

■ Original Research Article

Prevalence and Determinants of Postpartum Depression in
Ahmadu Bello University Teaching Hospital, Zaria

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Abstract

BACKGROUND: Postpartum depression (PPD), a major depressive disorder, is a common complication occurring postnatally. It is an important condition that is highly under reported and underdiagnosed and the real extent of its morbidity and disability may not be well known to clinicians. **AIM:** To determine the prevalence and risk factors associated with postpartum depression in women attending postnatal and reproductive health clinics of Ahmadu Bello University Teaching Hospital (ABUTH), Zaria. **METHOD:** This was a descriptive cross-sectional study that was carried out amongst postpartum women attending postnatal and reproductive health clinics of ABUTH. Data on sociodemographic characteristics, reproductive profile, maternal and birth outcome were collected using a semi-structured questionnaire. The Edinburgh Postpartum Depression Scale (EPDS) was adapted to the questionnaire and used to screen women for postpartum depression. The Data generated was analysed using Statistical Package for the social sciences (SPSS) computer software version 25. The results were presented using the mean, standard deviations, and simple percentages. Statistical significance was set at $p < 0.05$. Fisher exact test was used to test for association between variables. **RESULT:** The prevalence of postpartum depression was 10.7%. The mean age of the respondents was 28.5 ± 6.0 years. The study found significant association between PPD and increasing maternal age, low educational status, poor outcome delivery and delivery of a female baby. **CONCLUSION:** This study showed that the prevalence of PPD in our environment is significant and there is need to screen women for this disorder during postpartum period.

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INTRODUCTION

Postpartum depression (PPD) is defined by Diagnostic and Statistics Manual V (DSM-V) as a major depressive disorder (MDD) occurring during pregnancy and up to four weeks after birth.¹ However, clinically it extends to 12 months of child birth.^{1,2} It is a common complication occurring postnatally with a global prevalence of 10 to 20%.²⁻⁴ The prevalence of PPD is thought to be underestimated globally due to differences in screening measures, socioeconomic environment, cultural norms,

social support structure and mental health perception/stigma.³

The prevalence of PPD is highest in the Middle East (26%), Australia (21%), South America (19%), while relatively lower prevalence was recorded in Europe (8%).⁴ In Africa, the prevalence of PPD varies widely from as low as 7% in Ghana to as high as 27.1% in Southwestern Uganda.⁵⁻⁷ Poor social support was found to be a common determinant in most of the studies. Other factors include recent bereavement, living in rural settings, intimate partner violence, presence of maternal

or neonatal complication and having a baby that cries excessively.⁷⁻⁹

In Nigeria, studies on PPD are quite few and mostly concentrated in the southern part of the country. The prevalence of PPD was found to be as low as 9.5% in Osun¹⁰ and as high as 37.8% in Ibadan.¹¹ In a study done in Jos, the prevalence of PPD was found to be 21.8% with determinant being age between 36 to 45 years, being single, absence of formal education and unemployment.¹² In Zaria, the prevalence of depressive disorder in adult pregnant women in late pregnancy was reported to be 6.7%.¹³

PPD is a serious maternal health problem associated with both short-term and long-term consequences to the mother and infant if poorly managed. Maternal consequences include poor quality of life, poor social relationships, persistent depression, risky behavior, infanticide and suicidal ideation.^{1,5} It also leads to impaired maternal-child interaction and disrupted attachment.^{1,5} Children of women with PPD have been found to have poor sleeping and eating habits and behavioral disorders.^{1,5} They may also have some developmental delays and develop depression in adulthood.^{1,5}

Many determinants of postpartum depression are closely linked to stress. These stressful events may have occurred during peripartum period or from multiple adverse events that occurred earlier. They include: prenatal depression, prenatal anxiety, lack of social support, financial stress, marital stress, childcare stress, single parenthood, birth complications and prior history of sexual abuse.^{3,6} Poor socioeconomic indices such as illiteracy, unemployment, poverty, high parity and high cost of living are also important determinants of PPD that may also contribute to an increase rate of postpartum depression.¹⁴

There are few studies done on postpartum depression in Nigeria and this situation is worse in the Northwestern part of the country. Despite extensive literature search, no published study on postpartum depression was found from Zaria. There is also no routine screening measure that is put in place to screen women in the study area, so many cases are mis or undiagnosed. This has made it difficult to know the true picture of this serious postpartum complication in our environment.

It is expected that the information from this research will be utilized by relevant healthcare providers, policy makers, and the government towards prevention and control of PPD. The findings from the study will also provide much needed information about the prevalence and risk factors of PPD in our environment. It is also expected that this research will provide appropriate impetus for further and more elaborate research on PPD.

This study therefore aimed to assess the prevalence and determinants of postpartum depression in

women attending postnatal and reproductive health clinics of Ahmadu Bello University Teaching Hospital, Zaria which is a tertiary health institution in Northwestern Nigeria.

METHODOLOGY

The study was conducted in Ahmadu Bello University Teaching Hospital, Zaria which is a major referral hospital in northern Nigeria. It was a descriptive cross-sectional study that was conducted between September and November, 2022. The sample size was determined using Leslie kish formula:

$$n = \frac{Z^2 p q}{d^2}$$

where p = prevalence of depressive disorder in postpartum period in Sokoto = 0.142¹⁵

A total of 206 participants were recruited from postnatal and reproductive health clinic of the hospital after allowing for attrition of 10%. Data was collected by the researchers and research assistants from women that were at least one week to six weeks postpartum using semi-structured questionnaire with the Edinburgh Postpartum Depression Scale (EPDS) adopted to the questionnaire. The EPDS is a 10-item scale that is use to screen women during pregnancy or in the postpartum period for depression. The questionnaire has four sections comprising of sociodemographic characteristics, reproductive profile, questions on social support and lastly the EPDS scale respectively. It asks women about their feelings in the previous seven days and scored in increasing order of severity from 0 to 3 with a total score of 30. Participant with score of 13 and above were determined to have PPD.

The data collected was entered and analyzed using Statistical Packages for Social Sciences (SPSS) version 25.0. The results were summarized using simple tables, frequency tables, charts and graphs as applicable. Tests for associations were carried out using chi-square and Fisher's exact test where applicable. Ethical approval was obtained from the Scientific and Health Research Ethics Committee of Ahmadu Bello University Teaching Hospital, Zaria. Informed consent was sought and strict confidentiality was upheld unconditionally.

There were 206 respondents that participated in this study. Their mean age was 28.5 ±6.0 years. The minimum age was 15 years, maximum age was 45 years and majority, 128 (62.1%), of the respondents

were between 21 to 30 years. Most of the respondent were Muslims- 163 (79.1%), married- 202 (98.1%), and were Hausa by tribe- 131 (63.6%). Table 1 shows the socio-demographic characteristics of the respondents.

RESULTS

Socio-demographic characteristics

Table 1: Socio-demographic characteristics of study population

Variable (N=206)	Frequency (%)
Age (years)	
≤ 20	16 (7.8)
21 – 30	128 (62.1)
31- 40	58 (28.2)
41- 50	4 (1.9)
Religion	
Islam	163 (79.1)
Christianity	43 (20.9)
Marital status	
Married	202 (98.1)
Single	4 (1.9)
*Education	
None	2 (1.0)
Primary	5 (2.4)
Secondary	53 (25.7)
Tertiary	84 (40.8)
Tribe	
Hausa	131 (63.6)
Yoruba	17 (8.3)
Fulani	12 (5.8)
Igbo	6 (2.9)
Others	40 (19.4)
Occupation	
Unemployed	80 (38.8)
Petty trader/artisan	60 (29.1)
Civil servant	26 (12.6)
Others	40 (19.4)

*Some of the respondents had undocumented education status

Distribution of respondents and spouse income

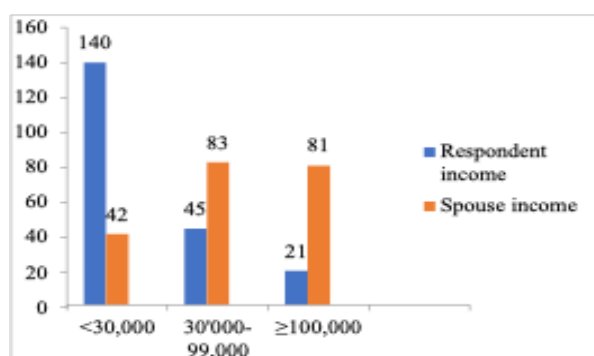


Figure 1: Frequency distribution of income of respondents and spouse

About two-third, 140 (68%) of the respondents earned below ₦30,000. Conversely, 164 (79.6%) earned least (Figure 1).

Prevalence of Postpartum Depression

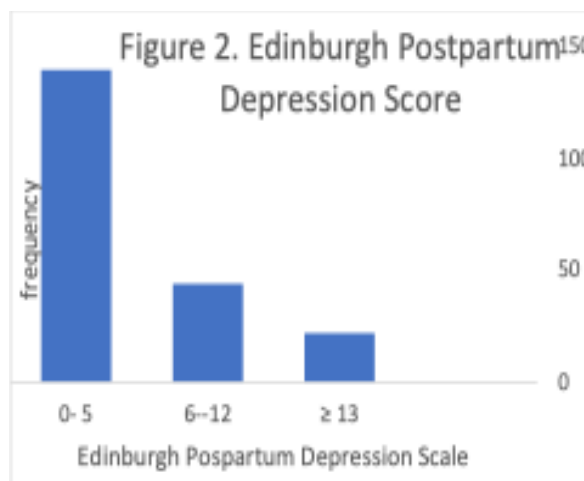


Figure 2. Frequency Edinburgh Postpartum Depression Score

Using the Edinburgh Postpartum Depression Scale (EPDS), 22 out of 206 respondents had a score of 13 or more. (Figure 2).

Predictors of postpartum depression

Bivariate analysis was carried out to test association between sociodemographic and reproductive profile with Postpartum Depression using Fisher's exact test at 95% confidence interval. There were significant association with educational status of respondent ($p=0.017$) and average monthly income of spouse ($p=0.041$). There were no associations between Postpartum Depression with any of the reproductive profile of patient (Table 2).

There was significant association of PPD with respondent personal history of mental illness prior to index pregnancy ($p=0.011$) but not with family history of mental illnesses ($p=0.366$). There were also significant association with outcome of delivery ($p=0.007$), gender of baby ($p=0.007$), mothers' not getting preferred gender ($p=0.006$) and complications during delivery ($p=0.002$) (Table 3).

Multivariate analysis was done with variables with p value of ≤ 0.10 included in the analysis. The age ($p=0.029$), educational status ($p=0.040$), outcome of delivery ($p=0.022$) and gender of baby ($p=0.020$) retaining their respective significant associations with Postpartum depression.

Table 2. Bivariate logistic regression between socio-demographic factors, reproductive profile and Postpartum Depression (PPD)

Variable (N= 206)	PPD (%)		Fisher's Exact test
	Present	Absent	
Age (years)			
≤ 20	3 (1.5)	13 (6.3)	0.093
21- 30	16 (7.8)	112 (54.4)	
31- 40	2 (1.0)	56 (27.2)	
41- 50	1 (0.5)	3 (1.5)	
Religion			
Islam	18 (8.7)	145 (70.4)	0.495
Christianity	4 (1.9)	39 (18.9)	
Marital Status			
Married	21 (10.2)	181 (87.9)	0.366
Single	1 (0.5)	3 (1.5)	
*Years in marriage (N= 198)			
≤ 5	11 (5.6)	107 (54.0)	0.619
6- 10	4 (2.0)	36 (18.2)	
>10	6 (3.0)	34 (17.2)	
Marriage setting			
Monogamy	17 (8.3)	151 (73.3)	0.160
Polygamy	2 (1.0)	25 (12.1)	
Extended family	3 (1.5)	8 (3.9)	
Education			
Not documented	8 (3.9)	54 (26.2)	0.017
None	2 (1.0)	0 (0.0)	
Primary	1 (0.5)	4 (1.9)	
Secondary	3 (1.5)	50 (24.3)	
Tertiary	8 (3.9)	76 (36.9)	
Occupation			
Not employed	8 (3.9)	72 (35.0)	0.302
Petty trader/artisan	7 (3.4)	54 (26.2)	
Civil servant	3 (1.5)	23 (11.2)	
Others	4 (1.9)	37 (18.0)	
Average monthly income of respondent (N)			
< 30,000 (minimum wage)	15 (7.3)	125 (60.7)	1.000
30,000 – 99,999	5 (2.4)	40 (19.4)	
< 30,000 (minimum wage)	8 (3.9)	34 (16.5)	0.041
30,000 – 99,999	10 (4.9)	73 (35.4)	
≥100,000	4 (1.9)	77 (37.4)	
Parity			
≤ 4	16 (7.8)	141 (68.4)	0.791
>4	6 (2.9)	43 (20.9)	
Desirability of pregnancy			
Desired	20 (9.7)	155 (75.2)	0.322
Not desired	2 (1.0)	29 (14.1)	
Attendance of ANC			
Yes	19 (9.2)	171 (83.0)	0.236
No	3 (1.4)	13 (6.3)	
Gestational age at delivery			
<38	6 (2.9)	46 (22.3)	0.799
≥38	16 (7.8)	138 (67.0)	
Mode of delivery			
Normal vaginal delivery	14 (6.8)	111 (53.9)	0.356
Caesarian section	7 (3.9)	71 (34.5)	
Assisted breech delivery	1 (0.5)	2 (1.0)	
Duration since delivery (weeks)			
< 2	2 (1.0)	29 (14.1)	0.341
2- 4	9 (4.4)	93 (45.1)	
>4	11 (5.3)	62 (30.1)	

*N= 198 because not all respondents are married

Table 3. Bivariate logistic regression between maternal/child outcome, mental illness and Postpartum Depression (PPD)

Variable (N= 206)	PPD		Fisher's Exact test
	Present	Absent	
Family history			
Yes	1 (0.5)	3 (1.5)	0.366
No	21 (10.2)	181 (87.9)	
Personal history prior to index pregnancy			
Yes	2 (1.0)	0 (0.0)	0.011
No	20 (9.7)	184 (89.3)	
Outcome of delivery			
Healthy baby	16 (7.8)	171 (83.0)	0.007
Stillbirth/neonatal death	3 (1.5)	9 (4.4)	
Birth asphyxia/congenital malformation	3 (1.5)	4 (1.9)	
Gender of baby			
Boy	5 (2.4)	99 (48.1)	0.007
Girl	17 (8.3)	85 (41.3)	
Gender preference of mother			
Boy	11 (5.3)	116 (56.3)	0.134
Yes	9	129	
No	7	41	
Did baby receive SCBU care?			
Yes	6 (2.9)	37 (18.0)	0.296
No	16 (7.7)	147 (71.4)	
Were there complications during index pregnancy?			
Yes	2 (1.0)	30 (14.6)	0.299
No	20 (9.7)	154 (74.8)	
Complications during delivery or within six weeks postpartum?			
Yes	8 (3.9)	18 (8.7)	0.002
No	14 (6.8)	166 (80.6)	

Table 4. Multinomial logistic regression on factors associated with Postpartum Depression

Variable	Test of significance
Age (in years)	0.029
Educational status	0.040
Income of spouse	0.262
Personal history of mental illness prior to index pregnancy	0.403
Outcome of delivery	0.022
Gender of baby	0.020
Complications of during delivery or within six weeks postpartum	0.831

DISCUSSION

The socio-demographic characteristics of respondents from this study were very similar to other studies done in some sub-Saharan African countries and parts of the country.^{6,12,16,17} The women were mostly young in their third decade of life and majority were married. Majority of women in this study were unemployed or low-income earners which was similar to the study done in Sudan,¹⁶ Lagos,¹⁷ Jos¹² and Sokoto.¹⁵

The prevalence of postpartum depression in this study was 10.7% which was similar to study done in Sudan, Kenya and Osun which ranges from 9.5% to 11%.^{10,16,18} Though, the prevalence of Postpartum depression was similar from above studies using the same screening tool (EPDS), there were some differences in their approaches. The Sudanese study used a cut off score of 12 and above¹⁶ while the study done in Osun used a cut off score of 10 and above and was on women experiencing intimate partner violence¹⁰. However, the prevalence of PPD from this study differs from that of Sokoto (14.2%),¹⁵ Lagos (35.6%),¹⁸ Enugu (33.3%)¹⁹ and Ethiopia (15.6%).⁸ This may be as a result of use of different screening tool such as in Enugu which used Hospital anxiety and depression scale¹⁹ and Sokoto that used CIDI-WMH.¹⁵ Furthermore, the Lagos which recorded very high prevalence of PPD may be due to inability of women to maintain a healthy work life balance as most of them (93%) were employed.¹⁷ The finding of the study was consistent with a systematic review done which showed an average prevalence of 11% in Africa and a global prevalence that ranged from 10 to 20%.⁴

The study found significant association between PPD and increasing maternal age which was similar to the study done in Jos.¹² this may be due to women with advanced maternal age having tendency to have unplanned and/or undesired pregnancy making them prone to mental stress during pregnancy and postpartum period. Similarly, there was significant association between PPD and educational status with those with low educational status being more depressed. This is similar to the study done in Jos and Middle-East where those with low educational status were found to be more depressed.^{12,20} This may be due to fact that women with high education have more access to resources, good health seeking behavior, more productive and are less idle than those that are less educated.

The study also found significant association between PPD and outcome of delivery where those with healthy babies are less depressed compared to those that deliver asphyxiated or suffers neonatal death or stillbirths. The joy of seeing a newborn that is healthy and less demanding of family time and family finance has no bound. The study done in Sokoto also shows similar pattern where women with babies that are

asphyxiated or were stillbirth were more depressed, although not statistically significant.¹⁵ The gender of baby was also found to be statistically significant with PPD with those having male gender less depressed. This may be due to male preference and dominance in our African culture. The question was part of a series of questions aiming at seeking the association between PPD and having preferred gender which came out not to be statistically significant.

Other socio-demographic characteristics such as employment status, marital status and income of respondents/ spouses were not associated with PPD in this study which is contrary to the study done in Jos, Enugu and Sudan where marital status and employment status were associated with PPD.^{12,14,18} However, this was similar to the findings of Sokoto and Kosovo where no socio-demographic variables were associated with PPD.^{15,21} There were also no significant association between PPD and reproductive profile such as parity, mode of delivery and gestational age at delivery. This finding is similar to that of Sokoto.¹⁵

Although, those mothers with complications during pregnancy, delivery and postpartum; social support (assessed by satisfaction with marriage and presence of domestic help) and personal history of mental illness were found to be more depressed in this study, surprisingly, they were not statistically significant after subjecting them to multivariate regression. However, study done in Kosovo reported that poor marital relationship and presence of pregnancy complications were statistically associated with postpartum depression.²¹ Similarly, the study done in Enugu and Sokoto showed that poor social support and marital difficulties respectively were associated with postpartum depression.^{15,18} These results which are contrary to this study may be as a result of stigmatization of mental illnesses and bashfulness making respondents to respond in the negative to questions on previous history of mental illness and social support respectively.

The limitation of the study is that it was done in a tertiary institution which may be less accessible to women of low socioeconomic status, hence the findings may not be representative of the general population.

Our study suggests that routine screening of women during third trimester of pregnancy and within six weeks postpartum should be done, so as to screen out women that may need further evaluation and subsequent management of postpartum depression. There is also need for community-based studies where those that do not visit the hospital can be assessed and result generalized to the population.

CONCLUSION

In conclusion, this study showed that the prevalence of PPD in our environment is significant and there is need to screen women in postpartum period. Increasing age, high educational status, female gender and poor outcome of delivery are associated with postpartum depression.

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