

MATERNAL MENTAL HEALTH
&
CHILD HEALTH AND DEVELOPMENT

Literature review of risk factors and interventions on
Postpartum Depression

DEPARTMENT OF MENTAL HEALTH AND SUBSTANCE ABUSE



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CHAPTER 1: RISK FACTORS FOR POSTPARTUM DEPRESSION

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CHAPTER 1: RISK FACTORS FOR POSTPARTUM DEPRESSION

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CHAPTER SUMMARY

Introduction / Background

Postpartum non-psychotic depression is the most common complication of childbearing affecting approximately 10-15% of women and as such represents a considerable public health problem affecting women and their families. This chapter will provide a synthesis of the recent literature pertaining to risk factors associated with developing this condition.

Methods

Databases relating to the medical, psychological and social science literature were searched using specific inclusion criteria and search terms, to identify studies examining risk factors for postpartum depression. Studies were identified and critically appraised in order to synthesize the current findings. The search resulted in the identification of two major meta-analyses conducted on over 14,000 subjects, as well as newer subsequent large-scale clinical studies. The results of these studies were then summarized in terms of effect sizes as defined by Cohen.

Key Findings

The findings from the meta-analyses of over 14,000 subjects, and subsequent studies of nearly 10,000 additional subjects found that the following factors were the strongest predictors of postpartum depression: depression during pregnancy, anxiety during pregnancy, experiencing stressful life events during pregnancy or the early puerperium, low levels of social support and having a previous history of depression. Moderate predictors were high levels of childcare stress, low self esteem, neuroticism and infant temperament. Small predictors were obstetric and pregnancy complications, negative cognitive attributions, quality of relationship with partner, and socioeconomic status. Ethnicity, maternal age, level of education, parity and gender of child (in Western societies) were not predictors of postpartum depression.

Critical appraisal of the literature revealed a number of methodological and knowledge gaps that need to be addressed in future research. These include examining specific risk factors in women of lower socioeconomic status, risk factors pertaining to teenage mothers, and the use of appropriate instruments for assessing postpartum depression in different cultural groups.

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Introduction

The postnatal period is well established as an increased time of risk for the development of serious mood disorders. There are three common forms of postpartum affective illness: the blues (baby blues, maternity blues), postpartum (or postnatal) depression and puerperal (postpartum or postnatal) psychosis each of which differs in its prevalence, clinical presentation, and management.

Postpartum non-psychotic depression is the most common complication of childbearing affecting approximately 10-15% of women and as such represents a considerable public health problem affecting women and their families (Warner et al., 1996). The effects of postnatal depression on the mother, her marital relationship, and her children make it an important condition to diagnose, treat and prevent (Robinson & Stewart, 2001).

Untreated postpartum depression can have adverse long-term effects. For the mother, the episode can be the precursor of chronic recurrent depression. For her children, a mother's ongoing depression can contribute to emotional, behavioral, cognitive and interpersonal problems in later life (Jacobsen, 1999).

If postpartum depression is to be prevented by clinical or public health intervention, its risk factors need to be reliably identified, however, numerous studies have produced inconsistent results (Appleby et al., 1994; Cooper et al., 1988; Hannah et al., 1992; Warner et al., 1996). This chapter will provide a synthesis of the recent literature pertaining to risk factors associated with developing this condition.

Postpartum Affective Illness

Postpartum Period & Increased Risk of Severe Psychiatric Illness

The association between the postpartum period and mood disturbances has been noted since the time of Hippocrates (Miller, 2002). Women are at increased risk of developing *severe psychiatric illness* during the puerperium. Studies have shown that a woman has a greatly increased risk of being admitted to a psychiatric hospital within the first month postpartum than at any other time in her life (Kendell et al., 1987; Paffenbarger, 1982). Up to 12.5% of all psychiatric hospital admissions of women occur during the postpartum period (Duffy, 1983).

However recent evidence from epidemiological and clinical studies suggests that mood disturbances following childbirth are not significantly different from affective illnesses that occur in women at other times. Population based studies in the USA and the United Kingdom, for instance, have revealed similar rates of less severe depressive illness in puerperal and nonpuerperal cohorts (Cox et al., 1993; Kumar & Robson, 1984; O'Hara et al., 1991a). Also, the clinical presentation of depression occurring in the puerperium is similar to major depression occurring at other times, with symptoms of depressed mood, anhedonia and low energy and suicidal ideation commonplace.

Clinical Classification of Postpartum Illnesses

There has long been controversy as to whether puerperal illnesses are separate, distinct illnesses (Hamilton, 1982; Hays & Douglass, 1984; Hays, 1978) or episodes of a known psychiatric disorder such as affective disorders or schizophrenic psychoses, which occur coincidentally in the puerperium or are precipitated by it (Platz & Kendell, 1988; Robling et al., 2000).

Brockington (1988) argues that childbirth should be seen as a general stressor, like any other ‘life event’ which can trigger an attack of illness across the whole spectrum of psychiatric disorders. This view is now generally accepted and is supported by the wide variety of clinical disorders which follow childbirth, and the variety of symptoms which are found in illnesses which start after delivery.

Postpartum Affective Disorders

Postpartum affective disorders are typically divided into three categories: postpartum blues, nonpsychotic postpartum depression and puerperal psychosis.

The prevalence, onset and duration of the three types of postpartum affective disorders are shown in Table 1-1 (Adapted from Nonacs & Cohen, 1998). Each of them shall be discussed briefly.

Table 1-1. Postpartum Affective Disorders: Summary of Onset, Duration & Treatment

Disorder	Prevalence	Onset	Duration	Treatment
Blues	30 – 75%	Day 3 or 4	Hours to days	No treatment required other than reassurance
Postpartum Depression	10 – 15%	Within 12 months	Weeks – months	Treatment usually required
Puerperal Psychosis	0.1 – 0.2 %	Within 2 weeks	Weeks - months	Hospitalization usually required

Postpartum Blues

Postpartum blues is the most common observed puerperal mood disturbance, with estimates of prevalence ranging from 30-75% (O'Hara et al., 1984). The symptoms begin within a few days of delivery, usually on day 3 or 4, and persist for hours up to several days. The symptoms include mood lability, irritability, tearfulness, generalized anxiety, and sleep and appetite disturbance. Postnatal blues are by definition time-limited and mild and do not require treatment other than reassurance, the symptoms remit within days (Kennerly & Gath, 1989; Pitt, 1973).

The propensity to develop blues is unrelated to psychiatric history, environmental stressors, cultural context, breastfeeding, or parity (Hapgood et al., 1988), however, those factors may influence whether the blues lead to major depression (Miller, 2002). Up to 20% of women with blues will go on to develop major depression in the first year postpartum (Campbell et al., 1992; O'Hara et al., 1991b).

Postpartum Depression

As the focus of this chapter is postpartum depression, only a brief overview shall be provided here. Data from a huge population based study showed that nonpsychotic postpartum depression is the most common complication of childbearing, occurring in 10-15% of women after delivery (O'Hara & Swain, 1996). It usually begins within the first six weeks postpartum and most cases require treatment by a health professional.

The signs and symptoms of postpartum depression are generally the same as those associated with major depression occurring at other times, including depressed mood, anhedonia and low energy. Reports of suicidal ideation are also common.

Screening for postnatal mood disturbance can be difficult given the number of somatic symptoms typically associated with having a new baby that are also symptoms of major depression, for example, sleep and appetite disturbance, diminished libido, and low energy (Nonacs & Cohen, 1998). Whilst very severe postnatal depressions are easily detected, less severe presentations of depressive illness can be easily dismissed as normal or natural consequences of childbirth.

Puerperal or Postpartum Psychosis

Very severe depressive episodes which are characterized by the presence of psychotic features are classed as postpartum psychotic affective illness or puerperal psychosis. These are different from postpartum depression in aetiology, severity, symptoms, treatment and outcome.

Postpartum psychosis is the most severe and uncommon form of postnatal affective illness, with rates of 1 – 2 episodes per 1000 deliveries (Kendell et al., 1987). The clinical onset is rapid, with symptoms presenting as early as the first 48 to 72 hours postpartum, and the majority of episodes developing within the first 2 weeks after delivery. The presenting symptoms are typically depressed or elated mood (which can fluctuate rapidly), disorganized behaviour, mood lability, and delusions and hallucinations (Brockington et al., 1981). Follow-up studies have shown that the majority of women with puerperal psychosis meet criteria for bipolar disorder (Brockington et al., 1981; Dean & Kendell, 1981; Kendell et al., 1987; Klompenhouwer & van Hulst, 1991; Kumar et al., 1995; Meltzer & Kumar, 1985; Okano et al., 1998; Robling et al., 2000; Schopf et al., 1984).

Research evidence has shown that risk factors for puerperal psychosis are biological and genetic in nature (see Jones et al., 2001). Psychosocial and demographic factors are probably not major factors in the development of puerperal psychosis (Brockington et al., 1990; Dowlatshahi & Paykel, 1990).

Compelling evidence from recent studies of puerperal psychosis suggest that the major risk factor for developing the illness is genetic. Jones & Craddock (2001) found that the rate of puerperal psychosis after deliveries in women with bipolar disorder was 260 / 1000 deliveries, and the rates of puerperal psychosis for

women with bipolar disorder who also had a family history of puerperal psychosis was 570 / 1000 deliveries. This compares to a risk in the general population of 1-2 / 1000 deliveries.

Due to the nature of psychotic or depressive symptoms, new mothers are at risk of injuring their children through neglect, practical incompetence or command hallucinations or delusions (Attia et al.,1999). Infanticide is rare, occurring in 1-3 / 50,000 births (Brockington & Cox-Roper, 1988; Jason et al.,1983), however, mothers with postpartum psychotic disorders commit a significant percentage of these, and estimates suggest that 62% of mothers who commit infanticide also go on to commit suicide (Gibson, 1982). Because of these serious consequences, early diagnosis and treatment interventions of postnatal illnesses are imperative for the health and well being of the mother and child (Attia et al., 1999).

Puerperal psychosis requires hospitalization for treatment (Nonacs & Cohen, 1998). Although the prognosis is generally favourable and women fully recover they are at risk of developing further puerperal and nonpuerperal episodes of bipolar affective disorder (Reich & Winokur, 1970; Schopf et al., 1984).

Postpartum Depression: Clinical & Diagnostic Issues

Postpartum depression is the most common complication of childbearing and as such represents a considerable public health problem affecting women and their families (Warner et al., 1996). The effects of postnatal depression on the mother, her marital relationship, and her children make it an important condition to diagnose, treat and prevent (Robinson & Stewart, 2001).

Untreated postpartum depression can have adverse long term effects. For the mother, the episode can be the precursor of chronic or recurrent depression. For her children, a mother's ongoing depression can contribute to emotional, behavioral, cognitive and interpersonal problems in later life (Jacobsen, 1999).

If postpartum depression is to be prevented by clinical or public health intervention, its risk factors need to be reliably identified, however, numerous studies have produced incomplete consensus on these (Warner et al., 1996; Cooper et al., 1988; Hannah et al., 1992). The remainder of this chapter will provide a synthesis of the recent literature pertaining to risk factors associated with developing the illness.

Prevalence

O'Hara & Swain (1996) in a meta analysis of 59 studies from North America, Europe, Australasia and Japan (n=12,810 subjects), found an overall prevalence rate of postpartum depression of 13%. This was based on studies that assessed symptoms after at least two weeks postpartum (to avoid confounding of postpartum blues) and used a validated or standardized measure to assess depression.

Maternal Age

It should be noted that the literature pertains to adult women of 18 years and older. Research which has examined the rates of postpartum depression in mothers aged 14 - 18 years (n=128) showed a much higher

rate of illness, approximately 26% (Troutman & Cutrona, 1990). However, within this younger population there may be risk factors which predispose not only to postpartum depression, but also to pregnancy during adolescence and therefore are not independent risk factors for postpartum depression. This is a population which requires further research to establish specific risk factors.

Clinical Presentation

Postpartum depression usually begins within 1–12 months after delivery. In some women, post partum blues simply continue and become more severe. In others, a period of wellbeing after delivery is followed by a gradual onset of depression. The patterns of symptoms in women with postpartum depression are similar to those in women who have depression unrelated to childbirth (Wisner, Parry, & Piontek, 2002), apart from the fact that the content may focus on the delivery or baby. Evidence from epidemiological and clinical studies suggests that mood disturbances following childbirth are not significantly different from affective illnesses that occur in women at other times (Cox et al., 1993; Kumar et al., 1984; O'Hara et al., 1991a) .

Postpartum depression is characterized by tearfulness, despondency, emotional lability, feelings of guilt, loss of appetite, and sleep disturbances as well as feelings of being inadequate and unable to cope with the infant, poor concentration and memory, fatigue and irritability (Robinson et al., 2001). Some women may worry excessively about the baby's health or feeding habits and see themselves as 'bad', inadequate, or unloving mothers (Robinson et al., 2001).

Diagnosis

There are two main classification systems used within psychiatry: The American Psychiatric Association's Diagnostic & Statistical Manual of Mental Disorders now in its fourth edition (DSM-IV, 1994) and the 10th edition of the International Classification of Diseases, (ICD-10), published by the World Health Organization (World Health Organization, 1993).

The DSM-IV (American Psychiatric Association, 1994) and ICD-10 (World Health Organization, 1993) contain standardized, operationalized diagnostic criteria for known mental disorders, and are used globally to diagnose patients within clinical and research settings. The Research Diagnostic Criteria (RDC), (Spitzer, Endicott, & Robins, 1978) is also commonly used within research studies as a means of classifying psychiatric disorders.

As previously stated, the literature suggests that postpartum mood disturbances do not differ significantly from affective illnesses that occur in women at other times (Cox et al., 1993; Kumar et al., 1984; O'Hara et al., 1991a; O'Hara et al., 1991b).

At present, postpartum depression is not classified as a separate disease in its own right: it is diagnosed as part of affective or mood disorders in both DSM-IV (American Psychiatric Association, 1994) and ICD-10 (World Health Organization, 1993). Within DSM-IV there is a specifier 'with postpartum onset' to

identify affective or brief psychotic episodes that occur during the postpartum period: an episode is specified as having a postpartum onset if it occurs *within the first 4 weeks* after delivery (American Psychiatric Association, 1994). Similarly in ICD-10, the episode must be diagnosed within a main diagnostic category with the specifier to indicate the association with the puerperium (World Health Organization, 1993).

The symptoms required to meet DSM-IV criteria for a major depressive episode are shown in Figure 1-1.

Figure 1-1. DSM-IV Criteria for Major Depressive Disorder

<p>Criteria for Major Depressive Episode</p> <p>Five (or more) of the following symptoms 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.</p> <p>Note: Do not include symptoms that are clearly due to a general medical condition, or mood-incongruent delusions or hallucinations.</p> <ul style="list-style-type: none">➤ Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g. feels sad or empty) or observation made by others (e.g. appears tearful)➤ Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others)➤ 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➤ Insomnia or hypersomnia nearly every day➤ Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)➤ Fatigue or loss of energy nearly every day➤ Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)➤ Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others)➤ 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➤ The symptoms do not meet criteria for a Mixed Episode➤ The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning➤ The symptoms are not due to the direct physiological effects of a substance (e.g. a drug of abuse, a medication) or a general medical condition (e.g. hypothyroidism)➤ The symptoms are not better accounted for by Bereavement, i.e. after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms or psychomotor retardation.➤ Postpartum onset specifier: Onset of episode within 4 weeks postpartum

Defining Temporal Criteria

An obvious limitation of the temporal criteria used within DSM-IV is that it excludes all cases which have an onset later than 4 weeks postpartum. This has implications for establishing accurate prevalence rates of the illness, as cases with an onset later than 4 weeks could not easily be identified as being related to childbirth in many studies.

The maximum time interval used to define the puerperal period differs among studies. Some authors e.g. Paffenbarger (1982), Arentsen (1968) defined puerperal illness as any illness leading to hospital admission within 6 months of delivery. Others, like Brockington et al. (1982) have argued that the time interval should be restricted to illnesses starting within 2 or 3 weeks of delivery. Kendell et al. (1987) argued that if the onset criteria is hospital admission or contact, a cut-off point of 90 days is the most appropriate.

Based on the results of epidemiological studies, the time frame most commonly used to specify a postpartum onset within research studies ranges from 3 months (Kendell et al., 1987) to up to 12 months after delivery (Miller, 2002). This is to ensure that all cases of postpartum depression are included within research studies to provide accurate information on the clinical and diagnostic aspects of the illness.

Diagnostic Definitions

The term ‘postpartum depression’ refers to a nonpsychotic depressive episode that begins in the postpartum period (Cox et al., 1993; O’Hara, 1994; Watson et al., 1984).

In past research, these depressions have been defined in a number of ways (O’Hara & Zekoski, 1988) however, more recent and rigorous studies have defined postpartum depression based on standardized diagnostic criteria for depression including DSM-IV (American Psychiatric Association, 1994) ICD-10 (World Health Organization, 1993) and RDC .

As previously stated, screening for postnatal mood disturbance can be difficult given the number of somatic symptoms typically associated with having a new baby that are also symptoms of major depression (Nonacs et al., 1998). Distinguishing between depressive symptoms and the supposed ‘normal’ sequelae of childbirth, such as changes in weight, sleep, and energy is a challenge that further complicates clinical diagnosis (Hostetter & Stowe, 2002).

For example, although it is difficult to assess sleep disturbance in new mothers, the clinician may ask about the mother’s ability to easily rest or sleep when given the opportunity. Many women with postpartum depression often have such high levels of anxiety that they are unable to rest or return to sleep after getting up with the infant at night.

Postpartum alterations in body weight are highly variable and it is important to ask about a woman’s ‘desire for food’ and ‘whether food tastes good’. The issue of libido should be expanded to include the acceptance of affection.

Further confounding the determination of postpartum depression is the presence of possible physical causes (including anemia, diabetes, and thyroid dysfunction) that could potentially contribute to depressive symptoms (Pedersen et al., 1993).

Assessment of Depression: Clinical & Self Report Measures

Historically several types of outcome measures of depression have been used, however, more recent studies use standardized measures, assessed by clinical interview or self-report (O'Hara et al., 1988).

Semistructured clinical interviews based on diagnostic research criteria allow the elicitation of psychopathological symptoms in order to generate diagnoses. The use of standardized interviews increases the reliability of diagnoses between researchers, and allows researchers to establish and assess the severity of symptoms, through probing questions. The financial and time costs associated with performing face-to-face interviews however restrict their use to a limited number of subjects usually within a research study.

Self-report measures are easier and cheaper to administer and do not require the presence of specifically trained clinicians, thereby enabling a larger sample to be studied. While self-report measures have the advantage of objectivity, they are usually designed to provide diagnostic information. The measures have a 'threshold' or 'cut off' score, which usually indicates that the individual meets symptom criteria for being considered a 'case' (of postpartum depression in this example).

However, the practice of using a 'cut off' score on a rating scale such as the Beck Depression Inventory (BDI) or the General Health Questionnaire (GHQ), to identify women with postpartum depression can lead to misclassification. High scores on such measures may reflect factors other than depression, including physical ill health. For example, the BDI has many items that would be expected to give elevated scores even in the course of a normal pregnancy or puerperium e.g. fatigue, body image, sleep disturbance, loss of libido.

In making a diagnosis of depression, the length of time that the symptoms have been present and the extent to which the symptoms interfere with the woman's usual functioning are pertinent. These considerations are rarely addressed in self-report measures.

In order to address some of these issues, rating scales have been developed specifically for use within a postnatal population. The most well established is the Edinburgh Postnatal Depression Rating Scale (EPDS), a 10 item self rated measure that has been translated into more than a dozen languages and is highly correlated with physician rated depression measures (Cox, Holden, & Sagovsky, 1987).

Using the EPDS women who exceed a threshold score of 10 (within family practices) and 12 (within research studies) have a greater likelihood of being depressed (Cox et al., 1987).

Even though women who are classified as depressed on the basis of a self-report measure may not meet criteria for syndromal depression – e.g. using DSM-IV criteria, they often experience significant personal distress and social morbidity (Johnson, Weissman, & Klerman, 1992; Wells et al., 1989).

Outcomes

The majority of postnatal depressions are self limiting, resolving within months of onset (Kumar et al., 1984; Watson et al., 1984). However, for many women childbirth is the stressor which triggers the start of recurrent or chronic episodes of depressive disorder.

Women who have experienced postpartum depression are at risk of suffering further episodes of illness, both following subsequent deliveries and also unrelated to childbirth (Kumar et al., 1984; Philipps & O'Hara, 1991; Nott, 1987; Warner et al., 1996). After one postpartum episode the risk of recurrence, defined as an episode of illness meeting criteria for DSM-IV major depression, is 25% (Wisner et al., 2002).

Culture & Postpartum Depression

Childbirth & Culture

With a few notable exceptions, most of the relevant research into psychiatric disorders associated with childbearing has been confined to developed countries, mainly in Western Europe and North America (Kumar, 1994).

The physiology of human pregnancy and childbirth is the same all over the world, but the event is conceptualized and structured, and hence, experienced by the mother and by her social group very differently (Kumar, 1994). It has been purported that postpartum depression simply does not exist within certain cultures. Stern and Kruckman (1983) wrote that a review of the anthropological literature revealed surprisingly little evidence of the phenomenon identified in Western diagnoses as postnatal depression.

This conclusion was lent some support by anecdotal observations in Nigeria (Kelly, 1967), South Africa (Chalmers, 1988) and India (Gautam, Nijhawan, & Gehlot, 1982) that nonpsychotic depression after childbirth is rare in such societies. However, higher maternal morbidity rates may result in under-reporting.

It should be noted that these conclusions were based on observational data, and not all studies combined ethnographic field observations with formal diagnostic testing. One should also be aware of the danger of cultural stereotyping, and of the possibility that the presence of disorders such as postpartum depression in particular cultures may go unrecognized (Kumar, 1994).

Aims of Cross Cultural Research

Stern and Kruckman (1983) draw attention to the fact that the defining criteria for depression may vary greatly across different cultural settings, so the problem cannot simply be resolved by applying a Western concept of depression to other cultures.

One of the primary aims of cross-cultural comparative research is to examine whether there are differences in clinical presentation in different settings. Cox (1999) discussed the presentation of 'Amikiro' in Ugandan women; where women express the urge to eat their baby. Whilst Western clinical interviews do

not specifically question women about their desire to eat their baby, through careful questioning, as in semi structured interviews, it would be possible to detect psychological dysfunction in cultural and ethnic settings in which it has been suggested that postpartum depression does not occur.

Similarly, it is important to try to find out whether observed differences in childrearing practices have a mitigating or an exacerbating influence on the possible adverse effects of maternal postnatal illness on the child's psychological development.

Results from Cross-Cultural Studies

Large scale studies comparing rates of postnatal depression across cultures have found similar rates to those reported in Western Europe and North America. Cox's (1983) Ugandan study has shown that African mothers become depressed at a similar rate to those in developed nations. Dennerstein et al. (1989) and Thorpe et al. (1992) have found similar rates of depression after childbirth in comparisons of Australian, Italian and Dutch mothers and of Greek and English mothers, respectively. Jadresic et al. (1992) reported similar prevalence rates in Chilean women, and Shah et al. (1971) found that a quarter of women attending a well baby clinic in India were diagnosed as suffering from "neurotic disorders with a post-partum onset" (and hence likely to be depressive disorders).

One does need to consider the possible limitations of using existing assessment tools within different ethnic groups. For example, Watson & Evans (1986) compared three ethnically different groups of childbearing women using the General Health Questionnaire (GHQ). They found that some questions e.g. 'have you ever felt that life isn't worth living' were perceived as meaningless by Bengali mothers who could not conceive of such a possibility.

Cultural Differences in the Presentation of Psychiatric Symptoms

It is well established that there are marked cultural differences in the way that psychiatric symptoms are presented to health professionals (Kleinman, 1996) with some groups more likely to somatize symptoms.

Upadhyaya et al. (1989) found no marked differences in rates of depression or level of somatic and psychological symptoms between groups of indigenous white and Asian women presenting to clinics in India. However, when their reasons for consulting their doctors were examined, the Asian women consulted exclusively for somatic symptoms whereas the white mothers were more likely to present with depression. This may be linked into women's reluctance to admit to symptoms of depression because of cultural expectations of motherhood.

The rituals adopted within some cultures following childbirth have been purported to protect against the development of postpartum depression. For example, Okano et al. (1992) have drawn attention to the Japanese custom of Satogaeri Bunben in which the new mother stays with her own mother for several weeks after giving birth. They have suggested that there may be a link between the onset of depression and having

to leave the maternal home. Therefore a perceived, or actual, lack of social support may contribute to the onset of the illness.

Summary

There are no major differences in the rates of postnatal depression in the few cross-cultural comparisons that have so far been reported. Differences rather than similarities in incidence rates might have been expected and these important studies need replication and extension in other settings.

Some of the rituals practiced within cultures may be protective against postnatal depression because they provide social and practical support for the new mother.

Psychiatric disorders are heavily stigmatized within many cultures, and women and their families may be reluctant to seek help from health professionals, preferring to try and manage the illness with no outside help. Health professionals may only be consulted when the woman is so severely ill that the family can no longer cope.

The use of standardized assessment tools may not be culturally relevant within certain ethnic groups; there may also be reluctance to discuss issues such as libido or feelings of self-harm as they are deemed inappropriate to be discussed outside of the family.

Risk Factors for Postpartum Depression: Results from Quantitative Studies

Variables which have been investigated as potential risk factors for postpartum depression will be presented and discussed; the results from studies using quantitative and qualitative methods will be presented and discussed separately.

Identification & Evaluation of Literature on Risk Factors for Postpartum Depression

The literature on postpartum depression is vast: in order to identify articles of good quality which reported risk factors for postpartum depression, the following criteria were devised:

Initial Inclusion & Exclusion Criteria

1. Precise definition of postpartum depression stated.

Studies had to clearly describe both the diagnostic and temporal criteria of postpartum depression used. The diagnoses must have been made according to standard operational diagnostic criteria such as RDC, DSM-IV or ICD-10, and the onset of the illness must have been within one year of parturition. This temporal definition ensured that all studies pertaining to depression related to childbirth were included. Only cases of nonpsychotic depression were included.

2. Method of Assessment for Postpartum Depression Specified.

Studies had to specify both the means of assessment for postpartum depression i.e. self-report or clinical interview and the instrument used i.e. the name of questionnaire or interview. These measures needed to have proven reliability and validity.

3. Human studies

4. The study must be empirical and not merely anecdotal evidence or narrative.

5. English language

6. Studies published from 1990 – 2002 (seminal studies conducted prior to 1990 identified through key references, general reading and authors' expertise in area were also included)

7. Timing of Assessment.

The timing of the assessment of depression must have been clearly stated and be greater than 2 weeks postpartum to avoid the reporting of postpartum blues.

8. Definition of Risk Factors.

The variables of interest were defined and measured using appropriate methods. The statistical relationship between the variable and postpartum depression was clearly stated.

Search & Retrieval Strategies

Online searching of databases

Based on advice from Marina Englesakis (MLIS) an Information Specialist in Libraries & Information Services at the University Health Network, we used 20 keywords and employed sophisticated search term strategies including mapping to subject headings and truncation of keywords to include all variants in order to identify all relevant literature.

As researchers from different national backgrounds we are acutely aware of different uses of terminology between North America and Europe (for example, postpartum, postnatal, maternal or puerperal depression). We ensured that all terms in common use to describe depression in the postpartum period were included.

The search terms and databases used to identify potential studies of interest are shown in Tables 1-2 and 1-3. In order to retrieve pertinent studies limits were placed on the search:

Published from 1990 – 2002

English language

Human studies

Table 1-2. Search terms used to identify relevant literature

postpartum depress:.mp.	post partum depress:.mp
postnatal depress:.mp.	post natal depress:.mp.
baby blues	postpartum blues
post partum blues	depression, postpartum
postpartum dysthymia	post partum dysthymia
puerperal disorders	puerperal psychosis
postpartum psychosis	post partum psychosis
risk factors	contribute:.mp.
prevent:.mp.	protect:.mp.
protective factors	perinatal depression

Table 1-3. Databases searched using search terms to identify relevant literature

Medline	PsychInfo
CINAHL- Cumulative Index to Nursing and Allied Health Literature	Campbell Collaborative Reviews
EMBASE- Evidence-Based Medicine	DARE- Database of Abstracts of Reviews of Effectiveness
CDSR-Cochrane Database of Systematic Reviews	Dissertation Abstract International
CCTR- Cochrane Controlled Trials Register	Evidence Based Medicine Reviews-American College of Physicians Journal Club
ProQuest	Web of Science
HealthStar	Social Science Citation Index
U.K. Department of Health Research	National Health Register
WHO Reproductive Health Library	PubMed
CDC-MMWR(Centers for Disease Control and Prevention-Morbidity and Mortality Weekly Report)	

The initial search results generated over 946 potential studies. Excluding duplicates and applying the inclusion criteria, a total of 137 studies were identified and retrieved.

Although a search of unpublished or ‘grey’ literature was conducted, when the inclusion criteria were applied and likely papers reviewed it was determined that they did not contribute to the existing published literature. Therefore only studies published in peer-reviewed journals were retrieved.

Although the database searches should have identified all recent papers, for completeness the tables of contents in 42 key journals within the area, for the last two years were searched, to ensure that suitable papers had not been omitted (see Appendix C). No additional relevant studies were found.

Assessment of Quality

Our strategy for critically appraising retrieved articles incorporated standard procedures, as shown in Table 1-4.

Table 1-4. Critical Appraisal Guide

An assessment of the quality, relevance and contribution of the study to existing literature
The scientific rigour and appropriateness of the research study design
Sampling methods used to identify and recruit subjects
How postpartum depression was measured i.e. self report or diagnostic interview
The reliability and validity of the instrument used to measure postpartum depression
The timing of the assessment for depression i.e. was it long enough after delivery to exclude assessing ‘baby blues’
Evaluation of bias throughout the research process
Evaluation of statistical methods including data collection, use of statistical tests and reporting of data
Appropriateness of conclusions and recommendations drawn from the study

Interpretation & Analysis of Data

Meta Analyses of Risk Factors for Postpartum Depression

The literature search identified two recent meta-analyses of risk factors for postpartum depression which had been conducted by O’Hara & Swain (1996) and Beck (2001). The Beck paper was a follow-up to a previous meta-analysis published in 1996. Due to the importance of these two papers, a discussion of their methodologies and inclusion criteria will follow.

O’Hara & Swain (1996) stated that the main purpose of undertaking the meta-analysis was to quantify the relationships between postpartum depression (defined on the basis of depression severity or diagnosis) and a variety of non-biological or hormonal risk factors.

A meta-analytic approach allows the investigator to summarize, in a quantitative fashion, the results of disparate studies. It yields an effect size that describes the strength of a relationship between two variables that were obtained in at least two independent studies.

Effect sizes may vary from 0 (zero), which indicates a random relationship, to numbers greater than 1. Effect sizes within the meta-analytic studies of O’Hara & Swain (1996) and Beck (2001) are reported in terms of Cohen’s *d*, with a *d* of 0.2 indicating a small relationship, 0.4 indicating a moderate relationship and 0.8 indicating a strong relationship (Cohen, 1977). In the postpartum depression literature effect sizes usually are in the order of 0.2 to 0.5, ‘small to medium’ effect sizes according to Cohen (1977).

A second yield from a meta-analysis is a confidence interval, usually a 95% confidence interval. This confidence interval describes the range in which the ‘true’ population effect size lies, with 95% confidence.

Finally, it is often noted that there is considerable heterogeneity in effect sizes across investigations. Sometimes this heterogeneity can be explained by specific variables that differ across the studies such as different methods used to assess depression or the country in which the study was conducted.

Analysis of New Data within the Context of Published Meta-Analyses

Our search and retrieval strategy allowed us to identify studies that had previously been identified and included in the two meta-analyses, studies that had been conducted or published subsequent to the meta-analyses, and those that had not been included by Beck (2001) or O'Hara & Swain (1996).

Table 7 at the end of the chapter summarizes the results of a selection of primary studies not included in the meta-analyses. These studies have been highlighted because they add to the literature in distinct ways. There are a number of large scale studies in which there was adequate power to detect effects (e.g. Forman et al.,2000; Warner et al.,1996). Other studies had employed systematic consecutive sample recruitment which reduce the risk of bias (e.g. Johnstone et al.,2001). Data were also obtained from samples in which there is a dearth of work, for example diverse cultural groups including Chinese (Lee et al.,2000) and Indian (Patel et al., 2002) women.

The results of these new studies were analyzed in relation to the findings of the meta-analyses. Due to the power of the meta-analyses to detect effects we could comment on whether the newer studies supported the findings of the meta-analyses or whether the interpretation of the contributing factors should be changed as a result of new evidence. For the purposes of this chapter non-significance was defined as the confidence interval containing 0. A summary of the findings of the meta-analyses, and the findings of newer studies are provided in Tables 8 – 10 at the end of the chapter.

It is important, therefore, to be aware of the content of the two meta-analyses, each of which shall be discussed in turn.

Summary of Published Meta-Analyses

Beck 2001: Summary of Criteria & Methods

The search and retrieval strategies employed by Beck were based on Cooper's (1989) five approaches:

1. The ancestry and descendancy approach (i.e. ways of checking prior and subsequent publications from the reference lists in articles)
2. Online computer searching (see table below)
3. Informal contacts at professional research conferences and
4. Abstracting services
5. The keywords used to search, limitations on articles retrieved and the databases these terms were used in are shown below in Figure 1-2.

Figure 1-2. Keywords, databases and years included in Beck’s meta-analysis (2001)

Databases Searched by Beck	Limits	Keywords
CINAHL Medline Psych Info Eric Popline Social Work Abstract Sociological Abstracts Dissertation abstracts JREF	Articles published between 1990 – 1999	“postpartum depression” “postnatal depression” “puerperal depression” “predictors AND risk factors”

In order to be included in the meta-analysis studies had to meet the following criteria:

- The study assessed the relationship between postpartum depression and predictor variables
- The mood disorder was measured after 2 weeks postpartum to comply with DSM-IV (American Psychiatric Association, 1994) diagnostic criteria and also to avoid measuring blues inadvertently
- Adequate statistics were present in the results to allow meta analytic calculations
- If an F or χ^2 statistics was used to analyze data, a degree of freedom of 1 was necessary to avoid unfocused, general comparisons between several means.

Beck identified a total of 84 studies which met her inclusion criteria. The methodological quality of each paper was assessed in terms of:

- Sampling methods
- How postpartum depression was measured i.e. self report or diagnostic interview
- The reliability and validity of the instrument used to measure postpartum depression
- Research design
- Timing of the assessment for postpartum depression
- Data analysis

O’Hara and Swain 1996: Summary of Criteria & Methods

O’Hara and Swain gave details of their inclusion criteria but did not explicitly state their retrieval strategies. In order to be included in O’Hara and Swain’s analyses, the study had to fulfill the following criteria:

- A reported statistical relationship between the variable of interest and postpartum depression.
- The variable of interest was assessed either during pregnancy or delivery.
- Subjects were recruited through random or quasi-random sampling techniques.
- Depression was assessed after at least two weeks postpartum (to avoid confounding of postpartum blues).

- Postpartum depression was assessed using a validated or standardized measure.
- O'Hara and Swain identified a total of 77 studies which met their inclusion criteria.

Evaluation of the studies

Although the identification and retrieval strategies for the meta-analyses appear similar, there are differences that may result in differing scientific quality of the papers retrieved. The databases included in Beck's search (ibid) are more obscure and return higher numbers of unpublished work and dissertations. With few exceptions, the studies identified by O'Hara and Swain (ibid) had all been published in peer-reviewed journals and subjected to methodological and statistical review. Within Beck's meta-analysis (ibid) a number of less rigorous definitions of concepts were used, for example, 'life stress' rather than objective measures of 'life events'. Similarly, a number of factors were examined which were measured postpartum and be reflective of the mother's depressed mood, including self-esteem and measures of child temperament. It was on occasion unclear which measures or questionnaires had been used and whether there were differences in scores depending on which measure had been used. O'Hara and Swain (ibid) explicitly stated and differentiated between measures used within studies and commented for each variable on the heterogeneity of study results.

Therefore, more weight would be given to the findings of O'Hara and Swain due to the more rigorous analytical methods used, and the confidence with which the results can be interpreted based on the detail provided on methods of assessment, sample size and differences between countries or cultures.

A summary of each of the studies are shown in Tables 1-5 and 1-6, including the number of studies and subjects included, where the studies were conducted, the variables examined and their significance as well as limitations and comments on the studies.

Table 1-5. Summary of Meta-Analysis by O’Hara and Swain (1996)

Number of Studies & Subjects	Where Studies Conducted	Variables Examined	Effect Size Level	Comments
77 Studies 12, 210 Subjects	Europe N. America Asia Japan Australasia	Sociodemographic	Non-significant	Very well designed meta-analysis
		Clinical Factors Depression during pregnancy Prenatal anxiety Previous history of depression Family history of depression	Moderate/Strong Moderate Moderate No association	
		Obstetric & Infant Related Factors Obstetric & Pregnancy complications	Small	All factors measured antenatally so higher predictive power
		Psychological Factors Cognitive attributions Neuroticism	Small Moderate	All studies used standardized instruments to measure risk factors
		Social Factors Life events Social support Marital status Marital relationship (DYAS) Income	Small Moderate Moderate No association Small Small	High number of studies used clinical interviews for diagnosis
				Limitation: 3 / 77 studies were unpublished

Table 1-6. Summary of Meta-Analysis by Beck (2001)

Number of Studies & Subjects	Where Studies Conducted	Variables Examined	Effect size Level	Limitations
84 Studies Approx. 3000 Subjects	Europe N. America S. America Asia Japan Australasia Africa Middle East China	Clinical Factors Depression during pregnancy Prenatal anxiety Maternity blues Previous history of depression	Moderate Moderate Small Moderate	30 / 84 unpublished studies Unable to calculate accurate sample size due to high number of unpublished studies Factors measured postpartum may be influenced by mother's depressed mood Could not establish which instruments or measures had been used for some variables Some factors may reflect mood state i.e. self-esteem, reports of child behaviour Few studies used clinical interviews to diagnose depression Cannot establish whether there are differences in scores when different instruments used Less rigorous definitions of concepts used compared to O'Hara & Swain
		Obstetric & Infant Related Factors Unplanned / unwanted pregnancy Childcare stress Infant temperament	Small Moderate Moderate	
		Psychological Factors Self-esteem	Moderate	
		Social Factors Life stress Social support Marital status Marital relationship Socioeconomic status	Moderate Moderate Small Moderate Small	

Contributing Factors to Postpartum Depression

Multifactorial Models of Psychiatric Illness

When interpreting studies of aetiological factors of psychiatric illness, it is important to remember that it is highly likely that there is no one single cause. Genetic and biological studies of mood disorders indicate that they are complex diseases, and even if an individual has a genetic vulnerability or predisposition to developing depression, there have to be experiential and environmental factors which interact to cause the illness (Dubovsky & Buzan, 1999). Therefore, it is likely that a number of these factors play a role in the development of postpartum depression.

Biological Factors

Although the focus of the meta-analyses focused on non-biological risk factors it is necessary to provide an overview of biological theories of postpartum depression.

The rapid decline in the levels of reproductive hormones that occur after delivery has been proposed as a possible aetiology of postpartum affective disorders (Wisner et al., 2002). Following childbirth, progesterone and estrogen levels fall rapidly, returning to prepregnancy levels within 3 days. When estrogen falls after birth, prolactin, which has risen during pregnancy, is no longer blocked and lactation is initiated. Suckling by the infant stimulates the secretion of oxytocin. The usual cyclical variation of androgens is absent during both pregnancy and lactation. Plasma corticosteroids reach a peak during labour and decrease significantly within 4 hours postpartum. Thyroid function returns to prepregnancy levels approximately 4 weeks after delivery (Robinson et al., 2001).

There is no conclusive evidence for a relationship between the various neurotransmitter systems, free or total tryptophan levels, or cortisol levels and symptoms of postpartum depression (Llewellyn, Stowe, & Nemeroff, 1997). However, Harris (1996) showed a minor association of postpartum depression and thyroid dysfunction in thyroid antibody positive women.

Although it has been suggested that postnatal depression is caused by low levels of progesterone or estrogen or high levels of prolactin, no consistent relationships have been found (Harris, 1994; Hendrick, Altshuler, & Suri, 1998).

A recent study by Bloch, Schmidt, Danaceau et al. (2000) tested the hypothesis that a subgroup of women may have a differential sensitivity to reproductive hormones, and that in this group normal endocrine events related to childbirth may trigger an affective episode. In order to test the hypothesis, they used a scaled down model to simulate some of the hormonal events of pregnancy and childbirth. They tested two groups of women, 8 of whom had a history of postnatal depression and 8 women without a history of postnatal depression. Both groups of women were given a gonadotrophin releasing hormone agonist to

simulate the supraphysiological gonadal steroid levels of pregnancy over an eight week period and then these were withdrawn to simulate childbirth.

Five of the eight women with a history of postpartum depression developed significant affective symptoms during the withdrawal period; none of the 8 women who did not have a history of postnatal depression experienced any mood symptoms during the withdrawal period. The authors concluded that these data provided support for the involvement of estrogen and progesterone in the development of postnatal depression in a subgroup of women.

Limitations

It should be noted that there are several methodological problems that hampered studies on the biological basis of postpartum disorders (Robinson et al., 2001). Early researchers could not accurately assay hormones, particularly free unbound plasma concentrations. Psychological rating scales differed between studies, some were confounded by the normal physical symptoms of the puerperium, and as such were obviously inappropriate measures of the maternal mental states. Blood sampling often took place at inappropriate times, ignoring activities such as breastfeeding which can alter hormone levels. Seasonal variations in hormones and circadian rhythms were often overlooked. Studies that examined one hormone were inadequate because of complex endocrine interactions (Robinson et al., 2001).

As previously discussed, postpartum depression is best thought of as having multiple causal factors. Even if some women are more susceptible to hormonal changes the role of environmental factors in the development of the illness needs to be considered.

Obstetric Factors

Obstetric factors can include pregnancy related complications such as preeclampsia, hyperemesis, premature contractions as well as delivery related complications, such as emergency / elective caesarean, instrumental delivery, premature delivery and excessive bleeding intrapartum.

Obstetric Complications

In their meta-analysis, O'Hara and Swain (1996) included 13 studies comprising over 1350 subjects that examined the effects of obstetric factors. They concluded that obstetric factors had a small effect (0.26) on the development of postpartum depression.

More recent studies, (published after the meta analyses or those not included in the meta analyses) found no overall statistically significant relationship between obstetric factors and postpartum depression.

For example, two large independent studies by Warner et al. (1996) (N=2375) and Forman et al (2000) (N=5292), found no statistical relationship between obstetric complications and postpartum depression based on both multivariate and univariate analysis.

Similarly, Johnstone et al. (2001) (N=490) reported no association between obstetric history, labour and delivery, complications of pregnancy and infant details and postpartum depression. They did, however find a nonsignificant trend between antepartum hemorrhage, forceps, multiparity and postpartum depression. Josefsson et al. (2002), in their case control study (n=396), reported a similar nonsignificant association between delivery complications and depression at 6 months postpartum.

Caesarean Section

The evidence relating to Caesarean section and postpartum depression suggests that there is no association between the two variables. Warner et al. (1996) and Forman et al. (2000) found no significant association between elective or emergency caesarean section and subsequent postpartum depression. Johnstone et al. (2001) reported a nonsignificant trend between postpartum depression and caesarean section.

Boyce et al (1992) found a highly significant correlation between caesarean section and developing postpartum depression at 3 months. They reported that women within their study who had an emergency caesarean section had more than six times the risk of developing postpartum depression. These results were supported by Hannah et al. (1992) who found a strong association between caesarean section and postpartum depression at 6 weeks.

It is highly probable that the positive findings reported merely reflect statistical trends. Within such large samples, one would expect by probability alone to achieve statistically significant results for 1 in 5 tests. However, when the results from the meta-analysis and a further 9,000 subjects are considered there is no significant relationship between Caesarean section and the onset of postpartum depression.

Unplanned / Unwanted Pregnancy

Beck (1996) examined the effects of an unplanned or unwanted pregnancy and developing postpartum depression. She included the results from 6 studies that comprised 1200 subjects, and found a small effect size. These results were supported by Warner et al. (1996) who found a significant relationship between unplanned pregnancy and depression at 6 weeks postpartum in a sample of 2375 women.

Unplanned or unwanted pregnancy as a risk factor for postpartum depression should be interpreted very cautiously. It does not measure the woman's feelings towards the growing fetus but merely the circumstances in which the pregnancy occurred.

Breast Feeding

The evidence relating to breastfeeding as a potential risk factor is equivocal. Warner et al. (1996) found that **not** breastfeeding at 6 weeks postpartum was significantly associated with postpartum depression (N=2375). Hannah et al. (1992) supported these findings in a sample of 217 women. However, Forman et al. (2000) (N=5292) did not find any relationship between not breastfeeding and postpartum depression.

The reasons for the equivocal findings reported between breastfeeding and the onset of postpartum depression may reflect non-illness related factors, such as the woman's preference or hospital policy rather than an aetiological relationship.

Summary

In summary, the evidence suggests that obstetric factors make a small but significant contribution to the development of postpartum depression. Despite the fact that most of the studies were prospective, self reported, multi site sampling with large sample sizes, the timing of the evaluation of postpartum depression differed between studies. O'Hara and Swain (1996) indicated that using relatively short time frames (e.g. 2 weeks) had significant effects on the strength of the relationship between putative risk factors and postpartum depression.

However, there was heterogeneity between the methods of assessment of depression. Those studies that diagnosed depression using interview methods found a weak association between obstetric complications, but depression assessed through self-report measures was moderately related to these factors. These findings suggest that while higher level of obstetric complications may be weakly associated with a diagnosis of postpartum depression, they are moderately associated with higher levels of self reported depressive symptomatology.

One must be very cautious when interpreting the effects of obstetric factors in developing postpartum depression. Some of the variables measured may not be truly independent but rather influenced by extraneous variables. For example, the number of Caesarean sections performed can vary within a hospital because of consultants' differing clinical views as to when the procedure is appropriate. The number can then differ between hospitals, regions or provinces, and certainly between countries. In South Africa and Australia for example, women can request delivery by Caesarean section which is not the case within the United Kingdom. Consequently, the rates of Caesarean sections differ greatly between these countries. Similarly, rates of breastfeeding or attitudes towards breastfeeding may differ within cultures and countries. Therefore the results may be reflecting trends within the sample rather than a true relationship between postpartum depression and obstetric variables.

Clinical Factors

Clinical factors relate to variables such as having previously experienced psychiatric symptoms, having a family history of psychiatric illness, as well as measures of affect during pregnancy.

Previous History of Depression

O'Hara and Swain's (1996) meta analyses included 14 studies of approximately 3000 subjects which examined the mother's previous psychiatric history and postpartum depression. Beck's (2001) meta-analyses included 11 studies which examined approximately 1000 subjects.

The results of both meta-analyses found that a previous history of depression was a moderate to strong predictor of subsequent postpartum depression. Subsequent studies consistently report that women with a previous history of postpartum depression are at increased risk of developing postpartum depression (Johnstone et al., 2001; Josefsson et al., 2002).

Family History of Depression

O'Hara and Swain (1996) combined data from 6 studies (approximately 900 women) to evaluate the association between a family history of depression and women's experience of postpartum depression.

The results showed no association between family history and postpartum depression. It was **not** a significant predictor of postpartum depression within the samples ($\delta = 0.05$, 95% CI $-0.06 / 0.16$). (*Note: this finding does **not** apply to postpartum psychosis where family history is a significant predictor of postpartum psychosis*). However, Johnstone et al. (2001) did find an increased risk of postpartum depression in 490 women with a family history of psychiatric illness.

One of the difficulties in establishing a positive family history of mental illness is that it requires the subject to be aware of relatives with psychiatric problems, and for them to be willing to disclose that information. It may be that there is relationship between family history and postpartum depression but the methods of eliciting accurate information are not available at present.

Mood During Pregnancy

O'Hara and Swain (1996) included 13 studies comprising over 1000 subjects for their analyses, whilst Beck included data from 21 studies which included over 2300 subjects.

The results found that depressed mood during pregnancy was a moderate – strong predictor of postpartum depression. These results have been replicated in a number of subsequent studies (Johnstone et al., 2001; Josefsson et al., 2002; Neter et al., 1995).

O'Hara further examined the relationship and found the association between depression during pregnancy and postnatally when assessed via self-report was stronger ($\delta = 0.84$; 95% CI $0.75 / 0.93$) than the relationship when assessed via an interview ($\delta = 0.39$; 95% CI $0.22 / 0.56$).

Prenatal Anxiety

A relationship had previously been reported between measurable anxiety during pregnancy and the level of postpartum depressive symptoms (Hayworth et al., 1980; Watson et al., 1984).

These findings were supported by Beck who analysed the results of 4 studies, a total of 428 subjects, and found anxiety to be a moderate predictor of postpartum depression.

O'Hara and Swain (1996) analyzed the results of 5 studies, comprising nearly 600 subjects and also found that anxiety during pregnancy was a strong-moderate predictor of subsequent depression following childbirth. These findings were supported in the subsequent studies by Johnstone et al. (2001) and Neter et al. (1995) who found that higher levels of anxiety strongly predicted levels of postpartum depressive symptomatology.

Summary

There's little question that past history of psychopathology puts women at risk for depression in the postpartum period. The average effect size is one of the largest for the risk factors of postpartum depression.

Consistent with the findings related to previous psychiatric history, depressed mood and anxiety during pregnancy were also found to be a significant predictor of postpartum depression, particularly when indexed by a self-report measure.

These findings are important because they indicate that dysphoric mood during pregnancy is not just associated with dysphoric mood after delivery but with the clinical syndrome of postpartum depression as well. These findings are consistent across studies and should be taken as important risk factors for the development of postpartum depression.

Psychological Factors

Psychological Constructs

O'Hara and Swain (1996) compared maternal personality characteristics within studies to examine whether they were associated with postpartum depression.

Neuroticism

Neurotic disorders can be defined as psychological disorders that are usually distressing but allow one to think rationally and function socially. The neurotic disorders are usually viewed as ways of dealing with anxiety. The term 'neurotic' is no longer used within psychiatric classification systems, although it is commonly included in personality questionnaires as a measure of psychological distress.

Neuroticism was measured within 5 studies in over 550 women antenatally and found to be a weak to moderate predictor ($\delta = 0.39$; 95% CI 0.21 / 0.57) of postpartum depression (O'Hara & Swain, 1996).

These results have been replicated in subsequent studies. Lee et al. (2000) found that elevated scores on neuroticism were significantly associated with women with postpartum depression. Johnstone et al. (2001) found that women who were defined as 'being nervy', 'shy-self-conscious' or a 'worrier' through

questionnaires, were significantly more likely to develop postpartum depression. These are more modern terms for psychological constructs similar to neuroticism.

Cognitive attributional style

Cognitive attributional style was also measured as a predictor of postpartum depression. Barnett and Gotlib (1988) discuss how negative cognitions are good indicators of depression, and that depressive attributions coincide with a depressed mood.

O'Hara and Swain analyzed 13 studies of over 1300 women and found that a negative cognitive attributional style was weakly related to postpartum depression ($\delta 0.24$, 95%CI 0.18 / 0.31).

Summary of Clinical Factors & Psychological Constructs

The effect between neuroticism, assessed during pregnancy, and subsequent postpartum depression is clear. O'Hara and Swain found that the effect was more pronounced when depression was defined as a syndrome and was assessed through a clinical interview.

In contrast, a negative cognitive attributional style was more strongly related to high levels of depressive symptomatology when assessed through self-report.

O'Hara and Swain highlight that these findings, together with those regarding past history of psychopathology and depression during pregnancy, strongly suggest that there is a continuity of psychiatric disturbance that extends back many years before a woman's pregnancy and into the postpartum period. This disturbance may be chronic or episodic. It may reflect disturbance in which the morbidity is relatively minor or very severe. The question that remains is the extent to which, or whether, childbearing per se affects the timing or severity of postpartum disturbance.

Social Factors

Life Events

The relationship between life events and the onset of depression is well established (Brown & Harris, 1978). Experiences such as the death of a loved one, relationship breakdowns or divorce, losing a job or moving home are known to cause stress and can trigger depressive episodes in individuals with no previous history of affective disturbance.

Pregnancy and birth are often regarded as stressful life events in their own right, and the stressfulness of these events may lead to depression (Holmes & Rahe, 1967). However, some researchers have studied the effects of additional stressful life events that women experience during pregnancy and the puerperium. These events, thought to reflect additional stress at a time during which women are vulnerable, may play a causal role in postpartum depression.

Paykel et al (1980), using a retrospective design, found that negative life events classified as moderate to severe were associated with increased probability of being diagnosed as clinically depressed.

O'Hara, Rehm and Campbell found that high levels of life events from the beginning of pregnancy until about 11 weeks postpartum were associated with higher levels of depressive symptomatology and a greater likelihood of being diagnosed with postpartum depression (O'Hara, Rehm, & Campbell, 1982; O'Hara, Rehm, & Campbell, 1983).

Hopkins, Campbell and Marcus (1987) found no association between life events and postpartum depression. At least two other large studies have not found an association between life events and postpartum depression (Holmes et al., 1967; Kumar et al., 1984).

One of the difficulties of assessing a possible relationship between life events and the onset of depression postpartum is the study design. Retrospective collection of data may lead to over reporting of life events as subjects (perhaps subconsciously) try to link a stressful event as a possible cause of the illness. The prospective collection of data eliminates this source of bias, as the outcome of postpartum depression is not known a priori.

In the recent meta-analyses, O'Hara and Swain took values from 15 studies, comprising data on over 1000 subjects that had prospectively recorded data on life events. They found a strong-moderate relationship between experiencing a life event and developing postpartum depression ($\delta = 0.60$, 95% CI: 0.54 / 0.67).

However, there was heterogeneity between studies which related to where the study was conducted: studies undertaken in Britain and North America showed strong associations between postpartum depression and recent life events, while Japanese studies showed a nonsignificant association. It is not clear why this should occur. The more recent study conducted by Lee et al. (2000) in Hong Kong did not find an association between life events and postpartum depression.

The method used to assess depression also explained heterogeneity of findings: interview based assessments demonstrated a moderate relationship with life events while self report evaluations yielded a significantly stronger relationship. The findings show that stressful events, even though they occur during pregnancy and not in the puerperium, are clear risk factors for developing postpartum depression.

Beck (2001) used a less rigorously defined measure of 'life stress' to assess studies which measured perceived stress within pregnancy and the early puerperium. She included 16 studies of over 2300 subjects and found a moderate relationship between perceived life stress and postpartum depression. Higher levels of perceived life stress were associated with postpartum depressive symptomatology.

Social Support

Receiving social support through friends and relatives during stressful times is thought to be a protective factor against developing depression (Brugha et al., 1998) and several earlier studies have evaluated the role of social support in reducing postpartum depression.

Social support is a multidimensional concept. Sources of support can be a spouse, relatives, friends or associates. There are also different types of social support, for example *informational* support (where advice and guidance is given), *instrumental* support (practical help in terms of material aid or assistance with tasks) and *emotional* support (expressions of caring and esteem).

Researchers have also examined the effects of *perceived* support (a person's general perception or belief that people in their social network would provide assistance in times of need) and *received* support (where supportive exchanges may be directly observed or measured by asking people). Received support is complex and multidimensional, as one needs to measure both the quantity of support given (i.e. the frequency of supportive acts, number of network members) and also the quality of the support received (Collins et al., 1993; Dunkel-Schetter & Bennett, 1990; House & Kahn, 1985; Neter et al., 1995).

Studies have consistently shown a negative correlation between postpartum depression and emotional and instrumental support (Beck, 1996a; Menaghann, 1990; Richman et al., 1991; Seguin et al., 1999). Two recent studies have found that perceived social isolation (or lack of social support) was a strong risk factor for depressive symptoms postpartum (Forman et al., 2000; Seguin et al., 1999).

However, there may be differences between perceived and received social support. Logsdon et al (2000) studied social support among African-American low income pregnant women. Although she found a significant relationship between perceived support and depressive symptomatology following delivery, there was no relationship between received support and postpartum depression. This confirmed the findings of earlier studies.

O'Hara, Rehm and Campbell (1983) studied *perceived* social support and found that depressed women reported that their spouse was deficient in providing instrumental and emotional support following delivery. However, these women did not identify their spouse as being less supportive during pregnancy any more than nondepressed women. To a lesser degree, friends and parents of the depressed women were also perceived as being less supportive during the puerperium, but not during the pregnancy. These results were confirmed in a second study (O'Hara, 1986).

Cutrona (1984) found that several dimensions of perceived social support assessed during pregnancy were predictive of the level of postpartum depressive symptoms. Surprisingly, the strongest predictor concerned the availability of companionship and feeling of belonging to a group of similar others, rather than the quality of intimacy with the husband.

O'Hara and Swain (1996) examined 5 studies in which overall levels of social support were measured during pregnancy, based on over 500 subjects. They found that there was a strong negative relationship between social support and postpartum depression ($\delta = -0.63$; 95% CI $-0.75 / -0.51$). This suggests that women who do not receive good social support during pregnancy are more likely to develop postpartum depression. This concept was confirmed in a recent study which argued that receiving informational support

from a large number of social network members was protective against postpartum depression (Seguin et al., 1999).

In order to try and further examine the concept of social support, O'Hara and Swain specifically looked at perceived support from the baby's father. They found a moderate strength relationship ($\delta = -0.53$; 95% CI $-0.67 / -0.39$) however there was heterogeneity in findings from studies dependent upon how depression was assessed.

They concluded that poor support from the baby's father, per se, was not significantly associated with being diagnosed with postpartum depression however poor support was strongly negatively related with the severity of depressive symptoms.

Summary

Social support, as it is manifest during pregnancy, is a relatively potent risk factor for postpartum depression, particularly in the form of high levels of depressive symptomatology. The one study that assessed overall social support during pregnancy and used an interview based depression outcome found a very strong association between social support and depression.

Both overall social support during pregnancy and support from the baby's father, in particular, were associated with high levels of postnatal depressive symptomatology.

Studies have consistently found differences between perceived and received social support in women with postpartum depression. These differences may be accounted for, in part, by the fact that depressed individuals tend to view everything more negatively, including their perceptions of level of support.

The majority of studies have focused on cross sectional samples of pregnant women, however there may be special groups for whom social support may be pertinent. For example, there is a dearth of work examining the role of social support within low income groups (Lee et al., 2000; Logsdon et al., 2000; Neter et al., 1995; Seguin et al., 1999). Similarly, the effects of social support among Aboriginal and immigrant women is an area which needs further research.

Psychosocial Aspects of Childbearing

The effects of parenthood on all aspects of the mother's psychosocial functioning should not be underestimated. Robinson and Stewart (2001) discuss how, in many cases, the family system must be reorganized, and many couples adopt more traditional roles. The mother usually tends to do the greater share of parenting tasks, and the parents must decide how their new roles will affect their previous work patterns and implement the necessary changes. With the added burden of childcare, the relationship between the partners often suffers, and there is less time for socializing. A supportive relationship with the father can help mitigate the stresses of being a new mother. These stresses should be borne in mind when evaluating the role of factors in the development of postpartum depression.

Marital Relationship

Several well designed studies (Braverman & Roux, 1978; Kumar et al., 1984) have reported an increased risk of postpartum depression in women who experience marital problems during pregnancy. Hopkins et al.(1987) however failed to confirm this finding. It has been mentioned previously that women with postpartum depression perceived their husbands to be less supportive than women who were not depressed, but these differences were apparent only postpartum and not during pregnancy (O'Hara, 1986; O'Hara et al., 1983).

Marital relationship was measured between studies using a variety of different instruments, the limitations of which need to be briefly discussed. The range of measurement went from a simple Likert scale on which women indicate their level of satisfaction with the relationship, to standardized measures such as the Dyadic Adjustment Scale (DYAS) (Spanier, 1976). The assessment could take place during an interview or via a self-report design.

The fact that the meta-analyses were based on data measured pre partum eliminates potential reporting bias. It was previously found that women with postpartum depression rated their husbands as less supportive, however it is difficult to know whether their depressive symptomatology negatively influenced their perceptions of their relationship. These results are free from such bias as the measures were taken prepartum.

Global measures

Studies which assessed marital relationship using more global measures such as Likert scales or through open questions were assessed in both meta analyses. Beck included 14 studies comprising over 1500 subjects, while O'Hara and Swain included 8 studies of over 950 subjects.

Beck found a moderate association between poor marital relationship and postpartum depression, whilst O'Hara and Swain reported a small negative relationship.

It was interesting that differing methods of assessment produced different effect sizes. Marital relationship assessed via interviews was not as predictive as when measured via self -report. The reason for this is unclear, but may relate to reluctance to discuss the nature of the relationship with an interviewer, but through the anonymity of a questionnaire it is easier. It could also reflect increased sensitivity within questionnaire measures.

DYAS.

O'Hara and Swain (1996) examined the association between mother's prepartum relationship with their spouse, focusing on studies which used the Dyadic Adjustment Scale (DYAS). The DYAS is a self-report measure which has proven psychometric properties, and is a standardized measure of the quality of the marital relationship.

The results from 6 studies, on over 1100 subjects which used the DYAS indicated a small but significant negative relationship between marital satisfaction on the DYAS and incidence of PPD ($\delta = -0.13$; 95% CI – 0.20 / -0.06).

Summary

Marital adjustment assessed during pregnancy with a standard self report measure (DYAS) is much more predictive of postpartum depression than by interview.

Marital adjustment assessed with more global scales showed the opposite pattern. O'Hara and Swain argue that this could be because a psychometrically refined measure such as the DYAS may be a more sensitive predictor of depression than a global rating scale. However, experiencing difficulties in the marital relationship, or having a poor marital relationship during pregnancy is a predictor of subsequent postpartum depression.

Socioeconomic Status

The role of socioeconomic status in the aetiology of mental health disorders and depression has received much attention. Socioeconomic deprivation indicators such as unemployment, low income and low education have been cited as risk factors in mental health disorders (Bartley, 1994; Jenkins, 1985; Patel et al., 1999; Weich et al., 1997; World Health Organization, 2001). Recent studies from North America, Latin America and Europe reported that depression is more common among poorer countries (World Health Organization, 2001).

Socioeconomic deprivation has also been studied in the aetiology of postpartum depression. Beck (2001) examined 8 studies of 1732 subjects and found a small effect (0.19 - -0.22) between socioeconomic status and postpartum depression. However, it is unclear which indicators of socioeconomic status were included in this meta-analysis.

O'Hara and Swain (1996) examined 14 studies of over 1650 subjects and also reported a small effect (-0.141). They concluded that indicators such as low income, mother's occupation, and being of lower social status had a small but significant predictive relationship to postpartum depression. However, other sociodemographic variables including marital status, pregnancy employment status and parity did not show any significant relationship to postpartum depression.

Recent studies which were not included in the meta-analyses found that unemployment and financial strain were significantly associated with postpartum depression (Lee et al., 2000; Patel et al., 2002; Seguin et al., 1999; Warner et al., 1996).

Lee (2000), Patel (2002) and Seguin (1999) specifically studied low income populations within India, China and Canada respectively and found that financial strain was an important risk factor in postpartum depression within these populations.

Summary

In summary, there is evidence that low socioeconomic status has a small effect on the development of postpartum depression. However, one of the methodological limitations in the literature is the different criteria used to determine indicators of 'low income'.

In addition, most studies have focused on relatively homogenous samples of middle to upper class women, with few studies examining the relationship between socioeconomic indicators and postpartum depression among lower socioeconomic groups within both developed and developing countries.

Infant Variables

By definition, variables relating to the infant can only be measured postpartum. As such their predictive power is subject to bias, particularly in relation to the objectivity of the mother's reports.

It has previously been reported that child related factors were associated with postpartum depression. Cutrona (1983) reported that higher levels of childcare related stressors were associated with higher levels of depressive symptomatology, while Hopkins, Campbell and Marcus (1987) found that having a difficult baby or a baby with neonatal complications was associated with a diagnosis of postpartum depression.

Beck (2001) studied two variables related to the infant, child temperament and childcare stress. She found that childcare stress and having an infant with a difficult temperament were moderately predictive of postpartum depressive symptomatology (N=789).

It has been found that mothers suffering from postpartum depression give more negative descriptions of their children than control mothers and report more behavioural problems in their infants (Murray, 1988). Therefore, the mothers' symptoms may be a source of bias in the reporting of infant characteristics.

Factors not Associated

The results of the meta-analyses by O'Hara and Swain (1996) and Beck (2001) found that the following were **not** significantly associated (i.e. the confidence interval contained 0) with the development of postpartum depression:

- Maternal age (O'Hara & Swain, 1996: 26 studies, N >10,000)
- Level of education (10 studies, N >7,000)
- Parity (7 studies, N >2,000)
- Length of relationship with partner (6 studies, N > 800)
- Sex of child * (15 studies, N > 8,000)

* Sex of Child - Studies conducted within Western societies have found no association between the sex of the child and postpartum depression. However, recent studies provide evidence from India (Patel et al.,2002) (n=171) and China (Lee et al.,2000) (n=220) which suggest that spousal disappointment with the sex of the baby, specifically if the baby is a girl, is significantly associated with developing postpartum

depression. Therefore, the parent's reaction to the sex of the baby may be a potential risk factor for postpartum depression within certain cultural groups.

Table 1-7. Summary of Select Primary Studies Not Included in Meta-Analyses

Author, Year, Country	Study Design	Population Sampled	Measures & Timing of Assessment	Contributing Factors Examined	Significant Factors / Outcome	Limitations / Comment
Boyce, 1992, Australia	Prospective Using questionnaire Community based Follow-up at one, three and six months postpartum	192 women in antenatal clinic in first trimester 188 women divided into 3 groups by method of delivery: 21 - emergency caesarean section; 49 forceps delivery; 118 spontaneous vaginal delivery	1 st trimester - The Interpersonal sensitivity Measure. Eysenck Personality Inventory (EPI). The Intimate Bond Measure. The Beck Depression Inventory (BDI). Edinburgh Postnatal Depression Scale (EPDS) was used at 1, 3 & 6 months after delivery.	Emergency caesarean section Forceps delivery Spontaneous vaginal delivery	Emergency caesarean section at three months postpartum significantly associated with PPD.	Sampling bias, no recruitment date information homogeneous and small sample group. No information on previous or family history of psychiatric illness. Reasons for the emergency caesarean section not discussed and may be risk factors for depression.
Patel, 2002, India	Prospective Follow-up Questionnaires Community based	270 pregnant women recruited during their third trimester from a district hospital in Goa, India.	Interview at recruitment with GHQ (Konkani version), 6-8 weeks, and 6 months after childbirth. EPDS (Konkani version) was used at 6-8 weeks and 6 months follow-up. Semistructured interview for sociodemographic data, obstetric history, gender-based variables	Antenatal and postnatal depression Obstetric history Economic and demographic characteristics Gender-based variables (preference for male infant, presence of marital violence).	Significant Factors: Psychological morbidity during the antenatal period. Economic deprivation and poor marital relationships Gender of the infant	New data from India Prospective Interesting cultural finding regarding gender of child Validation of EPDS which allows comparison between countries

Author, Year, Country	Study Design	Population Sampled	Measures & Timing of Assessment	Contributing Factors Examined	Significant Factors / Outcome	Limitations / Comment
Lee, 2000, China	Prospective longitudinal study Community based Questionnaires and interview	220 Chinese women were consecutively recruited from University teaching hospital, Hong Kong between 1996 & 1997.	The clinician-administered Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders (SCID-NP). Interview, BDI and GHQ on the second day after delivery 6 weeks postpartum - SCID-NP.	Sociodemographics Socio-economic status Previous medical, gynecologic and obstetric history Circumstances during pregnancy Perinatal factors Psychosocial factors	Significant Factors: Depression during pregnancy, elevated depression score at delivery, prolonged postnatal 'blues' Temporary housing accommodation, financial difficulties, abortions, past psychiatric disorders, elevated neuroticism score Spouse disappointment with the gender of the newborn.	'Prolonged blues' is a measure of PPD so result not valid. New data from Hong Kong Allows for cultural comparisons Gender of child findings interesting regarding culture

Author, Year, Country	Study Design	Population Sampled	Measures & Timing of Assessment	Contributing Factors Examined	Significant Factors / Outcome	Limitations / Comment
Johnstone, 2001, Australia	Prospective Multi-site Urban and rural community sample Questionnaires	504 women were recruited antenatally from participating hospitals. Complete data were obtained from 490 women between 1995 & 1996.	EPDS was used eight weeks after delivery. Population-based surveillance system: to examine obstetric factors Postnatal questionnaire: sociodemographic information Structured Clinical Interview for DSM-III-R (SCID): personality	Obstetric risk factors: complications of pregnancy, labour and delivery, infant details. Sociodemographic data Personality Psychiatric history Recent life events	None of the obstetric variables were significantly associated with PPD. Significant risk factors: Sociodemographic variables Personality Psychiatric history Recent life events	Comparatively small sample size Population based system reduces self-report bias Interpretation of personality data may be limited
Josefsson, 2002, Sweden	Prospective Case-control Multi-site Community based Questionnaire	Cohort of 1489 pregnant women assessed for depression at 6-8 weeks postpartum during 1997-1999. 132 women who scored >10 on EPDS at 6-8 weeks postpartum selected as index group. Control group comprised 264 women without depressive symptoms as assessed by EPDS.	EPDS (Swedish version) was administered at 6-8 weeks and 6 months after delivery.	Sociodemographic status Pregnancy, and perinatal events Previous medical, gynecologic and obstetric history	Significant Risk Factors: Pregnancy complications, Sick leave during pregnancy and a high number of visits to the antenatal care clinic. Antenatal depressive symptoms and PPD were significantly correlated. No significant association between parity, sociodemographic data, mode of delivery and delivery complications.	This study includes previous medical, gynecologic and obstetric history as a risk factor which is novel. Prospective design reduces bias Adequately powered sample. Multi-centre, prospective, case-control design – very well designed.

Author, Year, Country	Study Design	Population Sampled	Measures & Timing of Assessment	Contributing Factors Examined	Significant Predictors / Outcome	Limitations/ Comments
Warner, 1996, U.K.	Prospective Questionnaires to identify women with postpartum depression	2375 women recruited from postnatal wards on two maternity units between 1993 & 1995. Completed screening questionnaire	The Edinburgh Postnatal Depression Scale (EPDS) was administered, six to eight weeks after delivery	Sociodemographic and obstetric risk factors: Unplanned pregnancy Sub fertility Primiparity Complicated pregnancy Caesarian section Mean birth weight Baby on special-care Not breast feeding (6 weeks)	Four independent variables were found to be significantly associated with an EPDS above threshold (> 12) Unplanned pregnancy Not breast-feeding Mother unemployed i.e. no job to return to following maternity leave Head of household unemployed	High proportion of women had complications No data on previous or family psychiatric history Factors not measured antenatally therefore less predictive power Findings may be reflecting characteristics of the sample rather than risk factors Variables influenced by extraneous variables
Forman, 2000 Denmark	Prospective Community based Follow-up using questionnaires	Cohort of women attending antenatal program at Aarhus University Hospital 5252 women who gave birth between 1994&1995, completed all follow-up questionnaires	The EPDS administered 4 months after delivery 4 months postpartum : psychological distress measured by GHQ	Sociodemographic factors Marital status Working status History of psychiatric disease Family history of psychiatric disease Level of psychological distress in 3 rd trimester Perceived social isolation Antenatal events including obstetric & gynecological factors	Significant predictors of PPD: Psychological distress in late pregnancy Perceived isolation during pregnancy High parity Positive history of psychiatric illness	High rate of non-responders, who scored higher on risk factors – sample bias Results pertain to women with lower risk factors and who were more motivated to respond/complete follow-up questionnaires Antenatal factors rated, higher predictive power

Contributing Factors to the Development and Recovery from Postpartum Depression: Metasynthesis of Qualitative Studies

The use of qualitative methodologies within health studies enables the researcher to gain an ‘insider’s perspective’ of illness, which would be impossible through quantitative methods. A number of studies have employed such methods in order to increase our level of understanding of the experience of living with, and through, postpartum depression.

Beck (2002) recently published a metasynthesis of 18 studies of postpartum depression, published during the 1990s, which used qualitative methodologies. A metasynthesis refers to “the theories, grand narratives, generalizations, or interpretive translations produced from the integration or comparison of findings from qualitative studies” (Sandelowski, Docherty, & Emden, 1997). The ‘meta’ refers to translating qualitative studies into each other, or interpreting the data.

Beck identified four overarching themes or perspectives involved with postpartum depression:

1. Incongruity between expectations and reality of motherhood
2. Spiraling downward
3. Pervasive loss
4. Making gains.

She stressed that mothers can move back and forth between these differing perspectives, and they can be in more than one at any time. Within the context of the metasynthesis, these factors were highlighted by the women as: i) contributing to the onset of the illness and ii) aiding in their recovery. Each of these perspectives shall be presented and discussed in turn, with reference made to the original studies where appropriate.

Incongruity Between Expectations and Reality of Motherhood

Nicolson (1990) has written extensively about the ‘dangerous myths’ operating among both professionals and lay people which equate becoming a mother with total fulfillment and happiness. Eight of the 18 studies in the metasynthesis centred on the role that conflicting expectations and experiences of motherhood played in the development of postpartum depression. Women held unrealistic expectations which were shattered by their own experiences as mothers (Mauthner, 1999). They became disillusioned with motherhood, as they perceived they had failed to fulfill their expectations of themselves as the ‘perfect mother’ (Berggren-Clive, 1998).

Emotions of despair and sadness started the mothers’ spiral downward into postpartum depression. The women in Berggren-Clive’s study described the incongruity between their expectations and reality of motherhood in seven areas: labour and delivery, life with their infants, self as mother, relationship with partners, support from their family and friends, life events and physical changes (Berggren-Clive, 1998).

Nicolson (1990) and Beck (2002) argue that because society perpetuates these myths of the perfect mother, and motherhood as a totally fulfilling and happy experience, the women believed that no other mothers shared their negative reactions to childbirth. Therefore, they viewed themselves as ‘bad’ or ‘abnormal’ mothers, which led to fear of moral condemnation and being labeled by others as failed mothers.

Mauthner (1998) identified 3 kinds of conflict in mothers’ narratives, all of which centred on their desire to be the ‘perfect mother’. One area of conflict concerned how to care for their infant regarding topics such as breastfeeding and being employed. The second set revolved around women’s depression and unhappiness, which was in direct conflict with their expectations that they would be happy with their infants. The third concerned expectations that they could cope with their new infants, when the reality was that they needed help.

For each woman, the conflicts she experienced depended on what her notion of what makes ‘a good mother’ and what aspects of motherhood were especially significant to her. Parity influenced the conflicts that some of the women struggled with: the conflicts that the 12 first time mothers struggled with centred on trying to live up to their image of the ‘perfect, ideal mother’ (Mauthner, 1999). In contrast, the 6 multiparas were well aware that there was no such thing as the perfect mother and their conflicts revolved around trying to live up to their expectations of being able to cope with their newest child.

It appears that cultural context can intensify these conflicting expectations and experiences of motherhood. If there are high cultural expectations of motherhood, then this could exacerbate women’s feelings of helplessness and being a bad mother. This may have particular relevance for women who are no longer living in their home country and are separated from their immediate family who would usually provide practical and emotional support during the postpartum period.

Spiraling Downward

Mothers began the downward spiral of postpartum depression as their feelings worsened. All 18 studies in the metasynthesis addressed aspects of this downward spiral.

Emotional

The emotions did not include just depression and sadness (Wood, Thomas, Droppelman, & Meighan, 1997), but women covertly suffered through a myriad of emotions such as anger, guilt, being overwhelmed, anxiety and loneliness. Some mothers also experienced obsessive thoughts or cognitive impairment and contemplated harming themselves or their infants, which led to increased feelings of anxiety and guilt. The women who admitted to thoughts of selfharm and suicide spoke about how suicide provided a glimmer of hope ‘to the end of the nightmare’ and ‘the blackness’.

Isolation / Loneliness

Women consistently talked about a profound sense of isolation and loneliness. They frequently felt discomfort at being around others and their belief that no one really understood what they were experiencing (Beck, 1992). They socially withdrew to escape a potentially critical world (Semprevivo, 1996).

Social factors appeared to modify the sense of isolation. Primiparas felt physically isolated from other mothers, but multiparas had already developed a network of other mothers from their previous children (Mauthner, 1995).

Depending on the reaction of their coworkers to the mothers' return to employment, the mothers' sense of isolation could be increased or decreased. Some mothers valued the companionship of their work colleagues but at the same time felt they were missing out on the network of mothers who stayed at home. Others felt an increased sense of isolation because their colleagues disapproved of working mothers.

Guilt

Women lived with the burden of guilt for many different reasons: being a bad mother (Mauthner, 1995; Mauthner, 1999; Mauthner, 1998) failure to be the perfect mother (Wood et al., 1997), and lack of an emotional connection with their baby (Beck, 1996b; Sluckin, 1990). The mothers who thought about harming their infants (Beck, 1992; Semprevivo, 1996) were so horrified by these thoughts that they were consumed by guilt.

Pervasive Loss

Loss of control was identified as a central theme in 15 out of the 18 studies. The loss of control related to all aspects of their life including thought processes, emotions, and relationships.

Nicolson's (1999) study described how loss of autonomy and time were precursors to feeling out of control because the women no longer had time to consider themselves or process their daily experiences. This in turn led to a sense of loss of self, loss of their former self and a loss of identity.

Women discussed how the illness led to loss of relationships, with their partners, children and family members (Morgan, Matthey, Barnett, & Richardson, 1997). Some women wanted their partners 'to be able to read their minds' and take some initiative in helping them, whilst others felt that admitting their feelings was a sign of personal inadequacy and failure as a mother (McIntosh, 1993). If they did admit to their feelings the women also risked being misunderstood, rejected or morally condemned by their loved ones. Because women with postpartum depression felt 'different' and 'abnormal' compared to other mothers, they withdrew from these relationships and spoke of the difficulty about being surrounded by other mothers (Mauthner, 1995).

Making Gains

Surrendering was a big part of the mother's recovery from postpartum depression. The concept of 'surrendering' in this context meant realizing something was very wrong and they needed to get help. Unfortunately, women's initial interactions with health professionals caused more distress: women reported that their concerns were ignored or minimized and feelings of disappointment, frustration, humiliation and anger were commonplace.

In McIntosh's study (1993) only 18 of the 38 women interviewed had sought help. The main reasons that they gave included feeling embarrassed and ashamed, and the fear of being labeled as a 'bad mother' and the stigma associated with being ill at what should be a happy time.

Attendance at postpartum depression support groups created hope within the women as they realized that they were not alone (Berggren-Clive, 1998) the women found solace in these groups (Beck, 1992). Their feelings of isolation and loneliness were dissipated as they could identify with others and openly question the ideals of motherhood they struggled to fulfill (Mauthner, 1995).

Reintegration & Change

Adjusting the unrealistic expectations that the mothers had for themselves was cited by most women in Berggren-Clive's study (1998) as one means of freeing themselves from the constraints they had imposed on themselves. The women shifted expectations with respect to themselves as mothers, partners and family members which was necessary in rebuilding self.

The mothers began to regain control of their lives as they recognized their needs and found ways of meeting them. It was a slow, unpredictable process however and as the depression lifted, the women began to mourn the lost time that they would not be able to recapture with their infants.

Many of the women described an increased sense of strength following their experience of postpartum depression, as recovery involved acceptance or resolution of the conflicts they had experienced during their transition to motherhood (Mauthner, 1998).

Summary of Metasynthesis of Qualitative Literature

The results from the metasynthesis show that there were a number of areas that the women highlighted as contributing towards the development of their postnatal depression.

The majority of women found that the reality of motherhood was very different from their expectations. They felt overwhelmed which in turn led to feelings of inadequacy as a mother and associated guilt that they could not fulfill their social role.

The women also felt that they could not confide in their loved ones for fear of being labeled as a bad mother, or moral condemnation. Feelings of isolation and that no one else could identify with their

experience were commonplace and added to the feelings of inadequacy. For some women this was compounded by cultural expectations of motherhood, particularly if they were not in their home country.

As part of their recovery, women spoke about the positive effects of attending a support group – how it created hope as they could identify with other women in a similar situation and have their experiences normalized.

Women frequently did not admit to symptoms or seek help because of the stigma associated with being ill, or because they did not recognize their feelings as pathological. Beck argues that health care professionals have a responsibility to take an active role in alleviating the harmful myths surrounding motherhood that are prevalent within society.

Summary of Risk Factors for Postpartum Depression

The puerperium is well established as a time of increased risk for the development of serious mood disorders, although the prevalence of overall depression is similar to that of age and social class matched women who have not born children in the previous year.

Postpartum depression is the most common complication of childbearing, affecting 10 – 15% of women, and as such represents a considerable public health problem affecting women and their families. Research studies have shown a number of risk factors to be associated with the development of postpartum depression.

All women are susceptible to developing depression following childbirth. However, women who have one or more of the following factors have a significantly increased risk of experiencing the illness. All of these factors, except measures of infant temperament and childcare stress, were measured antenatally to reduce risk of bias and were found to be predictors of postpartum depression, even after controlling for differences in assessment methods for depression, sampling frames and where the research was conducted.

All of these factors can be ascertained during pregnancy as potential risk factors, and high risk women identified for close follow-up and possible interventions.

These are shown in order of magnitude below, as defined by Cohen's effect size. That is, the strongest down to the smallest predictors of postpartum depression. A summary of the studies which provided these data are given in Tables 1-8 – 1-10 at the end of this chapter.

Strong to Moderate

- Depression during pregnancy
- Anxiety during pregnancy
- Stressful recent life events
- Lack of social support (either perceived or received)
- Previous history of depression

Moderate

- High levels of childcare stress
- Low self-esteem
- Neuroticism
- Difficult infant temperament

Small

- Obstetric and pregnancy complications
- Cognitive attributions
- Quality of relationship with partner assessed using DYAS.
- Socioeconomic status

No effect

- Ethnicity
- Maternal age
- Level of education
- Parity
- Gender of child (within Western societies)

The risk factors identified from quantitative studies are well established: they are methodologically robust and have been replicated within numerous studies across different sample populations. However, it is also useful to study the individual views of women who have experienced postpartum depression, as their view may inform possible service provision and educational needs.

A meta-analysis of qualitative studies of postpartum depression found that women's experiences of motherhood differed from their expectations quite markedly. Many women felt overwhelmed which led to feelings of inadequacy as a mother, and the associated guilt that they could not fulfill their social role.

It appears that cultural context may intensify these conflicting expectations and experiences of motherhood. If there are high cultural expectations this could exacerbate women's feelings of helplessness and being a bad mother.

This may have particular relevance for mothers who are no longer living in their own country and are separated from family who would usually provide practical and emotional support during postpartum period. Lack of social support is a well established risk factor for postpartum depression, and immigrant women may be at higher risk of depression because they are culturally and physically separated from their support systems. Recent studies from India and China indicated that disappointment at having a baby girl may also contribute to postpartum depression. Health care professionals should be aware that the gender of the child may be an additional risk factor within some cultures.

Women frequently spoke of their sense of isolation; the feeling that no else could understand or could identify with what they were going through. The women also felt that they could not confide in their loved ones for fear of being labeled as a bad mother. However, as part of their recovery, women spoke about the positive effects of attending a support group: how it created hope as they could identify with other women in a similar situation and have their experiences normalized. This could also be culturally sensitive to alleviate feelings of isolation that immigrant women may feel.

The stigmatization of mental illness remains a major problem: women frequently did not admit to symptoms or seek help because of the stigma associated with being ill or because they did not recognize their feelings as pathological.

Gaps in the Literature

The synthesis of literature on factors associated with developing postpartum depression identified particular areas in which more work needs to be done.

Lower socioeconomic status is an established risk factor for non-puerperal depression. The experience of pregnant women in low income populations, who may already be at higher risk of depression, is under researched at present. Their interactions with, and access to, health care services, and opportunities for social networks and support may differ significantly from higher income groups.

The rate of postpartum depression within the general population is 10-15%, however the rates in teenage mothers have been reported to be as high as 26%. This group requires further study as there may be factors which contribute to both teenage motherhood and subsequent depression.

The use of standardized assessment tools for depression may not be suitable with all cultural groups and researchers need to be culturally sensitive. The experience of postpartum depression outside of a woman's home country requires further work. These women may be at higher risk because of lack of social support, cultural expectations of motherhood and a reluctance to disclose psychiatric symptoms and receive care from health professionals.

Conclusions

Although there is no archetypal model of a woman at risk of developing postpartum depression, researchers have attempted to produce a 'composite' which is useful within a clinical framework (O'Hara et al., 1996). Although an over-simplification, it is useful to portray the results from the synthesis of literature on risk factors of postpartum depression.

Her clinical history may reveal previous experience of psychiatric illness, and she may have suffered from depressive or anxious symptoms during pregnancy. She may be experiencing difficulties through stressful life events and a poor marital relationship. She perceives that her partner, family and friends are not as supportive as they could be (although this may not be true).

Table 1-8. Strong Predictors of Postpartum Depression

Predictor variable	Total Number of Subjects	Level of Effect & Direction of New Data
<i>Depression during pregnancy</i>		
O'Hara & Swain 1996	>1000 (13 studies)	STRONG / MODERATE
Beck 2001	2, 305 (21 studies)	Significant association, supporting findings
Josefsson et al 2002	132 probands 264 controls	Significant association, supporting findings
Johnstone et al 2001	490	Significant association, supporting findings
Neter et al 1995	108	Significant association, supporting findings
<i>Anxiety</i>		
O'Hara & Swain 1996	>586 (5 studies)	STRONG / MODERATE
Beck 2001	428 (4 studies)	Significant association, supporting findings
Johnstone et al 2001	490	Significant association, supporting findings
Neter et al 1995	108	Significant association, supporting findings
<i>Life events</i>		
O'Hara & Swain 1996	>1015 (15 studies)	STRONG / MODERATE * *within Western societies but not Japanese samples
Beck 2001	2324 (16 studies)	Significant association, supporting findings
Lee et al 2000	220	No association with life events within Chinese sample
<i>Social support</i>		
O'Hara & Swain 1996	> 521 (5 studies)	STRONG / MODERATE
Beck 2001	2692 (27 studies)	Significant association, supporting findings
Forman et al 2000	5292	Significant association, supporting findings
Seguin et al 1999	68	Significant association, supporting findings
<i>Previous history of depression</i>		
O'Hara & Swain	>2896 (14 studies)	STRONG / MODERATE
Beck 2001	991 (11 studies)	Significant association, supporting findings
Joseffson et al 2002	132 probands 264 controls	Significant association, supporting findings
Johnstone et al 2001	490	Significant association, supporting findings

Table 1-9. Moderate Predictors of Postpartum Depression

Predictor Variable	Total Number of Subjects	Level of Effect & Direction of New Data
<i>Neuroticism</i>		
O'Hara & Swain 1996	>552 (5 studies)	MODERATE
Lee et al 2000	220	Significant association, supporting findings
Johnstone et al 2001	490	Significant association, supporting findings
<i>Childcare stress</i>		
Beck 2001	789 (7 studies)	MODERATE
<i>Self-esteem</i>		
Beck 2001	570 (6 studies)	MODERATE
<i>Infant temperament</i>		
Beck 2001	1,056 (10 studies)	MODERATE

Table 1-10. Small Predictors of Postpartum Depression

Predictor variable	Total Number of Subjects	Level of Effect & Direction of New Data
<i>Obstetric & Pregnancy complications</i>		
O'Hara & Swain 1996	>1366 (13 studies)	SMALL
Warner et al	2375	No statistical relationship found
Forman et al	5292	No statistical relationship found
Johnstone et al	490	No statistical relationship found
Josefsson et al	132 prob and 264 control	No statistical relationship found
Boyce et al 1992	188	Significant association found with Caesarean Section
Hannah et al 1992	217	Significant association found with Caesarean Section
<i>Cognitive attributions</i>		
O'Hara & Swain 1996	>1318 (13 studies)	SMALL
<i>Relationship with partner assessed using (DYAS)</i>		
O'Hara & Swain 1996	>1133 (6 studies)	SMALL
<i>Socioeconomic status and income</i>		
O'Hara & Swain Beck Lee 2000, Patel 2002, Seguin 1999, Warner et al 1996	>1668 (14 studies) 1,732 (8 studies) Small studies	SMALL Small effect size reported supporting findings "Important" risk factor

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