Prelude to Parenthood: The Impact of Anxiety and Depression During Pregnancy

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1. Introduction

This book, and a substantial body of literature that has developed over the last 40 years, attest to the importance of recognizing and treating depression in women and their partners in the early months and years of their parenthood. Articles and books in the popular literature (Osmond, Wilkie, & Moore, 2002; Shields, 2005), as well as internet resources and public and professional education initiatives (e.g., www.mededppd.org; www.postpartum.net; www.marcesociety.com) have contributed to broader awareness of the pervasiveness and impact of postnatal depression, and perhaps begun to decrease some of the stigma attached to the experience. It is still the case, however, that most lay people and many health and maternity professionals still focus primarily on the mental health needs of mothers (and sometimes fathers) *after* the baby is born (Highet, Gemmill, & Milgrom, 2011).

Over the last decade or two, however, there has been increasing awareness on the impact of emotional distress *during* pregnancy—growing recognition that the incidence of depression during pregnancy is at least as high as it is postnatally (Faisal-Cury & Menezes, 2007; Marcus, 2009), that the majority of cases of postnatal depression begin during pregnancy (Heron et al., 2004), that anxiety during pregnancy is a significant predictor of postnatal depression (Austin, Tully, & Parker, 2007), and that anxiety and stress during pregnancy can have significant long-term effects on the physical and mental health and development of the child.

This chapter will provide an overview of the literature on depression and anxiety during pregnancy, including prevalence of symptoms and syndromes, studies on the impact of depression, anxiety, and stress on birth outcomes and child development, the mechanisms by which these effects may operate, approaches to treatment of anxiety and depression during pregnancy, and the evidence available on the efficacy of these treatments. Implications for health and public policy, clinical treatment, and research will be discussed.

2. Prevalence of emotional disorders during pregnancy

Historically, it was thought that women were protected against psychiatric disorder during pregnancy (Cohen et al., 2006); however, epidemiological data collected over the last decade has not supported that view. The question of whether childbearing confers *extra* risk for

emotional disorders in women has produced contradictory results across both antenatal and postnatal periods (Robertson, Grace, Wallington, & Stewart, 2004). Some authors have argued that there is an increase in rates of depression (Marcus, 2009), while others have found similar rates among pregnant and postnatal women and matched controls (Uguz, Gezginc, Kayhan, Sarı, & Büyüköz, 2010; van Bussel, Spitz, & Demyttenaere, 2006). The confluence of psychosocial and biological stressors during these times might explain an increased incidence of disorders such as depression and anxiety. Of course, the question of whether women are *more* at risk perinatally than at other times in their lives, while interesting for understanding the epidemiology and possibly the aetiology of perinatal emotional disorders, is less crucial than understanding the predictors, consequences, and most effective modes of treatment for women struggling with these problems during a time which may or may not be particularly vulnerable for women, but which a preponderance of evidence is showing is particularly vulnerable for the developing child, and for the developing parent-child relationship (Halligan, Murray, Martins, & Cooper, 2007; Murray & Cooper, 1997).

2.1 Antenatal depression

Since the recognition of the importance of antenatal as well as postnatal depression, a number of studies have looked at the prevalence of depression among pregnant women in the developed and developing world. Prevalence rates vary because of a variety of methodological factors. Many studies use the Edinburgh Postnatal Depression Scale (EPDS), a brief, self-report measure intended to screen for depressive symptoms (Cox, Holden, & Sagovksy, 1987), omitting the somatic items in other depression inventories which might produce a spurious over-identification of depression among women in the perinatal period.

Although the EPDS is described as a screen for depression, it contains items such as "I have been anxious or worried for no good reason", and factor analyses of the scale have revealed factors for depression and anxiety (Bowen, Bowen, Maslany, & Muhajarine, 2008; Swalm, Brooks, Doherty, Nathan, & Jacques, 2010). It may be more appropriate to consider the EPDS a measure of "distress," the mix of depression and anxiety that so often occurs together (Mauri et al., 2010). Nevertheless, the majority of the items on the scale focus on experiences such as sadness, tearfulness, self-blame, and anhedonia, and most studies use the EPDS as a screen for, or indication of, depressive symptoms in the perinatal period.

The EPDS has been used widely across a variety of cultures, and has been well validated for use antenatally (Jomeen & Martin, 2007). A cutoff score of 13 is often used for these studies to indicate a high probability of significant depression. Between one quarter and one third of women in relatively under-resourced populations tend to score above this cut-off. For example, 27% of a group of inner-city Canadian pregnant women (Bowen & Muhajarine, 2006) and 27.5% of Turkish pregnant women in a semi-urban region (Golbasi, Kelleci, Kisacik, & Cetin, 2010) scored at or above 13, and in a separate study, 33% of urban and semi-urban Turkish women scored at or above 13 (Senturk, Abas, Berksun, & Stewart, 2011). In a study of Jamaican women attending a university hospital clinic, 27% in the first trimester, 22% in the second, and 25% in the third trimester scored at or above 13 on the EPDS (Pottinger, Trotman-Edwards, & Younger, 2009).

Lower rates have been found in an educationally and economically advantaged sample of Vietnamese women; in this group, 8% of women scored at or above 12 (Fisher, Tran, & Tran, 2007). Texeireira's group (Teixeira, Figueiredo, Conde, Pacheco, & Costa, 2009) used a lower cut-off of 10 or higher, and so is difficult to compare with the above studies, but in this Portugese sample of women attending obstetric appointments, they found that 22%, 21%, and 18% (by trimester) scored above this threshold, consistent with other studies that suggest somewhat lower rates of depressive symptoms among women in developed countries. A large nationwide study in Australia recently found rates of 8.9% at or above 13 on the EPDS (Milgrom et al., 2008), though these rates do vary across subpopulations, and psychosocial factors appear to play a significant role, as will be discussed below.

Studies which use structured diagnostic interviews, rather than self-report questionnaires, tend to find lower rates of depression. Using a two-step process with the EPDS as a screen, followed by a structured clinical interview, a Nigerian study found that 8.3% of semiurban pregnant women were diagnosed with major or minor depressive disorder (Adewuya, Ola, Aloba, Dada, & Fasoto, 2007). Using a structured interview alone, Felice and colleagues found that 14.8% of women attending an antenatal clinic in Malta in the second trimester, and 10% of women in the third trimester met criteria for a depressive disorder (Felice, Saliba, Grech, Cox, & Caleja, 2007).

Although most of the research and clinical attention has been on unipolar depression among antenatal and postnatal women, there is evidence that women with bipolar disorders are at increased risk of postnatal psychosis, and women who have depressive symptoms should be screened for bipolar disorder and monitored for elevated mood. However, there is no consensus on the most effective screening method, with a variety of possible tools but no one well validated in antenatal women (Chessick & Dimidjian, 2010).

The line between depressive and anxiety disorders in perinatal as well as general populations is often blurred; when the EPDS has been factor-analyzed, although there are separate factors corresponding to depression and anxiety, several items have moderate loadings on both factors (Swalm, et al., 2010). Some services refer to antenatal or postnatal "distress" rather than attempt to differentiate depression from anxiety, and often women report a mix of anxious and depressed symptoms. In one large study using structured interviews to assess anxiety and depression among pregnant women, one-third of the sample was found to have comorbid anxiety and depressive diagnoses, more than either those with anxiety alone (8.5%) or depression alone (20%)(Field et al., 2010).

2.2 Antenatal anxiety

As is the case with depression, estimated rates of anxiety can vary widely depending on the method and criteria used to identify cases. Many studies use symptom inventories such as the State Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983); these should be considered a screen for possible anxiety disorder, or an indication of the level of anxiety symptoms, rather than a clinical diagnosis of any particular anxiety disorder, and the rates of occurrence found using self-report screens are typically significantly higher than those found when a structured clinical interview using formal diagnostic criteria is used. This is not, however, to minimize the importance of measurement of symptoms of anxiety along a continuum. In fact, many of the studies of the consequences

of antenatal distress, to be discussed below, use self-report instruments, and find a significant relationship between high scores on distress and various outcome measures, regardless of whether any criterion for clinical diagnosis has been met. Those women who meet criteria for formal diagnosis might be considered the "tip of the iceberg", and one of the important questions for clinicians and policy makers is how to most effectively identify those women who are in distress and could benefit from support, rather than focusing primarily on diagnostic criteria.

Using the Portugese version of the STAI, with a cut-off of 45, Teixeira and colleagues (Teixeira, et al., 2009) measured anxiety symptoms among women in the first, second, and third trimesters, and found rates of significant anxiety of 15%, 12%, and 18%, respectively. They also screened for depression with the EPDS, using a cut-off of 10 or greater, and combined this with the STAI-S to describe a subset of women who scored highly on both anxiety and depression, with rates of 11%, 8%, and 11% across the three trimesters. Thus, about one in ten women in this sample were experiencing high levels of both anxiety and depressive symptoms.

In Bangladesh in a largely rural population, 29% of pregnant women scored above 45 on the trait subtest of the STAI in third trimester (Nasreen, Kabir, Forsell, & Edhborg, 2011). A Brazilian study used a lower cut-off of 41, and found that 59.5% of women were identified as having high state anxiety, and 45.3% high trait anxiety, in the last half of pregnancy (Faisal-Cury, Menezes, Araya, & Zugaib, 2009). A review summarizing a variety of studies of rates of significant anxiety in Africa came up with an overall mean prevalence of 14.8% for antenatal anxiety disorders (Sawyer, Ayers, & Smith, 2010).

Rates of anxiety disorders assessed by structured interview were relatively low in women in Malta, with 4.4% in the second trimester, but the authors reported that "several" women had anxiety symptoms that did not meet criteria for Generalized Anxiety Disorder because they had been present only since the beginning of the pregnancy, which was a duration of less than six months (Felice, et al., 2007). This low rate may also have been affected by the timing of the study; a Turkish study using structured interviews (Uguz, et al., 2010) found that 15.5% of women in the first trimester, 7.6% in the second, and 24.2% of women in the third trimester met criteria for an anxiety disorder.

Posttraumatic stress disorder is an anxiety disorder that might be expected to be of particular concern during pregnancy, given its association with high physiological arousal. In women, the index trauma often includes sexual abuse, so that the experience of maternity care and the anticipation of childbirth and caring for an infant may be extremely destabilizing (Sperlich & Seng, 2008). One study, using DSM-IV diagnostic criteria gathered in a structured interview, found that 3% of a sample of urban American pregnant women met full criteria for PTSD. Women who had PTSD also had increased rates of substance use, panic disorder, and depressive disorders (Rogal et al., 2007).

Obsessive-compulsive disorder and the spectrum of obsessive-compulsive symptoms, similar to depression, have been studied and discussed clinically more with respect to the postnatal period than during pregnancy. Many women with postnatal depression or anxiety struggle with intrusive thoughts and other obsessive-compulsive symptoms (Abramowitz et al., 2010), and, in fact, some degree of intrusive thoughts about accidents or harm coming to the baby are frequently present in new parents in general (Fairbrother & Woody, 2008).

These thoughts, however, are often kept private and not revealed to either professional or informal support people, for fear of losing custody of the baby or suffering the stigma that revealing such thoughts can elicit (Barber, 2009). The incidence of obsessive thoughts and/or obsessive-compulsive disorder during pregnancy has been examined in two very different contexts, with different methods and results. Uguz and colleagues (Uguz, et al., 2010) used a structured diagnostic interview to compare rates of anxiety and mood disorders in a group of Turkish pregnant women with a comparison sample of nonpregnant women of comparable age and socioeconomic status. They found similar rates of disorders in both groups, with a total of 19.4% of pregnant women meeting criteria for a DSM-IV mood or anxiety disorder. The single most common anxiety disorder was OCD, with 5.2% of pregnant women meeting full diagnostic criteria. An American study used self-report measures as well as structured interviews to assess level of OCD and depressive symptoms as well as diagnostic status in a group of women presenting to a university hospital obstetric clinic (Chaudron & Nirodi, 2010). In this longitudinal study, of those who participated in the structured interview during pregnancy, 29% met criteria for OCD. This high rate may have been affected by a combination of factors, including selective attrition, characteristics of the clinic's population, and a small sample size, but it is suggestive that a significant subgroup of pregnant women do suffer from OCD symptoms that impair their functioning, and seem likely to have an impact on their pregnancy and mothering.

Research across a wide variety of populations, then, has found that a significant proportion of women suffer during pregnancy from depression, anxiety, or a combination of the two. In an attempt both to understand the factors that contribute to this distress, and to identify groups of women who might be most in need of support and services, many studies have examined the individual and contextual factors that are associated with antenatal distress.

3. Risk factors for distress in pregnancy

In a recent review of the western literature on risk factors for depression in pregnancy, Lancaster and colleagues (Lancaster et al., 2010) found that the strongest predictors of depression during pregnancy were antenatal anxiety, history of depression, stressful negative life events, poor relationship quality and lack of social support from the partner, relying on public health insurance (largely the public Medicaid system in the US) and unintended pregnancy. Consistent, but less strong relationships were found between depression and domestic violence. Studies were inconsistent in their findings about the relationship between depression and socioeconomic status, cigarette, alcohol, and drug use, age and ethnicity. The authors note that these risk factors are generally consistent with the literature on risk factors for postnatal depression, with the exception that socioeconomic status has been more often found to be predictive of depression in the postnatal literature. They suggest that the studies they reviewed tended to be somewhat homogeneous with respect to SES, and this may have limited the findings (Lancaster, et al., 2010); in addition, it is important to note that this review was limited to studies performed in the US, Canada, Europe, Australia, and New Zealand, and so was relatively homogeneous with respect to culture and contextual economic factors.

Recent studies of correlates of antenatal depression from countries such as Turkey (Golbasi, et al., 2010), Bangladesh (Nasreen, et al., 2011) and Nigeria (Adewuya, et al., 2007) have been consistent with these findings; factors such as social support and relationship status

are consistently noted. Some studies (Adewuya, et al., 2007; Golbasi, et al., 2010) have found history of stillbirth to be associated with depression, but this was not consistently found in the Lancaster review, possibly because of the relative rarity of this event, particularly in well-resourced countries.

The literature on risk for anxiety during pregnancy is less well-developed, but studies of prevalence of antenatal anxiety and/or distress often note many of the same risk factors as have been found for antenatal depression. For example, one study in Turkey looked at factors associated with a measure of mixed anxiety and depression, and found that poverty and partner unemployment, domestic violence, and unwanted pregnancy predicted distress (Karmaliani et al., 2009). Intimate partner violence, as well as sexual coercion, were associated with symptoms of PTSD as well as depression in an Indian study (Varma, Chandra, Thomas, & Carey, 2007). A longitudinal study of distress and relationship adjustment during pregnancy found that relationship adjustment was correlated with concurrent anxiety and depression, and that poor relationship adjustment predicted subsequent anxiety during and after pregnancy (Whisman, Davila, & Goodman, 2011).

Using data from the Avon Longitudinal Study of Parents and Children (ALSPAC), researchers were able to look at the association between self-reported history of eating disorders and other psychiatric disorders on the risk of experiencing significant anxiety and depression during pregnancy, and found that history of depression or past or current eating disorder conferred an increased risk of anxiety and depression perinatally (Micali, Simonoff, & Treasure, 2011). Looking more specifically at generalized anxiety disorder, Buist, Gotman and Yonkers (2011) found that history of GAD, less education, lower social support, and history of child abuse were associated with GAD symptoms during pregnancy.

Across types of antenatal distress, then, history of emotional disorders is the strongest and most consistent predictor of distress, and so women who have a history of depression or anxiety and become pregnant are clearly a group who should be monitored and provided support. In addition, various aspects of social and interpersonal relationships are associated with risk, and women with abusive, distant, or conflicted relationships are more likely to suffer distress. Conversely, women in supportive, stable relationships, or who have a network of family and friends they can rely on, are less likely to struggle during this time. Fewer studies have looked for protective factors or individual strengths that might help women to cope with the stresses of pregnancy, but there is some evidence that characteristics such as secure attachment (van Bussel, Spitz, & Demyttenaere, 2009), confidence (Edwards, Galletly, Semmler-Booth, & Dekker, 2008) and optimism (Grote, Bledsoe, Larkin, Lemay, & Brown, 2007) are associated with lower levels of distress.

4. Consequences of stress and distress in pregnancy

Antenatal stress and distress are common, and are especially prevalent among certain vulnerable populations, so that it may be possible to identify and focus efforts at intervention. The case for investing resources in women and families early in the parenting experience is strong because what is at stake is not only the mental health and well-being of the women involved, but also the impact that antenatal distress can have on the developing fetus and the developing caregiving relationship. Evidence has been accumulating from

both animal and human studies that there are serious and long lasting effects of psychological distress during pregnancy.

Animal research has been largely on the impact of stress on development, and a wide variety of studies have found that antenatal stress, particularly stress in which the animal has little control over the stressor (e.g., restraint, loud noise), produces a significant increase in stress hormones, which, in turn, have an effect on brain development, cardiovascular health, and behavioural problems in offspring (Charil, Laplante, Vaillancourt, & King, 2010; Harris & Seckl, 2011).

Research on antenatal stress and distress in humans has found that both depression and stress are consistently associated with increased rates of adverse birth outcomes such as preterm delivery, low birthweight, and fetal growth retardation (Diego et al., 2009; Field, Diego, & Hernandez-Reif, 2006; Littleton, Bye, Buck, & Amacker, 2010; Uguz, Gezginc, & Yazici, 2011). In addition, infants born to mothers with depression have been found to have higher levels of cortisol and lower levels of dopamine and serotonin than comparison infants, and also showed more restless sleep, more relative right frontal EEG (an indicator of negative mood), and less optimal neurobehavioral indicators on the Brazelton Neonatal Behavior Assessment Scale (Field et al., 2004). In general, infants born to depressed or distressed mothers are vulnerable on a variety of developmental and social measures, suggesting that they may be more difficult to sooth and care for than other infants (Field, Diego, et al., 2006). This challenge compounds the already difficult task of the new mother who is likely to be continuing her struggle with emotional distress.

5. Mechanisms for understanding impact of antenatal stress and distress

Results of animal and human research have suggested a variety of mechanisms by which antenatal stress and distress may have an impact on infant health and development. Physiologically, maternal stress and mood changes are associated with hormonal and neurotransmitter changes, and parallel changes can be observed in the offspring of pregnant women with depression (Charil, et al., 2010; Field, et al., 2004). The stress hormone cortisol, which increases under a variety of stressful circumstances, is also intimately involved with the developmental processes of the fetus, for example, being necessary to the process of preparing the fetal lungs for functioning (Charil, et al., 2010). Chronic high levels of maternal cortisol are transmitted to the infant, and may affect infant brain development in areas including the hippocampus, amygdala, hypothalamus, neocortex, cerebellum, and corpus callosum (Charil, et al., 2010). Stress also affects the functioning of the placenta, which may be the mechanism of some of the effects of maternal stress on neurodevelopment (Charil, et al., 2010).

In addition to this direct effect of maternal stress on fetal development, antenatal depression and anxiety may affect the woman's self-care and health behaviors, which in turn have an impact on the child. Emotional distress, and depression in particular, may make it more difficult for women to access antenatal health care, to monitor their diet to ensure appropriate nutrition, and to refrain from smoking, alcohol use, and the use of other drugs that may serve a self-soothing function. One study that looked at various aspects of stress in pregnancy found that high levels of stress and anxiety were associated with smoking, caffeine use, and unhealthy eating, and that there was a direct association between

pregnancy-specific stress (i.e., worry about specific aspects of the pregnancy) and pre-term delivery, and also an indirect association between pregnancy-specific stress and low birth weight, mediated by cigarette smoking (Lobel et al., 2008).

Antenatal distress is also the strongest, most consistent predictor of postnatal depression across a variety of populations and study methods (Grant, McMahon, & Austin, 2009; Heron, O'Connor, Evans, Golding, & Glover, 2004; Kirpinar, Gozum, & Pasinlioglu, 2010; Milgrom, et al., 2008; Robertson, et al., 2004). Postnatal depression has been shown in longitudinal studies to be associated with significant cognitive, emotional, and behavioural difficulties in children (Halligan, et al., 2007; Murray & Cooper, 1997). Some of the effect of maternal distress is likely mediated by caregiving behaviors such as sensitivity and availability (Grant, McMahon, Reilly, & Austin, 2010), and the effect that depression and anxiety may have on the mother's confidence in parenting and developing attachment with the infant (Dayton, Levendosky, Davidson, & Bogat, 2010).

6. Interventions to support women and families

Although there has been a good deal of work done to develop and test interventions to prevent and treat postnatal depression (Kopelman & Stuart, 2005), there is less systematic investigation of the effectiveness of interventions for antenatal depression, and even less work with respect to anxiety. However, there are a number of promising approaches that have been developed and applied to women during the antenatal period. These approaches vary considerably, including medical, psychological, lifestyle, spiritual, and psychoeducational strategies, with varying levels of intensity and commitment of resources. This variety is potentially a strength for the field, providing an array of options for helping women and families so that the woman, perhaps in consultation with a health, mental health, or maternity care provider, can choose a set of tools to try that is tailored to her particular level of distress, practical situation, and expectations and beliefs about what is most likely to help.

The great variety of traditional and complementary approaches to addressing distress in pregnancy probably stems in part from the multidisciplinary nature of perinatal care, which involves physicians, midwives, nurses, social workers, psychologists, and others, each providing different theoretical models of understanding health and mental health. In addition, childbearing is a normative experience that joins people from all cultures and traditions, and helping women who struggle at this time is a longstanding need and concern, even when it is not recognized in formal mental health terms. The contributions of all of these perspectives make for a rich mix of potential approaches, but it can also be a challenge to sort the wheat from the chaff, to identify which strategies are most likely to be helpful, and what the risks might be, either from negative side effects of an active treatment, or from choosing a treatment that is ineffective and in doing so, losing an opportunity during a critical time.

In considering options for treatment during pregnancy, it is important first to consider the level of distress the woman is experiencing, and risk (and opportunity) this entails. Where there is severe distress, and the intensity of the painful feelings are such that the woman feels driven to escape through suicide or substance use, a commensurate response with intensive treatment, possibly hospitalization, probably medication, and engagement with

the partner and other support network is likely to be necessary (Choate & Gintner, 2011; Yonkers et al., 2009). However, in most cases, this intensity of treatment is not necessary or practical. Many women who have moderate to severe distress according to their responses on screening questionnaires do not consider themselves to be "depressed," and will not accept a referral to an unfamiliar mental health service (Carter et al., 2005; Miller, Shade, & Vasireddy, 2009). On the other hand, woman often do not consider their maternity care provider to be the appropriate person to talk to about their psychological distress (Bennett et al., 2009), and in the end, the majority of women with significant depression during pregnancy receive no mental health services at all (Flynn, Blow, & Marcus, 2006; Smith et al., 2009). This is not to say that they do not receive any support for their distress; they may seek support from friends, family, clergy, midwives, childbirth educators, and others (Barber, 2008). The number and popularity of books and websites on pregnancy and childbearing testify to the number who use informational support to cope with stress and uncertainty.

The array of options for support for women with antenatal distress includes self-help resources such as books and websites, support groups, clergy and religious community, visiting nurses, midwives, and health workers, complementary medicine providers, mental health providers, and medical professionals. It has been suggested that one of the barriers to universal screening for perinatal depression in obstetric or midwifery practice is the possibility of uncovering cases of serious distress, without the back-up of prompt accessible mental health services (Miller, et al., 2009). It is unrealistic, both in terms of cost and workforce, to expect to be able to provide formal mental health services to the 20-30% of the pregnant population who might score above a screening threshold for anxiety or depression. However, if front-line maternity providers have awareness and basic knowledge of the importance of attending to stress and distress in pregnancy, and have available to them an array of options and some tools with which to help women choose among the approaches, then it is possible that more of this distress will be recognized and ameliorated, and those who need mental health services may be more likely to get them.

The following sections will provide an overview of the array of options for prevention and intervention that have been examined empirically, and for which there seems to be some support. This list is not exhaustive; there may be many traditional or innovative interventions that are potentially useful, but have not been subjected to research or discussed in the psychological literature.

6.1 Preventative interventions and strategies

A few studies have described interventions that have potential to help women manage stress and anxiety, entail virtually no risk, and are targeted at all pregnant women or, in the case of physical exercise, may exclude some women with physical complications that restrict their activity levels. Lox and Treasure (Lox & Treasure, 2000), for example, examined the effect of aqua exercise on pregnant women who participated twice a week for six weeks; they found an increase in well-being, and decreases in distress and fatigue following the exercise. This was a self-selected group who chose to participate in the exercise programme, but there is considerable evidence that exercise can improve mood and anxiety (Shivakumar et al., 2011), and that levels of physical activity tend to decrease during pregnancy (Poudevigne & O'Connor, 2006). There have been no systematic studies of the effects of exercise on depression during pregnancy, but this is a promising area (Shivakumar, et al.,

2011). The challenge, as ever, is how to help women, especially depressed women, to participate consistently in an exercise programme. It may be helpful to consider adding a social component to an exercise programme, such as walking with a group or a friend (Armstrong & Edwards, 2004).

Specific forms of exercise, combined with meditation and/or spiritual components, have also been used with pregnant women. Yoga classes specifically for pregnant women are popular in many areas, and yoga has been found to have a positive effect on birth outcomes (Beddoe & Lee, 2008) as well as ratings of stress and anxiety (Beddoe, Paul Yang, Kennedy, Weiss, & Lee, 2009). Qi exercise is similar to yoga, and involves stretching, breathing, and meditation; one study compared a group of women who participate in 12 weeks of twice-weekly Qi sessions with a control group, and found that the Qi group had lower physical discomfort and depressive symptoms, but there was no significant difference in anxiety between the groups (Ji & Han, 2010).

Music therapy has been proposed as a low-cost, low-risk intervention for managing stress and distress, and one study found a significant decrease, compared with a randomized control group, on stress, anxiety, and depression, after two weeks of 30 minutes per day of listing to selected music (Chang, Chen, & Huang, 2008).

There have also been a number of studies that have provided interventions to women with high antenatal distress, in an attempt to prevent postnatal depression. Most of these studies have found few or no significant treatment effects (Austin et al., 2008; Lara, Navarro, & Navarrete, 2010; Milgrom, Schembri, Ericksen, Ross, & Gemmill, 2011); however, Milgrom's group has developed an intervention that involves a combination of a self-help book for women and weekly telephone support to structure and complement the bibiotherapy. This intervention did produce a significant reduction of depression, anxiety, and stress, and a decreased percentage of women who were above threshold for depression postnatally (Milgrom, et al., 2011).

6.2 Psychological and biological treatments

Formal psychotherapy has been well studied for postnatal depression, and both Cognitive Behavior Therapy (CBT) and Interpersonal Therapy (IPT) have been found to be effective, but the results of the few studies of antenatal psychotherapy have been less clear (Choate & Gintner, 2011). Studies of CBT delivered antenatally have been equivocal (Choate & Gintner, 2011), although one recent study found some positive effect of a group CBT during pregnancy (Le, Perry, & Stuart, 2011). Interpersonal therapy has been more consistently successful in pregnancy; a randomized controlled trial showed significant improvements in mood for pregnant women provided with IPT (Spinelli & Endicott, 2003), and Grote has adapted IPT to be briefer and specifically tailored to the needs of economically stressed minority women (Grote et al., 2009), and found positive effects on depression during and after pregnancy, and on postnatal social functioning.

Although most women, when asked their preferences for treatment for depression during pregnancy, prefer psychotherapy over medication (Kim et al., 2011), there are times when medication may be required for effective treatment (Yonkers, et al., 2009). There are no randomized controlled trials of medication treatment of antenatal depression (Gentile & Galbally, 2011), but many women are treated with medications during pregnancy, and

professional guidelines suggest that the woman and her doctor need to carefully weigh the (unknown) risks of medication against the (known and unknown) risks of depression during pregnancy (Yonkers, et al., 2009). A recent review of the effects of antidepressant medication during pregnancy on neurodevelopment in the child concluded that there are too many methodological problems in the existing studies to draw firm conclusions, but there are no studies showing clear longstanding negative effects of medication (Gentile & Galbally, 2011).

It has been suggested that transcranial magnetic stimulation (TMS) might be an effective option for women with moderate to severe depression who prefer not to take medication during pregnancy (Kim, et al., 2011); however, there has been no research on the safety or efficacy of this treatment during pregnancy, and when pregnant women were asked whether they would consider this treatment, which involves daily office visits for four weeks, only 16% said they would consider it as an option if they needed mental health treatment (Kim, et al., 2011).

Supplements such as SAMe and St. John's Wort have been used postnatally and there is some evidence of efficacy, but not enough information on safety antenatally to recommend treatment (Freeman, 2009). Omega-3 fatty acids do seem to be safe and generally beneficial to health and development in pregnancy, and results on treatment for depression are somewhat mixed but promising, especially in conjunction with other therapies (Freeman, 2009; Freeman et al., 2008).

Bright light therapy has had positive effects with depression outside of pregnancy, and a few small studies have suggested it is promising for antenatal depression with relatively low risk (Freeman, 2009), though one study did report a case of hypomania triggered by bright light, pointing up the need for awareness and assessment of bipolar disorder (Chessick & Dimidjian, 2010).

Acupuncture is a traditional treatment that has been used for depression; most of the research literature is difficult to evaluate from a western perspective because it is published in Asian languages and represents different models of diagnosis and research (Freeman, 2009). However, one small randomized controlled trial compared acupuncture with massage, and found decreased rates of depression in the group treated with a depression-specific acupuncture protocol (Manber, Schnyer, Allen, Rush, & Blasey, 2004).

Several studies have suggested that massage during pregnancy, particularly moderate pressure massage, reduces depression and anxiety and lowers cortisol levels (Field, Diego, & Hernandez-Reif, 2010; Field, Diego, Hernandez-Reif, Deeds, & Figueiredo, 2009). When massage is provided by the woman's partner, not only does her mood improve, but the partner's as well, and there is an increase in ratings of relationship quality (Field, Diego, & Hernandez-Reif, 2010). This research group has also reported that infants of depressed mothers who receive massage during pregnancy have more favorable neurobehavioral profiles than a comparison group (Field, Hernandez-Reif, & Diego, 2006).

It seems possible that at least part of the effect of interventions such as massage, meditation, and music therapy are mediated by a state of relaxation; a few studies have found an immediate positive impact of relaxation on mood (Urech et al., 2010) and fetal response (Fink et al., 2011); however, this may be more complex in clinical samples. One study found

less effect of a single session of relaxation in women who were highly anxious than in those with lower anxiety (Alder, Urech, Fink, Bitzer, & Hoesli, 2011). There are no controlled studies of clinical relaxation training in distressed pregnant women, but this seems a promising area for investigation.

Biofeedback can be used as a tool for teaching relaxation, and has been shown to have a positive effect in decreasing frequency of migraines during pregnancy (Airola et al., 2010). Biofeedback teaches control over physiological processes that initially seem out of conscious control. There is some evidence that the magnitude of the physiological stress response is related to the extent to which the individual has control over the stressor (Charil, et al., 2010), and in a stressful situation, women who see themselves as having more control over the stress are less vulnerable to depression (Grote, et al., 2007). For this reason, biofeedback, perhaps combined with some cognitive interventions to help women to assess their situation and identify the most effective coping strategies, might be a particularly effective intervention during pregnancy, when many women experience their body and the process of medical care during pregnancy as being out of control.

7. Conclusion

The antenatal period presents an opportunity, when women and their partners are at a point of disequilibrium, reorganizing their perspectives, priorities, and relationships in order to make way for the new family member. This can represent a crisis, but also may be a point at which they are open to change, and are in contact with systems and services that might be supportive to positive change. Interventions that use natural relationships and supports and build those relationships, such as training partners to provide massage (Field, et al., 2009), seem particularly promising, perhaps along with encouraging women to choose among various methods of relaxation (e.g., music, biofeedback, meditation, guided imagery), and exercise (aqua exercise, walking, yoga, Qi, etc). These are low cost, low risk ideas that could be promoted for all pregnant women, and perhaps offered with more support and prompting to women who show signs of mild to moderate distress.

For women who are clearly struggling with significant levels of depression and/or anxiety, encouraging social support and self-care, as above, may need to be augmented with brief psychotherapy such as ITP-B (Grote, et al., 2009). This model may be particularly appropriate because the emphasis on assessing and addressing relationship problems has the best chance of helping women who are in abusive or conflicted relationships, given the consistent links between perinatal distress and social support, relationship quality, and domestic violence.

If the level or nature of the anxiety and/or depression is such that the woman does not get relief from psychosocial strategies, and the distress is impacting her functioning and self-care, there is significant risk to the baby and to the mother's long-term wellbeing, and she may be encouraged to consider medication. Ideally, she will have an ongoing relationship with a therapist who can help the woman and her partner to consider treatment options and make choices that fit with their values and expectations, and to feel empowered, rather than overwhelmed and disempowered, by the experience of choice. In this instance, it seems wise to invest resources in an ongoing relationship with a therapist who knows the family well and can help the vulnerable mother to manage the transition to parenthood, recognizing

and supporting her strengths and providing emotional support, perspective, information, and problem-solving skills. Postnatally, then, the therapist can be alert to needs and issues as they arise, both in the mother's mood and functioning, and also assessing and fostering sensitivity and attunement to the infant's needs (Grant, et al., 2010).

There is considerable promise in the richness of support and diversity of approaches that can be offered to women during pregnancy, but there are also significant barriers that must be acknowledged and addressed in order to promote the wellbeing of developing families. For many people, the stigma of being labelled "depressed" or of accessing mental health services is daunting, and they are unwilling to make use of help that requires them to adopt the role of patient in a mental health setting. This may be part of the reason such a small proportion of women with significant depression access services, and in planning services, it is important to consider the language used and the location of the services in order to make them more accessible and acceptable to the women who need them. It is also important to acknowledge the realities of the lives of women who are struggling during pregnancy; many are poor, have other children, and have limited transportation and time; services that tailor their approach to the realistic needs of their clients, and which are respectful of the culture and context of the women they serve, are more likely to be successful (Grote, et al., 2009). This applies as much to the array of complementary and preventative services as to psychotherapy. Recommending yoga to a poor single parent with three children under five is unlikely to be successful, but taking the time to get to know the woman, and finding out whether she might be able to listen to music, attend church services, or arrange to walk with a friend, may be to take a step with her toward more effective self-care, in hopes that this will enable her to be more emotionally balanced and available to her children.

This chapter has focused almost exclusively on the problems and needs of pregnant women; it is important to recognize and address, as well, the problems and needs of the partners of pregnant women, who are also grappling with many changes during the transition to parenthood (Boyce, Condon, Barton, & Corkindale, 2007; Genesoni & Tallandini, 2009). Development of intervention strategies that include partners, and acknowledge their needs, is an area of growing interest , but one in which there is relatively little research so far.

Pregnancy is a time of transition, and is ripe with risk, but also with opportunity. It is a time when those who serve women and families must be alert to distress, and sensitive to the social pressures that may lead women to hide their distress and to dismiss their own needs. A woman's needs at this time are inseparable from her baby's needs, and the needs of society are served by providing support and care to all developing families.

8. Acknowledgements

9. References

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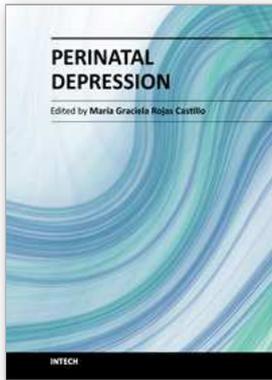
Perinatal Depression

Edited by Dr. María Graciela Rojas Castillo

This book presents ten chapters that give us important information about epidemiological, biological, clinical and psychological aspects of common mental disorders during pregnancy and in the postnatal period. Some of the issues covered in this book are: detecting postnatal depression using different instruments at the right time, which is very important to avoid the negative effects on the children of depressed mothers; understanding the impact of anxiety and depression during pregnancy and in the postnatal period; biological issues of perinatal anxiety and depression; epidemiological information about perinatal mental health problems among minorities, like immigrant population and underserved rural women. Some information is also provided on postnatal depression in men, which is frequently overlooked.

How to reference

In order to correctly reference this scholarly work, feel free to copy and paste the following:

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