explain why depressed fathers engage in less constructive parenting, such as playing and singing, with their infant children than fathers who are not depressed (Paulson et al., 2006). If the child itself is a source of stress, for example, it is difficult to settle, fathers who are experiencing high levels of depression are more likely to use avoidance as a coping strategy, which in turn means spending less time with the child. Encouragingly, alcohol consumption was not used as a potential coping strategy by fathers who were depressed, and the relationships between AUDIT total score and the distress variables were actually negative, albeit weak and non-significant.

At the beginning of this thesis it was noted that paternal perinatal mental health has received much less focus in the literature compared to maternal mental health. Despite this, the previous research that has been reviewed, along with the two empirical studies conducted here, has all had generally consistent findings. Broadly summarised, this research has indicated that a significant minority of fathers experience elevated symptoms of psychological distress, not just depression, during their partner’s pregnancy and following the birth of their child. It is not clear whether the transition to fatherhood itself is itself a risk factor for developing a depressive disorder, but the evidence suggests that the quality of the relationship and levels of relationship satisfaction between the couple has a strong influence on paternal mental health. It is also evident that the amount of social support that a father receives is a factor that influences levels of distress, which is supported by the quantitative research in this thesis and previous qualitative studies (Kim & Swain, 2007). It is not understood why mothers and fathers experience higher rates of depression following the birth of a child than at any other time in their lives (Eberhard-Gran et al., 2002), indeed, it is not even understood what causes depression at any life stage (beyondblue, 2015b). What is clear, however, is that depressive disorders during the perinatal period have biological,
psychological, and social origins, as discussed in Chapter Four. Likewise, screening, prevention and treatment protocols for depression and mental health problems in new fathers should also consider biological, psychological, and social factors. Regrettably, even though there has been around 25 years of study into paternal perinatal mental health, there has been almost no published literature that relates to treatment of paternal mental health issues. Wee et al. (2013) conducted a systematic review of intervention studies for paternal perinatal depression, and found only four published intervention studies. Of these four studies, only one was effective in reducing the fathers’ symptoms of distress (Thome & Skuladottir, 2005). However, the aim of Thome and Skuladottir’s intervention was not specifically to reduce fathers’ distress, or increase their wellbeing, but to improve the wellbeing of parents whose infants were hospitalised with sleep problems. Clearly, more work needs to be done in developing programs to help fathers who are currently experiencing distress. Future research should also focus on the development of healthcare practices to ensure that reliable mental health screening processes exist for fathers. Although the EPDS has been validated for use amongst fathers (Matthey et al., 2001; Edmonson et al., 2010), there exist no screening tools that designed specifically for fathers, nor is paternal perinatal mental health routinely assessed. Just as maternal mental health is assessed regularly and consistently throughout the perinatal period in Australia (beyondblue, 2011), so should paternal mental health also be routinely assessed, and also continuing well into the second half of the postnatal period.

Also missing from the literature is qualitative research that specifically explores the experiences of fathers with depression during the perinatal period. Some qualitative studies have been conducted that explore fathers’ experiences of early parenthood, which often include discussion about anxiety, uncertainty and stress (Anderson, 1996; Barclay & Lupton, 1999; Fletcher, Vimpani, Russell, & Keatinge, 2008; Letourneau et al., 2011). Davey et al. (2006) published a qualitative study that followed a support group for fathers whose partners
had been diagnosed with postnatal depression, and again, they reported relationship
difficulties, a lack of social and professional support, and high levels of distress. Although
these men experienced moderate levels of depressive symptoms themselves, the focus was
not on the fathers’ own experience of depression, but rather their experience in living with a
partner with postnatal depression. A recent report by the Australian Institute of Family
Studies (Price-Robertson, 2015) described qualitative research that has focussed on fathers’
experiences in living with a mental illness as “practically non-existent” (p. 18), and this quote
referred to studies of all fathers with dependent children, not just fathers of infants. It is
important to conduct qualitative research in order to help break down stigma associated with
mental health amongst young men. As discussed in Chapter Six, many men view depression
as a sign of weakness that clashes with both personal and cultural views around masculinity
(beyondblue, 2012), but the results of quantitative research, often summarised using phrases
such as “depression symptoms in fathers were associated with a decrease in relationship
satisfaction” is inherently meaningless to a father who is looking for reassurance that he is
not “going crazy” and feels that his relationship has deteriorated in the months following
birth. The findings from qualitative research, including stories from fathers who experienced
depression or other mental health issues in the perinatal period, can be included in education
and marketing campaigns that give young men the knowledge and resources to seek help.
Reading and seeing that they are not alone in their difficulties may also help remove the
stigma amongst men associated with mental health issues and seeking help. Removing stigma
associated with mental illness may also help increase recruitment into men’s mental health
studies. In Study One it was noted that around 20% of the sample initially recruited during
pregnancy did not participate after their child was born, and only 61% of the sample
completed measures at all time points. In both studies, despite the wide variety of promotion
methods use to attract participants, the overall sample sizes were relatively small. Other
paternal perinatal research has reported similar issues. Letourneau et al. (2012) reported that 30% of the fathers who were referred to participate in their study refused to do so, citing a lack of interest, time pressures, or reluctance to reveal personal information. Communicating the results from qualitative research to the general public, and to new fathers in particular, may help improve recruitment, result in more representative participant samples, and improve outcomes for all fathers and families with infant children.

The research that has been conducted over the past few decades examining perinatal mental health has revealed that for many fathers, early parenthood can be a very difficult time. Beyond the difficulties that every new parent is aware of, such as fatigue and sleep issues, the dramatic lifestyle change, and learning how to care for an entirely dependent child, many fathers will experience emotional challenges as well. Major Depressive Episode with peripartum onset may not be formally recognised as a mental health disorder in men, but many fathers experience high levels of depression symptoms during their partner’s pregnancy and in the year following birth, as well as high levels of anxiety and stress. The next-step forward for researchers and clinicians is to develop interventions that inform parents that perinatal mental health issues are not only confined to mothers, to de-stigmatise mental health issues amongst new fathers, and to provide support programs that are inclusive of fathers to help them manage during this time.
References


multiple roles on mental health? A comparative study of Finland, Japan, and the UK. 


Conflict and Later Depression as Mediators. *Couple and Family Psychology: Research and Practice*. doi: 10.1037/cfp0000037


Memorandum

To: Dr Helen Skouteris
   School of Psychology
B

cc: Mr Kim Yiong Wee
    Mr Adrian Schulz

From: Deakin University Human Research Ethics Committee (DUHREC)

Date: 20 August, 2013

Subject: 2009-159
   Health and Wellbeing During Pregnancy and After Birth
   Please quote this project number in all future communications

The modification to this project, submitted on 13/08/2013 has been approved by the committee executive on 20/08/2013.

Approval has been given for Mr Kim Yiong Wee and Mr Adrian Schulz, under the supervision of Dr Helen Skouteris, School of Psychology, to continue this project as modified to 31/12/2014.

The approval given by the Deakin University Human Research Ethics Committee is given only for the project and for the period as stated in the approval. It is your responsibility to contact the Human Research Ethics Unit immediately should any of the following occur:

- Serious or unexpected adverse effects on the participants
- Any proposed changes in the protocol, including extensions of time.
- Any events which might affect the continuing ethical acceptability of the project.
- The project is discontinued before the expected date of completion.
• Modifications are requested by other HRECs.

In addition you will be required to report on the progress of your project at least once every year and at the conclusion of the project. Failure to report as required will result in suspension of your approval to proceed with the project.

DUHREC may need to audit this project as part of the requirements for monitoring set out in the National Statement on Ethical Conduct in Human Research (2007).

Human Research Ethics Unit research-ethics@deakin.edu.au
Telephone: 03 9251 7123
A World’s First Study of Men’s Mental Health and Wellbeing during Pregnancy and after Birth

Is your partner between 12 and 17 weeks pregnant?

Men and their pregnant partners who are between 12 and 17 weeks pregnant are invited to take part in a study that examines the well-being of men and their partners through pregnancy and the first 12 months post birth.

Participation will entail completing a set of questionnaires at 18, 25, 33 weeks pregnant and 6 weeks, 12 weeks, 6 months and 12 months post birth. Questionnaires can be completed online (or in hardcopy) and only takes 20 minutes to complete!

If you are interested in participating, please contact Adele Henwood

Phone: 03 9244 6538 or email a.henwood@deakin.edu.au
AppENDIX THREE: Study One Plain Language Statement and consent form

DEAKIN UNIVERSITY
PLAIN LANGUAGE STATEMENT AND CONSENT FORM
TO: Prospective participants

PLAIN LANGUAGE STATEMENT

Date: 11 August, 2011

Full Project Title: Health and Wellbeing during Pregnancy and After Birth

Research Investigators/Supervisors: Dr Helen Skouteris, Dr Ciaran Pier and Dr Ben Richardson (School of Psychology, Deakin University, Burwood).

Research Assistant: Angela Avgerinos

1. Your Consent

You are invited to take part in this research project being conducted by Deakin University.

This Plain Language Statement contains detailed information about the research project. Its purpose is to explain to you as openly and clearly as possible all the procedures involved in this project so that you can make a fully informed decision about whether you are going to participate.

Once you understand what the project is about and if you agree to take part in it, you will be asked to sign the Consent Form. By signing the Consent Form, you indicate that you understand the information and that you give your consent to participate in the research project. Please do this prior to completing the questionnaires.

You will be given a copy of the Plain Language Statement and Consent Form to keep as a record.

2. Purpose and Background

Research indicates that up to 15% of women will suffer an episode of postnatal depression in the six months following childbirth and there appears to be a link between antenatal anxiety and postnatal depression in expectant women. Additional recent research has indicated that men are affected by antenatal and postnatal anxiety and depression as well. It was also found that the rate of diagnosed anxiety or depressive disorders in new fathers at six weeks postpartum was around 2% - 5%. Research has also found that the antenatal rather than the postnatal period was more stressful for fathers.
Whilst, current research reports that postnatal depression in fathers has serious long term negative implications for the development of their child, the risk factors for postnatal depression in men remain largely unknown. Given that the antenatal period is particularly stressful for fathers, and that antenatal anxiety predicts postnatal depression in women it is important to examine potential risk factors for males across the antenatal and postnatal period.

The aim of this research, therefore, is to identify factors that might predict men’s antenatal and postnatal depression. Anxiety, stress and depression will be examined in men during the entire pregnancy and the first year postpartum. Data will be collected from 250 men and 250 women concurrently and prospectively at regular intervals through pregnancy and postpartum (18, 25, 33 weeks gestation and 6 weeks, 12 weeks, 6 months and 12 months postpartum) so as to examine if risk factors in women is related or will affect men.

3. Funding

This project is being funded through a student PhD budget provided by the School of Psychology, Deakin University.

4. Procedure

If you agree to participate, you will be required to complete a short series of questionnaires at 18, 25, 33 weeks gestation and 6 weeks, 12 weeks, 6 months and 12 months postpartum. While this may sound like a lot, most of the questionnaires will take approximately 15-20 minutes to complete and will include questions about parental and infant health and wellbeing as well as demographic information such as age and family income.

Examples of questions that will be asked are "I found it difficult to relax" and "In the past 7 days I have been able to laugh and see the funny side of things". Participants will receive all the questionnaires in the mail and will be asked to return these to the University using the reply paid envelopes which will be provided.

5. Possible Benefits

By participating in the current project, you will be making an invaluable impact in the perinatal and postnatal health area by contributing to a very important area of research. Your participation will help researchers and clinicians to better understand the factors that contribute to the development of paternal depression during their partner's pregnancy and the postpartum and its consequences, with implications for multiple health professionals and the wider community. Your results will potentially help to identify factors of pre- and postnatal depression in men which is currently an area in which research is lacking. Also new
intervention programs targeting pre- and postnatal depression in men may be a result of this research.

6. Possible Risks

There are no anticipated risks outside the normal day-to-day activities. However, given that the questionnaires will include questions regarding issues such as anxiety, depression and stress, there is a slight possibility that you may experience some concern about your responses. Thus, you are invited to examine the questionnaire material before agreeing to participate. If you do participate and find that you are uncomfortable or overly worried about your responses to any of the questionnaire items, or if you find participation in the project distressing, you should contact Helen Skouteris on 03 9251-7699 as soon as convenient. You will have the opportunity to discuss your concerns in a confidential manner and appropriate follow-up will be suggested if necessary.

If considerable distress is revealed in the data obtained by the Researchers during the course of the study, you will be contacted by the Student Researcher and referred to someone who can be of assistance. Please be aware that there will be a delay between receiving your responses and the analysis of the information you provide. In turn, if you find yourself feeling sad or distressed at any point, you are encouraged to contact your GP and/or obstetrician.

7. Privacy, Confidentiality and Disclosure of Information

You can be assured that you will not be identified by name in any way in the reporting of our results in publications and conference presentation. Any information we collect from you that can identify you will remain confidential and will be stored in a locked cabinet within the School of Psychology at Deakin University for a minimum of 6 years from the date of publication.

8. Results of Project

A summary of the findings will be provided to the school and available for any interested participants to read at the completion of the study. Please email helen.skouteris@deakin.edu.au if you would like to receive a copy of this report.

9. Participation is voluntary

Participation in any research project is voluntary. If you do not wish to take part you are not obliged to. If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. Any information obtained from you to date will not be used and will be destroyed. Your decision whether to take part or not to take part, or to
take part and then withdraw, will not affect your relationship with Deakin University in any way.

Before you make your decision, a member of the research team will be available to answer any questions you have about the research project. You can ask for any information you want. Sign the Consent Form only after you have had a chance to ask your questions and have received satisfactory answers.

If you decide to withdraw from this project, please notify a member of the research team so they can inform you if there are any special requirements linked to withdrawing.

10. Ethical Guidelines

The study will be carried out in accordance with the National Statement on Ethical Conduct in Human Research (2007). This statement has been developed to protect the interests of people who agree to participate in human research studies.

The ethical aspects of this research project have been approved by the Human Research Ethics Committee of Deakin University. The research will be carried out in the School of Psychology Deakin University, 221 Burwood Highway, Burwood Victoria.

11. Complaints

Should you have any concerns about the conduct of this research project, please contact the Manager, Research Integrity, Research Services Division, Deakin University, 221 Burwood Highway, Burwood Victoria, 3125. Telephone: 9251-7129, Facsimile: 9244-6581; research-ethics@deakin.edu.au Please quote project number 2009-159.

12. Reimbursement for your costs

You will not be paid for your participation in this project.

13. Further Information:

Contact Helen Skouteris in the School of Psychology, Deakin University, 221 Burwood Highway, Burwood, Victoria, 3125, on 03 9251-7699 or email: helen.skouteris@deakin.edu.au
### Consent Form

**Researher’s Copy**

**Date:** 11 August, 2011

**Full Project Title:** Health and Wellbeing during Pregnancy and After Birth

**Researchers:** Mr Kim Yong Wee, Dr Helen Skouteris, Dr Ciaran Pier and Dr Ben Richardson (School of Psychology, Deakin University, Burwood).

**Research Assistant:** Miss Adele Henwood

I have read and I understand the attached Plain Language Statement.

I freely consent to participate in this project according to the conditions in the Plain Language Statement.

I have been given a copy of the Plain Language Statement and Consent Form to keep.

The researchers have agreed not to reveal my identity and personal details, including where information about this project is published, or presented in any public form.

**Participant’s Name (Printed)**

.................................................................

**Participant’s Signature**

.................................................................**Date**..............................

**Participant’s Contact Details**

**Address:** .................................................................

.................................................................

**Home Phone:** .................................................................

**Mobile:** .................................................................

**Email Address:** .................................................................
The researchers will be applying for further funding to continue their research longer term. If you agree to be contacted for research studies of this type in the future please sign below.

I consent to the researchers named here contacting me for future research studies that I am not obliged to take part in.

Participant's name: ……………………………………….   Signature: ………………………………….

Please return the signed form to: Helen Skouteris, School of Psychology, Deakin University, 221 Burwood Highway, Burwood, Victoria 3125.
TO: Participants

Consent Form
Participant’s Copy

Date: 11 August, 2011

Full Project Title: Health and Wellbeing during Pregnancy and After Birth

Researchers: Mr Kim Yong Wee, Dr Helen Skouteris, Dr Ciaran Pier and Dr Ben Richardson (School of Psychology, Deakin University, Burwood).

Research Assistant: Miss Adele Henwood

I have read and I understand the attached Plain Language Statement.

I freely consent to participate in this project according to the conditions in the Plain Language Statement.

I have been given a copy of the Plain Language Statement and Consent Form to keep.

The researchers have agreed not to reveal my identity and personal details, including where information about this project is published, or presented in any public form.

Participant’s Name (Printed)
........................................................................................................................................

Participant’s Signature....................................................................................................Date...........................................

Participant’s Contact Details
Address: ...........................................................................................................................
........................................................................................................................................

Home Phone: ...................................................................................................................

Mobile: ..........................................................................................................................

Email Address: .................................................................................................................
The researchers will be applying for further funding to continue their research longer term. If you agree to be contacted for research studies of this type in the future please sign below.

I consent to the researchers named here contacting me for future research studies that I am not obliged to take part in.

Participant's name: ........................................

Signature: ........................................

*Please keep this signed form for your records.*
APPENDIX FOUR: Study One demographic information questionnaire

ID No: ............

Father’s Information
To Be Completed By Father

The following questions ask for information about you and your spouse.
All responses are strictly confidential.

Please add the date you are filling in this questionnaire below and then answer the following questions with your current pregnancy in mind. Please circle the appropriate responses.

Today’s date: ....../ ....../ ......

1. Your date of birth (dd/mm/yyyy) .................................................................

2. Home Phone Number ..............................................................................

3. Mobile Phone Number ............................................................................

4. Your child’s expected date of birth (dd/mm/yyyy) ......................................

5. What is your weight and height? If you do not have scales at home, your local pharmacy or GP will have scales that you can use to weigh yourself

   Weight: .............................................. kg

   Height: ................................................ cm

6. Your occupation is: ...................................................................................

8. Number of children you have (1) (2) (3) (4) (5) (6) (7+)

9. This pregnancy is child number: ....................... (1 = first born; 2 = second born etc).
10. Current marital status
   (1) Married
   (2) Divorced
   (3) De Facto
   (4) Separated
   (5) Widowed
   (6) Never Married

11. Are you an Aboriginal or Torres Strait Islander?
   (1) Yes  (2) No

12. Location of your birth:
   (1) Australia
   (2) New Zealand
   (3) North-West Europe
   (4) North America
   (5) Southern & Eastern Europe
   (6) South America
   (7) North Africa & Middle East
   (8) Southern & Central Asia
   (10) Central, Western & Southern Africa

13. Where were your parents born? (Name of country please):
   Father: ...........................................  Mother: ............................................

14. Main language spoken at home:
   (1) English
   (2) Other (please specify): .................................................................

15. Please indicate the highest level of education you have completed.
   (1) Still at secondary school
   (2) Did not finish secondary school
   (3) Year 12 or equivalent
   (4) Certificate level
   (5) Advanced Diploma/Diploma
   (6) Graduate Diploma/Graduate Certificate
   (7) Bachelor Degree Certificate
   (8) Postgraduate Degree
16. Are you currently in paid employment?  
   (1) YES  
   (2) NO  
   (If No, please go to the Question 20)  
   If Yes, do you work full time/part time? .................................................................  
   What is your role at work? ........................................................................................  

17. Please indicate your approximate annual family income:  
   (1) Under 25,000  
   (2) 25,001- 45,000  
   (3) 45,001- 65,000  
   (4) 65,001- 85,000  
   (5) 85,001- 105,000  
   (6) 105,001- 125,000  
   (7) 125,001- 145,000  
   (8) Over 145,001  

18. Please provide the postal code that you are currently residing in. .........................  

19. Are you currently receiving any of the following? (please circle all that apply)  
   (1) Counselling or psychological therapy  
   If yes, how frequently?  
   (a) Once (i.e., single visit)  
   (b) Occasionally (i.e., once a month, or every few months)  
   (c) Regularly (weekly or fortnightly). If so, for how long? .................................  
   (2) Antidepressants
(3) Other medication (please specify): ............................................

(4) Herbal or natural remedies

(5) Other (please specify): .............................................................

(6) None of the above
APPENDIX FIVE: Study One Questionnaires

**DASS-42**

*Please tick **ONE** set of brackets for each statement below which indicates how much the statement applied to you **over the past week**. There are no right or wrong answers. Do not spend too much time on any statement.*

<table>
<thead>
<tr>
<th>Statement</th>
<th>Did not apply to me</th>
<th>Some degree/ Some of the time</th>
<th>Considerable degree/ Good part of the time</th>
<th>Very much/ most of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I found myself getting upset by quite trivial things</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>2. I was aware of dryness of my mouth</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>3. I couldn’t seem to experience any positive feeling at all</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>4. I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>5. I couldn’t seem to get going</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>6. I tended to over-react to situations</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>7. I had a feeling of shakiness (e.g. legs going to give way)</td>
<td>( )</td>
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</tr>
<tr>
<td>8. I found it difficult to relax</td>
<td>( )</td>
<td>( )</td>
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<tr>
<td>9. I found myself in situations that made me so anxious I was most relieved when they ended</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>10. I felt that I had nothing to look forward to</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>11. I found myself getting upset rather easily</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>12. I felt that I was using a lot of nervous energy</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>13. I felt sad and depressed</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
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<tr>
<td>14. I found myself getting impatient when I was delayed in any way (e.g. lists, traffic lights, being kept waiting)</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>15. I had a feeling of faintness</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>16. I felt that I had lost interest in just about everything</td>
<td>( )</td>
<td>( )</td>
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</tr>
<tr>
<td>17. I felt I wasn’t worth much as a person</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>18. I felt that I was rather touchy</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td></td>
<td>Did not apply to me</td>
<td>Some degree/ Some of the time</td>
<td>Considerable degree/ Good part of the time</td>
<td>Very much/ most of the time</td>
</tr>
<tr>
<td>---</td>
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<td>-------------------------------</td>
<td>-------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>19.</td>
<td>I perspired noticeably (e.g. hands sweaty) in the absence of high temperatures or physical exertion</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>20.</td>
<td>I felt scared without any good reason</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>21.</td>
<td>I felt that I wasn’t worthwhile</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>22.</td>
<td>I found it hard to wind down</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>23.</td>
<td>I had difficulty in swallowing</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>24.</td>
<td>I couldn’t seem to get any enjoyment out of the things I did</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>25.</td>
<td>I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>26.</td>
<td>I felt down-hearted and blue</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>27.</td>
<td>I found that I was very irritable</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>28.</td>
<td>I felt I was close to panic</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>29.</td>
<td>I found it hard to calm down after something upset me</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>30.</td>
<td>I feared that I would be ‘thrown’ by some trivial but unfamiliar task</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>31.</td>
<td>I was unable to become enthusiastic about anything</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>32.</td>
<td>I found it difficult to tolerate interruptions to what I was doing</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>33.</td>
<td>I was in a state of nervous tension</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>34.</td>
<td>I felt I was pretty worthless</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>35.</td>
<td>I was tolerant of anything that kept me from getting on with what I was doing</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>36.</td>
<td>I felt terrified</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>37.</td>
<td>I could see nothing in the future to be hopeful about</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>38.</td>
<td>I felt that life was meaningless</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>39.</td>
<td>I found myself getting agitated</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>40.</td>
<td>I was worried about situations in which I might panic and make a fool of myself</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Question</td>
<td>Did not apply to me</td>
<td>Some degree/ Some of the time</td>
<td>Considerable degree/ Good part of the time</td>
<td>Very much/ most of the time</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>41. I experienced trembling (e.g. in the hands)</td>
<td>( )</td>
<td>( )</td>
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<td>( )</td>
</tr>
<tr>
<td>42. I found it difficult to work up the initiative to do things</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
</tbody>
</table>
Dyadic Adjustment Scale

Most people have disagreements in their relationships. Please indicate below the approximate extent of agreement or disagreement between you and your partner for each item on the following list. Please tick ONE set of brackets for each statement.

<table>
<thead>
<tr>
<th></th>
<th>Always Agree</th>
<th>Almost Always Agree</th>
<th>Occasionally Agree</th>
<th>Frequently Disagree</th>
<th>Almost Always Disagree</th>
<th>Always Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Handling family finances</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>2. Matters of recreation</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>3. Religious matters</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
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<td>4. Demonstrations of affection</td>
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<td>5. Friends</td>
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<td>6. Sex relations</td>
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<td>7. Conventionality (correct or proper behaviour)</td>
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<td>8. Philosophy of life</td>
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<tr>
<td>9. Ways of dealing with parents or in-laws</td>
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<td>10. Aims, goals, and things believed important</td>
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<td>11. Making major decisions</td>
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<tr>
<td>12. Amount of time spent together</td>
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<td>( )</td>
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<td>13. Household tasks</td>
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<td>14. Leisure time interests and activities</td>
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<td>15. Career decisions</td>
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<td>16. How often do you discuss, or have you considered divorce, separation or terminating your relationship?</td>
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</table>
17. How often do you or your mate leave the house after a fight? ( ) ( ) ( ) ( ) ( ) ( )
18. In general, how often do you think that things between you and your partner are going well? ( ) ( ) ( ) ( ) ( ) ( )
19. Do you confide in your mate? ( ) ( ) ( ) ( ) ( ) ( )
20. Do you ever regret that you married (or lived together)? ( ) ( ) ( ) ( ) ( ) ( )
21. How often do you and your partner quarrel? ( ) ( ) ( ) ( ) ( ) ( )
22. How often do you and your mate ‘get on each other’s nerves’? ( ) ( ) ( ) ( ) ( ) ( )

Every day | Almost every day | Occasionally | Rarely | Never
---|---|---|---|---
23. Do you kiss your mate ( ) ( ) ( ) ( ) ( )

All of them | Most of them | Some of them | Very few of them | None of them
---|---|---|---|---
24. Do you and your mate engage in outside interests? ( ) ( ) ( ) ( ) ( )

How often would you say the following events occur between you and your mate?

Never | Less than once a month | Once or twice a month | Once or twice a week | Once a day | More often
---|---|---|---|---|---
25. Have a stimulating exchange of ideas ( ) ( ) ( ) ( ) ( )
26. Laugh together ( ) ( ) ( ) ( ) ( )
27. Calmly discuss something ( ) ( ) ( ) ( ) ( )
28. Work together on a project ( ) ( ) ( ) ( ) ( )

There are some things about which couples sometimes agree and sometimes disagree. Indicate if either item below caused differences of opinions or were problems in your relationship during the past few weeks. Please tick ONE set of brackets for each statement.
29. Being too tired for sex
   Yes  (  )  No  (  )

30. Not showing love
   Yes  (  )  No  (  )

31. The dots on the following line represent different degrees of happiness in your relationship. The middle point, “happy,” represents the degree of happiness of most relationships. Please circle the dot which best describes the degree of happiness, all things considered, of your relationship.

<table>
<thead>
<tr>
<th>Extremely Unhappy</th>
<th>Fairly Unhappy</th>
<th>A Little Unhappy</th>
<th>Happy</th>
<th>Very Happy</th>
<th>Extremely Happy</th>
<th>Perfect</th>
</tr>
</thead>
</table>

32. Which of the following statements best describes how you feel about the future of your relationship? Place a tick next to the one statement that best describes how you feel about the future of your relationship.

   (  ) I want desperately for my relationship to succeed, and would go to almost any length to see that it does

   (  ) I want very much for my relationship to succeed, and will do all I can to see that it does

   (  ) I want very much for my relationship to succeed, and will do my fair share to see that it does

   (  ) It would be nice if my relationship succeeded, but I can’t do much more than I am doing now to help it succeed

   (  ) It would be nice if it succeeded, but I refuse to do any more than I am doing now to keep the relationship going

   (  ) My relationship can never succeed, and there is no more that I can do to keep the relationship going

33. When disagreements arise, they usually result in (Please tick ONE set of brackets for each statement):

   Husband giving in  Wife giving in  Agreement by mutual give & take

   (  )  (  )  (  )
34a. In leisure time, do you generally prefer (Please tick ONE set of brackets for each statement):

To be ‘on the go’

(    )

To stay at home

(    )

34b. Does your partner generally prefer (Please tick ONE set of brackets for each statement):

To be ‘on the go’

(    )

To stay at home

(    )

35. Do you ever wish you had not married? (Please tick ONE set of brackets for each statement):

Frequently

(    )

Occasionally

(    )

Rarely

(    )

Never

(    )

36. If you had your life to live over, do you think you would (Please tick ONE set of brackets for each statement):

Marry the same person

(    )

Marry different person

(    )

Not marry at all

(    )
WHOQOL-100 Sexual Satisfaction Questionnaire

The following questions ask about how much you have experienced certain things in the last two weeks. If you have experienced these things an extreme amount, tick in the bracket below "Extremely". If you have not experienced these things at all, tick in the bracket below "Not at all". Questions refer to the last two weeks.

1. How well are your sexual needs fulfilled?

   Not at all  Slightly  Moderately  Very Much  Extremely
   (    )     (    )     (    )     (    )     (    )

2. Are you bothered by any difficulties in your sex life?

   Not at all  Slightly  Moderately  Very Much  Extremely
   (    )     (    )     (    )     (    )     (    )

The following question asks you to say how satisfied, happy or good you have felt about your sex life over the last two weeks. Please tick ONE set of brackets for each statement that best fits how satisfied or dissatisfied you have felt in the last two weeks.

3. How satisfied are you with your sex life?

   Very Dissatisfied  Dissatisfied  Neither Satisfied nor Dissatisfied  Satisfied  Very Satisfied
   (    )     (    )     (    )     (    )     (    )

4. How would you rate your sex life?

   Very Poor  Poor  Neither Poor nor Good  Good  Very Good
   (    )     (    )     (    )     (    )     (    )
Multidimensional Scale of Social Support

We are interested in how you feel about the following statements. Read each statement carefully. 
*Please tick ONE set of brackets for each statement* that best indicates how you feel.

<table>
<thead>
<tr>
<th></th>
<th>Very Strongly Disagree</th>
<th>Strongly Disagree</th>
<th>Mildly Disagree</th>
<th>Neutral</th>
<th>Mildly Agree</th>
<th>Strongly Agree</th>
<th>Very Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>11.</td>
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<td>12.</td>
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</table>

1. There is a special person who is around when I am in need.
2. There is a special person with whom I can share my joys and sorrows.
3. My family really tries to help me.
4. I get the emotional help and support I need from my family.
5. I have a special person who is a real source of comfort to me.
6. My friends really try to help me.
7. I can count on my friends when things go wrong.
8. I can talk about my problems with my family.
9. I have friends with whom I can share my joys and sorrows.
10. There is a special person in my life who cares about my feelings.
11. My family is willing to help me make decisions.
12. I can talk about my problems with my friends.
Researchers at Deakin University are seeking men whose partners have had a baby in the past year to participate in a study on the health and wellbeing of new fathers. If you, your partner, or someone you know is the father of a baby less than one year old, we are interested in hearing about the experience of being the father of an infant.

Becoming a father for the first time, or the fourth time, can be an occasion filled with joy, excitement and fulfilment. The first year after the birth of your baby may also involve difficulty sleeping, increased stress, and changes in the relationship between you and your partner.

Participation in the study involves completing an anonymous and confidential online questionnaire that takes about 20 minutes. To participate, go to http://goo.gl/D3T4eQ or www.deakin.edu.au/psychology/research/adrian_schulz

Enquires about this research contact Adrian Schulz at sadri@deakin.edu.au

For further information about fatherhood and men’s health, visit our facebook page.

facebook.com/fatherhoodandwellbeing
DEAKIN UNIVERSITY

PLAIN LANGUAGE STATEMENT AND CONSENT FORM

TO: Prospective participants

PLAIN LANGUAGE STATEMENT

Date: 12 April, 2013

Full Project Title: Health and Wellbeing of New Fathers

Student Researcher/PhD Candidate: Mr Adrian Schulz (School of Psychology, Deakin University, Burwood)

Research Investigators/Supervisors: Dr Helen Skouteris and Dr Ben Richardson (School of Psychology, Deakin University, Burwood).

1. Your Consent

You are invited to take part in this research project being conducted by Deakin University.

This Plain Language Statement contains detailed information about the research project. Its purpose is to explain to you as openly and clearly as possible all the procedures involved in this project so that you can make a fully informed decision about whether you are going to participate.

Once you understand what the project is about and if you agree to take part in it, you will be asked to complete this Consent Form. By completing the Consent Form, you indicate that you understand the information and that you give your consent to participate in the research project. Please do this prior to completing the questionnaires.

2. Purpose and Background

The purpose of this project is to investigate the general experiences of men during the first 12 months following the birth of their child. This includes issues associated with general mood as well as experiences related to relationship quality and parental stress. The project aims to provide some insight into questions regarding the level and type of distress experienced by men during the first postpartum year, and whether any ‘critical periods’ can be identified where early intervention may be most effective. The identification of risk factors and consequences to paternal distress during the postpartum will also be explored.

In order to obtain accurate and meaningful results, we aim to recruit 250 men into the project whose partners have given birth to a child within the previous 12 months.
3. Funding

This project is being funded through a student PhD budget provided by the School of Psychology, Deakin University.

4. Procedure

Participation in this project will involve new fathers to complete a short online questionnaire. The online questionnaire will take approximately 30 minutes in total to complete and will include questions about parental and infant health and wellbeing as well as demographic information such as age and family income.

Examples of questionnaire items include: “In the past 7 days: “I found it difficult to relax”; “I have been able to laugh and see the funny side of things”; and “Please indicate the approximate extent of agreement or disagreement between you and your partner for: Amount of time spent together”. You will be asked to rate your responses to these and similar questions.

5. Possible Benefits

By participating in this project, you will be making an invaluable contribution to a very important area of research concerning paternal health and wellbeing during the first year post birth. The results obtained at the conclusion of the study will potentially have implications for numerous health professions, expectant parents as well as the general community.

Attaining a thorough and comprehensive understanding into men’s and women’s experiences in the first postpartum year can potentially indicate when early intervention would be most helpful so as to alleviate, or at least lessen, the distress experienced by a significant number of men and women during these times both in Australia and overseas. This research is particularly significant given that, to date, research focused on men’s experiences during the first year post birth has been limited, making this a unique and very important study.

6. Possible Risks

There are no anticipated risks outside the normal day-to-day activities. However, given that the questionnaires will include questions regarding issues such as anxiety, depression and stress, it is possible that you may experience some concern about your responses. Thus, you are invited to examine the questionnaire material before agreeing to participate. If you do participate and find that you are uncomfortable or overly worried about your responses to any of the questionnaire items, or if you find participation in the project distressing, you are encouraged to contact one of the support services listed below. You are also free to withdraw from the study should you wish to do so.
If you do participate and find that you are uncomfortable or overly worried about your responses to any of the questionnaire items, or if you find participation in the project distressing, you should contact Associate Professor Helen Skouteris on 03 9251 7699 as soon as convenient. You will have the opportunity to discuss your concerns in a confidential manner and appropriate follow-up will be suggested if necessary.

If considerable distress is revealed in the data obtained by the researchers during the course of the study, you will be contacted by the Student Researcher and referred to someone who can be of assistance. Please be aware that there will be a delay between receiving your responses and the analysis of the information you provide. In turn, if you find yourself feeling sad or distressed at any point, you are encouraged to contact your GP and/or obstetrician.

Additionally, the following free counselling helpline services may be useful:

**Lifeline**: Tel: 13 11 14; [http://www.lifeline.org.au/](http://www.lifeline.org.au/)


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**7. Privacy, Confidentiality and Disclosure of Information**

You can be assured that you will not be identified by name in any way in the reporting of our results in publications and conference presentation. Any information we collect from you that can identify you will remain confidential and will be stored on a secure server within the School of Psychology at Deakin University for a minimum of 6 years from the date of publication.

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**8. Results of Project**

A summary of the findings will be provided to the School and available for any interested participants to read at the completion of the study. Please email sadri@deakin.edu.au if you would like to receive a copy of this report.

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**9. Participation is voluntary**

Participation in any research project is voluntary. *If you do not wish to take part you are not obliged to.* If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. Any information obtained from you to date will not be used and will be destroyed. Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with Deakin University in any way.
Before you make your decision, a member of the research team will be available to answer any questions you have about the research project. You can ask for any information you want. Sign the Consent Form only after you have had a chance to ask your questions and have received satisfactory answers.

If you decide to withdraw from this project, please notify a member of the research team so they can inform you if there are any special requirements linked to withdrawing.

10. Ethical Guidelines

The study will be carried out in accordance with the National Statement on Ethical Conduct in Human Research (2007). This statement has been developed to protect the interests of people who agree to participate in human research studies.

The ethical aspects of this research project have been approved by the Human Research Ethics Committee of Deakin University. The research will be carried out in the School of Psychology Deakin University, 221 Burwood Highway, Burwood Victoria.

11. Complaints

Should you have any concerns about the conduct of this research project, please contact the Manager, Research Integrity, Research Services Division, Deakin University, 221 Burwood Highway, Burwood Victoria, 3125. Telephone: 9251-7129, Facsimile: 9244-6581; research-ethics@deakin.edu.au Please quote project number DU-HREC 2009-159

12. Reimbursement for your costs

You will not be paid for your participation in this project.

13. Further Information:

Contact Dr Helen Skouteris in the School of Psychology, Deakin University, 221 Burwood Highway, Burwood, Victoria, 3125, on 03 9251-7699 or email: helen.skouteris@deakin.edu.au
APPENDIX EIGHT: Study Two demographic questionnaire

The following questions ask about your lifestyles, yourself and your spouse. Some questions relate to how you feel about yourself, while other questions relate to various behaviours and beliefs.

All responses are strictly confidential.

Please add the date you are filling in this questionnaire below and then answer the following questions with the pregnancy in mind that you and your partner just experienced. Please circle the appropriate responses.

Today's date: ……/……/……

1. Your date of birth (dd/mm/yyyy)

2. Your baby's date of birth (dd/mm/yy) …………………

   Did your partner give birth to one baby YES   NO (please circle)

3. What is your weight and height? If you do not know exactly, please give an approximate measure.

   Weight: .................................................. kg

   Height: .................................................. cm

4. Your occupation is:

   ..........................................................................................................

5. Number of children you have:  (1)  (2)  (3)  (4)  (5)  (6)  (6+)

6. This pregnancy was child number: ………………………… (1= first born; 2 = second born etc).
7. **Current marital status:**
   (1) Married  
   (2) Divorced  
   (3) De Facto  
   (4) Separated  
   (5) Widowed  
   (6) Never Married

8. **Are you an Aboriginal or Torres Strait Islander?**
   (1) Yes  
   (2) No

9. **Location of your birth:**
   (1) Australia  
   (2) New Zealand  
   (3) North-West Europe  
   (4) North America  
   (5) Southern & Eastern Europe  
   (6) South America  
   (7) North Africa & Middle East  
   (8) Southern & Central Asia  
   (9) Central, Western & Southern Africa

10. **Where were your parents born?** (Name of country please):
    
    Father: ...........................................  
    Mother: ...........................................

11. **Main language spoken at home:**
    (1) English  
    (2) Other (please specify): .................................................................

12. **Please indicate the highest level of education you have completed.**
    (1) Still at secondary school  
    (2) Did not finish secondary school  
    (3) Year 12 or equivalent  
    (4) Certificate Level
13. Are you currently in paid employment?  (1) YES  (2) NO

(If No, please go to the Question 14)

If Yes, do you work full time/part time?

What is your role at work?

14. Please indicate your approximate annual family income:

(1) Under 25,000  (2) 25,001- 45,000

(3) 45,001- 65,000  (4) 65,001- 85,000

(5) 85,001- 105,000  (6) 105,001- 125,000

(7) 125,001- 145,000  (8) Over 145,001

15. Did you experience any form of depression (such as sadness, loss of enjoyment, lack of motivation) within the first 6 weeks after the birth of your baby(ies)?

(1) Yes  (2) No

15a. If yes, did you consult a GP or anyone else?

(1) Yes  (2) No

15b. Were you on medication for this depression?

(1) Yes  (2) No
15c. If yes, are you still on this medication?

(1) Yes (2) No

16. Has your partner experienced any form of depression (such as sadness, loss of enjoyment, lack of motivation) between the birth of your baby(ies) and now?

(1) Yes (2) No

16a. If yes, did she consult a GP or anyone else?

(1) Yes (2) No

16b. Was she on medication for this depression?

(1) Yes (2) No

16c. Is she still experiencing these symptoms of depression?

(1) Yes (2) No
**APPENDIX NINE: Study Two questionnaires**

**Depression Anxiety Stress Scale (DASS-21)**

*Please tick ONE set of brackets for each statement* below which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

<table>
<thead>
<tr>
<th></th>
<th>Did not apply to me</th>
<th>Some degree/ Some of the time</th>
<th>Considerable degree/ Good part of the time</th>
<th>Very much/ most of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I found it hard to wind down</td>
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<tr>
<td>2. I was aware of dryness of my mouth</td>
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<tr>
<td>3. I couldn’t seem to experience any positive feeling at all</td>
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<tr>
<td>4. I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)</td>
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<tr>
<td>5. I found it difficult to work up the initiative to do things</td>
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<tr>
<td>6. I tended to over-react to situations</td>
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<td>7. I experienced trembling (e.g. in the hands)</td>
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<tr>
<td>8. I felt that I was using a lot of nervous energy</td>
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<td>9. I was worried about situations in which I might panic and make a fool of myself</td>
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<tr>
<td>10.</td>
<td>I felt that I had nothing to look forward to</td>
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<td>11.</td>
<td>I found myself getting agitated</td>
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<td>12.</td>
<td>I found it difficult to relax</td>
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<td>13.</td>
<td>I felt down-hearted and blue</td>
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<td>14.</td>
<td>I was intolerant of anything that kept me from getting on with what I was doing</td>
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<td>15.</td>
<td>I felt I was close to panic</td>
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<td>16.</td>
<td>I was unable to become enthusiastic about anything</td>
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<td>17.</td>
<td>I felt I wasn’t worth much as a person</td>
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<td>18.</td>
<td>I felt that I was rather touchy</td>
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</tr>
<tr>
<td>19.</td>
<td>I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>20.</td>
<td>I felt scared without any good reason</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>21.</td>
<td>I felt that life was meaningless</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
</tbody>
</table>
Edinburgh Postnatal Depression Scale (EPDS)

Please place a tick **in the bracket** next to the answer which comes closest to how you have felt **OVER THE LAST 7 DAYS**, not just how you feel today.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>1. I have been able to laugh and see the funny side of things.</strong></td>
<td><strong>6. Things have been getting on top of me.</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>As much as I always could</td>
<td>Yes, most of the time I haven’t been able to cope at all</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Not quite so much now</td>
<td>Yes, sometimes I haven’t been coping as well as usual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Definitely not so much now</td>
<td>Not, most of the time I have coped quite well</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all</td>
<td>No, I have been coping as well as ever</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2. I have looked forward with enjoyment to things.</strong></td>
<td><strong>7. I have been so unhappy that I have had difficulty sleeping.</strong></td>
<td></td>
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</tr>
<tr>
<td>As much as I ever did</td>
<td>Yes, most of the time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rather less than I used to</td>
<td>Yes, sometimes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Definitely less than I used to</td>
<td>Not very often</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardly at all</td>
<td>No, not at all</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>3. I have blamed myself unnecessarily when things went wrong.</strong></td>
<td><strong>8. I have felt sad or miserable.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, most of the time</td>
<td>Yes, most of the time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, some of the time</td>
<td>Yes, quite often</td>
<td></td>
<td></td>
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<tr>
<td>Not very often</td>
<td>Not very often</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No, never</td>
<td>No, not at all</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>4. I have been anxious or worried for no good reason.</td>
<td></td>
<td>9. I have been so unhappy that I have been crying.</td>
</tr>
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<td>---------------------------------------------------</td>
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<tr>
<td></td>
<td></td>
<td>No, not at all ( )</td>
<td></td>
<td>Yes, most of the time ( )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hardly ever ( )</td>
<td></td>
<td>Yes, quite often ( )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes, sometimes ( )</td>
<td></td>
<td>Only occasionally ( )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes, very often ( )</td>
<td></td>
<td>No, never ( )</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>5. I have felt scared or panicky for no very good reason.</th>
<th></th>
<th>10. The thought of harming myself has occurred to me.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes, quite a lot ( )</td>
<td></td>
<td>Yes, quite often ( )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes, sometimes ( )</td>
<td></td>
<td>Sometimes ( )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No, not much ( )</td>
<td></td>
<td>Hardly ever ( )</td>
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<tr>
<td></td>
<td></td>
<td>No, not at all ( )</td>
<td></td>
<td>Never ( )</td>
</tr>
</tbody>
</table>
Pittsburgh Sleep Quality Index (PSQI)

Fill in the following and circle “AM” if you complete this part of the questionnaire before 12:00pm or “PM” if you complete this part of the questionnaire after 12:00pm.

Date: __________________ Time ____________________ AM   PM

The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions.

1. During the past month, what time have you usually gone to bed at night?
BED TIME __________

2. During the past month, how long (in minutes) has it usually taken you to fall asleep each night?
NUMBER OF MINUTES __________

3. During the past month, what time have you usually gotten up in the morning?
GETTING UP TIME __________

4. During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.)
HOURS OF SLEEP PER NIGHT __________

Please tick ONE set of brackets for each of the remaining questions, that represents your experiences in the past month. Please answer all questions.

5. During the past month, how often have you had trouble sleeping because you . . .

a) Cannot get to sleep within 30 minutes

   Not during the past month ( )
   Less than once a week ( )
   Once or twice a week ( )
   Three or more times a week ( )
b) Wake up in the middle of the night or early morning

<table>
<thead>
<tr>
<th></th>
<th>Not during the past month</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Three or more times a week</th>
</tr>
</thead>
<tbody>
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<td></td>
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</table>

c) Have to get up to use the bathroom

<table>
<thead>
<tr>
<th></th>
<th>Not during the past month</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Three or more times a week</th>
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</thead>
<tbody>
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</table>

d) Cannot breathe comfortably

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<thead>
<tr>
<th></th>
<th>Not during the past month</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Three or more times a week</th>
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</tbody>
</table>

e) Cough or snore loudly

<table>
<thead>
<tr>
<th></th>
<th>Not during the past month</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Three or more times a week</th>
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</thead>
<tbody>
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</table>

f) Feel too cold

<table>
<thead>
<tr>
<th></th>
<th>Not during the past month</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Three or more times a week</th>
</tr>
</thead>
<tbody>
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<td></td>
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</tr>
</tbody>
</table>

g) Feel too hot

<table>
<thead>
<tr>
<th></th>
<th>Not during the past month</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Three or more times a week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(  )</td>
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<td>(  )</td>
</tr>
</tbody>
</table>
h) Had bad dreams

<table>
<thead>
<tr>
<th>Not during the past month</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Three or more times a week</th>
</tr>
</thead>
<tbody>
<tr>
<td>( )</td>
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</tr>
</tbody>
</table>

i) Have pain

<table>
<thead>
<tr>
<th>Not during the past month</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Three or more times a week</th>
</tr>
</thead>
<tbody>
<tr>
<td>( )</td>
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<td>( )</td>
</tr>
</tbody>
</table>

j) Other reason(s), please describe __________________________________________

---

How often during the past month have you had trouble sleeping because of this?

<table>
<thead>
<tr>
<th>Not during the past month</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Three or more times a week</th>
</tr>
</thead>
<tbody>
<tr>
<td>( )</td>
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</tr>
</tbody>
</table>

6. During the past month, how would you rate your sleep quality overall?

- Very good ( )
- Fairly good ( )
- Fairly bad ( )
- Very bad ( )

7. During the past month, how often have you taken medicine to help you sleep (prescribed or "over the counter")?

<table>
<thead>
<tr>
<th>Not during the past month</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Three or more times a week</th>
</tr>
</thead>
<tbody>
<tr>
<td>( )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
</tbody>
</table>
8. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?

<table>
<thead>
<tr>
<th>Not during the past month</th>
<th>Less than once a week</th>
<th>Once or twice a week</th>
<th>Three or more times a week</th>
</tr>
</thead>
<tbody>
<tr>
<td>(   )</td>
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</tr>
</tbody>
</table>

9. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?

- No problem at all (   )
- Only a very slight problem (   )
- Somewhat of a problem (   )
- A very big problem (   )
Coping Index for Stressful Situations (CISS)

The following are ways people react to various difficult, stressful, or upsetting situations. Read each statement carefully. Please tick ONE set of brackets for each statement that best indicates how much you engage in these types of activities when you encounter a difficult, stressful, or upsetting situation.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all</th>
<th>Some of the time</th>
<th>Half of the time</th>
<th>Good part of the time</th>
<th>Most of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Schedule my time better</td>
<td>(</td>
<td>(</td>
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</tr>
<tr>
<td>2. Focus on the problem and see how I can solve it</td>
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</tr>
<tr>
<td>3. Think about the good times I’ve had</td>
<td>(</td>
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</tr>
<tr>
<td>4. Try to be with other people</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
</tr>
<tr>
<td>5. Blame myself</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
</tr>
<tr>
<td>6. Do what I think is best</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
</tr>
<tr>
<td>7. Become preoccupied with aches and pains</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
</tr>
<tr>
<td>8. Blame myself for having gotten into this situation</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
</tr>
<tr>
<td>9. Window shop</td>
<td>(</td>
<td>(</td>
<td>(</td>
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<td>(</td>
</tr>
<tr>
<td>10. Outline my priorities</td>
<td>(</td>
<td>(</td>
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<td>(</td>
</tr>
<tr>
<td>11. Try to go to sleep</td>
<td>(</td>
<td>(</td>
<td>(</td>
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<tr>
<td>12. Treat myself to a favourite food or snack</td>
<td>(</td>
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<tr>
<td>13. Feel anxious about not being able to cope</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
</tr>
<tr>
<td>14. Become very tense</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
<td>(</td>
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<tr>
<td>15. Think about how I solved similar problems</td>
<td>(</td>
<td>(</td>
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</tr>
<tr>
<td>16. Tell myself that it is really not happening to me</td>
<td>(</td>
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<tr>
<td>17. Blame myself for being too emotional about the situation</td>
<td>(</td>
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<tr>
<td>18. Go out for a snack or meal</td>
<td>(</td>
<td>(</td>
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<tr>
<td>19. Become very upset</td>
<td>(</td>
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<tr>
<td>20. Buy myself something</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Not at all</td>
<td>Some of the time</td>
<td>Half of the time</td>
<td>Good part of the time</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------</td>
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<td>-----------------------</td>
</tr>
<tr>
<td>21</td>
<td>Determine a course of action and follow it</td>
<td>(         )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Blame myself for not knowing what to do</td>
<td>(         )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Got to a party</td>
<td>(         )</td>
<td></td>
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</tr>
<tr>
<td>24</td>
<td>Work to understand the situation</td>
<td>(         )</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>25</td>
<td>“Freeze” and not know what to do</td>
<td>(         )</td>
<td></td>
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</tr>
<tr>
<td>26</td>
<td>Take a corrective action immediately</td>
<td>(         )</td>
<td></td>
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<tr>
<td>27</td>
<td>Think about the event and learn from my mistakes</td>
<td>(         )</td>
<td></td>
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</tr>
<tr>
<td>28</td>
<td>Wish that I could change what had happened or how I felt</td>
<td>(         )</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>29</td>
<td>Visit a friend</td>
<td>(         )</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>30</td>
<td>Worry about what I am going to do</td>
<td>(         )</td>
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</tr>
<tr>
<td>31</td>
<td>Spend time with a special person</td>
<td>(         )</td>
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<tr>
<td>32</td>
<td>Go for a walk</td>
<td>(         )</td>
<td></td>
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</tr>
<tr>
<td>33</td>
<td>Tell myself that it will never happen again</td>
<td>(         )</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>34</td>
<td>Focus on my general inadequacies</td>
<td>(         )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Talk to someone whose advice I value</td>
<td>(         )</td>
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<tr>
<td>36</td>
<td>Analyse the problem before reacting</td>
<td>(         )</td>
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<tr>
<td>37</td>
<td>Phone a friend</td>
<td>(         )</td>
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</tr>
<tr>
<td>38</td>
<td>Get angry</td>
<td>(         )</td>
<td></td>
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<tr>
<td>39</td>
<td>Adjust my priorities</td>
<td>(         )</td>
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<tr>
<td>40</td>
<td>See a movie</td>
<td>(         )</td>
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<tr>
<td>41</td>
<td>Get control of the situation</td>
<td>(         )</td>
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<tr>
<td>42</td>
<td>Make an extra effort to get things done</td>
<td>(         )</td>
<td></td>
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</tr>
<tr>
<td>43</td>
<td>Come up with several different solutions to the problem</td>
<td>(         )</td>
<td></td>
<td></td>
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<tr>
<td>44</td>
<td>Take some time off and get away from the situations</td>
<td>(         )</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Not at all</td>
<td>Some of the time</td>
<td>Half of the time</td>
<td>Good part of the time</td>
<td>Most of the time</td>
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</tr>
<tr>
<td>45. Take it out on other people</td>
<td>( )</td>
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</tr>
<tr>
<td>46. Use the situation to prove that I can do it</td>
<td>( )</td>
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<tr>
<td>47. Try to be organised so I can be on top of the situation</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
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<tr>
<td>48. Watch TV</td>
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</tbody>
</table>
**Alcohol Use Disorders Identification Test (AUDIT)**

The following short questionnaire is about your use of alcohol. Try to answer the questions in terms of “standard drinks” according to the diagram below.

**Diagram:**

<table>
<thead>
<tr>
<th>Light Beer (125ml 2.9% Alcohol)</th>
<th>Full Strength Beer (330ml 4.9% Alcohol)</th>
<th>Wine (100ml 12% Alcohol)</th>
<th>Fortified Wine (60ml 20% Alcohol)</th>
<th>Spirits (30ml 40% Alcohol)</th>
<th>Full Strength Can or Stubbie (375ml 4.9% Alcohol)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Example of a standard drink" /></td>
<td><img src="image2" alt="Example of a standard drink" /></td>
<td><img src="image3" alt="Example of a standard drink" /></td>
<td><img src="image4" alt="Example of a standard drink" /></td>
<td><img src="image5" alt="Example of a standard drink" /></td>
<td><img src="image6" alt="Example of a standard drink" /></td>
</tr>
</tbody>
</table>

*The guide above contains examples of one standard drink. A full strength can or stubble contains one and a half standard drinks.*

**Questions:**

1. **How often do you have a drink containing alcohol?**
   - Never
   - Monthly or less
   - 2-4 times a month
   - 2-3 times a week
   - 4 or more times a week

2. **How many standard drinks do you have on a typical day when drinking?**
   - Never
   - Monthly or less
   - 2-4 times a month
   - 2-3 times a week
   - 4 or more times a week

3. **How often do you have six or more standard drinks on one occasion?**

4. **How often during the last year have you found that you were not able to stop drinking once you had started?**

5. **How often in the past year have you failed to do what was expected of you because of drinking?**

6. **How often during the past year have you needed a first drink in the morning to get yourself going after a heavy drinking session?**

Select the appropriate answer for each question.
### How often during the past year have you had a feeling of guilt or remorse after drinking?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Never</th>
<th>Less than Monthly</th>
<th>2-4 times a week</th>
<th>2-3 times a week</th>
<th>4 or more times a week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

### How often during the last year have you been unable to remember what happened the night before because you had been drinking?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>No</th>
<th>Yes, but not in the last year</th>
<th>Yes, during the last year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

### Have you or someone else been injured because of your drinking?

<table>
<thead>
<tr>
<th>Response</th>
<th>☐</th>
<th>☐</th>
<th>☐</th>
<th>☐</th>
</tr>
</thead>
</table>

### Has a relative, friend, doctor or other health care worker been concerned about you drinking or suggested you cut down?

<table>
<thead>
<tr>
<th>Concern</th>
<th>No</th>
<th>Probably not</th>
<th>Unsure</th>
<th>Possibly</th>
<th>Definitely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

### Do you think you presently have a problem with drinking?

<table>
<thead>
<tr>
<th>Difficulty</th>
<th>Very easy</th>
<th>Fairly easy</th>
<th>Neither difficult nor easy</th>
<th>Fairly difficult</th>
<th>Very difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

### In the next three months, how difficult would you find it to cut down or stop drinking?

<table>
<thead>
<tr>
<th>Difficulty</th>
<th>Very easy</th>
<th>Fairly easy</th>
<th>Neither difficult nor easy</th>
<th>Fairly difficult</th>
<th>Very difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
**Gotland Male Depression Scale (GMDS)**

**During the past month, have you or others noticed that your behaviour has changed, and if so, in what way?**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Not at all</th>
<th>To some extent</th>
<th>Very true</th>
<th>Extremely so</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower stress threshold/ more stress than usual.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More aggressive, outward-reacting, difficulties keeping self-control.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling of being burnt out and empty.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant, inexplicable tiredness.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More irritable, restless and frustrated.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty making ordinary decisions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleep problems: sleeping too much/too little/restlessly, difficulty falling asleep/ waking up early.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the morning especially, having a feeling of disquiet/anxiety/uneasiness.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overconsumption of alcohol and pills in order to achieve a calming and relaxing effect. Being hyperactive or blowing off steam by working hard and restlessly, jogging or other exercises, under- or overeating.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you feel your behaviour has altered in such a way that neither you yourself nor others can recognise you, and that you are difficult to deal with?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you felt or have others perceived you as being gloomy, negative or characterised by a state of hopelessness in which everything looks bleak?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you or others noticed that you have a greater tendency to self-pity, to be complaining or to seem “pathetic”?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In your biological family, is there any tendency towards abuse, depression/dejection, suicide attempts or proneness to behaviour involving danger?