



A Review of Postpartum Depression, Preterm Birth, and Culture

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ABSTRACT

Postpartum depression (PPD) varies worldwide and is considered a serious issue because of its devastating effects on mothers, families, and infants or children. Preterm birth may be a risk factor for PPD. In 2005, the global incidence of preterm birth was estimated to be 9.6%, and of these births, 85% occurred in Africa and Asia. Among Asian countries, Pakistan has a preterm birth rate of 15.7% and the highest prevalence rate of PPD (63.3%). A literature review was therefore undertaken to better understand the potential contribution of preterm birth to PPD and to identify gaps in the scientific literature. Limited studies compare prevalence rates of PPD in mothers of full-term infants and mothers of preterm infants. Furthermore, meta-analyses examining predictors of PPD have not included preterm birth as a variable. The interrelationship between preterm birth and PPD may be explained by early parental stress and mother-infant interaction among mothers of preterm infants. Culture plays an important role in shaping communication between mothers and their infants and defines

social support rituals that may or may not mediate PPD. More research is needed to provide evidence for practice.

Key Words: cultural characteristics, depression, developing countries, infant, mother-child relations, postpartum, premature, psychological, stress

Postpartum depression (PPD) describes nonpsychotic depressive episodes, with loss of interest, insomnia, and loss of energy experienced by mothers within the period of 4 to 6 weeks after delivery.¹ It is a postpartum affective disorder distinct from the milder and more transient postpartum blues (ie, “baby blues”) and the psychiatric emergency of postpartum psychosis.^{2–4}

Postpartum depression is considered a serious public health issue because of its devastating effects on mothers, families, and infants or children.³ It can have an enduring impact on the mental health of mothers (ie, emotional difficulties or depression),³ and it is a correlate of paternal depression.⁵ Marital relationships may become strained, as mothers with PPD report more sexual health problems, perceive negative family dynamics and low power in the family to make decisions about themselves and their infants or children.^{5–7} Depressed mothers lack confidence in their ability to feed their infants and feel anxious about their parenting role.⁸ They may also be inattentive or less responsive to the infants’ needs.^{9,10} Depressed mothers also show less affectionate behavior⁹ and are at risk for abusing their infants.⁶ Disruptions in mother-infant interactions resulting from these attitudes and behaviors secondary to PPD¹⁰ have adverse and long-term, if not life-long, consequences on all dimensions of child development.

Children of mothers with PPD are reported to be underweight^{11–14} and show evidence of stunting (ie, shorter length than the expected length for age).¹¹ These children also experience more diarrhea episodes.¹⁵ In the short term, PPD impacts

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maternal-infant interaction,¹⁶ and in the long term, it leads to delays in emotional development,¹⁶ social dysregulation (eg, higher levels of anxiety, hyperactivity, and aggression or temperament), and low cognitive function in areas such as language and intelligence quotient.^{16,17} As these children grow, they are also at high risk of developing psychiatric problems.¹⁸

The transition to motherhood may be particularly difficult under certain circumstances, such as the birth of a preterm infant, since these situations add to the disruption and necessary adjustments required by the mother.¹⁹ Consequently, using evidence-based strategies to identify and guide the care of women at high risk for transition difficulties is paramount, given the potential adverse consequences of PPD for mothers, infants, and families.

The purpose of this article was to review PPD and prematurity within the context of culture, especially Pakistani culture. At the outset of this literature review, we provide a general overview of Pakistan as a way of providing context for examining Pakistani women's mental health and culture in the interrelationship between preterm birth and PPD. Following a brief description of the literature search and selection process, the interrelationship between preterm birth and PPD is explained and then the influence of culture on this relationship is explored. In closing, we discuss the implications for practice and future research.

GENERAL OVERVIEW OF PAKISTAN

Pakistan is a large Muslim state located in the South Asian region. It is a country of 174 million people,²⁰ bordered by India, China, Iran, and Afghanistan. Pakistan comprises 4 provinces, including Sind, Punjab, Boluchistan, and Khyber Pakhtunkh (previously known as the North West Frontier), and 2 federally administered areas known as the Northern area and the Federally Administered Tribal Areas. According to the 2004-2005 Pakistan Social and Living Standards Measurement Survey,²¹ nearly 84% of Pakistani households have electricity, 29.5% of houses have gas or oil, and 39% have indoor tap water. The overall literacy rate is 57%; however, the literacy rate among females is 45% and among males 69%.²¹ The national poverty line is defined as an income of 948.47 Pakistani rupees per year,²¹ and 22.3% of Pakistani people live below the poverty line.²²

Pakistan has an infant mortality rate of 65 per 1000 live births,²³ with prematurity being one of the leading causes of death.^{24,25} The reported preterm birth rate in Pakistan is 15.7%,²⁵ in contrast to rates of 9.1% in Asia (*Note:* 11.4% in South-Central Asia), 6.2% in Europe, 8.1% in Latin America and the Caribbean,²⁶ and 8.2% in Canada.²⁷

Studies examining perinatal depression among Asian countries, including Hong Kong, Turkey, Israel, Indonesia, Iran, Thailand, Pakistan, and Singapore, found the self-reported and weighted prevalence of depression during pregnancy differed at each trimester; highest in the first trimester at 22.2%, dropping in the second trimester to 13.5%, and rising again in the third trimester to 17.2%.²⁸ These findings suggest that Asian women have higher rates of depression during pregnancy than North American women.²⁹ Among Asian countries, the overall reported prevalence rate of PPD was 21.8%,²⁸ although rates vary significantly among and within countries. The highest rates of PPD have been reported in Taiwan (73.7%)²⁸ and Pakistan (63.3%),³⁰ whereas the lowest rate has been reported in Malaysia (3.5%).³⁰ Three studies³¹⁻³³ conducted in Pakistan reported rates of PPD ranging from between 28.8% (Rahman et al³²) to 36% (Husain et al³¹), to 94% (Rahman and Creed³³) despite measuring PPD over the same time period (ie, 3 months postpartum). In a longitudinal Pakistani study, 62% of the women who were depressed in their third trimester were found to be depressed at 12 months postpartum.³³

Accurate estimates of the prevalence rate of PPD are difficult to obtain as cultural norms may affect women's reporting of their symptoms, and lack of reliable screening tools may result in underdiagnosis.^{34,35} Furthermore, the methods used to determine prevalence rates impact their accuracy. For example, self-report measures can lead to larger estimates whereas longer periods of evaluation (ie, length of the postpartum period) can indicate higher prevalence.³⁶ Moreover, ethnokinship culture, which defines social support rituals in the postpartum period, may yield variability in rates (ie, wide range of prevalence) among countries and within countries.³⁴

Pakistan has a diverse ethnic and cultural background with some common features. Postpartum customs include *chila*, a 40-day period of seclusion during which new mothers are required to rest and are not permitted to cook or clean, as they are regarded as being dirty. Mothers of male children are regarded as having high status. Child care decisions are complex, often involving negotiations among the mother-in-law, other family members (eg, aunt), and the new parents (Premji, Khowaja, Meherali, Forgeron, unpublished data, 2012). A hierarchical society exists in which patriarchal joint family systems predominate, with the extended family defining the social structure and individual identities (eg, marriage, roles) that marginalize women.³⁷

Pregnant Pakistani women may be particularly vulnerable to stress, given the complex nature and inequities in determinants of women's health (eg, economic, education, social support, health services).³⁸ Women's health needs are not given priority by the

government, or the people, including women themselves.³⁹ In addition, changes in family systems or social relations, specifically structures and practices,^{39,40} and pregnancy concerns such as reliance on others to attend to daily roles and responsibilities, concern for the unborn child,⁴⁰ and values attached to birth of a male child,³⁷ create social pressures that may influence mental health. Urbanization is changing family structure (eg, nuclear family), authority patterns, relationships, and the status of women. The social tensions associated with these changes, coupled with hazards of urbanization (eg, poverty, unemployment, gender discrimination, lack of capacity of health services) can have negative consequences on women's mental health.⁴¹

Characteristics that typify Pakistani women such as depression during pregnancy, lack of social support (whether perceived or real), child care stress, and low socioeconomic status (ie, low income and low education) have been identified as predictors of PPD.⁴²⁻⁴⁴

LITERATURE REVIEW METHODS

A comprehensive search was conducted using the Cumulative Index to Nursing and Allied Health (CINAHL), ScienceDirect, and MD Consult with the following key terms: infants, mother, PPD, postpartum blues, postnatal depression, mental health, postpartum, preterm delivery, preterm infant(s), mother-infant interaction, mother-infant dyad, mother infant bonding, parental stress, early parental stress, culture, ethnicity, and society. Combinations of key words, such as PPD and mother-infant interaction, PPD, preterm infants and mother-infant interaction, PPD and parental stress, PPD and early parental stress, were also used to help focus the search. The literature search was restricted to English language and human subjects. The studies conducted on PPD dated back to the 1980s⁴⁵; however, to ensure that the literature was current with changes in society, only literature from 2000 to September 2011 was included. Only articles specific to PPD after preterm delivery and culture and PPD were reviewed; however, when there were significant gaps in the literature, to ensure conceptual clarity, we included other literature (eg, PPD following delivery generally). Reference lists and bibliographies of relevant articles were examined in detail to identify additional sources of information. This literature review draws on all studies conducted in this topical area regardless of location (ie, developing vs developed countries).

PRETERM BIRTH: A CONTRIBUTING FACTOR TO PPD

Studies^{46,47} indicate that preterm birth, defined as a gestational period less than 37 completed weeks, or 259

days of gestation, may be a risk factor for PPD. The rate of PPD in mothers of preterm infants is 40.3% in Australia⁴⁸ 29.3% in Dhaka, Bangladesh,⁴⁹ and 12% to 63% in Southeast Asia.^{50,51} One systematic review⁴⁴ examining the prevalence of PPD among women with preterm infants, with or without a comparison group, found that in the early postpartum period, the rate of PPD was as high as 40%. The authors of this literature review found a significant difference ($P = .01$) in the rate of PPD at 6 weeks postpartum between Pakistani mothers of term infants (15.3%) and Pakistani mothers of preterm infants (35.3%) who presented for care at 2 centers of the Aga Khan Hospital for Women and Children, Garden and Karimabad, in Pakistan.⁵² It is important to note that differing methodologies were used in studies to determine the rate of PPD among mothers of preterm infants.

According to Vigod et al,⁴⁴ meta-analyses identified depression or anxiety during pregnancy, personal and family history of depression, lack of social support, and stressful life events as the strongest predictors of PPD. None of the meta-analyses examining predictors of PPD included preterm birth as a variable. Vigod and associates⁴⁴ subsequently performed a systematic review of 26 studies, but data could not be combined, given the clinical and methodological heterogeneity of the studies. A qualitative synthesis revealed that studies did not consistently support an increased risk of PPD in women with preterm infants. On the basis of the qualitative synthesis, however, Vigod et al⁴⁴ concluded that in the early postpartum period, mothers of preterm infants are at greater risk of depression than mothers of term infants.

PRETERM BIRTH AND PPD

A relationship between preterm birth and PPD may be partially explained by stressful life events surrounding the birth and delivery of the preterm infant, early parental stress, and mother-infant interaction among mothers of preterm infants. Perinatal complications responsible for preterm birth may directly (eg, increase serotonin levels with preeclampsia)⁵³ or indirectly (eg, pain and other morbidities, failed expectations, or disappointment) increase stress, thereby altering the hormonal milieu and contributing to increased risk of PPD.⁵⁴ Encountering more than 2 perinatal complications, such as preeclampsia, hospitalization during pregnancy, emergency cesarean delivery, fetal distress, delivery requiring the expertise of an obstetrician, and hospitalization of the infant at birth are associated with an increased risk of developing PPD.⁵⁴ Hence, stressful life events surrounding delivery and the immediate postpartum period may impact a woman's ability to

make the appropriate adjustments during the transition to motherhood and therefore increase the likelihood of PPD.

Early parenting stress is defined as the initial challenges parents experience such as excessive parental anxiety, poor coping, and lack of child care skills when transitioning to parenthood.⁵⁵ Emotional distress due to delivery of a preterm infant may affect maternal perceptions towards the child and affect the quality of the parenting role.^{56,57} Stern et al⁵⁸ concluded that mothers of preterm infants perceived their infants as vulnerable to future health outcomes. In turn, mothers with negative perceptions showed a negative attitude toward their preterm infants. Secco et al⁵⁹ report that mothers experience increased parental stress when their children are vulnerable to undesirable physical development, such as poor physical growth, delayed achievement of milestones, and health problems. Since preterm infants are found to be lighter in weight and shorter in height, with smaller heads,⁶⁰ the birth of a preterm infant may increase parental stress. Mothers of 4-month-old premature infants report more parenting stress than mothers of full-term infants.⁶¹

Parental stress may also increase when infants lack social skills.^{17,60,62} Premature infants show fewer positive and more negative facial expressions.⁵⁰ They are also less socially responsive, as they tend not to initiate social behavior and show less pleasure in interacting with their mothers.^{17,50} Furthermore, preterm infants lack clear cues for interaction⁶³ such as feeding. Premature infants' immaturity (eg, number of sucks, duration of sucking bursts, sucking pressure, coordination of suck and swallow) combined with inconsistent feeding behaviors (eg, lack of clear feeding cues) may create challenges for mothers to breast-feed effectively to establish and sustain an adequate milk supply.^{64–66} Women who identified their early breast-feeding experiences as being negative were reported to have an increased likelihood of developing PPD.⁶⁷ As a result of difficulty in identifying infants' cues and difficulty in interpreting the meaning of their premature infants' immature cues,¹⁷ mothers may experience stress, anger, and a sense of helplessness in dealing with their infants.^{68–70}

The interplay of the preterm infant's characteristics and the mother's state of mind may create a vicious cycle that reinforces instability in the mother-infant interaction perpetuating parental stress and PPD. Depressed mothers feel sad and anxious,⁶⁹ which could have an impact on mother-infant interaction, enhancing the mother's stress and contributing to PPD.⁷⁰ Because of the fluctuating mood of depressed mothers, communication between mothers and infants is less likely to occur.⁷¹ Depressed mothers show negative behaviors toward their infants in the form of flat facial ex-

pression and unresponsiveness.⁷² Moreover, depressed mothers spend less time with their infants, and do not maintain eye contact with their infants, than nondepressed mothers.⁷³ Also, depressed mothers do not express pleasure when they interact with their infants, nor do they address their infants' concerns. In addition, depressed mothers express difficulties such as rejection of infants⁶⁹ when interacting with their infants.⁷⁰ All of these communication difficulties create problems in the mother-infant dyad and become a barrier, with mothers assuming that their infants are more demanding.⁷⁰

The interaction of depressed mothers with their preterm infants is more restricted and tense.^{48,74} For instance, they frown and smile less when communicating with their infants.⁵⁰ Depressed mothers also show lack of coordination in verbal and nonverbal gestures^{10,75} and engage less positively with their infants.^{10,76} Depressed mothers of preterm infants were found to be less sensitive, less responsive, and less attentive⁴⁸ towards their children's communication.^{74,75} They use less growth-fostering gestures with their preterm infants than nondepressed mothers.⁶³

The interrelationship between preterm birth and PPD is complex and multifactorial, involving interactions between the mother's psychosocial and biological/medical characteristics and the infant's biological immaturity and behavioral characteristics. Culture, which comprises different practices and beliefs, plays an important role in shaping communication between the mother and her infant⁷⁷ and impacts the mother's emotional state.⁷⁸ Thus, it may also be a contributing factor to PPD.

CULTURE AND PPD

Culture defines social support rituals, which may or may not mediate PPD.^{78,79} Traditional rituals related to pregnancy, birth, and the postpartum period are believed to provide psychosocial support to women and are thereby considered protective, as they decrease the risk for PPD.⁷⁸ For instance, the Chinese ritual of *peiyue* (ie, "mothering the mother" in that the mother or mother-in-law takes responsibility for care of the baby and the house while the mother rests), practiced by families in Hong Kong, is related to perceived availability of support that can have a mediating effect on PPD (ie, lowered risk of PPD).⁸⁰ However, in instances where emotional support offered by mothers-in-law did not meet the new mothers' needs, social support was negatively associated with PPD.^{81,82} High rates of PPD have also been reported in other cultures where these traditional practices exist,⁸³ such as Pakistan.

The literature examining the effects of cultural factors on PPD remains inconclusive as culture has been

noted to have a negative impact on PPD.⁷⁸ Cultural beliefs held by women⁸⁴ or cultural traditions that shape support^{85,86} may not be protective against PPD. Mothers learn about social norms in the way they are socialized through their various interactions, observations, and communication among women within their family (eg, mother, aunts, and grandmothers).⁸⁷ A qualitative grounded theory study of PPD among African American women found that women strived to be “strong black women,” which in their perspective was a culturally established norm. Furthermore, their belief that PPD could only happen to “white women” precluded them from seeking care, as they were ashamed. They therefore relied on prayer or faith to overcome their PPD. Consequently, cultural beliefs held by these African American women were barriers to care and had a negative impact on their PPD.⁸⁴ A study⁸⁸ examining the effect of gender bias situated in the Indian culture reported negative consequences of culture on PPD. Hindu women residing in Mapusa, Goa, India, who gave birth to girls were disheartened about their infant’s gender, and this was a significant risk factor for PPD. In addition, an interaction was reported between infant gender and other risk factors of PPD, including marital violence and hunger.⁸⁸ For example, mothers who experienced marital violence were at an increased risk of PPD if they gave birth to a girl and were at lower risk if they gave birth to a boy.⁸⁸

Danaci et al⁸⁵ examined epidemiological and cultural factors of PPD in Turkish women residing in Manisa, western Turkey. An association was reported between the age of the baby and the mean depression score of the mother. This relationship was attributed to Turkish mothers seeking out and receiving support in the immediate postpartum period; however, this support declined over time.⁸⁵ Poor relationships with mothers-in-law, fathers-in-law, and husbands were also identified as risk factors of PPD. Leung⁸⁶ recruited Hong Kong Chinese women to examine social support, stress, and PPD. The ritual of “doing the month” caused stress for some women, as support from their in-laws was not valued, and thus was not found to be protective against PPD. Nonetheless, the practice of “doing the month” was only partially observed by women, which may partly explain the findings of the study.⁸⁶ For example, women who experienced PPD were less likely to embrace the child care practices of older generations, perhaps due to differences in counseling received from healthcare providers and support people. Postpartum depression was also related to less support being received from the spouse, and viewing husbands as passive, not understanding, and, in some instances, demanding.⁸⁶

Although some studies examine the influence of culture on PPD, they are few in number and provide varied conclusions with regard to the impact of culture on PPD.⁷⁸ Culture influences mother-infant interactions, and cultural practices may or may not reduce the risk for PPD.⁷⁸

Mothers of preterm infants are at greater risk for PPD. Mothers of preterm infants express feelings of greater parental stress,⁸⁹ distress,¹⁷ and anxiety.^{57,90} Preterm infants exhibit different behavioral characteristics¹⁰ than term infants,¹⁷ which may create challenges in mother-infant interaction. Mothers who face difficulties with managing their preterm infants’ characteristics may develop parental stress. Therefore, mothers of preterm infants may be at higher risk of developing PPD.⁷⁶ Postpartum cultural practices of Pakistani women may or may not mediate PPD. The higher rates of preterm birth could be one of the reasons for the high prevalence of PPD in Pakistan. However, this needs to be validated through systematic research.

IMPLICATIONS FOR CLINICAL PRACTICE WITHIN THE PAKISTANI CULTURE

Given that mothers of preterm infants may be at higher risk for PPD than mothers of term infants, extra attention and support should be given to these mothers and their families. Although involving the husband in the care of infants may be difficult and challenging in a male-dominated society, such as in Pakistan, attempts should be made to involve them. A friendship structure would be easier to establish around the mother, and it could be achieved by creating a support group of mothers of preterm infants who could share their experiences and help other mothers identify effective coping strategies. Educating mothers of preterm infants regarding infant cues, teaching them how to “read” these cues, and effectively identify solutions to challenges (eg, breastfeeding) could decrease feelings of maternal stress and increase maternal confidence and competence in handling their infants. The impact of culture on the development of PPD in Pakistani mothers of preterm infants has not been explored, but research should guide practice and policy. In the interim, it is important that healthcare providers explore sociocultural aspects of care (eg, relationships with in-laws and husband, and postpartum ritual and customs), along the continuum of pregnancy and their relevance to maternal emotional well-being. Appreciating that each woman will have her own unique perspective and relationships with in-laws and other female kin, it will be important to ensure that cultural practices are protective against PPD rather than contributing to or aggravating it.

FUTURE DIRECTION FOR EVIDENCE-BASED PRACTICE

Future research should aim to determine the prevalence rate of PPD in Pakistani women with preterm infants and address the methodological issues related to accurately estimating the rate of PPD. Clearly, researchers need to develop a common framework to guide this research, as synthesis of the current evidence on the relationship between preterm birth and PPD has been limited by the clinical and methodological heterogeneity across studies. Furthermore, given the potential contribution of culture to the relationship between preterm birth and PPD, it will be important to examine the relationship of preterm birth and PPD within the cultural context of Pakistani women to better understand the psychosocial needs of Pakistani mothers of preterm infants, facilitate best practices and standards of care, and develop capacity in Pakistani families and communities to care for high-risk mother-infant dyads and their families. Culture may differentially impact the outcome of PPD in Pakistani women who deliver preterm infants compared with those who deliver term infants, as well as those who deliver female infants compared with those who deliver male infants. Thus, comparison groups will enable researchers both to identify potentially unique factors contributing to PPD in Pakistani mothers and to develop culturally sensitive interventions. Given the significant variability in rates of depression (antenatal and postpartum) and preterm birth, local data should be used to prioritize programs and policy. Understanding mother-infant interaction, specifically, socialization goals, and norms of social interaction within the cultural context will uncover factors that lead to mother-infant dysregulation and contribute to parenting stress. Reshaping goals and norms of social interaction may permit Pakistani parents of preterm infants to develop more realistic expectations as caregivers and promote positive mother-infant interactions.

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