Postpartum Depression: What We Know

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Postpartum depression (PPD) is a serious mental health problem. It is prevalent, and offspring are at risk for disturbances in development. Major risk factors include past depression, stressful life events, poor marital relationship, and social support. Public health efforts to detect PPD have been increasing. Standard treatments (e.g., Interpersonal Psychotherapy) and more tailored treatments have been found effective for PPD. Prevention efforts have been less consistently successful. Future research should include studies of epidemiological risk factors and prevalence, interventions aimed at the parenting of PPD mothers, specific diathesis for a subset of PPD, effectiveness trials of psychological interventions, and prevention interventions aimed at addressing mental health issues in pregnant women. © 2009 Wiley Periodicals, Inc. J Clin Psychol 65: 1–12, 2009.

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Depression is among the most disabling disorders for women in their childbearing years. For women aged 15 to 44 years around the world it is second only to HIV/AIDS in terms of total disability (World Health Organization [WHO], 2001). Moreover, in the United States, depression is the leading cause of non-obstetric hospitalization among women aged 18 to 44 years. In the year 2000, 205,000 women aged 18 to 44 years were discharged with a diagnosis of depression. Seven percent of all hospitalizations among young women were for depression (Jiang et al., 2002). The peak period for onset of depression occurs during the childbearing years and its impact extends to the offspring of afflicted women as well as their families (Goodman, 2007; O'Hara, 1995). As a consequence, over the past 30 years there has been a dramatic increase in research on the problem of depression generally and perinatal depression, in particular.

Postpartum depression is a term applied to depressions that are prevalent during the postpartum period, which is increasingly viewed as up to 1 year after childbirth in research and clinical practice. There is no category of postpartum depression in the *Diagnostic and Statistical Manual* (American Psychiatric Association [APA], 2000); however, there is a "postpartum onset" specifier that is applied if the episode begins within 4 weeks of childbirth (APA). Otherwise, the criteria for clinical diagnosis are

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essentially the same as for major depressive episode (APA). Additional symptoms that are commonly observed with postpartum depressed women include mood fluctuations or mood lability and overconcern with the infant (APA). Additionally, postpartum depression is often comorbid with anxiety disorders or significant anxiety symptoms.

Postpartum depression should be distinguished from the postpartum blues, which refers to mood symptoms that are common in the first week to 10 days after delivery and that usually resolve within a few days without any intervention. Symptoms include mood lability, irritability, interpersonal hypersensitivity, insomnia, anxiety, tearfulness, and sometimes elation (O'Hara & Segre, 2008). At the other end of the spectrum is postpartum psychosis, which is characterized by severely depressed mood, disorganized thinking, psychotic thoughts, and hallucinations. Often the presentation is of bipolar disorder with prominent manic symptoms. Postpartum psychosis often has its onset in close proximity to childbirth (Kendell, Chalmers, & Platz, 1987; Munk-Olsen, Laursen, Pedersen, Mors, & Mortensen, 2006). Hospitalization is usually the most appropriate treatment option.

Prevalence

There have been numerous studies attempting to establish the prevalence rate of postpartum depression (Gavin et al., 2005; O'Hara, Zekoski, Philipps, & Wright, 1990; O'Hara & Swain, 1996; Vesga-López et al., 2008). The most adequate analysis of all prevalence studies concluded that as many as 7.1% of women may experience a major depressive episode in the first three months postpartum (Gavin et al.). Including minor depression, the 3-month period prevalence rate increases to 19.2%. Despite these relatively high prevalence rates, the literature is inconclusive regarding the relative rates of depression of postpartum and non-postpartum women (Gavin et al.). In contrast, a recent large-scale epidemiological study did provide some evidence of increased risk for depression in the postpartum period compared with non-pregnant/non-postpartum women (adjusted odds ratio: 1.52; 95% CI: 1.07–2.15; Vesga-Lopez et al.). In sum, there is conclusive evidence that depression in the postpartum period is common and there is some evidence that it may be more common than at other comparable times in a woman's life.

Consequences

Major depression creates suffering whether experienced in the postpartum period or at any other time in a woman's life. What makes depression so poignant for postpartum women is that childbirth is culturally celebrated and there is an expectation that new parents, especially mothers, will be joyful, if not tired, during this time. Moreover, the demands on a new mother are substantial and include providing 24-hour care for a newborn, often in the middle of the night, caring for older children, keeping up with normal household responsibilities, and often returning to work after a brief maternity leave. These burdens are often difficult to bear in normal circumstances and the difficulty of bearing them is exacerbated by the disability associated with depression symptoms (e.g., sad mood, loss of interest, motor retardation, difficulty concentrating).

There is a large literature documenting the impact of maternal depression on offspring (Forman et al., 2007; Goodman, 2007; Philipps & O'Hara, 1991; Weinberg & Tronick, 1998; Weissman, Warner, Wickramaratne, Moreau, & Olfson, 1997). These effects begin in utero and extend into adulthood (Goodman & Brand, 2008). For example, women who are depressed during pregnancy are at increased risk for

anxiety disorders, substance use disorders, tobacco and alcohol use, and poor self-care (Zuckerman, Amaro, Bauchner, & Cabral, 1989). In addition, these women may experience preeclampsia and other health complications (Kurki, Hiilesmaa, Raitasalo, Mattila, & Ylikorkla, 2000; Schmeelk, Granger, Susman, & Chrousos, 1999). Each of these maternal conditions/behaviors puts the developing fetus at risk for suboptimal outcomes including low birth weight, preterm delivery, and reduced neuromotor activity (Hoffman & Hatch, 2000; Hedegaard, Henriksen, Sabroe, & Secher, 1993; Rini, Dunkel-Schetter, Wadhwa, & Sandman, 1999; Lundy et al., 1999).

In the postpartum period, depressed mothers often differ from non-depressed mothers with respect to gaze at their infants, response to infant utterances, and positive and negative facial expressions. Depressed mothers also may show flat affect, low activity level, and lack of contingent responding (Field et al., 1985). Some depressed mothers also show alternating disengagement and intrusiveness with their infant (Cohn, Matias, Tronick, Connell, & Lyons-Ruth, 1986). As a consequence of these maternal disturbances, infants of depressed mothers are often observed to show less eye gaze during feeding, less playing, less positive affect, higher levels of withdrawal behavior, and seem less content, more drowsy and fussy than infants of non-depressed mothers (Cohn et al., 1986; Cohn, Campbell, Matias, & Hopkins, 1990; Field et al.; Goodman & Brand, 2008). Offspring of depressed mothers also show higher levels of insecure attachment than offspring of non-depressed mothers (Martins & Gaffan, 2000).

Maternal depression continues to impact children into toddlerhood and the preschool years and beyond (Goodman & Brand, 2008). These impacts are wide ranging and affect cognitive, social, and emotional development. What is not clear is the extent to which maternal depression during pregnancy and the postpartum period remains a potent factor. That is, does early maternal depression account for child problems beyond what can be accounted for by concurrent maternal depression? There is some evidence that depression during pregnancy and the postpartum period does have extended effects (Hay, Pawlby, Angold, Harold, & Sharp, 2003) but much more work needs to be done in this area.

Causal/Risk Factors

Is postpartum depression brought on by some causal factor unique to the birth of a child or does it simply reflect a coincidence between childbirth and the onset of major depression? The literature is mixed on this question and the answer is probably that some mood episodes are directly related to childbirth and others are at best only indirectly related to childbirth. It is well known that the postpartum blues and postpartum psychosis show a tight and specific relation with childbirth (O'Hara, Lewis, Schlechte, & Wright, 1991; O'Hara, 1995; Kendell et al., 1987; Munk-Olsen et al., 2006). One manifestation of postpartum psychosis is severe unipolar depression and some postpartum blues develop into postpartum depression. Moreover, there is some evidence that a subgroup of women have depression only in the postpartum period and that some women are particularly vulnerable to the types of hormonal changes that occur during parturition (Cooper & Murray, 1995; Bloch et al., 2000).

Traditional studies of causal or risk factors for postpartum depression typically have recruited women at some point during pregnancy and followed them into the postpartum period (O'Hara, Zekoski, Philipps, & Wright, 1990; O'Hara, Schlechte, Lewis, & Varner, 1991; Cooper, Campbell, Day, Kennerley, & Bond, 1988). Risk

factors are measured during pregnancy and their predictive relations with postpartum depression defined either through clinical diagnosis or through self-report assessment are established (e.g., O'Hara, Schlechte O'Hara, Schlechte, Lewis, & Varner, 1991). Several meta-analyses of the literature bearing on risk factors for postpartum depression have been published (O'Hara & Swain, 1996; Beck, 2001; Robertson, Grace, Wallington, & Stewart, 2004). Among the meta-analyses, the following risk factors have been found to have moderate to strong associations with postpartum depression: depression and anxiety during pregnancy, postpartum blues, previous history of depression, stressful life events (including childcare-related stressors), a poor marital relationship, and poor social support (O'Hara & Swain, 1996; Beck, 2001; Robertson et al.). Other risk factors including low socioeconomic status (SES), obstetric factors, and difficult infant temperament are less strongly related to postpartum depression (Beck, 2001; Robertson et al.). It should be noted that meta-analyses have not considered race or ethnicity as risk factors for postpartum depression, though minority status is often co-occurs with low SES. Nevertheless, this is an area that needs additional research.

The picture that develops from individual studies and the results of several meta-analyses is that many postpartum depressions seem to arise in the same psychosocial contexts as do depressions that develop at other times in a woman's life. This is not to say, as suggested above, that some depressions do not occur in specific response to childbirth generally or to changes in the hormonal milieu specifically. Clinical management of depression may be the same for women whatever the cause of the depression. Long-term clinical follow-up, particularly in subsequent pregnancies, may differ depending upon whether a woman is known to have depressions specifically associated with childbirth. For example, a woman who has suffered from depression in the postpartum period should be followed very closely in subsequent pregnancies and postpartum periods.

Detection

Screening adults for depression in clinical practices that have systems in place to assure accurate diagnosis, effective treatment, and follow-up has been recommended by the major government body that evaluates prevention efforts in public health contexts (U.S. Preventive Services Task Force, 2002). These efforts have been given impetus by the introduction of screening tools specifically designed to detect depression in pregnant and postpartum women, that is, tools that avoid tapping somatic symptoms of depression, which may not have high diagnostic value in the postpartum period (Cox, Holden, & Sagovsky, 1987; Beck & Gable, 2003). Further impetus has been given by reports that many postpartum depressions were being missed by primary care providers in the absence of systematic screening (e.g., Georgiopoulos et al., 1999). Many insurance companies are supporting screening for perinatal depression (e.g., Blue Cross Blue Shield of Missouri) and the federal Health Resources and Services Administration (HRSA) has mandated that all Healthy Start programs in the country routinely screen for perinatal depression (HRSA, 2006). In 2006, the State of New Jersey enacted a law (Title 26:2–176) requiring screening for postpartum depression. Additionally, the NIMH also has supported the development of two programs to train and inform primary care providers on the best methods of detecting and managing perinatal depression (Baker, Kamke, O'Hara, & Stuart, 2009, http://www.step-ppd.com/step-ppd/home.aspx; Wisner, Logsdon, & Shanahan, 2008, http://mededppd.org/). Although screening for perinatal depression

is becoming increasingly accepted in the United Kingdom and the United States, there is controversy regarding the potential of overidentifying women who may be at risk for postpartum depression, overpathologizing mood symptoms in the postpartum period, the inability of the system to provide treatment and follow-up to identified women, and the health care costs associated with frequent screening of pregnant and postpartum women (Segre & O'Hara, 2005; Henshaw & Elliott, 2005). These issues remain unresolved; however, there has been a great deal of work in recent years aimed at developing new treatments and adapting established depression treatments for postpartum depression (Holden, Sagovsky, & Cox, 1989; O'Hara, Stuart, Gorman, & Wenzel, 2000).

Treatment

Although there is a very large literature on the efficacy of a range of psychological and pharmacological treatments for depression, pregnant women, women intending to become pregnant, and recently delivered women, particularly breastfeeding women, have been systematically excluded from pharmacotherapy studies and often from psychological studies, particularly if a medication arm is part of the study. How do postpartum women differ from women who have not recently given birth and how might these differences impact on treatment response? Distinctive qualities of the postpartum period include the fact that a woman is caring for a very young child. This responsibility is often associated with sleep deprivation and fatigue, which may or may not be associated with a postpartum depressive episode. A second feature is that women experience a role transition, taking on the role of a mother, often for the first time. This new role identity may be welcomed or taken on with some reluctance. This role also may have implications for the woman's relationship with her partner and others with whom she is close. These relationships are often disturbed in postpartum depression (O'Hara, Hoffman, Philipps, & Wright, 1992). As a consequence, many of the psychological treatments developed or adapted for postpartum depression take special account of the unique characteristics of postpartum depressed women (Holden et al., 1989; O'Hara et al., 2000; Cooper, Murray, Wilson, & Romaniuk, 2003; Stuart & O'Hara, 1995).

In the United Kingdom a treatment intervention (listening visits) was developed for health visitors to deliver in the home (in four to six sessions) to women experiencing postnatal depression (Holden et al., 1989). Listening visits is based on the principles of client-centered therapy and includes reflective listening and problem solving. This model has been tested both in the United Kingdom and Sweden and has accumulated evidence for its effectiveness (Holden et al.; Cooper et al., 2003; Morrell et al., 2009; Wickberg & Hwang, 1996). Listening visits is considered an evidence-based treatment for perinatal depression in the United Kingdom (National Institute for Health and Clinical Excellence [NICE], 2007).

Interpersonal psychotherapy (IPT) was developed as a specific treatment for depression (Klerman, Weissman, Rounsaville, & Chevron, 1984). It has established efficacy both in the acute treatment of depression and as maintenance therapy to keep formerly depressed patients well (Craighead, Hart, Craighead, & Ilardi, 2002; Frank et al., 1990, 2007). It has also been specifically adapted for postpartum depression and depression during pregnancy (O'Hara et al., 2000; Spinelli & Endicott, 2003). What makes IPT attractive as a treatment for perinatal depression is its focus on disrupted interpersonal relationships, with a particular emphasis on interpersonal disputes (e.g., with partner, family members) and a focus on a woman's

difficulty in making role transitions (e.g., taking on the motherhood role). In the first major trial of IPT with postpartum depressed women, O'Hara et al. (2000) randomly assigned 120 women with depression (DSM-IV major depressive episode) in the first six months postpartum to either 12 sessions of IPT (over 12 weeks) or to a waiting list control condition (over 12 weeks). At the end of 12 weeks, women in the IPT condition had significantly lower levels of depressive symptoms based on self-report and clinical assessment, were significantly less likely to meet diagnostic criteria for depression, and had higher self-reported levels of social adjustment (O'Hara et al., 2000). Similar findings were obtained in a trial of IPT with depressed pregnant women in which IPT was compared to a parenting education intervention (Spinelli & Endicott).

Cognitive-behavioral therapy (CBT; Beck, Rush, Shaw, & Emery, 1979) has also been tested with postpartum depressed women in Canada, the United Kingdom, and Australia. In several studies, CBT has been found to be significantly more efficacious than regular postpartum care provided by public health nurses (Cooper et al., 2003; Appleby, Warner, Whitton, & Faragher, 1997; Milgrom, Negri, Gemmill, McNeil, & Martin, 2005). However, CBT was not found to add to the effects of antidepressant medication (Appleby et al., 1997; Misri, Reebye, Corral, & Mills, 2004) or to be significantly more efficacious than other psychological interventions for postpartum depression (Cooper et al., 2003; Milgrom et al.).

The extant literature clearly suggests that interventions such as listening visits, IPT, and CBT, and other interventions, are more efficacious than routine care for postpartum depression; however, there is little evidence that any one intervention is better than others (Dennis, 2004; Stuart, O'Hara, & Gorman, 2003; Bledsoe & Grote, 2006; Chabrol & Callahan, 2007). Nevertheless, listening visits, IPT, and CBT have all been established as empirically supported treatments for depression generally or in the case of listening visits, for postpartum depression in particular (NICE, 2007; Craighead et al., 2002).

Antidepressant medication is frequently used in the treatment of postpartum depression (Misri et al., 2004). The most common class of antidepressant medications used to treat postpartum depression is selective serotonin reuptake inhibitors (SSRI) such as sertraline and fluoxetine (Wisner et al., 2006). However, the full range of antidepressant medications is used in clinical practice. Several small-scale, controlled trials provide evidence for the efficacy of antidepressant medication (Appleby et al., 1997; Misri et al.; Wisner et al., 2006). There has been debate about the wisdom of the use of antidepressant medications with breastfeeding women because this medicine does pass into breast milk and is delivered to the infant. However, the amount of drug found in infants' sera appears to be small and there is no evidence of harm to the infant as a result of mother's medication usage (Stowe, 2007). Nevertheless, despite the experience of clinicians and a large number of published case studies, there have been no controlled trials of the effects of antidepressant medication on the development of exposed infants.

Prevention

Because postpartum depression arises within a definable timeframe, efforts to prevent postpartum depression have been common. These trials usually engage women during pregnancy, during labor and delivery, or in the immediate postpartum period. Interventions range from very limited and brief to relatively extensive. In some trials participants are selected based on the presence of some risk

such as depressive symptoms or history of depression or low-income status. In other cases, there are no specific criteria for eligibility. Despite the large number of studies completed, there is very little evidence for the effectiveness of prevention programs that target all postpartum women (Dennis, 2005; Chabrol & Callahan, 2007; Boath, Bradley, & Henshaw, 2005). Intervention programs that target "high-risk" women and that are more intensive have shown promise (Chabrol et al., 2002; Zlotnick, Johnson, Miller, Pearlstein, & Howard, 2001). For example, Zlotnick et al. targeted women receiving public assistance with at least one risk factor (e.g., previous history of depression) and found that an interpersonally oriented group intervention was efficacious relative to treatment as usual in preventing postpartum depression. This intervention had four structured group sessions during pregnancy that addressed baby blues and postpartum depression, establishing goals for successfully managing role transitions, particularly the transition to motherhood, identifying support persons, and resolving interpersonal conflicts. Homework was also incorporated. In contrast, Hayes, Muller, and Bradley (2001) found no benefit in structured antenatal preparation for parenthood (one meeting with a midwife for first-time parents) compared with routine antenatal care.

Findings of prevention studies suggest that programs targeted at high-risk women, which are reasonably intense, begin in pregnancy, and carry on to the postpartum period, may have the most promise and are likely to be the most cost-effective prevention interventions. In addition to psychologically based prevention efforts, there have also been attempts to provide prophylaxis to women with a history of recurrent depression by starting these women on antidepressant medication immediately after delivery (Wisner et al., 2004). Although the Wisner et al. (2004) did yield significant findings for the use of an SSRI as a preventive intervention, there has been too little work done in this area to draw definitive conclusions about introducing antidepressants to women who are well as means of preventing a future episode.

Research Agenda

Depression is a serious mental health disorder that confers great disability on women and is associated with significant behavioral, emotional, and cognitive risks in offspring. Depression in the postpartum period is especially significant because it interferes with self-care and parenting. For these reasons, there is great need for continued research on all aspects of postpartum depression. For example, epidemiological research has been very limited. As described earlier, most studies have used samples of convenience in one location. Some studies have had a broader reach but have not been designed to determine incidence and prevalence and onset relative to childbirth. A study of this sort should be undertaken, so that the true extent and seriousness of the problem can be known.

Very good work has been done in establishing the consequences of maternal depression for children; however, there have been relatively few studies on the long-term consequences of postpartum depression for the child. Moreover, there is little evidence that treatment for postpartum depression confers benefit on the child. As a consequence, there needs to be more studies aimed at determining the liability to the offspring of postpartum depressed women and the mechanisms that mediate those consequences. Additionally, interventions specifically addressing the parenting of postpartum depressed mothers need to be evaluated.

It is likely that some depressions that develop in the postpartum period reflect a specific childbirth-related diathesis. This diathesis may represent a specific sensitivity to pertubations in ovarian hormones that occur in menstruation, pregnancy/childbirth, and the perimenopause. Determining the nature of this diathesis, if it exists, is an important goal for research because it offers the possibility of developing a specific intervention to prevent or effectively treat postpartum depression in women who have this diathesis.

The treatment and prevention research agenda is a large one. It is best conceptualized as a translation effort. There are a number of efficacious treatments for depression and women have been well represented in these trials. However, what is needed is evidence that these treatments can be successfully implemented in the real worlds of new mothers. Examples of barriers that can undermine the effectiveness of an efficacious treatment include many logistical problems such as availability, access, cost, no childcare, and lack of time because of domestic and work responsibilities. Effectiveness trials in which depression treatments are evaluated in community settings and that are designed to overcome common barriers are an important next step in treatment research. For example, phone and Web-based interventions and increased use of home-based interventions could overcome many of the practical barriers faced by new mothers who are depressed.

Prevention of postpartum depression remains an important but elusive goal and probably will never be fully achieved. Research addressing a specific vulnerability to postpartum depression certainly will advance these efforts. However, it is also important to target women who are generally vulnerable to depression by virtue of typical psychosocial risk factors such as past history of depression. From a public health perspective, pregnancy is an ideal time for women (and men too) to address their mental health issues so as to create the best possible environment for their offspring. This approach has been taken with respect to use of tobacco during pregnancy and the postpartum period and should be considered for women with significant risk factors for postpartum depression. Prevention efforts, when successful, pay great dividends and in the case of postpartum depression beneficiaries extend across the generations.

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