

ORIGINAL ARTICLE

Prevalence and Correlates of Postpartum Depression among Women Visiting Postnatal Clinic in a Tertiary Health Institution in Southeast Nigeria

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ABSTRACT

Background: Postnatal depression (PND), a major health problem, can have deleterious effects on new mothers, their infants and their family. Unfortunately, little attention has been paid to this phenomenon in terms of identification, diagnosis and treatment in our environment.

Objectives: This study was undertaken to determine the prevalence and correlates of PND among postnatal attendees in a tertiary health institution in South-East Nigeria.

Methodology: This was a cross sectional study in which women visiting Chukwuemeka Odumegwu Ojukwu University Teaching Hospital (COOUTH) Amaku, postnatal clinic from 1st March- 31st May, 2017 were recruited. Data were collected using Socio-demographic Questionnaire and Edinburgh Postnatal Depression Scale (EPDS). A score of 10 and above was considered a likely case of PND. One hundred and thirty two (132) self-administered questionnaires were completely filled and analyzed. Descriptive and inferential statistics including means, frequencies, X² -test at the 95% confidence level (CL) were used in analysis. Logistic regression was applied to identify the independent predictors of PND risk.

Results: The prevalence of PND among the women was 33.3%. PND showed significant association with maternal age ($p=0.027$), low socio-economic status ($p=0.037$), parity ($p=0.031$), mode of delivery ($p=0.023$), type of delivery ($p=0.025$) and lack of emotional support ($p=0.001$). Preterm delivery (OR=2.9), caesarean delivery (OR=3.7), low socio-economic status (OR= 4.1) and lack of emotional support (OR=5.8) from husband were independent risks factors for PND.

Conclusion: The prevalence of PND, 33.3% among postnatal women is high. Screening and management of PND should be an important part of postnatal services so as to improve maternal and infant wellbeing.

Key words: Screening, risk factors, 4-6 weeks, post-delivery, maternal, infant, wellbeing

INTRODUCTION

Postnatal depression (PND), also known as postpartum depression (PPD), is an important health problem of global relevance because of its devastating effects on mothers, families, infants and children.¹

PND refers to depressive episodes of non-psychotic dimension that is characterized by psychomotor agitation or retardation, diminished pleasure, marked change in appetite and sleep, fatigue, feelings of worthlessness or inappropriate guilt, decreased concentration and recurrent thoughts of death or suicide.²

PND can arise spontaneously or evolve from a pre-existing postpartum blues. Postpartum blues start within the first couple of days after delivery, peaks around one week, and tapers off by the end of the second week postpartum.³

There is wide variation in global prevalence of PND as cultural norms may affect women's reporting of their symptoms and methods used to determine prevalence rates affect their accuracy.⁴ In Western countries, PND affects 10-15% of postpartum women.⁵ In Nigeria, reports suggest higher prevalence rates than the global estimates with isolated studies on PND providing an estimated prevalence ranging from 14.6% to 44.5%.^{6,7,8,9} The prevalence in Asian countries ranged from 3.5% to 63.3% whereas Malaysia and Pakistan had the lowest and highest, respectively.^{1,3}

Several factors, including physiological, biological, psychological, obstetric, paediatric, sociodemographic and cultural have been implicated in the aetiology of PND.³ Important specific risk factors reported in the several studies include lack of support from husband, unemployment, unplanned pregnancy, younger age, birth of baby girl, prenatal depression, childcare anxiety, low self-respect, low social support, low marriage satisfaction and low socio-economic status.^{3,9}

In our traditional patriarchal system that encourages male dominance, women are particularly vulnerable to PND as they find it difficult to escape domestic violence due to their economic and or emotional ties to the overbearing partners.¹⁰

The occurrence of postpartum depression can have serious consequences, not only on the mother but also on the mother-infant bonding and indirectly hinder the psycho-affective development of the child; hence the need for early detection.¹¹

The economic burden of PND on health care systems in several countries is enormous. In Canada, health and social care costs for a woman with PND were found to be just over twice that of mothers with no mental illness.¹² PND is more common in women than previously expressed.¹⁰ Unfortunately, little attention has been paid to mothers at risk in terms of identification, diagnosis and treatment.³ This is particularly true in our environment where few studies have been carried out to evaluate the magnitude of its morbidity among women.

This study was carried out to determine the prevalence and correlates of postpartum depression among women visiting postnatal clinic in a tertiary health institution in South-East Nigeria.

METHODOLOGY

Study Area

This was carried out at the postnatal clinic of Chukwuemeka Odumegwu Ojukwu University Teaching Hospital (COOUTH) (formerly Anambra State University Teaching Hospital) Awka, South-East Nigeria over a 3 month period (1st March- 31st May 2017). COOUTH is a tertiary health institution owned by the Anambra State Government. It has an obstetric unit with 45 beds. It serves as both primary and secondary obstetric health facility for the citizens of Awka and its environs with an average of 5 deliveries per day. The Hospital provides antenatal care for pregnant mothers and postnatal care for mothers and new born babies up to six weeks postpartum.

Awka, the capital of Anambra state is situated in the densely populated Igbo heartland of South-East Nigeria. It has an estimated population of 387, 327 inhabitants made up of civil servants and the indigenous dwellers

who are mainly blacksmiths and subsistence farmers.¹³

Ethical Approval

This was obtained from the Ethics Committee of the Hospital. Informed written consent was also obtained from each woman after explaining the objectives of the study. Adequate privacy was provided for the women during the interview

Inclusion Criteria

All women over the age of 18 years who had given birth to a live infant and came for follow-up from 4th to 6th week post-delivery period were included.

Exclusion Criteria

Women with acute severe illness, cognitive impairment, previously diagnosed with depression and those that did not consent were all excluded.

Study Design and Determination of Sample Size

This was a cross-sectional study using quantitative approach.

The sample size was calculated using the formula for estimated population size of less than 10,000.¹⁴ With $Z_{\alpha}=1.96$ at 0.05 level of confidence, power of 80% and 9.3% as prevalence of postpartum depression from a previous study, the calculated minimum sample size was 130.¹⁵ Assuming an attrition rate of 10%, 143 questionnaires were used.

Instruments

A questionnaire based on risk factors of PND was designed. Socio-demographic factors like age, religion, ethnic group, educational level, employment status and spouse's/partner's income were examined.

Obstetric factors such as parity, mode of delivery, type of delivery, gender of last baby, complications in pregnancy and whether the last pregnancy was planned or not were explored. Other factors such as relationship with parent-in-law, emotional support from husband, experience of financial difficulties were investigated. The factors were assessed by 'yes' or 'no' type of questions.

Edinburgh Postnatal Depression Scale (EPDS) is a 10 item self-report scale which is validated for use as a screening instrument for identification of postpartum depression.¹⁶ Each item is rated from 0 to 3, giving a total score of 0 to 30. At a cut-off score of 10 which is recommended for detection of mild depression, it has a sensitivity of greater than 90% (depressed women correctly identified) and specificity of between 77% and 88% (non-depressed women correctly identified).¹⁷ At the more stringent cut-off score of 13 recommended for detection of major depression, its sensitivity is 80 to 100% and specificity 80 to 95%.¹⁷ In this study, a cut-off score of 10 was used.

The socio-economic classes of the women were determined using Olusanya *et al.* formula for calculating social class.¹⁸ The woman's educational level and the spouse's/partner's income are used to calculate social class. The woman's educational class is scored 0, 1 and 2 for tertiary, secondary and primary/no formal education, respectively. Her spouse's/partner's income is assigned scores of 1, 2 and 3 for high, middle and low incomes, respectively. The social status is calculated by the addition of the woman's educational score to the score of her spouse/partner. The scores are graded thus for the purpose of this study; 1 to 3 is regarded as high and 4 to 5 as low social class.

Data Collection

The sampling was consecutive and based on the calculated minimum sample size of 143. Consecutive consenting women attending the postnatal clinic were given the socio-demographic and EPDS questionnaires. These were answered in rooms away from the main hall of the postnatal clinic with as much privacy as possible. For women who could neither read nor write, the questionnaires were administered by a trained female member of the research team. Those who were excluded on grounds of ill health were referred to specialists' clinics for treatment while those with EPDS scores ≥ 12 were referred to a psychiatric centre for specialized care.

Data Analysis

The data was analyzed using the Statistical Package for Social Sciences (SPSS) for Windows, version 20.0 (Chicago IL, USA). The prevalence of PND was estimated as percentage of women who scored ≥ 10 in EPDS. A test of association between the variables was analyzed using chi-square (cross tabulation) while a logistic regression was used to test the strength of association. A p value of ≤ 0.05 was considered significant.

RESULTS

One hundred and thirty two (92.3%) questionnaires were completely filled and analyzed out of 143 distributed among the post-natal clinic attendees. Eleven (7.7%) were discarded owing to incomplete entries.

The ages ranged from 18 years to 40 years with a mean age of 26 ± 14 years. All the respondents were married. None was however in polygamous or joint family union.

Socio-demographic Profile

Table 1 shows the socio-demographic characteristics of the respondents. Most of the respondents were Christians 132(93.2%) and of Igbo ethnic group 125(94.7%). Seventy (60.6%) were unemployed while 62(47.0%) were of low socio-economic group. Twelve (9.1%) had complications in their last pregnancies and these were pre-eclampsia 5(3.8%), preterm premature rupture of membranes (PPROM) 4(3.0%) and eclampsia 3(2.3%). Ten (7.6%) had preterm delivery while caesarean section was the mode of delivery in 23(17.4%) respondents. There was no instrumental delivery.

Of the 132 study participants, 44 had EPDS scores ≥ 10 giving the prevalence of PND as 33.3%.

Association of Socio-demographic Characteristics with PND.

Table 2 shows the association of socio-demographic variables with the EPDS scores. Lower maternal age ($p=0.027$), low socioeconomic status ($p=0.037$), primiparity ($p=0.035$), lack of emotional support ($p=0.001$), preterm delivery ($p=0.025$) and mode of

delivery ($p=0.025$) were significantly associated PND ($EPDS \geq 10$).

In binominal logistic regression, low socioeconomic status [OR 4.1; 95% CI (1.06-23.17)], emotional support from husband [OR 5.8; 95% CI (2.79-24.16)], preterm delivery [OR 2.9; 95% CI (1.76-14.29)] and caesarean delivery [OR 3.7; 95% CI (1.85-17.27)] were independently associated with PND.

Table 1. Sociodemographic Characteristics (N=132)

Variable	No (%)
Age	
18-27	78 (50.1)
28-37	39 (29.5)
38-47	15 (20.4)
Religion	
Christianity	123 (93.2)
Islam	9 (6.8)
Ethnic group	
Ibo	125 (94.7)
Hausas	7 (5.3)
Educational level	
Primary	25 (18.9)
Secondary	41 (31.1)
Tertiary	66 (55.0)
Socioeconomic status	
Low	62 (47.0)
High	70 (53.0)
Employment status	
Employed	52 (39.4)
Unemployed	80 (60.6)
Age	
18-27	78 (50.1)
28-37	39 (29.5)
38-47	15 (20.4)
Religion	
Christianity	123(93.2)
Islam	9 (6.8)
Ethnic group	
Ibo	125 (94.7)
Hausas	7 (5.3)
Educational level	
Primary	25 (18.9)
Secondary	41 (31.1)

Tertiary	66 (55.0)
Socioeconomic status	
Low	62 (47.0)
High	70 (53.0)
Employment status	
Employed	52 (39.4)
Unemployed	80 (60.6)
Parity	
1	44 (33.3)
2-4	61 (46.2)
≥5	27 (20.5)
Mode of delivery	
Normal	109 (82.6)
Caesarean section	23 (17.4)
Type of delivery	
Preterm	10 (7.6)
Term	122 (92.4)
Gender of last baby	
Male	75 (56.8)
Female	57 (43.2)
Complications in pregnancy	
Yes	12 (9.1)
No	120 (90.9)
Financial difficulty	
Yes	23 (17.4)
No	109 (82.6)
Problem with in laws	
Yes	6 (4.5)
No	126 (95.5)
Emotional support	
Yes	104 (78.8)
No	28 (21.2)
Planned last pregnancy	
Yes	111 (84.1)
No	21 (15.9)

DISCUSSION

The result of the study showed that 33.3% of the respondents had PND. In a controlled study in Western Nigeria women, Adewuya *et al.* reported a lower prevalence of 14.6% among postpartum women.⁶ In a survey of 206 consecutive women who were 6 weeks postpartum in Midwestern Nigeria, Egbeigbe and Akhigbe reported an incidence of 27.2%.¹⁹ Both studies however, used EPDS scores of 9 unlike in our study where an EPDS cut-off score of 10 was used. The differences could also be cultural as the three studies are from different tribes and ethnic groups. Using a cut-off of 10 as in this study, Ukaegbe *et al.* reported a comparable prevalence of 30.6% among women of similar ethnic group.²⁰

Higher figures have been reported in some African countries: 43% in Uganda and 50.8% in the Democratic Republic of Congo^{21, 22}. EPDS was not the screening tool for PND in these two studies. In addition, the difference of the time periods used in the research of PND may have great impact on the prevalence of PND. Generally, the rates obtained later in postpartum (e.g. at 4 to 6 weeks) are higher than those conducted closer to delivery (e.g. at 1 week).¹¹

As other studies have shown, those women who had PND were significantly younger.²¹ In a descriptive cross-sectional study of PND in primary health care clinics in South Africa, Stellenberg and Abrahams reported a prevalence of 50% among mothers aged 18-19 years.²³ Being young and having to meet with the demands as a new mother is likely to be associated with significant stress due to poorly developed coping mechanisms thus resulting in PND.²⁴

Table 2. Association of Sociodemographic Variables with Postnatal Depression

Variables	Postnatal Depression		Total No (%) N=132	P value
	Yes(EPDS≥10) N= 44 No(%)	No(EPDS<10) N=88 No(%)		
Age				
18-27	32(72.7)	46(52.3)	78(50.1)	0.027
28-47	12(27.3)	42(47.7)	54(49.9)	
Educational level				
≤Primary	11(25.0)	14(31.8)	25(18.9)	0.754
>Primary	33(75.0)	74(68.2)	107(81.1)	
Socioeconomic status				
Low	29(65.9)	33(37.5)	62(47.0)	0.037
High	15(34.1)	55(62.5)	70(53.0)	
Employment status				
Employed	20(45.5)	32(36.4)	52(39.4)	0.902
Unemployed	24(54.5)	56(63.6)	80(60.6)	
Parity				
Primipara	31(70.5)	13(14.8)	44(33.3)	0.037
Multipara	13(29.5)	75(85.2)	88(66.7)	
Mode of delivery				
Normal	25(56.8)	84(95.5)	109(82.6)	0.023
Caesarean Section	19(43.2)	4(4.5)	23(17.4)	
Type of delivery				
Preterm	7(15.9)	3(3.4)	10(7.6)	0.025
Term	37(84.1)	85(96.4)	122(92.4)	
Gender of baby				
Male	22(50.0)	53(60.2)	75(56.8)	0.325
Female	22(50.0)	35(39.8)	57(43.2)	
Complications in pregnancy				
Yes	9(20.5)	3(3.4)	12(9.1)	0.066
No	35(79.5)	85(96.6)	120(90.9)	
Financial difficulty				
Yes	15(34.1)	8(18.2)	23(17.4)	0.105
No	29(65.9)	80(81.8)	109(82.6)	
Problems with In-laws				
Yes	3(6.8)	3(3.4)	6(4.5)	0.125
No	41(93.2)	85(96.6)	126(95.5)	
Emotional support				
Yes	23(52.3)	81(92.0)	104(78.8)	0.001
No	21(47.7)	7(8.0)	28(21.2)	
Planned last pregnancy				
Yes	29(65.9)	82(93.2)	111(84.1)	0.614
No	15(34.1)	6(6.8)	21(15.9)	

This study revealed that lower socioeconomic status was significantly associated with PND. Similarly Ukaegbe *et al.* observed that lower socioeconomic status among Igbo women in an Urban Mission Hospital was associated with PND.²⁰ The delivery of a baby possibly acted as a stressor on the women who were barely meeting up with their financial responsibilities.

In line with the current study, Abiodun using the 10-item self-report EPDS and the Present State Examination Schedule (PSES) reported that primiparous women were 2.73 times more likely to develop PND in primary care populations in Nigeria.⁷ Conversely, Ukaegbe *et al* found no significant association between parity and PND.²⁰ Pregnancy and childbirth are vulnerable periods and young women

achieving their first pregnancy may be less emotionally stable. Sulyman *et al.* suggested that this outcome might be due to inadequate prior knowledge and preparedness for parenting.⁸

There was no association between PND and the level of education which was also noted by Sulyman *et al.* in Northeastern Nigeria. In a retrospective analysis of a sample of 297 Italian women, Grussu and Quatraro noted that university education appears to be an important protective factor.²⁵ In Northern California, Goyal *et al.* reported that women with less than a college education were 11 times more likely to have clinically elevated depression scores at 3 months postpartum.²⁶ The duration of study in this report was however six weeks. It is not unlikely that PND could become evident in the later stages of the postpartum period following withdrawal of postnatal support and sometimes bitter acceptance of the realities of motherhood.¹¹

Lack of emotional support from husband was a positive predictor of PND. Several studies have shown that women denied material and emotional support from their husbands were more likely to develop PND.^{10,27} This calls for awareness and training for men in order to educate them on the issues of the postnatal periods.

Problems with in-laws were not a risk factor for PND. It is possible that a protective factor such as nuclear family was responsible for this outcome.¹¹ However, in a cross-sectional study of 359 women in Tamil Nadu, India, Chandran *et al.* observed that majority of the young couples in rural communities lived in extended or joint families and problems with mothers-in-law assume greater importance as a risk factor for development of PND.¹⁰

Gender of the baby was surprisingly not significantly associated with PND. A study in primary care populations in Nigeria, revealed that women not having the desired gender for their babies resulted in PND.⁷ In Tamil Nadu, India 10 of the 33 women with PND had specifically wanted a male child but were

disappointed with the gender of the newborn compared with 32 of the 268 non-depressed women.¹⁰ The differences could be cultural.

Preterm delivery was an independent risk factor for PND in our review. In a hospital-based study among 1,659 postpartum mothers in Qatar, Bener showed that PND was significantly more common among mothers of preterm births compared to mothers of full term infants (29.4 vs. 17.3%).²⁷ However, in a birth cohort study in which PND was assessed at 16 weeks postpartum, Nielsen *et al.* found no difference in the prevalence of PND (EPDS cut-off of > 12) between mothers of preterm and term infants.²⁸ The higher risk of depression in mothers of preterm infants may be due to the increased amount of medical co-morbidity, length of hospitalization and long term disability that may occur in these babies.²⁹ This highlights the importance of early screening for PND in mothers of preterm infants.

Mothers who had caesarean section were 3.7 times more likely to have depression than mothers who had vaginal deliveries. In a prospective cohort study of 534 Chinese women, the rate of PPD was 21.7% in women who had caesarean delivery and 10.9% in women who delivered vaginally.³⁰ Sword *et al.* however showed that the mode of delivery was not independently associated with PPD and did not factor into the main effects model.³¹ In many societies, there is cultural aversion to surgical deliveries and delivery other than through the natural route is regarded as role failure on the part of the women.³²

Limitations

Our results should be considered with some limitations as it excluded women who developed PND 4-6 weeks after delivery as well as those living in other settings who did not attend postnatal visits. The risk factors in the sample may not be similar to those observed in a larger population. The EPDS is a self-reporting scale and the women may not give correct answers to the questions. It is also a screening tool for PND and not confirmatory.

CONCLUSION

The prevalence of PND among the postnatal attendees is high, especially among those of low socio-economic group, aged 18-27 years as well as women who had preterm births

and caesarean deliveries. Screening and management of PND in the puerperium should be important part of postnatal services so as to improve maternal and infant wellbeing.

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