Maternal and Paternal Postpartum Depression: Effects on Early Infant-parent Interactions

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Synopsis

While there is a well-established literature on the detrimental effects of maternal depression on infant-mother interaction and on infant development, the association between paternal postpartum depression and infant development has been rarely investigated. The relative newness of research on paternal postpartum depression, inconsistent research methods, lack of standardized guidelines, clinical heterogeneity and the possible gender-related differences in the expression of emotional disorders pose difficulties in the systematic investigation of the impact paternal postpartum depression has on the quality of infant-father interaction. This editorial highlights the significance of continuing research on maternal and paternal postpartum depression in the course of early infancy and: a) identifies differences in the expression of maternal and paternal behaviors that may indicate depression; b) comments on the self-report measures most commonly used for determining maternal and paternal depression status; c) reviews the prevalence, the onset, the duration and the risk factors of maternal and paternal postpartum depression; d) briefly presents the adverse effects of maternal postpartum depression on early infant-mother interaction and comments on the contrasting findings derived from the limited number of studies on the effect of paternal postpartum depression on certain dimensions of early infant-parent interaction. In connection to this, it is concluded that postpartum depression of mothers and fathers is a “systemic disorder” which affects not only the parent’s functioning and sense of well-being, but it also has an impact on the interaction of parents with their infant and affects the emotional health of their partner; and e) comments on the clinical implications for healthcare professionals and emphasizes the need to focus on the improvement of the quality of parent-infant interaction of depressed mothers and fathers.

Significance of Research on Maternal and Paternal Postpartum Depression

The significance of continuing research on maternal and paternal postpartum depression in the course of early infancy is highlighted by: a) the fact that depression is a major worldwide health problem. It is estimated that by 2020 the global burden of depression will probably be second only to cardiovascular disease; b) the increasing incidence of postpartum depression; c) the long-term negative effects of postpartum depression on infants’ social, emotional, cognitive and physical development; d) the fact that research and some governmental policy are beginning to recognize the important role that many fathers play in their children’s early development; and e) the fact that infancy constitutes a period of rapid development when the infant’s primary source of interaction and communication is with their parents [1-3].

Description of Maternal and Paternal Postpartum Depression

Melancholia (severe depression) after successive childbirths was first described by Joao Rodrigues de Castelo Branco in the case of a merchant’s wife on 1st April 1551: The beautiful wife of Carcinator, who always enjoyed the best of health, was many times attacked by melancholia after childbirth and remained insane for a month, but recovered with treatment.

About 1950, the attention of psychiatrists turned to milder, more common disorders, such as ‘maternity blues’ and postpartum depression, which had been considered below the clinical threshold [4]. Maternal depression after childbirth is characterized by dysphoric mood in all its variations (sadness, anxiety, irritability or tension), self-reproach and pessimism, taciturnity and reclusion, loss of vitality (self-neglect, role failure), somatic features (change in appetite, difficulty in sleeping) and impaired mentation [4,5]. This description pays emphasis on maternal symptoms of postpartum depression per se and overlooks the impact of them on the family dynamic system. Towards this direction, O’Hara [6] considers maternal postpartum depression to be a “systemic illness” affecting a woman’s functioning and sense of well-being as her relationship with her infant and family.

Unlike postpartum depression, ‘postpartum blues’ (involving symptoms such as tearfulness, depressive symptoms and/or mood lability) constitute a transient condition that is usually benign and lasts 12-24 hours. Severe postpartum blues in the first days following childbirth could be predictive of the development maternal postpartum depression symptoms [7-9].

Traditionally, postpartum depression has been construed as a disorder of women. Men’s postpartum depression during their partner’s pregnancy and throughout the first postpartum year has been overlooked and overshadowed by maternal postpartum depression [10]. Current literature does not reveal a specific definition of paternal postpartum depression and several studies used the maternal postpartum depression definition to build on for defining paternal postpartum depression [11]. In the absence of consistent assessment criteria for paternal postpartum depression its symptoms may be misconstrued. Though the above mentioned symptoms of maternal postpartum depression may be present in depressed new fathers, it may be that depressed or sad mood may be less apparent in men. Men’s affect may present more as anxious or angry than sad. Withdrawal from social situations, indecisiveness, cynicism and an irritable mood are identified as hallmark signs of male depression. Avoidance behavior, drinking, drug use, extra-marital affairs and partner violence can also be signs of male depression. In qualitative studies of male partners of postpartum depressed women, men described their experiences of fear, confusion,

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concern for their spouse, frustration, helplessness, uncertainty about the future, sacrifice, disrupted family, social and leisure activities, financial problems, negativity about the paternal role and adjustment problems in the postpartum period [12].

One must examine with skepticism the scientific value of the concept of 'postpartum depression' since: a) maternal and paternal depression after childbirth is clinically similar to any other depression; and b) it has not been demonstrated that depression is more common after childbirth than at other times during the man's life or the female's reproductive period [4,5,12].

Measuring Maternal and Paternal Postpartum Depression

The self-report measures most commonly used for determining maternal and paternal depression status are the Edinburgh Postnatal Depression Scale (EPDS) [13], Beck Depression Inventory (BDI) [14], General Health Questionnaire (GHO) [15] and the Centre for Epidemiologic Studies Depression Scale (CES-D) [16]. In addition to these, the Alcohol Use Disorders Identification Test (a scale that identifies hazardous drinkers) and Gotland Male Depression Scale (a scale that identifies major depression in males) have been used as screening instruments for paternal postpartum depression. These scales may be inappropriate tools to measure paternal postpartum depression since they may be gender biased and neglect important symptoms present in depressed men [10].

Prevalence of Maternal and Paternal Postpartum Depression

Statistics from large sample studies have placed postpartum depression at about 20%-40% in mothers [17]. In connection to this, from 1980-2002, the incidence of paternal postpartum depression during the first year after childbirth increased and ranged from 1.2-25.5% in community samples, and from 24-50% among men whose partners were experiencing postpartum depression [12]. This wide statistical variation may be due to the relative newness of this topic, inconsistent research methods, lack of standardized guidelines, and clinical heterogeneity [11,18].

Onset and Duration of Maternal and Paternal Postpartum Depression

The incidence of maternal postnatal depression in the first postnatal year is highest in the first three months, with the peak time of onset being in the first four to six weeks. If left untreated, most women recover from their depression within three to six months. Around 10% still show evidence of depression one year after delivery [5,19]. There is inconsistency in the literature regarding the onset of paternal postpartum depression. It has been assumed that the onset of postpartum depression may be more insidious in men than in women. Paternal depression may be evident during pregnancy while it may decrease following childbirth and then recur and increase over the course of the first year [10]. Alternatively, there is some evidence that depression in men begins late in the postpartum period, often following the onset of depression in women, with the rate in fathers increasing over the first year [12,20]. Paternal postpartum depression is not a transient phenomenon and it seems to remain at 6 months postpartum [12,21].

Risk Factors for Maternal and Paternal Postpartum Depression

Stressful life events during pregnancy, difficult pregnancy and/or delivery, marital problems, lack of social support, history of mood disorders, mild depressive mood and/or manifestations of anxiety during pregnancy have been highlighted as risk factors for maternal postpartum depression [9,22]. Similarly, personal history of depression, paternal antenatal depression, low social support, poor quality of life, low marital satisfaction and – mainly – the presence of partner’s depression have been significantly correlated with paternal postpartum depression [12,23,24].

Effects of Maternal and Paternal Postpartum Depression on Early Infant-parent Interaction

While there is a well-established literature on the detrimental effects of maternal depression on infant development, very few comparative studies have been published on depressed fathers and their infants in the early months after birth.

A range of potential pathways have been suggested by which parental depression may affect infants’ development [25,26]. It has been suggested that infants of depressed mothers develop a ‘depressed’ mood style very early in infancy [27]. It remains an empirical question whether the depressed affect of these infants derived from their ‘mirroring’ their mothers’ behaviors, or simply results from the minimal stimulation provided by the mothers [28]. Murray et al. [5] suggest that there are four factors connected with postnatal depression that may bring about difficulties in child cognitive development: a) the lack of contingency in the parents’ response; b) insensitive or unresponsive parental behavior; c) hostility or marked intrusive behavior on the parent’s part; and d) the fact that depression reduces the level of parental imitation of infant expressions. Regarding the child’s later emotional and conduct problems, one particularly important component of the early mother-infant relationships seems to be the hostility that depressed mothers sometimes express towards their infants. In connection to these, two key potential pathways of risk transmission are the exposure of infants to: a) reduced parenting capacities, such as sensitivity and responsiveness; and b) negative cognitions and affect in the context of early parenting [3,19].

The long-term effects of maternal postpartum depression including behavioral problems, emotional and physical health problems and cognitive delays, have been attributed to disturbed early interactions [1].

Most of the mother-infant interaction studies have focused on infants between 2 and 6 months, that is, in the period of ‘Primary Intersubjectivity’ (1st-end of 2nd month) and in the “Period of Games” (3rd-6th month) [29]. In the period of Primary Intersubjectivity, the two-month-old infant shows direct sensitivity to the timing and values of expressions of feeling in intimate contact with a sympathetic Significant Other. In proto-conversation - the two-way transmission of emotions - both mother and infant adjust the timing, form and energy of their expressions, to obtain inter-synchrony. The mother’s baby talk constitutes an adaptation to her infant’s communication in which two subsidiary issues are involved: first, the ways in which the mother’s baby talk changes in relation to her infant’s behavior, and secondly, in what sense these changes constitute adaptation to a growing communication. Nearly all mother’s utterances are about how the baby feels, what the baby says and what the baby thinks. A sensitive Significant Other evidently perceives their baby to be a person like themselves and interprets baby behavior as not only intended to be communicative, but as verbal and meaningful [30]. Examples of extremely close co-ordination of the infant’s rudimentary vocalizations of pleasure or excitement with the baby talk of the mother have been shown [31]. The “Period of Games
I’ is characterized by increased concentration on objects which leads to a loss of fascination for face-to-face proto-conversation though the exercise of negotiations of will between the infant and a sympathetic partner are attractive and enjoyed by the infant [29].

In the course of the first six months of infants’ life, this interaction pattern seems to be disturbed in dyads between depressed mothers and their infants since some depressed mothers show more withdrawn, passive and under-stimulating behavior, and some depressed mothers show more intrusive, controlling and over-stimulating behavior [1,5,27].

In particular, postpartum depressed mothers, in comparison with non-depressed mothers, were noted: a) to provide less stimulation and contingent responsivity, to be more irritating and hostile, to be less engaged, to exhibit less emotion and warmth and to have lower rates of play. In connection to this, infants of depressed mothers exhibit less attentiveness, fewer contented expressions, lower activity levels and more fussiness; b) to touch their infants less frequently, in a less affectionate and a more negative manner. In connection to this, infants of postpartum depressed mothers, in comparison with infants of non-depressed mothers, spend more time touching their own skin, which may compensate for the limited amount of positive maternal touch; c) to express less infant-directed speech which is insensitive to infant age-related changes, to express longer utterances, less repetition, more negative affect, fewer explanations, suggestions and questions and fewer references to their infants’ behavior; the duration of switching pauses was longer, more variable and less predictable; this suggests that depression may play a role in reducing synchrony in interactions of depressed mothers with their infants [1,32-35].

Maternal postpartum depression also affects several caregiving activities of the developing parenting roles including feeding practices, most especially breastfeeding, sleep routines and well-child visits and vaccinations. The interaction disturbances of depressed mothers and their infants appear to be universal across different cultures and socioeconomic status groups [1].

Although a number of studies suggest that paternal depression reduces the amount of engagement with infants (a), others have failed to confirm this association (b). In particular: (a) At the neonatal period, higher paternal depressed mood group was significantly related to higher infant fussiness score [36]. In connection to this, fathers with symptoms of depression are twice as likely to have an infant who cries excessively at 2 months of age than fathers who are not depressed [10,37]. Depressed fathers - compared to non-depressed fathers - demonstrate decreased tactile and vocal stimulation with their 2.5 to 4-month-old infants [3,38]. At 3 months, depression in fathers was associated with more speech focused on the paternal experience and less on the infants’ experience. Depressed fathers’ speech comprised more negative and critical utterances, compared with non-depressed fathers [25]. At the same age, fathers with depression may be more withdrawn, displaying less verbal and behavioral stimulation during interactions with their young infants [3]. Fathers of 5 to 12.5-month-old infants with symptoms of depression produced infant-directed speech with marginally significant lower F<sub>0</sub> variability than non-depressed fathers; this is less effective in promoting voice-face recognition in infants [35]. Sethna et al. [3,39] provided evidence that depressed fathers were less intrusive during free-play with their 12-month-old infants.

Depressed fathers of 3-to 6-month old infants received higher ratings than depressed mothers on several behaviors, including physical activity, facial expressions (flat vs smiling), and vocalizations (not paced and not contingent vs. paced and contingent with infant behaviors), and they also behaved in a more positive style and were less often intrusive or withdrawn. The infants of depressed fathers, in turn, received higher state (anxious vs attentive), head orientation, gaze, facial expressions, fussiness and vocalization ratings than the infants of depressed mothers [27].

Though postpartum depression in mothers and fathers is clearly linked, it is unclear what the causal relationship is. The correlation between mothers’ and fathers’ depressive symptoms may be due to: a) the influence of one partner’s psychological state to the other, b) common causal factors outside the family; and c) the evidence that men and women who are more vulnerable to depression are more likely to form relationships [12].

We assume that O’Hara’s [6] definition of maternal postpartum depression may be extended to postpartum depression of fathers. It seems that postpartum depression of mothers and fathers is a systemic disorder which affects not only the parent’s functioning and sense of well-being, but it also has an impact on the interaction of parents with their infant and affects the emotional health of their partner. This assumption is reinforced by the following evidence: a) The detrimental effects of maternal and paternal depression on the quality of parent-infant interaction and on infant development; b) The similar rates of postpartum depression for the mothers and fathers in families where the mother is experiencing postpartum depression symptoms; c) Postpartum paternal depression has been noted to exacerbate maternal depression effects on later child behavior problems; d) Being exposed to a non-depressed father did not buffer the effects of maternal depression, even if the father spent significant amounts of time with his infant. Alternatively, non-depressed fathers have been known to compensate for depressed mothers’ behavior, or to buffer the negative effects of the depressed mothers’ behavior on their infants; and e) the negative effects of depression on children are exacerbated when both parents are depressed, or the experience of having two depressed parents may be no more negative than having one depressed parent [1,10,27].

Clinical Implications and Behavioral Interventions

The importance of universal screening of maternal and paternal depression along with guidance and referrals for maternal and paternal depression treatment by pediatricians during the postpartum period - given that pediatric professionals have frequent contact with both parents at that time - has been highlighted [1]. Further, questionnaires could be used by midwives antenatally to help identify women who are at increased risk for depression and antenatal contacts should be formed between midwives and health visitors [5]. In addition, given that family members turn to nurses for advice when a new baby is expected and then arrives, nurses from a variety of different practice areas can implement practical approaches to promote paternal mental health [10].

Most intervention programs for postpartum depressed mothers have focused on providing pharmaceuticals, psychotherapy and psychosocial support while the need to also focus on mother-infant interaction has been highlighted [1]. There is little research assessing the impact of interventions on improving parenting style and infant outcomes. Interventions are aimed at enhancing the mother-infant relationship by either developing parenting skills or elevating maternal mood. Within this context, home visiting support by the health visitor stands to make an important contribution to the welfare of children since it is not only effective in alleviating symptoms of depression, but is also of benefit in terms of the mother-infant relationship and child development [5].
Interaction coaching has been developed to help mothers improve their interaction behaviors by providing them video feedback and teaching depressed mothers to massage infants has resulted in less irritability in the infants, better mother-infant interactions and reduction of maternal depression [1]. Studies to date have not distinguished any particular intervention as better than another, but there is evidence that the incidence of infant behavioral problems is reduced and insensitive interactions are less likely to develop [5].

Few programs exist to address paternal postpartum depression and this gap in services needs to be urgently addressed. Given that father-infant interaction may constitute a potential pathway by which parental depression affects infant development from a very early age, Sethna et al. [3] highlight the importance of the early postpartum months for the development of the father-infant relationship, and note the need, not only for interventions designed to alleviate depression in new fathers, but also to help improve the quality of interpersonal communication between fathers and their infants.

An understanding of the nature of difficulties in early infant-parent interactions in the context of postnatal depression is important because of their possible implications for the long-term development of the child [3].

Conclusion

There is a well-established literature on the prevalence, onset, duration, risk factors and the detrimental effects of maternal depression on infant development. In contrast, the relative newness of research on paternal postpartum depression, inconsistent research methods, lack of standardized guidelines, clinical heterogeneity, and possibly the different expression of depression in women and men make difficult the identification and the definition of it and have led to contrasting findings on the impact paternal postpartum depression has on certain dimensions of early infant-father interaction. Despite these difficulties, we concluded that postpartum depression of mothers and fathers is a systemic disorder which affects not only the parent's functioning only for interventions designed to alleviate depression in new fathers, but also to help improve the quality of interpersonal communication between fathers and their infants.

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