Practitioner's Corner

Sociodemographic and Obstetric Risk Factors for Postpartum Depressive Symptoms in Nigerian Women

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Objective: Studies from the Western culture have emphasized psychosocial risk factors for the development of postnatal depression (PND). In Africa, poor obstetrics practice and sociodemographic factors may contribute significantly to the risk of PND. The goal of this study was to examine sociodemographic and obstetric risk factors for postnatal depressive symptoms in a Nigerian community. *Methods:* 876 women recruited at 6 weeks postpartum from the postnatal and infant immunization clinics of 5 participating health centers were screened with the Edinburgh Postnatal Depression Scale (EPDS). Sociodemographic and obstetric information were also obtained through a structured questionnaire. *Results:* The mean EPDS score was 5.66 (SD = 4.20). Depression was diagnosed in 128 (14.6 %) of the postpartum women. The predictors of PND include hospital admissions during the pregnancy (OR 3.95,CI 2.57-6.07), female sex of the baby (OR 2.74, CI 1.87-4.03), preterm delivery (OR 4.21,CI 2.78-6.39), instrumental delivery (OR 3.32,CI 1.79-6.16), Cesarean section (OR 3.58, CI 1.72-7.48), and being single (OR 3.44, CI 2.15-5.53). *Conclusion:* Although the prevalence of PND symptoms seems to be the same across cultures, risk factors differ significantly. This study identified certain sociodemographic and obstetric risk factors for postnatal depressive symptoms in an underdeveloped community. These factors must be taken into consideration when planning intervention and preventive strategies for these women. (*Journal of Psychiatric Practice* 2005;11:353–358)

KEY WORDS: risk factors, postnatal depression, cross-cultural issues, obstetrics, Edinburgh Postnatal Depression Scale, Nigeria

Postnatal depression (PND) occurs in 10%–20% of mothers after delivery.[1] It is the most common mood disorder associated with childbirth.[2] Apart from inflicting profound psychological suffering on new mothers, PND affects marital relationships and adversely affects the emotional and cognitive development of the infant.[3] It has been claimed that PND may be less prominent in countries where the struggle for survival is more prominent.[4] Nevertheless there appear to be few differences in the prevalence of postpartum psychiatric disorders throughout the world.[5] Studies involving immigrant populations, particularly those who do not speak the dominant language of their new homeland, have shown conflicting results between immigrant status and maternal depression.[6–8]

Studies abound regarding the risk factors associated with PND. Most studies have maintained that psychosocial risk factors have the most profound effect on the development of PND. Findings concerning the contribution of obstetrics and sociodemographic risk factors have been conflicting.[9–11] However, these studies were done in developed countries where delivery is relatively safe. Obstetric practice is poor in Africa and delivery is associated with higher rates of maternal mortality and morbidity.[12,13]

A review of the literature—both electronic and manual—revealed a dearth of studies on PND in Africa. None of the few available studies examined the risk factors for depression in the postnatal period.[14–17] The purpose of this study was to examine the influence of sociodemographic and obstetric factors associated with depressive symptoms in a rural population of postpartum Nigerian women.

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METHOD

Subjects

Between April and July 2004 all postpartum women who attended the postnatal clinic 6 weeks after delivery or the infant immunization clinic at 6 weeks after delivery at the 5 health centers in Ilesa were recruited. The 5 centers were Wesley Guild Hospital and the Multipurpose Health Centre (both units of Obafemi Awolowo University Teaching Hospitals Complex); the General Hospital, Ilesa; Ilesa East Maternity and Child Health Centre; and Ilesa West Maternity and Child Health Centre. A total of 928 women were recruited for the study, and 876 agreed to participate. Women were excluded who were critically ill, did not speak the local language or English, or were unable to give informed consent or complete the questionnaires.

Testing Procedure

The Ethics and Research Committee of the Obafemi Awolowo University Teaching Hospitals Complex approved the study protocol and informed consent was obtained from the participants after the aims and objectives of the study had been explained. Mothers were first administered a questionnaire that covered sociodemographic characteristics and obstetric variables including age, parity, marital status, level of education, socioeconomic status, admission during pregnancy, whether pregnancy was planned, gestational age at delivery, time of last confinement, antenatal care, place of delivery, mode of delivery, newborn gender, newborn weight, length of newborn's stay in the hospital, and length of mother's stay in the hospital.

The mothers were then administered the English or the translated local language version of the Edinburgh Postnatal Depression Scale (EPDS).[18] The EPDS is a 10-item self-report questionnaire in which women are asked to rate how they have felt in the previous 7 days. Each question has 4 possible responses that are scored 0–3 (for a resulting range of 0–30). The scale takes about 5 minutes to complete. It has been validated in several other countries.[19] It has also been validated in Nigeria, with the best cut-off score found to be 9 and above with sensitivity of 0.75 and specificity of 0.97.[17] It was translated into Yoruba by a team consisting of a consultant psychiatrist and a linguist. Precise idiomatic equivalents were considered as far as possible as advised by the author of the scale in the manual.[20] The back translation, which was performed independently by another team consisting of a psychiatrist and a linguist blind to the first translation, was compared and found to be satisfactory. The English version was completed by 232 (26.5%) of the women, and the Yoruba version was completed by the other 644 women. For women who were not literate, one of the authors read the questions and options aloud and recorded the women's responses.

Statistical Analyses

The statistical package for the Social Sciences 11 (SPSS.11) program was used for statistical analysis. Participants were classified as cases or non-cases based on their score on the EPDS, with those scoring higher than 9 classified as depressed. To identify risk factors for postnatal depressive symptoms, independent sample t test, and Pearson's chi square were used. Odds ratios (OR) and 95% confidence intervals (95% CI) were calculated for the variables. Because many of the variables correlated with each other, a partial correlation was done for each of the variables while controlling for the others. Significant variables were then entered into a stepwise forward regression analysis to determine the predictors of postnatal depressive symptoms.

RESULTS

Of the 928 women recruited for the study, 52 (5.6%) refused to participate leaving a total sample of 876. The mean age of the subjects was 28.37 (SD = 12.1). There were 98 (11.2%) single women; 152 (17.4%) of them had no education, and 480 (54.8%) were of low socioeconomic status. The mean EPDS score was 5.66 (SD = 4.2) with 128 women (14.6%) scoring 9 and above on the EPDS. The risk factors were grouped into sociodemographic, pregnancy-related, delivery-related, and baby-related variables.

There were no statistically significant differences between the depressed and nondepressed mothers with regard to their highest educational attainment (p = 0.236), socioeconomic status (p = 0.461), planning of the pregnancy (p = 0.338), and place of delivery (p = 0.336). However, depressed mothers were likely to be younger than 25 years of age (OR 2.23, CI 1.53–3.26) or over 35 years of age (OR 4.27, CI 2.70–6.76). Depression was also more common in single (OR 3.44, CI 2.15–5.53) than married (OR 0.55, CI 0.38–0.80) mothers.

Mothers delivering for the first time were likely to be more depressed (OR 2.21, CI 1.51–3.24) than multiparous mothers (OR 0.26, CI 0.17–0.41). Mothers who

Table 1. Stepwise multiple regression analysis for predictors of postpartum depressive symptoms in Nigerian women

Variable	*R*	*Adjusted R square*	*R square change*	*F change*	*Df*	*Significant F change*
Admission in pregnancy	0.222	0.048	0.049	45.437	874	< 0.001
Sex of baby	0.347	0.118	0.071	70.154	873	< 0.001
Gestational age at delivery	0.395	0.153	0.036	37.411	872	< 0.001
Mode of delivery	0.400	0.156	0.004	3.869	871	0.049
Marital status	0.405	0.159	0.004	4.395	870	0.036

were admitted to the hospital for care for medical and other reasons during the pregnancy were more likely to be depressed (OR 3.95, CI 2.57–6.07) than those without admissions during the pregnancy (OR 0.25, CI 0.17–0.39). Moreover, mothers who delivered via spontaneous vaginal delivery were less likely to be depressed (OR 0.28, CI 0.18–0.45) than mothers who had emergency cesarean sections (OR 3.58, CI 1.72–7.48) or instrumental deliveries (OR 3.32, CI 1.79–6.16).

Mothers who stayed in the hospital for more than a week after delivery were more likely to be depressed (OR 5.12, CI 2.42–11.03) than mothers who stayed fewer than 3 days (OR 0.43, CI 0.24–0.75). Depression was also more common in mothers of preterm babies (OR 4.21, CI 2.78–6.39), babies weighing less than 1.5 kg (OR 4.04, CI 1.41–11.55), and female babies (OR 2.74, CI 1.87–4.03).

When the significant factors were entered into a stepwise linear regression (Table 1), the predictors of postnatal depressive symptoms in our study included admission during pregnancy, sex of the baby, gestational age at delivery, mode of delivery, and marital status of the mother. The calculated odds ratios and 95% confidence intervals for the predicting variables in the regression analysis are given in Table 2.

DISCUSSION

To our knowledge, this study was the first multi-centered research to examine the sociodemographic and obstetric risk factors for depressive symptoms in the postpartum period in Nigerian women. The prevalence of postpartum depressive symptoms in this study (14.6%) is comparable to that reported in other Western and non-Western cultures.

Hospital admission during pregnancy showed a significant effect on the risk for developing postnatal depressive symptoms in our study. Poor health during pregnancy and stress of pregnancy could account for this. Most African women do not attend any antenatal clinic, thereby making early detection of health problems in pregnancy difficult. A range of medical conditions is likely to be associated with major depression occurring at other times in the life span. These include severe infections, tumors, endocrine conditions, anemia, electrolyte abnormality, and the need for medications such as antihypertensives, contraceptives, and anticonvulsives.[19] Poverty and malnutrition, which are prevalent in Africa, may further worsen maternal health during pregnancy.

The importance of the baby's sex found in our study had also been reported in Goa women of India.[21] Africans, especially Nigerians, have a deep-rooted preference for male children. Women are blamed for the gender of the baby, so that giving birth to female children, especially if the woman is delivering for the first time or has not had a male child, could be threatening. In Nigeria, it is a frequent cause of marital break-up or of the husband marrying another wife.

The gestational age of the baby at delivery has also been found to be a significant risk factor for PND in other studies.[22,23] Preterm babies are also likely to stay in the neonatal unit for a longer period of time. Infant mortality rates are still very high in many developing countries, including Nigeria, with neonatal deaths occurring in over half of such infants.[24] This may be responsible for the fatalistic attitude mothers in this environment have towards ill neonates. Moreover, neonatal intensive care units are relatively few in developing countries including Nigeria. Given the reduced chances for survival of pre-term neonates, the

Table 2. The unadjusted odds ratios and 95% confidence intervals for the predictors of postpartum depressive symptoms in Nigerian women

Variable	*Women with EPDS score ≥ 9 (n = 128)*	*Women with EPDS score < 9 (n = 748)*	*Unadjusted odds ratio (95% confidence interval)*
Admission during pregnancy			
Not admitted	85 (66.4%)	663 (88.6%)	0.25 (0.17–0.39)
Admitted	43 (33.6%)	85 (11.4%)	3.95 (2.57–6.07)
Baby's sex			
Male	52 (40.6%)	488 (65.2%)	0.37 (0.25–0.54)
Female	76 (59.4%)	260 (34.8%)	2.74 (1.87–4.03)
Gestational age at delivery			
Preterm	49 (38.3%)	96 (12.8%)	4.21 (2.78–6.39)
Term	69 (53.9%)	618 (82.6%)	0.25 (0.17–0.37)
Post-term	10 (7.8%)	34 (4.5%)	1.78 (0.86–3.70)
Mode of delivery			
Spontaneous vaginal delivery	97 (75.8%)	686 (91.7%)	0.28 (0.18-0.45)
Instrumental delivery	17 (13.3%)	33 (4.4%)	3.32 (1.79-6.16)
Emergency cesarean section	12 (9.4%)	21 (2.8%)	3.58 (1.72-7.48)
Elective cesarean section	2 (1.6%)	8 (1.1%)	1.47 (0.31-6.99)
Marital status			
Single	32 (25.0%)	66 (8.8%)	3.44 (2.15-5.53)
Married-monogamous	64 (50.0%)	483 (64.6%)	0.55 (0.38-0.80)
Married-polygamous	32 (25.0%)	199 (26.6%)	0.91 (0.59-1.41)

birth of a pre-term baby to a family, in addition to the stresses associated with childbirth itself, may have an adverse effect on maternal psychological well-being.

Our study showed the significance of mode of delivery as a risk factor for postnatal depressive symptoms. This finding agrees with those from studies in other Western and non-Western cultures.[25–27] Most cesarean sections in Africa are unplanned and are mainly done for unbooked patients who had complications either in pregnancy or during delivery. Moreover operative procedures in Africa are still associated with high rates of maternal sepsis, morbidity, and mortality.[12,13] The pride of an African woman lies in delivering her baby by herself with minimal assistance and there is an associated loss of self-esteem in African mothers who have operative deliveries. This may also be a factor in the development of depression in new mothers.

Most of the depressed women were either single or in a polygamous marriage. This may suggest an association between depressive symptoms and lack of intimacy or support from a partner. In polygamous marriage, a common practice in Nigeria, the new mother (who is busy attending to her baby) is often left alone by the father, who seeks sexual gratification with his other wives.

Most African mothers stay with their babies in the hospital, so that the length of the baby's stay will correspond with the length of the mother's stay. It is worth noting that women with medical complications and hospital admissions during pregnancy were more likely to have preterm babies through operative or instrumental deliveries, prolonging the baby's, and hence the mother's, stay in the hospital.

Age correlated well with parity; labor by primigravidas is known to be more prolonged, while that of multigravidas may be quite precipitous. Both labor patterns are linked with higher maternal morbidity and mortality, especially in the tropics. Most African women do not utilize any health services when pregnant—they believe more in prayers. This is responsible for the high

rate of deliveries at home and at mission houses and for the frequent use of traditional birth attendants. Poor maternal nutrition during pregnancy may result in low birth weight babies. Preterm neonates are also more likely to be of low birth weight. We found postnatal depressive symptoms to be more common in mothers who had had their last delivery over 4 years earlier or less than a year before. There is a high rate of secondary infertility in Africa and this perpetuates a reluctance among African women to use contraceptive methods for fear of jeopardizing subsequent fertility.[28] Although Africa has extremely high rates of infertility, a higher value is placed on children in Africa than in most other parts of the world.[29] Illiteracy and lack of awareness of family planning methods may also be responsible for the short time between deliveries.

Findings from this study were limited by a number of factors. We did not use a standardized diagnostic instrument such as the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I)[30] to measure depression. Also, our study was cross-sectional in nature and therefore was not the most appropriate design for examining risk factors. We screened the postpartum women only at the sixth week after delivery and we did not evaluate the number of women already depressed during pregnancy. However, our study had the advantages of a large sample size and the fact that the EPDS, which was used to screen for depressive symptoms at the cut off point of 9 and above, had already been validated in Nigeria with good sensitivity and specificity at that cut-off point.[17]

CONCLUSION

Depressive symptoms in the postpartum period occur in African women, just as they do in their counterparts in the Western world. Maternal and infant health policies, which are a priority in low-income countries, must integrate maternal depression as a disorder with public health significance. Interventions should target mothers both in the antenatal period and after delivery. The fact that many risk factors that have traditionally not been strongly implicated in PND were significantly associated with it in our study suggests that risk factors are likely to vary between cultures, and perhaps even within cultures. Attention needs to be paid to socio-demographic and obstetric risk factors that are peculiar to African and other underdeveloped countries. Such factors should be considered when planning healthcare services or formulating a predictive model for PND for this community.

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