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Fathers’ mental health during the ante- and postnatal periods: Knowledge, recommendations and interventions

Abstract
This paper discusses what we know about paternal depression during the perinatal period and if there are any effective interventions for it. Available prevalence estimates suggest that depression experienced by men perinatally may be elevated and specific and/or related to this significant life stage. Currently, there is a paucity of research evaluating how depression during the perinatal period manifests differently in men than women and if men cope with their depression in ways different to women. There is also a lack of studies comparing the risk factors of paternal depression during the perinatal period and the risk factors for general depression in men. Studies showed that paternal perinatal depression not only affects the men, but their children as well. On reviewing the studies on interventions, it is clear that further randomised controlled trials (RCTs) of interventions are needed to establish efficacious and cost-effective treatment protocols for men.

While there are a number of reports of depressive symptoms in men during the pre- and post-birth periods (Eberhard-Gran et al, 2003; Matthey et al, 2003; Fletcher et al, 2006; Munk-Olsen et al, 2006), it is not clear whether the prevalence of depression for men is increased during these significant life stages; whether depression during the pre- and post-birth periods differs from depression experienced by men generally; and whether depression associated with childbirth for men has distinctive clinical features that differ from those experienced by women. Furthermore, while there is preliminary evidence of poor outcomes for infants whose fathers are depressed, the full impact of a father’s poor mental health has yet to be determined (Hendrick et al, 2000; Eberhard-Gran et al, 2003; Munk-Olsen et al, 2006). An important and related issue is whether prevention and treatment programmes for paternal depression during the ante- and postnatal periods are effective and whether improvement in depression leads to improved outcomes for offspring. Hence, this paper reviews what the current literature reveals about:

- the risk factors of paternal depression during the perinatal period compared with risk factors for depression at other times
- the effects of depression in men during pregnancy and post-birth on child development
- the effectiveness of intervention programmes targeting prevention and/or treatment for men experiencing depression during the perinatal period.

The literature reviewed in the next four sections was sourced from the reference lists of three recent systematic reviews of perinatal depression (Hanson et al, 2009; Wee et al, 2011; Fisher et al, 2012) and two recent meta-analyses (Kane and Garber, 2004; Paulson and Bazemore, 2010a); and the publication databases of the Australian Bureau of Statistics (ABS) and Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC). The literature has not been reviewed systematically because previous systematic reviews have been conducted (Wee et al, 2011). This paper synthesises the information from several recent reviews and databases to address its overall aim. In contrast, for the last section pertaining to the prevention and treatment of depression in men perinatally, a systematic review was conducted because, to the authors’ knowledge, this literature has never been reviewed previously.

Prevalence of depression in fathers during the perinatal period
The reported prevalence rates for paternal depression during the perinatal period are very variable across studies. A recent meta-analysis of depression during this period in 28,004 fathers, across 43 studies in a range of high-income countries, reported an overall rate of paternal depression between the first trimester and 1 year postpartum as 10.4% (Paulson and Bazemore, 2010a), significantly higher than that reported among men in the general US population of approximately 4.8% (Kessler et al, 2003a) or the Australian estimate of 3.1% (Australian Bureau of Statistics (ABS), 2007). The prevalence rates in the meta-analysis may be an overestimate, as the depression was determined largely by
questionnaire cut-off scores, rather than more conservative diagnostic interviews (Paulson and Bazemore, 2010b; Thombs et al, 2010) such as the Composite International Diagnostic Interview (CIDI) (Kessler and Ustun, 2004) used by the Australian Bureau of Statistics and the study conducted by Kessler et al (2003a).

Based on data collected from Australian fathers with children aged 0–5 years (n=3471) in the LSAC, Giallo et al (2012) reported that, during the first year post-birth, 18.4% (accrued prevalence rate of 3 to 12 months post-birth) of fathers were depressed and fathers with infants were 1.38 times more likely to be psychologically distressed compared to the general Australian adult male population—all males, fathers and not, aged 18 to 85; data from the 2007 Australian National Survey of Mental Health and Wellbeing (NSMHWB) (ABS, 2007). These results should be interpreted cautiously as the Kessler 6 (K6) scale (Kessler et al, 2003b), which is a quantifier of non-specific psychological distress, was the only measure used in Giallo et al’s study, whereas data from the NSMHWB were collected using the World Mental Health Survey Initiative version of the CIDI (Kessler and Ustun, 2004).

Other estimates of paternal depression using self-report tools to assess symptoms of depression are also higher than population estimates. For example, Madsen and Juhl (2007) reported that 5% of their sample of 549 fathers were depressed when the Edinburgh Postnatal Depression Scale (EPDS) was used, and 3.4% indicated depression when the Gotland Male Depression Scale (GMDS) was used (6.5%, 34 of 524, were depressed when both measures were used).

Overall, available prevalence estimates suggest that depression experienced by men perinatally may be elevated and related to this significant life stage. It also appears that the prevalence rate of depression in men during the perinatal period is more pronounced in low-income countries/communities than high-income countries/communities (Tran et al, 2012), though the reasons for this difference are yet to be determined for men. There is, however, a strong body of evidence (Aderibigbe et al, 1993; Abiodun, 2006; Fisher et al, 2012) covering known factors (e.g. poverty, and chronic social adversity like family violence) for the more pronounced prevalence rate of depression in women in low-income countries during the perinatal period. These factors could also be associated with the elevated prevalence rate of depression in men in low-income countries. Further research adopting clinical interviews (to differentiate between depressive episode and symptoms) and taking into account place of residence, is needed in order to estimate the prevalence of clinically significant depression in men during the ante- and postnatal periods.

The manifestation of perinatal depressive symptoms in men and women

Irrespective of the prevalence, there is a paucity of research related to the experience of depression in fathers. What remains unclear is whether there are any differences between paternal and maternal depression experienced during the perinatal periods. Madsen (2011), after interviewing 150 fathers, suggested that some symptoms of depression during the perinatal period (e.g. deep feeling of abandonment and powerlessness) experienced by the sexes are similar; however, symptoms such as outbursts of anger, alcohol and substance abuse, may be more frequently manifested in men.

Another differential gender-based risk factor in the postnatal period was found by Wang and Chen (2006). They showed that depressive outcomes post-birth were associated with high levels of perceived stress in women and with low self-esteem in men, and noted that fathers tended to under-report depressive symptoms. They suggested that this may be due to either a real difference in the experience of depression, poorer recall of symptoms by men, or because men’s depressive symptoms are different than those specified in diagnostic interviews or self-report measures. This would seem to be the only study to show an association between depression post-birth and low self-esteem in men, albeit other studies unrelated to childbirth, have previously reported this association (e.g. Shahar and Davidson, 2003; Ormel et al, 2004). However, it is important to note that Wang and Chen’s (2006) study is cross-sectional—observing one specific point in time—and, therefore, the direction of the relationships between variables should not be inferred. Further research is needed to confirm that this association is also robust for the perinatal period.

Other studies, unrelated to childbirth, have also indicated that depression manifests differently in men than women (Brownhill et al, 2002; Winkler et al, 2006; Grigoriadis and Robinson, 2007) and that men cope with their depression differently (Brownhill et al, 2002; Veskrona, 2010). For example, men in general may be reluctant to disclose emotional difficulties and restrict emotions (Heifner, 1997; Gaylin, 2000) and have a negative attitude towards seeking help (Good and Mintz, 1990; Good and Wood, 1995) due to cultural expectations. With a small sample of 14 men clinically diagnosed with depression, Heifner (1997) found, through interviews, that the male gender role identity affected the expectations that
men had about depression. These men reported that they needed to be strong, successful, in control, capable of handling their own problems without help, and that they needed to conceal emotions. Similarly, Good and Mintz’s (1990) study with 401 male university students showed that men who identified more closely with the cultural expectations of the male role were more likely to have depression and were less inclined to seek counselling services. These findings suggest that such cultural expectations of the male role could place men at an increased risk of depression during the perinatal period. The perinatal period presents parents with unique pressures, such as perceived expectations to be a ‘good parent’, dramatic changes in lifestyle, relationship changes, financial pressures and sleep deprivation. It is possible that men who are expecting or have recently fathered a child, may identify strongly with gender role expectations to provide financially for their family and this may lead to increased psychological stress. Future research is needed to examine this assumption empirically.

Risk factors of paternal depression during the perinatal period versus risk factors for depression at other times

So why might men more frequently become depressed during their partner’s pregnancy and post-birth than at other times in their lives? Limited research is available, but Condon (2006) suggested that men can experience their partner’s pregnancy and the birth of a new baby as a stressful time filled with new challenges and adjustment to routines. These stressful changes can lead to depression for men in similar ways that it does for some women (Solantaus and Salo, 2005).

A systematic review of the literature performed for the PREDICT study (King et al, 2006)—an international study to address this risk estimation of depression—identified a list of 39 common risk factors for general depression in men and women, such as anxiety, sexual and emotional relationships with partners, and adequacy of social support from family and friends. These risk factors are similar to those found by a recent systematic review of the literature on cross-sectional and prospective correlates of depressive symptoms in men during the perinatal period by Wee et al (2011). However, the effects of these risk factors may be different for depression in men in general and specifically in perinatal depression. For instance, having a non-professional occupation and living alone has the most significant impact on men’s depression in general (Steenga et al, 2012), whereas having a partner who is depressed is consistently found to have a moderate association with depression in men during the perinatal period (Paulson et al, 2006; Paulson and Bazemore, 2010a). Further research is needed to investigate whether similar risk factors, that are listed in both the PREDICT study (King et al, 2006) and the systematic review by Wee et al (2011) have different effects on general depression and paternal perinatal depression. It can be speculated that factors such as the elevated stress that comes with living with and caring for a spouse who is mentally ill, in addition to stresses that come with the arrival of a newborn can lead to a higher risk for depression in men during the perinatal period.

The importance of relationship factors during the perinatal period and other life stages have been shown by numerous studies (Deater-Deckard et al, 1998; Buist et al, 2003; Condon et al, 2004; Boyce et al, 2007). The pressures and practicalities of parenting can often lead to substantial changes in the intimate relationship. Condon et al’s (2004) study of first-time fathers found that distress in men during the antenatal period was associated closely with a perceived poor marital relationship. They also found that transition into fatherhood corresponded with a perception of a ‘vast decline’ in the sexual relationship. The reported preponderance of change in intimate relationships occurred prenatally with only a slight improvement by the end of the first postpartum year. These changes, their extent, and, in particular, their failure to recover, were unexpected by a large percentage of men in Condon et al’s study. However, caution does need to be exercised when reviewing these results as couples seeking to conceive would usually have a higher frequency of intercourse; and thus, to describe a ‘vast decline’ in sexual relationship in the perinatal period might not be an accurate comparison. However, we currently do not have information about whether it is an actual or perceived report of a decline in frequency of intercourse or what has been measured. Also, intimacy is not all about sexual relationship—it is a dimension of trust, safety and, most importantly, the giving and receiving of affection. Cox et al (1989) found that couples, irrespective of the their individual psychological adjustment, who were in a close relationship, characterised by warmth and affection before the birth of their child, would generally make adjustments into parenthood more readily. It is possible that couples who have a good relationship would not view that their intimate relationship has been altered even with a decline in sexual intercourse as other dimensions of
their intimate relationship, like trust and affection, might not have decreased. Therefore, other aspects of intimate relationships need to be explored including the possibility of changed levels of affection by men, which could potentially increase or decrease at this time. Nevertheless, the reduction in the frequency of sexual intercourse in the postpartum period could be a source of distress for some men as suggested by Condon et al (2004). A decrease in sexual intimacy might not only be a source of distress, but may also be a symptom of depression (loss of libido), as with reduced motivation and fatigue (American Psychiatric Association, 2000), and this may also have contributed to the reported reduced sexual activity. In the context of these relationship changes, men may be reluctant to express their depressive and related symptoms due to concern about their partner’s needs or fear of ridicule, given the typical emphasis given to the needs of mother and child (Meighan et al, 1999).

The interplay between depression, anxiety and stress is also important. Anxiety and stress have been found to co-exist frequently with depression in pregnancy and in the postpartum in men (Matthey et al, 2003; Johnson and Baker, 2004; Wang and Chen, 2006; Gao et al, 2009; Moss et al, 2009; Skouteris et al, 2009; Figueiredo and Conde, 2011). Forsyth et al’s (2011) study of the experiences of 48 Australian men with pregnant partners found that more than half expressed worries about their partner’s pain, the possibility that their baby might have an abnormality and not being able to provide financially for their family. Similarly, a review by Hanson et al (2009) found that fathers frequently expressed fear for the safety of the mother and child, anxiety and fear about observing their partner in pain, feelings of helplessness, lack of knowledge about the birthing process, and concerns about risks of interventions such as operative delivery, limited finances and parenting skills. These factors contributing to anxiety and stress are specific to the perinatal period as opposed to other life stages (Wolitzky-Taylor et al, 2010).

Though several studies have found anxiety to frequently co-exist with depression pre- and post-birth in men (Buist et al, 2003; Matthey et al, 2003; Johnson and Baker, 2004), there is only one study to date (Ramchandani et al, 2008a) to have shown an association between anxiety experienced by men during their partner’s pregnancy and depression after the birth of the child. In fact, Ramchandani et al (2008a) found that having high anxiety and depressive symptoms during pregnancy were the most significant predictors of depression in men in the postpartum period. This reflects the research with women which also identifies a strong correlation between antenatal anxiety and postnatal depression (Milgrom et al, 2008; Skouteris et al, 2009).

Identifying the risk factors for depression in men during the perinatal period, and having a better understanding of what roles anxiety and stress play in causing depression may help differentiate perinatal depression from depression in men generally. This may in turn answer whether manifestation of depression in men during the perinatal periods is different to other times. Additionally, comparing risk factors for men and women (Milgrom et al, 2008) during the perinatal period may inform interventions aimed at the couple.

**Depression in men during pregnancy and post-birth, and child development**

Paternal depression pre- and post-birth has been found to have a detrimental effect not only on a couple’s relationship but on the parent-child relationship and on children’s development (deater-dekard et al, 1998; Kane and Garber, 2004; Ramchandani et al, 2005; Paulson et al, 2006; Ramchandani et al, 2008a; Ramchandani et al, 2008b; Paulson et al, 2009; Fletcher et al, 2011; Ramchandani et al, 2011). For example, children of fathers who reported depressive symptoms 8 weeks after the birth of their child were found to have more than double the rate of emotional and behavioural problems as their peers at age 3.5 years (Ramchandani et al, 2005). The same children were found to have higher levels of psychiatric disorder 7 years later, compared to children whose fathers did not report depression following the birth of the child, even after controlling for maternal depression and paternal educational level (Ramchandani et al, 2008a). This study is part of the Avon Longitudinal Study of Parents and Children (ALSPAC). Participants, when their partners were due to deliver their baby between 1 April 1991 and 31 December 1992, were recruited around the Bristol area of the UK (every pregnant woman in the county of Avon was eligible to participate). Data were taken from 10,975 men and 8,401 children. In another study, Fletcher et al (2011) found that paternal depression post-birth was associated with gender-specific effects. They found that paternal depression was associated with hyperactivity in boys and emotional problems in girls 4 to 5 years after birth. This
is an Australian study, with the sample of 2620 drawn from the Longitudinal Study of Australian Children (LSAC). The total LSAC population is around 10,000 children who were recruited in different age bands. The researchers recruited from the cohort of children aged 3-19 months at the first wave of data collection (2004), 2-3 years old at the second wave (2006), and 4-5 years old in the third wave (2008). In order to ensure a similar level of exposure to paternal presence, the researchers limited their sample to two-biological-parent families that were still intact 4 years after the initial wave of data collection (n=2620). However, the mechanisms behind the effects of depression in men on their children’s development are unclear.

Paulson et al’s (2006) study of 5089 two-parent families examined the impact of depressed parents’ interactions with their child (at 9 months postpartum). While the greatest association between depressed affect and interaction with one’s child was found for women, depression in fathers was related to a reduced likelihood of playing with their child outside and of the mother regularly telling stories to their child. In a subsequent study, Paulson et al’s (2009) study of 4109 fathers discovered that paternal, but not maternal, depression (measured at 9 months postpartum) was associated with a reduction in children’s expressive language development at 2 years of age. It was argued that because fathers tend to spend less time engaging in reading activities with their children, a further decrease in time spent reading to their children may significantly affect their children’s language development. These studies showed that paternal perinatal depression not only affects the men, but their children as well. Therefore, it is vital that intervention programmes are in place to help perinatally depressed fathers and their families cope. This is especially important in low-income countries or communities where depression is more prevalent (Tran et al, 2012a). The likelihood of parents in these communities having literacy difficulties is also higher, thus further exacerbating the reduction in children’s expressive language development.

Prevention and treatment of depression in men

There is sufficient evidence that a proportion of men suffer depression during the pre- and post-birth periods and that such depressive affect may have significant detrimental effects. Evaluating the effectiveness of intervention programmes for men experiencing depression pre- or post-birth, is warranted. Due to unawareness of a review of this literature, a review was undertaken here. A search of Academic Search Complete, CINAHL with Full Text, Health Source: Nursing/Academic Edition, MEDLINE, Psychology and Behavioral Sciences Collection, and PsycINFO databases, where papers were limited to English language papers published between January 1900 and July 2012, revealed that there were only four such studies (Thome and Skuladottir, 2005; Hynd et al, 2007; Feinberg and Kan, 2008; Salonen et al, 2008) (Figure 1). The search terms used were:

- antenatal, pregnant*, perinatal, postnatal, postpartum, childbirth, child-bearing, childbirth, afterbirth
- depress*, distress or anxiety
- women, woman, mother*, mum* or parent*
- men, man, father* or dad*
- screening, treatment, program* or intervention*.

The four studies demonstrated very variable outcomes: one reported on significance in the reduction of depressive symptoms in mothers and not in fathers even though the symptoms were measured in both parents (Hynd et al, 2007); one reported a significant decrease in depressive symptoms in both mothers and fathers (Thome and Skuladottir, 2005); one reported a non-significant decrease in both mothers and fathers (Salonen et al, 2008); and one had a significant decrease in depressive symptoms in the mothers but not in fathers (Feinberg and Kan, 2008). Of the four studies, two used family therapy (Thome and Skuladottir, 2005; Feinberg and Kan, 2008) one used group psychotherapy (Hynd et al, 2007) and one did not describe the type of psychotherapy used (Salonen et al 2008). Given the mixed outcomes of the interventions, it is not possible to identify which type of psychotherapy is effective for the treatment of perinatal depression in men.

It is notable that no studies to date have examined the efficacy of treatment of perinatal depression in men using Cognitive Behavioural Therapy (CBT). While the Australian Clinical Guidelines recommend the use of CBT for the treatment of postnatal depression in women based on evidence of effectiveness, there are no such specific recommendations for men. (Dennis and Hodnett, 2007; beyondblue, 2011). The studies reviewed had limitations. First, three of the four studies did not use a randomized controlled design (Thome and Skuladottir, 2005; Hynd et al, 2007; Salonen et al, 2008), making it unclear whether the results were due to treatment effects, occurred by chance or factors...
other than the intervention (e.g. individuals who show improvements due to their child sleeping better as they grow older/mature). Secondly, there was a recruitment bias, with three of the four studies (Thome and Skuladottir, 2005; Hynd et al, 2007; Salonen et al, 2008) using a sample of convenience, limiting the generalisability of the findings. Thirdly, there was a problem with imprecision. One of the four studies had few measurement time points (1 and 4 respectively; see Table 1) in their interventions (Thome and Skuladottir, 2005) and one of the four studies did not specify a fixed assessment time point in their intervention programme (Salonen et al, 2008). With only four studies on interventions for treating paternal depression during the ante- or postnatal periods, it is not possible to draw any conclusive findings or recommendations.

In order to design effective treatment programmes for men suffering from depression during the perinatal periods, a much better understanding of whether paternal perinatal depression is significantly different from depression at any other life stages is needed. It is necessary to establish whether there are differences between the manifestation of paternal depression during the perinatal period and depression in men at other life stages. Further research is also needed to identify the contributing factors of depression, anxiety and stress that may be unique to the perinatal period to assist in the development of effective programmes.

*Figure 1. Flow chart for literature search*
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<tr>
<th>Study and research aims/questions</th>
<th>Theories/underlying principles</th>
<th>Sample, mean age (SD) and design</th>
<th>Delivery of Intervention</th>
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<tr>
<td>Feinberg and Kan, 2008, USA</td>
<td>To evaluate the effects of an intervention programme on co-parenting, parental depression and anxiety, distress in the parent–infant relationship, and infant regulatory competence.</td>
<td>Participants: Resided in rural areas, towns, and small cities. 82% of couples were married, and 91% of mothers and 90% of fathers were non-Hispanic White. The remaining participants were African-American, Asian, Hispanic or other ethnicity. Sample size: Intervention n=89 (79 completed post-test); Control n=80 (73 completed post-test). Mean age (SD) = 28.33 years (4.93) for mothers and 29.76 years (5.58) for fathers. Design: Group allocation by randomisation.</td>
<td>A series of eight classes, delivered by the researchers before and after birth. The control group only received a brochure about selecting quality childcare.</td>
<td>Intervention effects on depression and anxiety in fathers were not significant. Intervention effects on depression and anxiety in mothers were significant (B = -1.218, p &lt; 0.05; effect size = 0.38).</td>
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<tr>
<td>Hynd, Skeffington, and Cooke, 2007, Western Australia</td>
<td>To investigate the outcomes of group interventions for postnatal depression in both parents, and to build family cohesion and communication skills.</td>
<td>Participants: Parents experiencing postnatal stress and depression. Mothers attended all nine sessions. At Gosnells, fathers attended only one 2.5 hour session in week five of the intervention. At Armadale, fathers attended only one 2.5 hour session in week five of the intervention. Design: Group allocation by randomisation.</td>
<td>A 9-week intervention programme to treat postnatal depression. Mothers completed a Demographic Questionnaire, the Beck Depression Inventory (BDI) (Beck et al, 1961), the Daily Stress Inventory (DSI) (Brantley et al, 1987), and the Family Adaptability and Cohesion Scale II (FACS).</td>
<td>Mothers: There was a significant decrease in BDI scores from pre-test to post-test 1 (t(11) = 4.38, p &lt; 0.001) and between pre-test and post-test 2 (t(19) = 3.15, p &lt; 0.01). There was also a significant decrease in DSI scores from pre-test to post-test 1 (t(11) = 4.38, p &lt; 0.001) and between pre-test and post-test 2 (t(19) = 3.15, p &lt; 0.01). Fathers completed a Demographic Questionnaire, the Beck Depression Inventory (BDI) (Beck et al, 1961), the Daily Stress Inventory (DSI) (Brantley et al, 1987), and the Family Adaptability and Cohesion Scale II (FACS).</td>
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Table 1. Interventions designed to prevent depression, anxiety and/or stress in fathers and mothers, and/or fathers only (cont...)

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<th>Time points of interventions</th>
<th>Measures used for data collection</th>
<th>Findings/ outcomes</th>
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<td>37 Gosnells); Control n=0. Mean age (SD): Not given. Median age for both groups was 25–29 years. Design: quasi-experimental with only an experimental group to whom the intervention was delivered.</td>
<td></td>
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<td>attended three 2.5 hour sessions during weeks one, five and nine.</td>
<td></td>
<td>(FACES II) (Olson et al, 1982). Mothers completed the Edinburgh Postnatal Depression Scale (EPDS) (Cox et al, 1987), the Self Esteem Questionnaire (SEQ) (Sorensen, 1998) and the Social Support Scale (SSS) (Macdonald, 1998), in addition to the questionnaires that were completed by fathers.</td>
<td>pre-test to post-test 1 (t (60)=4.745; p&lt;.001) and between pre-test and post-test 2 (t (34)=4.970; p&lt;.001) Fathers: There was no significant effect of the intervention on depressive symptoms and anxiety.</td>
</tr>
<tr>
<td>Salonen, Kaunonen, Astedt-Kurki, Jarvenpaa and Tarkka, 2008, Finland. To describe the development of an internet-based intervention that provided preventively oriented support and information for new mothers and fathers, and to compare the participants and hospitals at baseline.</td>
<td>Theory/principle: Parent–child Interaction Model (Barnard, 1994)</td>
<td>Participants: Recruited from two public university hospitals to represent families in a variety of life situations in urban and suburban areas in southern Finland. Sample Size: Intervention n=469 mothers and 307 fathers; Control n=394 mothers and 218 fathers. Mean age (SD): Intervention: mothers=30.7 (5.0); fathers=32.0 (5.8) Control: mothers=29.8 (5.2); fathers=31.8 (5.3). Design: quasi-experimental with an experimental group to whom the intervention was delivered and a control group for comparison.</td>
<td>Online intervention in the treatment hospital. Website focused on six themes: (1) for mothers; (2) for fathers; (3) for infant; (4) life as a couple and family; (5) what to do when parents are in trouble; and (6) support for the family.</td>
<td></td>
<td>Depressive symptoms: EPDS (Cox et al, 1987) Other questionnaires were also used to measure parent, infant and environmental attributes</td>
<td>No significant differences between the intervention group and the control group in regards to depressive symptoms</td>
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1: No additional information, other than to whom these six themes were focused on, was given; 2: No definition of ‘in trouble’ was given by the researchers
## Conclusion

There is a paucity of research examining the prevalence, nature and risk factors of paternal depression perinatally using diagnostic measures and tools specific for men. It is also clear that further RCTs of interventions are needed to establish efficacious and cost-effective treatment protocols for these men, particularly as paternal depression appears to contribute negatively to child development. It is interesting to note that all the interventions reviewed are treatment programmes and not preventive programmes. It is important to consider that men are less likely to present for mental health treatment (e.g. Möller-Leimkühler, 2002; Mansfield et al, 2003), suggesting that it is important to reduce the stigma associated with paternal depression and to have preventive programmes in place. For example, Veskrna (2010) suggested that educating men about their masculine gender socialisation and its potential impact on behavioural and affective symptoms may be useful as a preventive measure. Similarly, promoting help-seeking behaviour as a way to improve occupational outcomes or the health of one’s partner or child may be useful for men who perceive their depression as a sign of weakness (O’Brien et al, 2005; Veskrna, 2010).

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### Table 1. Interventions designed to prevent depression, anxiety and/or stress in fathers and mothers, and/or fathers only (cont.)

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**Thome and Skuladottir, 2005, Iceland.** To evaluate the effectiveness of a family-centred intervention for sleep problems in infants in families with a paediatric nurse for each night of the 4 nights their infant was in hospital.

- **Theory/principle:** Behaviourist and social learning theory (Minde et al, 1993; Leeson et al, 1994; Messer and Parker, 1998) and psychoanalytic theory (Dews, 1989).
- **Participants:** Parents whose infants were hospitalised due to sleep problems in Reykjavik, Iceland.
- **Sample size:** Intervention n=33 mothers; Control n=30 mothers. Mean age (SD): mothers=30.8 ± 5.3; fathers=32.7 ± 6.4.
- **Design:** Quasi-experimental with only an experimental group to whom the intervention was delivered.

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<tr>
<td>Fatigue and symptom distress: A scale developed by Thome (1996)</td>
<td>2 to 4 hour face-to-face sessions with a paediatric nurse for each night of the 4 nights their infant was in hospital.</td>
<td>Parental stress, depressive symptoms, state anxiety symptom distress and fatigue all decreased significantly 2 months after the intervention in both parents: T-test of data before and after intervention: Mothers: Parenting stress &lt; 0.001; Depressive symptoms &lt; 0.001; State anxiety symptom distress &lt; 0.001; Symptom distress &lt; 0.001; Fatigue &lt; 0.001. Fathers: Parenting stress &lt; 0.05; Depressive symptoms &lt; 0.05; State anxiety symptom distress &lt; 0.05; Symptom distress &lt; 0.001; Fatigue &lt; 0.001.</td>
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<tr>
<td>Parenting stress: Parenting stress Index (PSI/SF) (Abidin, 1990)</td>
<td>2 to 4 hour face-to-face sessions with a paediatric nurse for each night of the 4 nights their infant was in hospital.</td>
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<tr>
<td>Depressive symptoms: EPDS</td>
<td>2 to 4 hour face-to-face sessions with a paediatric nurse for each night of the 4 nights their infant was in hospital.</td>
<td></td>
</tr>
<tr>
<td>Anxiety: The State-Anxiety Inventory (Spielberger, 1983)</td>
<td>2 to 4 hour face-to-face sessions with a paediatric nurse for each night of the 4 nights their infant was in hospital.</td>
<td></td>
</tr>
</tbody>
</table>

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