

**Postnatal depression, maternal-infant bonding and social support: A cross-cultural comparison of Nigerian and British mothers.**

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**Abstract**

**Objectives:** The high prevalence of Post-Natal Depression (PND) in low and lower-middle income countries of Africa raises questions about the functionality of the abundant informal support accessed in the enmeshed family structure. This study examined the interaction between social support, parity and culture in the development of PND and Maternal Infant Bonding (MIB) among Nigerian, British and Nigerian Immigrant mothers in the UK.

**Methods:** Participants (N=124) were recruited from the UK and Nigeria via local support groups for mothers, websites offering motherhood-related content and social media.

Questionnaires including the Edinburgh Postnatal Depression scale (EPDS), Postpartum Bonding Questionnaire and Norbeck's Social Support Questionnaire were uploaded onto SurveyMonkey®.

**Results:** Findings revealed significant cultural differences in PND and social support.

Multiple Regression analyses revealed that PND, social support and culture could predict Maternal Infant Bonding (MIB), with PND being the only significant independent predictor.

**Conclusions:** Our findings highlight the importance that cultural factors play in the development of PND and the establishment of MIB in the context of culturally attuned healthcare services.

## Postnatal Depression

### Introduction

The processes and life events surrounding the perinatal period presents increased risk for psychiatric disorders including Antenatal Depression (AND), Postnatal Depression (PND) and perinatal anxiety (Stewart, Robertson, Dennis, Grace, & Wallington, 2003; Cantwell & Smith, 2009). The DSM-5 describes PND as a 'major depressive disorder with peripartum onset' as the most recent episode of major depression if onset of mood symptoms occurs during pregnancy or in the four weeks following delivery (American Psychiatric Association (APA), 2013).

The global prevalence rates of PND range between 10% and 15% (Pearlstein, Howard, Salisbury, & Zlotnick, 2009; Sawyer, Ayers, & Smith, 2010; Fisher et al., 2012). This variation may be due to the inconsistencies in the methods of screening, the diagnostic criteria employed and the timing of assessment (Williamson & McCutcheon, 2004; Heh, 2003). Researchers have argued that PND remains under-diagnosed and under-treated (Stewart et al., 2003; Halbreich & Karkun, 2006; Pearlstein et al., 2009). In the developing countries of Africa, this under-diagnosis is worsened by the structure of maternity service delivery settings and prioritised concentration on life-threatening preventable complications of birth (Fisher et al., 2012). Further, the idealised social norm of motherhood and deference for the good mother identity may cause symptomatic mothers to feel guilty and embarrassed about their condition and therefore under-report their symptoms when assessed for PND

## Postnatal Depression

(Tammentie, Tarkka, Astedt-kurki, Paavilainen, & Laippala, 2004; Williamson & McCutcheon, 2004; Pearlstein *et al.*, 2009; Jones, Jomeen, & Hayter, 2014). This trend can pose extensive risks to the mother, baby and the entire family (NICE, 2007) as the depressed mother shows flat affect, low stimulation and general social unresponsiveness (Burke, 2003; Field, 2010).

Previous UK based studies have reported an increased risk of PND among mothers from ethnic minority backgrounds (Onozawa, Kumar, Adams, Doré, & Glover, 2003). These women tend to be migrants faced with stressors related to immigration status problems, discrimination and acculturation issues (Surkan, Peterson, Hughes, & Gottlieb, 2006). Key cultural issues such as isolation and language difficulties have been reported among South Asian, British Pakistani, Bangladeshi and Chinese migrant mothers in the UK experiencing PND (Parvin, Jones, & Hull, 2004; Husain *et al.*, 2012; Lam, Wittkowski & Fox, 2012; Wittkowski, Gardner, Bunton, & Edge, 2014; Gardner, Bunton, Edge, & Wittkowski, 2014). Ethnicity has been described as a significant predictor of depressed mood while controlling for age, marital status, income and educational level, and infant health outcome (Segre, O'Hara, & Losch, 2006).

Gardner *et al.* (2014) conducted an interpretative phenomenological analysis of the experience of postnatal depression among six West African mothers in the UK. Five superordinate themes were identified and included conceptualising PND, isolation, loss of identity, issues of trust and relationships as a protective factor. Gardner *et al.* (2014) explained that although women exhibited symptoms of PND, they did not regard it as an illness but attributed it to social stress. Further, women perceived the supportive nature of social networks as being unavailable; highlighting the role that social support plays in the development of PND.

## Postnatal Depression

PND can trigger long-term negative and damaging effects that can majorly affect the baby (Williamson & McCutcheon, 2004; Murray, Halligan, & Cooper, 2009; Parsons, Young, Rochat, Kringelbach, & Stein, 2012). Depressed mothers may experience a mixture of emotions ranging from apathy to anger and total rejection of the care of their babies (Kitamura, Ohashi, Kita, Haruna, & Kubo, 2013). Empirical evidence suggest that this undermines early childhood interactions between mother and child (e.g. Burke, 2003; McMahon, Barnett, Kowalenko, & Tennant, 2005; 2006; Field, 2010) and can lead to maternal-infant bonding (MIB) failure, which constitutes risk for development of social difficulties and psychological problems later in life (Campbell et al., 2004; McMahon et al., 2006).

Alongside PND, Maternal-Infant relationship Dysfunction (MID) is becoming an increasingly recognised mental health issue in obstetrics and gynaecology (Brockington, 2004a; Kitamura et al., 2013). Maternal Infant Bonding (MIB) is the care-giver-to-infant direction of the mutual and reciprocal systems of interaction in the attachment process which begins at birth, grows and endures over time (e.g. Bowlby, 1969; Klaus & Kennell, 1976; Edhborg, Nasreen, & Kabir, 2011). However, because the aetiology of MIB failure is only minimally investigated (Kitamura et al., 2013), there are still reservations among researchers about the role PND plays in the development of MIB. Some argue that both issues are separate and merely coexist (Brockington, 2004b; Kitamura, et al., 2013). In a study of 1,198 rural Japanese mothers, Kitamura, et al. (2013) reported that depressive mood and bonding failure did not predict each other, but predicted abusive parenting. This infers that other variables including cultural factors may be involved in the establishment of MIB among depressed mothers.

Previous studies have consistently identified an inverse relationship between social support and development of PND (Heh, 2003; Surkan et al., 2006; Leahy-Warren &

## **Postnatal Depression**

McCarthy, 2007; MacArthur, Winter, & Bick, 2007; Dennis & Kingston, 2008). However, the estimation of the protective importance of social support against development of PND and ultimately the establishment of MIB is potentially questionable. Goodman (2008) identified social support as a factor that can impede maternal-infant interaction and ultimately bonding. In a study of adolescent mothers, Logsdon, Birkimer, Simpson & Looney (2005) explained that receiving 'too much' support can be damaging, especially when the support does not match the desire of the recipient. This is because culturally driven practices which take over rather than support mothers to care for their babies may hinder the quantity and quality of interactions between mother and child, possibly impacting on self-efficacy (Salonen et al., 2009), and potentially leading to depression (Crockenberg & Leerkes, 2003). Therefore, some types of social support offered to mothers may not ultimately constitute the right support while some supportive structures may not necessarily be beneficial for all women and could in fact be counter-productive (Jones et al., 2014; Lindblad-Goldberg & Dukes, 1985). Therefore, there is a need to examine the level of meaningfulness of the support provided by the social network, especially in mothers with PND and trans-cultural variations in the contributions of social support to development of PND.

The current study explored the relationship between PND, social support and MIB cross-culturally. We hypothesised that between Nigerian, African Immigrant and Indigenous British mothers, there would be no variation in social support, PND and MIB.

## **Method**

### **Participants**

124 Participants were recruited from the UK (n=79) and Nigeria (n=32) through online Pre- and Post-natal Depression and Support (PANDAS) groups in London, UK. African immigrants (n=13) were Nigerians who had immigrated to Britain. The mean

## Postnatal Depression

duration spent in Britain among the African Immigrant group was  $12.23 \pm 10$  years. Mothers who delivered no later than two years prior to the time of the study; who had no previous history of other types of depression or mental health problems and who can communicate (read, speak, listen and write) English language were included in the study. The criteria specified mothers must have delivered two years prior to the time of the study because Maternal-infant bonding was also been tested as a variable in the study. In addition, it is important to track persistence of the condition beyond one year especially in undiagnosed or poorly diagnosed and untreated individuals which made up the bulk of the Nigerian participants. Some authors have reported case studies and cohorts of women suffering PND up to four years after birth (Woolhouse, Gartland, Mensah, Giallo & Brown, 2016; Sutter-Dallaya, Cosnefroyb, Glatigny-Dallaya, Verdoux & Rascle, 2012). Evidence have also suggested higher prevalence of depressive symptoms at four years postpartum than at any period during the first year postpartum (Woolhouse, Gartland, Mensah, Brown, 2015). The participants were also instructed and encouraged to recall how they felt during weeks following their delivery while responding to the survey.

## Measures

Questions were asked using SurveyMonkey® about age, sex of last child, marital status, number of deliveries, history of obstetric complications during last pregnancy and delivery, ethnicity (nationality) and available baby-care assistance. PND screening was conducted using the standardised Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987). This is a 10-item questionnaire with a four point Likert scale. Responses on Questions were scored 0-4, with the highest obtainable score being 30 and scores above 12 indicating PND. The Cronbach alpha for this study was 0.71. The Impaired bonding subscale of the Postpartum Bonding Questionnaire (PBQ; Brockington, Fraser, & Wilson, 2006) was used to assess MIB. The PBQ consists of a series of 25 statements,

## Postnatal Depression

followed by a six-point Likert scale ranging from Always to Never. A score above 12 indicates defective bonding and lower scores indicate good bonding. The PBQ also has good validity 0.69 [Cronbach alpha 0.76 reported by Brockington et al. (2006)]. Total functional social support and total support network available to the mothers during postnatal period were measured using Norbeck Social Support Questionnaire (NSSQ; Norbeck, Lindsey, & Carrieri, 1981; 1982; Norbeck, 1995). NSSQ also measures two sub-themes of support; emotional support and tangible support (Aid). Total Functional support was the sum of the emotional and tangible support scores. The NSSQ was adapted for the study by adding child-care related words or phrases to make it more situation-specific. NSSQ has a reliability coefficient estimated as 0.68 (Stevens, 2008). The Cronbach alpha for this study was 0.71.

## Procedure

Ethical clearance was granted by the University Psychology Research Ethics Committee. The information sheet, consent form, questionnaires and a debrief form were uploaded on Survey Monkey. Permission to mention the study was sought via administrators of websites and Blogs offering motherhood-related contents (such as mumsnet.com, netmums.com, mums-aid.org helpforbusymums.com) and social media (Facebook and Twitter). Then, survey link was advertised on the websites and blogs. Participants based in Nigeria were recruited through advertisements on social media and blogs offering motherhood-related contents (mumsinnigeria.com and mamalette.com). A survey link was sent to the coordinators of PANDAS for distribution to potential participants who met the inclusion criteria for the study. 159 mothers started the online survey, of which 124 (78%) completed all questionnaires. Data was obtained from respondents who consented to take part in the study and responses were downloaded from SurveyMonkey® for analyses. With reference to table 1 below, the mean age of respondents was highest ( $30.85 \pm 6.35$ ) among African Immigrant mothers,  $28.28 \pm 4.40$  for Nigerian mothers and  $29.66 \pm 5.36$  among British

## Postnatal Depression

mothers. The majority (77%) of the African Immigrants were primiparous. The same trend is observed in Nigerian mothers (63%), the majority (66%) of British mothers were multiparous.

## Results

As can be seen in Table 1., the African immigrant sample rated the delivery and postnatal support received from healthcare professionals in the UK as being moderate to a great deal of support whereas about one-third of British mothers rated the support as ranging from none-at-all to just a little.

\*Insert table 1 about here\*

The majority of British (72%) and African Immigrant (77%) mothers had EPDS scores above 12 ( $15.16 \pm 9.109$  and  $14.23 \pm 6.821$  respectively), however, only 19% of Nigerian mothers did ( $9.03 \pm 4.73$ ). Maternal Infant Bonding scores were significantly different between African Immigrant, Nigerian and British mothers,  $X^2_{(2, N=124)} = 17.55$ ,  $p < 0.05$ , with African Immigrant mothers having the highest mean PBQ score ( $16.08 \pm 12.26$ ) and Nigerian mothers having the lowest ( $6.58 \pm 3.97$ ). Nigerian mothers reported the highest level of Emotional Support ( $56.90 \pm 28.84$ ), Tangible Support (AID) ( $27.70 \pm 15.86$ ) and Total Functional Support ( $84.59 \pm 43.61$ ). British mothers reported the highest social network ratings ( $43.69 \pm 35.85$ ) and African Immigrants had the lowest scores on all parameters.

We found a statistically significant difference in EPDS scores based on the interaction of Total functional support received, parity and the cultural (nationality) grouping,  $F_{(1, 113)} =$

### Postnatal Depression

5.099,  $p < 0.05$ , *partial*  $\eta^2 = 0.02$ . Further, we found a significant main effect of cultural affiliation (African Immigrant, Nigerian or British) on PND  $F_{(2, 113)} = 5.037$ ,  $p > 0.05$ , *partial*  $\eta^2 = 0.08$ . However, although table 2 shows that women scoring above the 50<sup>th</sup> percentile on total functional support had slightly higher mean PND scores ( $11.23 \pm 6.14$ ) than those below the 50<sup>th</sup> percentile ( $11.09 \pm 7.55$ ), the main effect of Total Functional Support score was not significant,  $F_{(1, 113)} = 0.001$ ,  $p > 0.05$ , *partial*  $\eta^2 = 0.00$ . In addition, although multiparous mothers had higher mean PND scores ( $11.26 \pm 6.9$ ) than primiparous mothers ( $11.07 \pm 6.9$ ), this difference did not reach statistical significance,  $F_{(1, 113)} = 3.70$ ,  $p > 0.05$ , *partial*  $\eta^2 = 0.032$ . The nationality x total functional support interaction was significant,  $F_{(2, 113)} = 6.560$ ,  $p < 0.05$ , *partial*  $\eta^2 = 0.104$ , as was the nationality x parity interaction,  $F_{(2, 113)} = 11.286$ ,  $p < 0.05$ , *partial*  $\eta^2 = 0.166$ .

\*Insert table 2 about here\*

Further analyses using multiple linear regression to predict MIB (PBQ scores) generated a significant model,  $F_{(6, 117)} = 34.784$ ,  $p < 0.01$ . This model explained 62% of the variability in PBQ scores (Adjusted  $R^2 = 0.622$ ). Table 3 shows a 1% increase in amount of Emotional support and Tangible support causes a 2% and 0.4% decrease in PBQ scores respectively while holding other variables constant. In addition, the model non-significantly predicts that British mothers will have 9% lesser PBQ scores than Nigerian mothers,  $t = -1.495$ ,  $\beta = 0.089$ ,  $p > 0.05$  while African Immigrants will have 3% higher PBQ scores,  $t = 0.525$ ,  $\beta = 0.033$ ,  $p > 0.05$ , holding all other variables constant. Individually, Total functional support has the highest effect on PBQ with a 1% increase in TFS resulting in 2% increase in PBQ scores. However, the effect was not statistically significant,  $t = 1.13$ ,  $\beta = 2.151$ ,  $p < 0.01$ . PND

## Postnatal Depression

was the only statistically significant independent predictor of MIB,  $t=13.316$ ,  $\beta=0.766$ ,  $\rho<0.01$ , with a 1% rise in EPDS score giving rise to a 1% rise in PBQ scores.

\*Insert table 3 about here

## Discussion

This study examined social support, parity, postnatal depression and maternal infant bonding cross-culturally among Nigerian, African immigrant and British mothers. We found a significant positive correlation between Total functional support (TFS) and Total social network (TSN) in all categories (Nigerian, African immigrant and British mothers). However, our findings revealed that British mothers received significantly higher total functional support when compared to Nigerian and African immigrant mothers. Further differences were apparent between the Nigerian and African Immigrant TFS scores, where lower TFS scores were observed among African Immigrant mothers. These differences may be due to the size of the social network available to Nigerian mothers rather than the actual functionality of the support from the network. This may be reflected in the variability in total functional support attributable to total social network which was highest among British mothers compared to African immigrants and Nigerian mothers. Compared to African immigrant and Nigerian mothers, British mothers had better access to formal social support networks (e.g. community-based peer support groups, health visitors and psychological wellbeing practitioners) which are more evidence-based in their functionality and contributions. African Immigrants are faced with other issues of immigration status, acculturation, discrimination and stereotyping which limits their social network and functional support received from

## **Postnatal Depression**

formal supportive structures (Onozawa et al., 2003; Surkan et al., 2006). This implies existence of other factors accounting for the improved total functional support not accounted for in the model. Jones et al. (2014) suggested that some types of support received from the social network especially family network may not ultimately constitute the right support while some supportive structures may not necessarily be beneficial for all women. This demonstrates that there is need for the consideration of person-centred care principles and other aspects of individuality in making social support functional.

The findings highlight statistically significant difference in PND based on the interaction of Total functional support received, parity and the nationality. Findings also showed that only nationality classification has a significant main effect on PND, while parity and total functional support did not. This suggests that cultural variations as a result of different nationalities tend to mediate the effect of parity and social support on PND, a finding consistent with the assertions that culture is the milieu for all affective experiences (Bashiri & Spielvogel, 1999). The significant PND difference between groups may not mean that prevalence of PND is different between the two countries, as empirical evidence has shown PND prevalence rates (15%-19%) in Nigeria (Adewuya, Eeguranti, & Lawal, 2005; Abiodun, 2006) to be comparable to global figures. However, the acknowledgement of the symptoms and the manner of expression of the symptoms in the two cultures has been shown to be different; Nigerians somatize symptoms of depression (Bashiri & Spielvogel, 1999; Adewuya et al., 2005) and may be more reticent than Britons in acknowledging it when completing surveys. African immigrants may also have embraced the expressive characteristics of their environment due to acculturation (their mean length of stay in Britain was approximately 10 years). Generally, the differences between the three groups may not necessarily reflect differences based on cultural factors and practices but structural and functional disparities in societal settings. These findings are similar to Shaw, Levitt, Wong,

## Postnatal Depression

Kaczorowski, and Group (2006) who revealed that neither home visitation nor peer support reduced EPDS scores for mothers, but scores significantly reduced only in mothers at risk for PND (Shaw et al., 2006).

There was dissimilarity with previous cross-cultural study in this regard. A study between Taiwan and UK participants found no statistically significant difference in prevalence of PND between the two cultures (Huang & Mathers, 2001) despite the significant differences in culturally-based postnatal social support. It must be noted that the current study also recruited participants via local support groups for postnatal depression. This could have significantly contributed to the percentage of British mothers in the study having high PND scores. Our findings conflict earlier research (Leahy-Warren & McCarthy, 2007), with higher PND scores being found among mothers who had total functional support above the 50<sup>th</sup> percentile. Additionally, Leahy-Warren, McCarthy, and Corcoran (2011) found a graded and significant relationship between total functional social support and PND at six weeks postpartum, reporting that first-time mothers receiving medium and low levels of emotional support had five and eight times higher risk of PND, respectively. Surkan *et al.* (2006) did not find evidence that the influence of social support and social network on depression varied by race. Although, their study was conducted in the United States (US), and apparently differs from UK in population characteristics. Stewart *et al.* (2003) also reported that no relationship was found for ethnicity, age, education and parity but did not document the effect of the interaction of these variables.

The study found the interaction of social support, culture and PND significantly predicts maternal infant bonding. Our results showed that increased emotional support and tangible support is significantly associated with poor MIB in Nigerian mothers. This was not the case in British mothers and African immigrants where increase in emotional and tangible support showed improved MIB. Reasons for this finding are unclear because maternal-infant

## **Postnatal Depression**

bonding assessment from Nigerian mothers was highest among the three cultural categories. However, it is vital to observe that the major source of social support in the enmeshed family structure found among Nigerians consists of family members (Osamor, Owumi, & Dipeolu, 2015). This means, except in cases of delivery complications and routine immunisation visits, newly delivered mothers rarely have contacts with or support from any form of health professional after delivery. While this finding is an association which does not indicate causality, it portends the possibility that the form and means of social support received by Nigerian mothers could be hindering adequate maternal infant bonding. Yet, it does not mean that family members are not supportive; but their understanding and provision of support may be defective and potentially harmful to the quality and quantity of interactions between mother and child that is needed to establish adequate bonding. Indeed, Goodman (2008) noted social support as a factor that can impede maternal-infant interaction and bonding.

From the regression model, British mothers were found to be more likely to have better MIB than Nigerian mothers; although British mothers in the study generally had poorer maternal-infant bonding and higher average EPDS score when compared to Nigerians. This was not statistically significant. There appears to be more clandestine variables affecting this relationship; however, the model implies that the presence of PND might be the mediator for some of these effects. This appears to be valid since majority of the women in the study had PND. Notwithstanding, the strong idealistic motherhood notion intrinsic to the cultural perspectives of Africans, including Nigerians (Jones et al., 2014) may be responsible for the lower mean PBQ scores rather than actual strong bonding, particularly since the data was based on self-report measures. Finally, greater exposure to formal social support networks via the National Health Service may have helped British mothers to better understand bonding and how to foster it.

## Postnatal Depression

A variety of concerns necessitates the need for caution in the interpretation of the study findings. Factors such as parenting efficacy and parenting practices, which may confound social support and cultural differences, were not measured. Further, the African immigrant group was smaller than other groups. The cross-sectional design of this study also restricts deductions about the relationships examined. There was difficulty in weighing whether support received from the social network was dysfunctional. The social network persons categorisation employed in the Norbeck's Social Support Questionnaire (NSSQ) combined both immediate family members of the new mother and her in-laws in the family or relative network person category. Such ambiguities in categorisations blur the visibility of any existent strained relationship or other dysfunctionality in the family network and preclude their contribution to the TFS score. Nigerian participants in the study may not have been adequately representative of the population as they were accessed through social media and website advertisements. An overwhelming majority of mothers in Nigeria do not have access to internet (National Bureau of Statistics, 2012) and may have been excluded from participating in this study. Also, the distribution means the Nigerian participants may be more modernized and thus fail to fully reflect the traditional enmeshed family structure characteristic of the Nigerian society.

Furthermore, the researchers used a cut-off point of 12 or more on the EPDS among Nigerian mothers in this study as against  $\geq 10$ . This was because previous recommendations by authors suggested a threshold guideline for using the EPDS to identify PND within family practices (a threshold score of 10) and 12 within research studies (Cox et al., 1987; Robertson, Celasun & Stewart 2003). This suggestion was not explained based on country of origin or culture. However, more recent studies have tended towards a general consensus for EPDS cut-offs at 13 or more (Robertson, Celasun & Stewart, 2003; Parsons et al, 2011). However, Tsai et al. (2013) reported a pooled sensitivity of 0.94 (95% confidence interval

## Postnatal Depression

[CI], 0.68-0.99) and a pooled specificity of 0.77 (95% CI, 0.59-0.88) at a cut-off score of  $\geq 9$ , with higher cut-off scores yielding greater pooled specificity at the cost of lower pooled sensitivity (Abiodun, 2006). However, the authors reported high heterogeneity between studies with exclusive sensitivity in some studies as high as 0.83. In addition, in Nigeria, Adewuya, Ola, Dada and Fasoto (2007) reported that at a cut-off score of 10 on the EPDS was found to be the best for screening for both major and minor depression (sensitivity = 0.867, specificity = 0.915) but a cut-off of 12 was found to be the most appropriate for major depression only (sensitivity = 1.000, specificity = 0.961). As the survey was online based for Nigerian mothers, researchers thought raising the cut-off will only identify Nigerian women with major PND and avoid raising false alarms which could contribute as a stressor for those with minor or no depression. The researchers also hope avoiding false positives was a more important trade-off based on the overall methodology of the study.

However, when addressing the implications for future practice, there is a need for practitioners to be understanding of the needs of African immigrants in the UK. This is because findings suggest that this group have lower functional support and social network, higher PND and poor MIB. These indices differ from both British and Nigerian categories implying that African Immigrant mothers pose their own unique experiences and health care needs. Therefore, culturally-sensitive care, which is only based on assumptive African stereotypes alone may not suffice when making inclusive healthcare arrangements for them. Further, there is need for improved structuring in formal social support networks and community-based mental healthcare for newly delivered mothers in Nigeria as is existent in the UK. Such structures should include improving post-delivery access to health professionals outside the clinical setting even when there is no imminent physical problem, since PND can go undiagnosed. This will create an opportunity for critical mental health assessment of, at-risk, newly-delivered mothers, especially within the puerperium period.

## **Postnatal Depression**

Antenatal care in Nigeria and the UK for African immigrants may also need to incorporate training for family members on providing supportive care which does not take-over care of the baby (substitutive) from the mother but rather assists the mother (facilitative). There exists a gap in research and measurement instruments for dysfunctional support within social networks, which begs further research. Further research is also needed in giving proper perspective to substitute and facilitative approaches within the context of tangible support for newly delivered mothers and their contributions to PND and MIB. More cross-cultural studies designed prospectively will aid better understanding of the relationships between social support and different cultural factors in the development of PND.

In conclusion, culture plays a significant role in the amount of functional support that is accessible from the social network for women with PND. British mothers are more likely to receive functional support from their social networks than Nigerian and African Immigrant groups. Parity and social support did not significantly influence the development of PND individually or collectively; but their effects may be mediated by cultural or societal factors. The development of PND appears to be affected by interaction of parity, social support and culture. Also, the study established that the interaction of the presence of PND, culture and social support significantly predicts strength of maternal-infant bonding, despite PND being the only significant individual predictor. Though speculative, African immigrants demonstrated many indices that highlighted they may be at risk of assumptive stereotypes and discrimination, which may cause disparities in the formal and informal support and skilled mental healthcare that they access when compared to other British mothers. Further cross-cultural research may examine these cultural differences when working in healthcare with African mothers.

**References**

- Abiodun, O.A. (2006). Postnatal depression in primary care populations in Nigeria. *General Hospital Psychiatry*, 28, 133– 136.

## Postnatal Depression

- Adewuya, A.O., Eegunranti, A.B. & Lawal, A.M. (2005). Prevalence of postnatal depression in Western Nigerian women: a controlled study. *International Journal of Psychiatry in Clinical Practice*, 9(1), 60-64.
- Adewuya A., Ola B A, Dada A O. & Fasoto O.O. (2007). Validation of the Edinburgh Postnatal Depression Scale as a screening tool for depression in late pregnancy among Nigerian women. *Journal of Psychosomatic Obstetrics & Gynecology*, 27(4), 267-272 · DOI: 10.1080/01674820600915478
- American Psychiatric Association (APA) (2013). *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*. (5th ed.). Washington, DC: APA.
- Bashiri, N., & Spielvogel, A. M. (1999). Postpartum Depression: A Crosscultural Perspective. *Psychiatric Update*, 6(3), 82-87.
- Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation, Anxiety and Anger*. London, UK: Penguin Books.
- Brockington, I. (2004a). Diagnosis and management of Post- Partum Disorders: A review. *World Psychiatry*, 3, 89-95.
- Brockington, I. (2004b). Postpartum Psychiatric Disorders. *Lancet*, 363(9405), 303-10.
- Brockington, I.F., Fraser, C., & Wilson, D. (2006). The Postpartum Bonding Questionnaire: a validation. *Archives of Women's Mental Health*, 9(5), 233–242.
- Burke, L. (2003). The impact of maternal depression on familial relationships. *International Review of Psychiatry*, 15, 243–255.
- Campbell, S.B., Brownell, C.A., Hungerford, A., Speiker, S.J., Mohan, R. & Blessing, J.S. (2004). The course of maternal depressive symptoms and maternal sensitivity as predictors of attachment security at 36 months. *Developmental Psychopathology*, 16, 231-52.

## Postnatal Depression

- Cantwell, R., & Smith, S. (2009). Prediction and prevention of perinatal mental illness. *Psychiatry*, 8(1), 21–27.
- Cox, J.L., Holden, J.M., & Sagovsky, R. (1987). Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry*, 150, 782-786.
- Crockenberg, S. & Leerkes, E. (2003). Developmental history, partner relationships, and infant reactivity as predictors of postpartum depression and maternal sensitivity. *Journal of Family Psychology*, 17, 1-14.
- Dennis, C. & Kingston, D. (2008). A systematic review of telephone support for women during pregnancy and the early postpartum period. *Journal of Obstetric, Gynecologic and Neonatal Nursing*, 37(3), 301–314.
- Edhborg, M., Nasreen, H.E., & Kabir, Z.N. (2011). Impact of postpartum depressive and anxiety symptoms on mothers' emotional tie to their infants 2 3 months postpartum: A population based study in rural Bangladesh. *Archives of Women's Mental Health*, 14, 307-316. doi:10.1007/s00737-011-0221-7
- Field, T. (2010). Postpartum depression effects on early interactions, parenting, and safety practices: A review. *Infant Behavior and Development*, 33, 1–6.
- Fisher, J., de Mello, M. C., Patel, V., Rahman, A., Tran, T., Holton, S., & Holmes, W. (2012). Prevalence and determinants of common perinatal mental disorders in women in low- and lower-middle-income countries: a systematic review. *Bull World Health Organ*, 90, 139G-49G. <http://dx.doi.org/10.2471/BLT.11.091850>
- Gardner, P. L., Bunton, P., Edge, D., & Wittkowski, A. (2014). The experience of postnatal depression in West African mothers living in the United Kingdom: A qualitative study. *Midwifery*, 30(6), 756–763.
- Goodman, J.H. (2008). Influences of Maternal Postpartum Depression on Fathers and On Father–Infant Interaction. *Infant Mental Health Journal*, 29(6), 624–643.

## Postnatal Depression

- Halbreich, U. (2005). Postpartum disorders: Multiple interacting underlying mechanisms and risk factors. *Journal of Affective Disorders*, 88(1), 1-7.
- Halbreich, U. & Karkun, S. (2006). Cross-cultural and social diversity of prevalence of postpartum depression and depressive symptoms. *Journal of Affective Disorders*, 91, 97-111.
- Heh, S-S. (2003). Relationship between social support and postnatal depression. *Kaohsiung Journal of Medical Sciences*, 19, 491-496.
- Huang, Y. -C. & Mathers, N. (2001). Postnatal depression; biological or cultural? A comparative study of postnatal women in the UK and Taiwan. *Journal of Advanced Nursing*, 33(3), 279-287.
- Husain, N., Cruickshank, K., Husain, M., Khan, S., Tomenson, B., & Rahman, A. (2012). Social stress and depression during pregnancy and in the postnatal period in British Pakistani mothers: A cohort study. *Journal of Affective Disorders*, 140(3), 268–276. doi: 10.1016/j.jad.2012.02.009
- Jones, C.C.G., Jomeen, J., & Hayter, M. (2014). The impact of peer support in the context of perinatal mental illness: A meta-ethnography. *Midwifery*, 30 (5), 491–498.
- Kitamura, T., Ohashi, Y., Kita, S., Haruna, M., & Kubo, R. (2013). Depressive Mood, Bonding Failure, and abusive parenting among mothers with three-month-old babies in a Japanese community. *Open Journal of Psychiatry*, 3, 1-7. doi:10.4236/ojpsych.2013.33A001
- Klaus, M. H. & Kennell, J. H. (1976) *Maternal-Infant Bonding*. Saint Louis: C. V. Mosby.
- Lam, E., Wittkowski, A., & Fox, J.R.E. (2012). A qualitative study of the postpartum experience of Chinese women living in England. *Journal of Reproductive and Infant Psychology*, 30, 105–119.

## Postnatal Depression

- Leahy-Warren, P. & McCarthy, G. (2007). Postnatal depression: Prevalence, mothers' perspectives, and treatments. *Archives of Psychiatric Nursing*, 21 (2), 91–100.
- Leahy-Warren, P., McCarthy, G., & Corcoran, P. (2011). Postnatal depression in first-time mothers: prevalence and relationships between functional and structural social support at 6 and 12 weeks postpartum. *Archives of Psychiatric Nursing*, 25(3), 174–184.
- Lindblad-Goldberg, M. & Dukes, J. L. (1985). Social support in Black, low-income, single-parent families: Normative and dysfunctional patterns. *American Journal of Orthopsychiatry*, 55(1), 42-58.
- MacArthur, C., Winter, H., & Bick, D. (2007). Effectiveness of postpartum support. *Birth*, 34(2), 188.
- McMahon, C., Barnett, B., Kowalenko, N., & Tennant, C. (2006). Maternal attachment state of mind moderates the impact of postnatal depression on infant attachment. *Journal of Child Psychology and Psychiatry*, 47(7), 660–669.
- Murray, L., Halligan, S.L., & Cooper, P.J. (2009). Effects of postnatal depression on mother-infant interactions, and child development. In Wachs, T. & Bremner, G. (Eds). *Handbook of Infant Development*. Wiley-Blackwell, Oxford, UK.
- National Bureau of Statistics (2012). *2011 Annual Socio-Economic Report: Distribution of Ownership and Access to ICT*. Nigeria. Retrieved from [www.nigeriastat.gov.ng](http://www.nigeriastat.gov.ng)
- NICE (2007). *Antenatal and Postnatal Mental Health: National Clinical Practice Guideline*. London, UK: The British Psychological Society and The Royal College of Psychiatrists.
- Norbeck, J.A., Lindsey, A. M., & Carrieri, V.L. (1981). The development of an instrument to measure social support. *Nursing Research*, 30(5), 264-269.

## Postnatal Depression

Norbeck, J.S. (1995). Scoring Instructions for the Norbeck Social Support Questionnaire (NSSQ). University of California, San Francisco. Retrieved from <http://nursing.ucsf.edu/jane-norbeck-questionnaires-research-instruments>

Norbeck, J.S., Lindsey, A.M, & Carrieri, V.L. (1982). Further development of the Norbeck Social Support Questionnaire: Normative data and validity testing. *Nursing Research*, 32(1), 4-9.

Onozawa, K., Kumar, R. C., Adams, D., Doré, C., & Glover V. (2003). High EPDS scores in women from ethnic minorities living in London. *Archive of women's Mental Health*, 6(Suppl.2), s51-s55.

Osamor, P.E., Owumi, B., & Dipeolu, I.O. (2015). Socio-Cultural Context of Developmental Milestones in Infancy in South West Nigeria: A Qualitative Study. *European Scientific Journal*, 11(17), 185-201.

Parsons, C.E., Young, K.S., RoCHAT, T.J., Kringelbach, M.L., & Stein, A. (2012). Postnatal depression and its effects on child development: a review of evidence from low- and middle-income countries. *British Medical Bulletin*, 101, 57-79. doi: 10.1093/bmb/ldr047

Parvin, A., Jones, C., & Hull, S. (2004). Experiences and understandings of social and emotional distress in the postnatal period among Bangladeshi women living in Tower Hamlets. *Family Practice*. 21 (3), 254-260.

Pearlstein, T., Howard, M., Salisbury, A., & Zlotnick, C. (2009). Postnatal Depression. *American Journal of Obstetrics and Gynaecology*, 200(4), 357-364.

Polit, D.F. & Beck, C.T. (2012). *Nursing Research: Generating and Assessing evidence for Nursing practice*, (9<sup>th</sup> Ed.). Philadelphia: Lippincott, Williams and Wilkins.

Robertson, E., Celasun, N., & Stewart, D. E. (2003). Risk factors for postpartum depression. In Stewart, D.E., Robertson, E., Dennis, C.-L., Grace, S.L., & Wallington, T. (2003).

## Postnatal Depression

*Postpartum depression: Literature review of risk factors and interventions.* Toronto Public Health

Salonen, A.H., Kaunonen, M., Åstedt-kurki P., Järvenpää A.-L., Isoaho H., & Tarkka M.-T. (2009). Parenting self-efficacy after childbirth. *Journal of Advanced Nursing*, 65(11), 2324–2336.

Sawyer, A., Ayers, S., & Smith, H. (2010). Pre- and postnatal psychological wellbeing in Africa: a systematic review. *Journal of Affective Disorders*, 123, 1–3.

Segre, L. S., O'Hara, M. W., & Losch M. E. (2006). Race/ethnicity and perinatal depressed mood. *Journal of Reproductive and Infant Psychology*, 24 (2), 99-106.

Shaw, E., Levitt, C., Wong, S., Kaczorowski, J., & Group. M. U. P. R. (2006). Systematic review of the literature on postpartum care: effectiveness of postpartum support to improve maternal parenting, mental health, quality of life, and physical health. *Birth*, 33 (3), 210-20.

Stevens, M. L. (2008). Psychometric properties of the Norbeck Social Support Questionnaire (Unpublished Master of Science Thesis) University of Florida. Retrieved from <http://ufdc.ufl.edu/UFE0022029/00001/pdf>

Stewart, D.E., Robertson, E., Dennis, C.-L., Grace, S.L., & Wallington, T. (2003). *Postpartum depression: Literature review of risk factors and interventions.* Toronto Public Health.

Surkan, P. J., Peterson, K. E., Hughes, M. D., & Gottlieb, B. R. (2006). The role of social networks and support in postpartum women's depression: A multiethnic urban sample. *Maternal and Child Health Journal*, 10(4), 375-383.

Sutter-Dallaya A.L., Cosnefroyb O., Glatigny-Dallaya E., Verdoux H., Rasclé N. (2012) Evolution of perinatal depressive symptoms from pregnancy to two years postpartum in a low-risk sample: The MATQUID cohort. *Journal of Affective Disorders*, 139(1), 23–29.

Tammentie, T., Tarkka, M.-T., Astedt-kurki, P., Paavilainen, E., & Laippala, P. (2004). Family dynamics and postnatal depression. *Journal of Psychiatric and Health Nursing*, 11, 141—149.

## Postnatal Depression

Tsai AC, Scott JA, Hung KJ, Zhu JQ, Matthews LT, Psaros C, et al. (2013). Reliability and Validity of Instruments for Assessing Perinatal Depression in African Settings: Systematic Review and Meta-Analysis. *PLoS ONE*, 8(12), e82521. doi:10.1371/journal.pone.0082521

Williamson, V. & McCutcheon, H. (2004). Postpartum Depression: A review of current literature *Australian Journal of Midwifery*, 17 (4), 11-16.

Wittkowski, A., Gardner, P. L., Bunton, P., & Edge, D. (2014). Culturally determined risk factors for postnatal depression in Sub-Saharan Africa: A mixed method systematic review. *Journal of Affective Disorders*, 163, 115–124.

Woolhouse H, Gartland D, Mensah F, Brown SJ (2015) Maternal depression from early pregnancy to 4 years postpartum in a prospective pregnancy cohort study: implications for primary health care. *BJOG: An International Journal of Obstetrics & Gynaecology*. 122(3), 312-321. DOI: 10.1111/1471-0528.12837

Woolhouse H, Gartland D, Mensah F, Giallo R & Brown SJ (2016) Maternal depression from pregnancy to 4 years postpartum and emotional/behavioural difficulties in children: results from a prospective pregnancy cohort study. *Archives of Women's Mental Health*, 19 (1), 141–151.