

Brief report

Impact of postnatal depression on infants' growth in Nigeria

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Abstract

Background: The contribution of maternal postnatal depression to infant growth and under-nutrition in Africa has not been well studied. This study aims to examine the impact of postnatal depression (PND) on infants' physical growth in the first 9 months of life in Nigeria.

Methods: A longitudinal case controlled study in which 242 women (consisting of 120 depressed and 122 matched non-depressed postpartum women) had their infants' weight and length measured at the 6th week, 3rd month, 6th month and 9th month after delivery. Discontinuation with breastfeeding and illnesses like diarrhoea, persistent vomiting, fever and cough were also recorded at these periods.

Results: Infants of depressed mothers had statistically significant poorer growth than infants of non-depressed mothers at the 3rd month (weight OR 3.41, 95% CI 1.30–8.52; length OR 3.28, 95% CI 1.03–10.47) and the 6th month postpartum (weight OR 4.21, 95% CI 1.36–13.20; length OR 3.34, 95% CI 1.18–9.52). Depressed mothers were more likely to stop breastfeeding earlier and their infants more likely to have episodes of diarrhoea and other infectious illnesses.

Limitations: Psychiatric interview was conducted only once (at 6 weeks postpartum), our sample size was moderate and we did not account for mothers who had been depressed in pregnancy.

Conclusion: Prevention of postnatal depression and close monitoring of the growth of infants of depressed mothers should be integrated into maternal and child health policies in this region.

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1. Introduction

Postnatal depression (PND) occurs in about 10–20% of mothers by 3 months postpartum both in western culture (O'Hara and Swain, 1996) and Africa (Adewuya et al., 2005; Cooper et al., 1999; Uwakwe and Okonkwo, 2003).

Studies in the western culture have shown that apart from the effect on the mother and partners, it has adverse effects upon cognitive, social, and emotional developments in the infants (Murray and Cooper, 1996). These studies have neglected physical growth probably because poor infant growth and under-nutrition are rare in western countries. Studies in developing countries in Asia have found that maternal depression in postnatal period predicts poorer growth and mental developments in infants (Patel et al., 2003; Rahman et al., 2004). Poor infant growth and under-nutrition is prevalent in Africa, especially in Nigeria

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(Onayade et al., 2004). The contribution of the maternal mood to this problem needs to be thoroughly examined. This study aimed to examine the effect of maternal depression on infant physical growth in the first 9 months of life.

2. Methods

2.1. Subjects

The subjects were recruited from the postpartum women and their infants ($n=876$) who participated in an earlier study on the prevalence of postnatal depression in Nigeria (Adewuya et al., 2005). They were attending the infant immunisation clinics at the 5 health centres in Ilesa Township. Excluded from the study were women who were critically ill, do not speak the local language or English, or unable to give informed consent. On the 6th week postpartum the mothers were assessed for depression by 2 trained psychiatrists using the non-patient version of Structured Clinical Interview for DSM-III-R (SCID-NP) (Spitzer et al., 1992) and the results had been published elsewhere (Adewuya et al., 2005).

The index group for the present study consisted of the 128 women who met the criteria for depressive disorder. The mean age of the depressed postpartum women at the beginning of the study was 27.25 (SD 12.04). Thirty two (25.0%) of them were single and 55 (43.0%) were of low socioeconomic status. There were 48 (37.5%) women having their first baby. There were 52 (40.6%) male infants, 49 (38.3%) preterm infants, and 26 (20.3%) infants of low birth weight (weight less than 2.5 kg).

The control group was recruited from the 748 non-depressed postpartum women. After matching with the depressed mothers for age, marital status, socioeconomic

class, parity, sex of the baby, birth weight and gestational age at birth, a total of 132 non-depressed postpartum women and their infants were recruited as controls.

2.2. Procedure

Informed consent was obtained from the participants after the aims and objectives of the study had been explained to them. The Ethics and Research Committee of the Obafemi Awolowo University Teaching Hospitals Complex approved the study protocol.

The birth weights and lengths of the infants were recorded and these were also measured at 6th week of life, then at the 3rd month, 6th month and 9th month after birth. At these periods the mothers were asked if they were still breastfeeding or not and illnesses like diarrhoea, persistent vomiting, fever and cough were recorded.

2.3. Statistical analysis

Results were calculated as frequencies (%), means and standard deviations. Groups' comparisons were by *T* test, chi-square test and odds ratio (95% confidence interval). Significance was computed at $P<0.05$.

3. Results

Out of the 128 depressed postpartum women recruited for the index group, only 120 (93.8%) participated till the 9th month postpartum. Of the 132 non-depressed postpartum women recruited for the control group, 4 who later met the criteria for depression at the 3rd and 6th months were excluded from the study. Out of the remaining 130, only 122 (93.9%) were able to complete the study till the

Table 1

The comparison of the weight and length of infants of depressed mothers (IDM) and infants of non-depressed mothers (INDM) between the 6th week and 9 months

Time	Total ($n=242$)		IDM ($n=120$)	INDM ($n=122$)	Difference
	Mean	5th percentile	Number (%) scoring below 5th percentile	Number (%) Scoring below 5th percentile	OR (95% CI)
	Weight (kg)				
6 weeks	3.99	2.64	12 (10.0%)	5 (4.1%)	2.60 (0.87 to 7.62)
3 months	4.97	3.27	17 (14.2%)	6 (4.9%)	3.19 (1.21 to 8.40)
6 months	6.38	4.60	15 (12.5%)	4 (3.3%)	4.21 (1.36 to 13.20)
9 months	7.82	6.12	13 (10.8%)	5 (4.1%)	2.84 (0.98 to 8.24)
	Length (cm)				
6 weeks	50.32	47.00	6 (5.0%)	4 (3.3%)	1.55 (0.43 to 5.65)
3 months	57.15	53.00	12 (10.0%)	4 (3.3%)	3.28 (1.03 to 10.47)
6 months	63.31	59.50	15 (12.5%)	5 (4.1%)	3.34 (1.18 to 9.55)
9 months	67.90	64.00	10 (8.3%)	4 (3.3%)	2.68 (0.82 to 8.80)

Note: IDM=Infants of depressed mothers; INDM=Infants of non-depressed mothers; OR (95% CI)=Odds Ratio (95% Confidence Interval).

9th month postpartum. Therefore data from a total of 242 subjects (consisting of 120 from the index group and 122 from the control group) were analysed.

There were differences in the number of infants of depressed mothers compared to non-depressed women whose weight and length were below the 5th percentile throughout the assessment periods and the differences reached statistical significance at the 3rd month and 6th month postpartum. Table 1 showed that the differences in weight gradually increased from the 6th week (OR 2.60, 95% CI 0.87 to 7.62), peaking at the 6th month (OR 4.21, 95% CI 1.36 to 13.20) to decline afterwards. The length also showed the same trend.

Also, it was found that at the 6th week, 3rd month, 6th month and the 9th month postpartum, only 75 (62.5%), 58 (48.3%), 37 (30.8%) and 26 (21.7%) of the depressed mothers were still breastfeeding compared to 100 (82.0%), 87 (71.3%), 63 (51.6%) and 52 (42.6%) of the non-depressed mothers respectively. By the 9th month the average number of cases of diarrhoea and other childhood illnesses in the infants of depressed mothers was 5.23, SD 2.37, while those of infants of non-depressed mothers was 3.70, SD 4.14 and the difference was statistically significant ($t=3.518$, $df=240$, $P=0.001$).

4. Discussion

This study, to our knowledge is the first longitudinal study to examine the impact of maternal depression on infant growth in Nigeria. Our main finding was the poorer growth of infants of depressed mothers compared to non-depressed mothers from the 6th week until the 9th month postpartum reaching statistically significant differences at the 3rd and 6th month postpartum. This is in agreement with studies in other low-income countries (Patel et al., 2003; Rahman et al., 2004).

In agreement with other studies (Patel et al., 2002), our depressed mothers were more likely to stop breastfeeding earlier than non-depressed mothers. Also, the infants of depressed mothers were more likely to have episodes of diarrhoea and other childhood illnesses than those of non-depressed mothers.

Poorer infants' growth had been hypothesised to be either as a result of direct exposure to mother's depressive symptoms; parenting difficulties, or other independent risk factors for postnatal depression like poverty (Murray and Cooper, 1996). Depressed mothers are emotionally unavailable to their babies, and this can lead to psychosocial deprivation and non-organic failure to thrive. Amongst the Yorubas in Western Nigeria, there is the belief that mental illness is infectious and transmissible through the breast milk, so early cessation of breastfeeding, which is a key

factor in infant under-nutrition (Onayade et al., 2004), is common, and may be implicated in the poorer growth of infants of depressed mothers. A depressed mother may also have difficulty in parenting resulting in neglect of baby hygiene and infection which may lead to cases of diarrhoea and other illnesses in infants.

Our study had some limitations. We had conducted psychiatric interview only once (at 6 weeks postpartum). Our sample size had been moderate and we had not accounted for mothers who had been depressed in pregnancy. The strength of our study included it being the first of such in Nigeria, and its longitudinal and multi-centred design.

In conclusion, we have shown that infants of depressed mothers in Nigeria have poorer growth than infants of non-depressed mothers. Cessation of breastfeeding may be an important factor involved. Maternal and infant health policies, a priority in low-income countries, must integrate maternal depression as a disorder of public health significance. Close monitoring of the growth of infants of depressed mothers must also be a priority.

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Nothing declared.

Conflict of Interest

No conflict declared.

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