

Original Research Article

Antepartum depression and its predictors among pregnant adolescents in the northern part of Nigeria

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ABSTRACT

Background: Antepartum depression is a major public health issue, particularly among adolescents in low and middle-income countries, where early marriage and limited education are common. Although the religious and cultural beliefs in northern Nigeria concerning early marriage are common knowledge which prompted this study. Information on the predictors and prevalence of antepartum depression is limited. The study aimed to determine the prevalence and predictors of antepartum depression among pregnant adolescents in Kaduna state, north-western part of Nigeria.

Methods: A cross-sectional design was used. Data was collected using a structured interviewer administered questionnaire among 349 pregnant adolescents attending antenatal clinics at six selected health facilities from January to May 2019. Depression was screened using the Edinburgh post-natal depression scale (EPDS $\geq$ 13). Data were analysed using descriptive statistics, means and percentages, and logistic regression was used for predictors of antepartum depression. P value was set at <0.05 .

Results: Mean age of pregnant adolescents was 16.6 ± 1.4 years, with a mean age at marriage of 13.7 ± 2.4 years. Prevalence of antepartum depression was 54.7% with EPDS score of ≥ 13 . Adolescents with secondary education had 53% lower likelihood of depression compared to those without formal education (aOR=0.47; 95% CI: 0.25-0.89; $p=0.020$).

Conclusions: Antepartum depression is common among pregnant teenagers in northern Nigeria, especially those who haven't finished school. Integrating routine mental health screenings and evaluations into antenatal care services and educational empowerment is essential for improving maternal mental health outcomes in this vulnerable population.

Keywords: Adolescents, Antepartum depression, Edinburg postnatal depression scale, Northern Nigeria

INTRODUCTION

Mental disorder depression is one of the most prevalent mental disorders; it is also one of the most important causes of disability around the globe, thereby contributing

significantly to the global burden of disease.^{1,2} The Global Burden of Disease study shows that depressive disorders contribute a large number of years of disability worldwide, and there has been a noticeable increase in these disorders in low- and middle-income countries

(LMIC's) recently.^{2,3} Compared to men, there are millions of women with depressive disorders, most of whom are of childbearing age. A disproportionate proportion of these women are from the LMICs.³ The expectation of giving birth can put more stress on women's minds than ever before. During pregnancy, there are many different types of changes happening to a woman, and the likelihood of getting depressed is higher during this period. From past studies, such depression can be in the form of hormonal, biological, or psychological depression.^{4,5} Pre-birth (antepartum) depression may result in poor prenatal care attendance, preterm delivery, low birth weight, and poor attachment to the baby.⁶⁻⁸ Antepartum depression will continue to be underdiagnosed and not recognized in the majority of low/middle income countries (LMIC), even though the public health implications are very significant.⁹

Due to a range of intersecting risk factors such as social stigmas, limited autonomy, low education levels, poverty, violence from their intimate partners, and lack of social support, teenagers are especially susceptible to developing depressive disorders when they become pregnant.¹⁰⁻¹² Therefore, pregnant teens are likely to experience an increased level of psychosocial stress when compared to adult pregnant women. This, therefore, puts them at a greater risk of exhibiting depression symptoms.¹³

Systematic reviews have indicated elevated prevalence rates of antenatal depression among adolescents in sub-Saharan Africa relative to global averages.¹⁴ Nigeria has one of the highest rates of teenage pregnancy in sub-Saharan Africa.¹⁵ This problem is made worse by factors including, but not limited to, early marriage, insufficient money, inability to get reproductive health services, and gender inequality.^{15,16} Northern Nigeria, specifically, exhibits elevated rates of adolescent marriage and childbearing relative to other regions of the country.^{16,17} These contextual factors may increase the risk of mental health issues during pregnancy; however, evidence pertaining specifically to pregnant adolescents in northern Nigeria is still scarce. Numerous studies have investigated antenatal depression among adult women in Nigeria.^{18,19} There is limited research specifically targeting pregnant adolescents, especially in northern regions where sociocultural dynamics may differentially affect mental health outcomes. Additionally, inconsistencies in measurement instruments and cut-off thresholds across studies hamper the comparability of prevalence estimates.²⁰ Since untreated antenatal depression can have both short- and long-term effects on both mother and child, there is a need for data that is specific to this situation, to help locate and treat high-risk groups early on.

The objective of this study was to ascertain the prevalence and correlating factors of antepartum depression among pregnant adolescents in northern Nigeria.

METHODS

Study setting

The northern part of Nigeria was chosen for this study because there is a high predominance of child marriage in this region, as compared to other regions of the country. This is because people in this region are predominantly Muslims, who are known to marry off young girl-children early, a tradition that aligns with their religious faith and has become a part of their culture over time.¹²

The study was conducted in Sabon Gari Local Government Area, located within the Kaduna North senatorial district of Kaduna State, northwest Nigeria. It is important to note that the Kaduna North Senatorial District comprises 8 LGAs, including Sabon Gari, where the only Federal Teaching Hospital in Kaduna State is located. It also has 50 Primary Health Care (PHC) centres and 10 state hospitals.

Study design

The cross-sectional study design was employed to assess the prevalence of antepartum depression among adolescent mothers in the Kaduna north district of Kaduna State.

Selection criteria

Eligible participants were pregnant adolescents younger than 18 years of age, regardless of gestational age, who attended antenatal care clinics at Ahmadu Bello University Teaching Hospital, State General Hospital Makarfi, Major Ibrahim Memorial State Hospital, Gambo Sawaba State Hospital, Baban Dodo Primary Health Care Centre, and Samaru Primary Health Care Centre. While participants who were severely ill at the time of data collection and therefore unable to participate in the interview or attended the antenatal clinic with their intimate partners, as their presence may have influenced participants' willingness to provide candid responses, particularly regarding intimate partner violence were excluded from the study.

Study sample and sampling technique

A multi-stage sampling technique was employed to select the study participants. The first stage of the sampling procedure was the selection of Sabon-Gari local government area (LGA), located in the Kaduna North Senatorial District, which was purposively selected for the study because it hosts the only federal teaching hospital in Kaduna State and serves as a major referral centre for maternal healthcare services. Additionally, the antenatal clinic records show that, on average, 20-30 pregnant adolescents aged 18 years or younger attend the clinic twice weekly, indicating that the area is suitable for the study population. In the second stage, a list of eligible health facilities in the LGA, consisting of 10 state

hospitals and 5 large primary health care (PHC) centres, was compiled and written on separate pieces of paper, properly folded. Using a simple random sampling technique, an independent observer randomly selected five facilities, with the final selection comprising three state hospitals and two large PHC centres. In the third stage, pregnant adolescents aged 18 years or younger who attended antenatal clinics at the selected health facilities during the study period and consented to participate in the survey were included in the final sample, comprising 349 participants.

Data collection

Data were collected between December 2019 to March 2020. The instrument (questionnaire) was administered personally by trained research assistants and supervisors. The questionnaire consisted of 3 sections: socio-demographic, obstetric, and antepartum depression. The study used the Edinburgh Postnatal Depression Scale to screen for depression in the participants. While EPDS does not provide a clinical diagnosis, it assesses symptoms consistent with the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5), which is a criterion used to assess major depressive disorder.^{1,13}

Edinburgh postnatal depression scale

The Edinburgh postnatal depression scale was used to screen for antepartum depression. It has good psychometric properties and has been validated in several studies in Nigeria.^{14,15} Different studies have used various cut-off points; one of the studies¹⁶ used ≥ 12 , which contains a list of 10 questions, each scored 0-3, which is interpreted as follows;

0-9: Scores in this range may indicate the presence of some symptoms of distress that may be short-lived and are less likely to interfere with day-to-day ability to function at home or work. However, if these symptoms have persisted for more than a week or two, further inquiry is warranted.

10-12: Scores within this range indicate the presence of symptoms of distress that may be discomfiting. For this reason, it is important to repeat the EPDS after 2 weeks and to monitor progress regularly and continuously. However, if the score increases above 12, further assessment and referral may be considered as needed.

13+: Scores above 12 require further assessment and appropriate management, as the likelihood of depression is high. Referral to a psychiatrist or psychologist may be necessary.

Item 10: Any woman who scored 1, 2, or 3 on item 10 requires further evaluation before leaving the clinic to ensure her safety, and that of her baby, and was referred to the Psychiatrist.

Instrument reliability

The instrument was translated into Hausa (the local language) and back-translated into English to maintain consistency. The translation was done by a graduate of Hausa education from Ahmadu Bello University in Zaria and a doctor from the north-east region with good knowledge of the local language. A pilot study was conducted by administering the questionnaire to 50 participants at a private hospital in Kaduna to identify potential problems that might affect the study's conduct.

Data analysis

Data obtained from the questionnaires were coded and entered into MS Excel, then exported to Statistical Package for the Social Sciences (SPSS) version 25 for data cleaning and analysis. Frequency distribution tables and descriptive statistics, including percentages, means, medians, and standard deviations, were used to characterize the study subjects. The Chi-Square test was used to assess associations among antepartum depression-related factors. Logistic regression was used to investigate further the association between the dependent (antepartum depression) and independent variables (education of both victims and partners). All data were analysed at the 0.05 level of significance.

Ethical considerations

An ethical approval to conduct the research was obtained from the University of Ibadan/University College Hospital Research Ethics Committee. Then the researcher was given a letter of introduction from the Coordinator of Reproductive Health at the Pan African University of Life and Earth Sciences Institute (PAULESI), University of Ibadan, for identification purposes. The Ahmadu Bello University Teaching Hospital Research Ethics Committee, with number ABUTHZ/HREC/K25/2019, approved the data collection exercise. A letter of introduction was obtained from the Ministry of Health, Kaduna chapter, to enable the researcher to have access to the respondents/participants. Furthermore, permission was also obtained from the Medical Directors of Gambo Sawaba State Hospital, General State Hospital, Makarfi, Major Ibrahim Memorial Hospital, Zaria, and Sabon-Gari PHC board. Finally, participants provided written informed consent before the commencement of the interview.

RESULTS

Sociodemographic characteristics of pregnant adolescents

Pregnant adolescents had a mean age of 16.6 ± 1.4 years, with 91.4% aged 15-17 years. About 99.1% were married, with a mean age at marriage of 13.7 ± 2.4 years, and 66.2% marrying between 10-14 years of age. Other sociodemographic characteristics are shown in Table 1.

Table 1: Socio-demographic characteristics of pregnant adolescents (n=349).

Sociodemographic characteristics	Frequency	Percentage
Age at last birthday (years)		
10-14	30	8.6
15-17	319	91.4
Marital status		
Single	3	0.9
Married	346	99.1
Religion		
Islam	334	95.7
Christianity	15	4.3
Tribe		
Hausa	340	97.4
Yoruba	1	0.3
Others	8	2.3
Age at marriage (years)		
10-14	231	66.2
15-17	118	33.8
Education level		
Primary	93	26.6
Junior secondary	112	32.1
Senior secondary	54	15.5
Tertiary	8	2.3
Islamic school	82	23.5
Occupation		
Self-employed	85	24.4
Unemployed	255	73.1
Student	9	2.6
Partner's education level		
Primary	33	9.5
Junior secondary	60	17.2
Senior secondary	73	20.9
Tertiary	68	19.5
Islamic school	115	33.0
Partner's occupation		
Civil Servant	29	8.3
Self-employed	313	87.7
Unemployed	2	0.6
Student	5	1.4
Household monthly income (₦)		
<10,000	245	70.2
10,000-20,000	81	23.2
>20,000	23	6.6
Living with in-laws		
Lived	173	49.6
Did not live	176	50.4
Family support		
Got support	214	61.3
Did not get support	135	30.7

Prevalence of antepartum depression

Using the Edinburgh Postnatal Depression Scale (EPDS) as a tool to measure antepartum depression, and

according to its scoring system, a score of 13 and above means that the woman has depression. The proportion of adolescents who scored 13 or higher was 54.7%, with a

mean score of 13.03, the lowest score of 0, and the highest score of 23 (Figure 1).

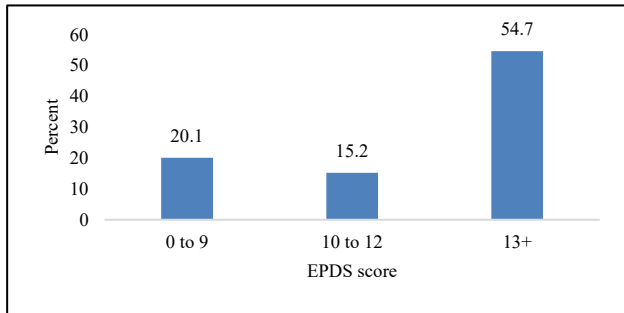


Figure 1: Edinburgh postnatal depression scale score (n=349).

Overall, the prevalence of antepartum depression among adolescent mothers was 54.7% (Figure 2).

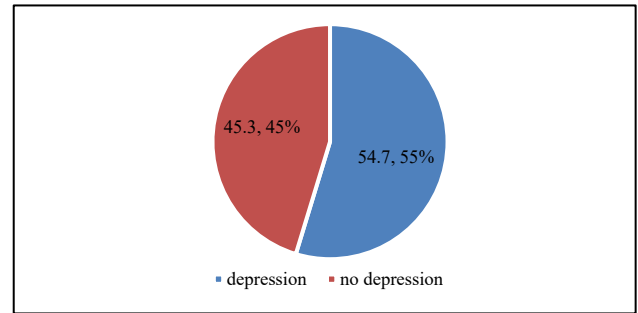


Figure 2: Prevalence of antepartum depression among pregnant adolescents.

Table 2: Association between socio-demographic factors and depression.

Socio-demographics	Depression outcome		χ^2 (p value)
	Not depressed (%)	Depressed (%)	
Age at last birthday (years)			
10-14	11 (36.7)	19 (63.3)	0.98 (0.322)
15-17	147 (46.1)	172 (53.9)	
Marital status			
Single	1 (33.3)	2 (66.7)	0.17 (0.677)
Married	157 (45.4)	189 (54.6)	
Age at marriage			
10-14	100 (43.3)	131 (56.7)	1.08 (0.298)
15-17	58 (49.2)	60 (50.8)	
Participants' education level			
Non-formal	27(32.9)	55(67.1)	11.18 (0.011)
Primary	29 (41.9)	54 (58.1)	
Secondary	86 (51.8)	80 (48.2)	
Tertiary	6 (75.0)	2(25.0)	
Partner's education level			
Non-formal	48 (41.75)	67 (58.3)	9.99 (0.019)
Primary	8 (24.2)	25 (75.8)	
Secondary	64 (48.1)	69 (51.9)	
Tertiary	38 (55.9)	30 (44.1)	
Occupational status			
Unemployed	115 (43.6)	149 (56.4)	1.28 (0.258)
Employed	43 (50.6)	42 (49.4)	
Partner's occupational status			
Unemployed	3 (42.9)	4 (57.1)	0.02 (0.897)
Employed	155 (45.3)	187 (54.7)	
Household monthly income (₦)			
<10,000	111 (45.3)	134 (54.7)	0.08 (0.959)
10,000-20,000	36 (44.4)	45 (55.6)	
>20,000	11 (47.8)	12 (52.2)	
Living with in-laws			
Lived	78 (45.1)	95 (54.9)	0.005 (0.945)
Did not live	80 (45.5)	96 (54.5)	
Family support			
Got support	90 (42.1)	124 (57.9)	2.31 (0.129)
Did not get support	68 (50.4)	67 (49.6)	

Antepartum depression and socio-demographic factors

Following bivariate analysis, the participants' level of education, as well as the partner's level of education, were found to be significantly associated with depression outcome ($p=0.011$ and 0.019 , respectively). Other socio-demographic factors were not statistically correlated with antepartum depression.

Results showed that adolescent-mothers with primary education were 32% less likely than those with no formal education to have experienced depression ($OR=0.68$, $p=0.221$). Also, adolescent-mothers with secondary education were 54% less likely than those with no formal education to have experienced depression ($OR=0.46$, $p=0.005$). In contrast, participants with tertiary education had the least likelihood of depressive symptoms, 84% less

likely than those with no formal education ($OR=0.16$, $p=0.033$) (Table 2).

Logistic regression of antepartum depression and level of education

The logistic regression analysis showed that only secondary education among individuals exhibited a significant correlation with antepartum depression. Adolescents with secondary education demonstrated a 53% lower likelihood of depression compared to those without formal education ($AOR=0.47$; 95% CI: 0.25-0.89; $p=0.020$). This suggests that attaining at least secondary education may serve as a protective factor against antepartum depression in pregnant adolescents in northern Nigeria. All other socio-demographic variables became statistically insignificant after correction (Table 3).

Table 3: Logistic regression of antepartum depression and level of education.

Socio-demographics	aOR (95% CI)	p-value
Participants' education level		
Non-formal	1	
Primary	0.55 (0.28-1.08)	0.084
Secondary	0.47 (0.25-0.89)	0.020
Tertiary	0.24 (0.04-1.36)	0.106
Partner's education level		
Non-formal	1	
Primary	2.15 (0.84-5.54)	0.112
Secondary	1.06 (0.60-1.87)	0.849
Tertiary	0.88 (0.44-1.87)	0.730

DISCUSSION

The study revealed an unexpectedly high prenatal depression rate of 55% (192/349) at the EPDS cut-off of not less than 13. The prevalence was higher compared to the different rates of depression reported in previous literature on teenage pregnancy, from 28% to 46%.^{6,17,18} Teenage mothers are more likely to experience depression because of the physiological changes of pregnancy and the upcoming role of motherhood, which could exacerbate the developmental difficulties of adolescence.^{21,22} Adolescent pregnancy and mental health issues, therefore, increase the risk of negative consequences for both the teen mother and the foetus.¹⁹

Socio-demographic factors were assessed for their influence on antepartum depression. There was a significant difference in antepartum depression between participants and their spouses, with higher levels of education associated with lower antepartum depression. Those with no formal education or a primary school level of education had a higher proportion of depression compared to the more educated ones. This was consistent with other studies.^{6,7,20} Findings from this study were further corroborated by recent studies^{10,19} that found that

having a secondary education reduces the odds of participants having antepartum depression. Having secondary education was significantly associated with a lower likelihood of probable depression in Malawi ($AOR: 0.47$; 95% CI 0.27-0.82).¹⁰

The following socio-demographic factors were not statistically significant for antepartum depression: age, age at marriage, marital status, occupation, income level, living with in-laws, and family support. Meanwhile, another study identified high income above ₦20,000 and increased maternal stress as factors that influenced antepartum depression.²³ Most of these factors can be improved upon to reduce the chances of depression among adolescent victims. Therefore, affirming the findings conducted in the south-west region of Nigeria and other Sub-Saharan African countries, that increased social support systems decrease the prevalence of depression among pregnant adolescents.^{10,11,24} Furthermore, depression was higher among the participants who were less than 15 years old and also among those who got married at earlier ages. This may increase the risk of antepartum depression. This finding confirms the findings from a previous study that measured the risk factors for antepartum depression

among pregnant women and found that young pregnant women below the age of 20 risked a higher chance of depression, compared to the older ones.^{7,25,26} Also, the level of income had a significant association with antepartum depression in a study done in Thailand to measure the associated factors of prenatal depression among teenage pregnant women.¹⁸

Depression in pregnancy is associated with some pregnancy and delivery history.²⁷ It was found to increase with gestational age, then decrease near delivery.^{6,7,28,29} Based on the results of this study, respondents in the first trimester recorded the highest number of depressive symptoms; however, as they progressed into the second and third trimesters, a decline was observed. This was, however, not statistically significant, as in a study done in the United States of America, to assess the association of depression with birth outcomes among pregnant adolescents.¹⁷ The associated factors of depression were also measured among teenage pregnant females in a study in Thailand; there was no significant association between prenatal depression, unplanned pregnancy, or trimester at screening.¹⁸ Although this finding was not statistically significant in this study, previous studies reported that depression is higher among people who have had more children compared to those who have had fewer children.³⁰ In this study, depression was not associated with a history of caesarean section, number of living children, number of dead children, or history of miscarriage. These are the same for most studies.^{7,8} However, a history of caesarean section was found to be associated with prenatal depression in a study done on pregnant women in the South-western region of Nigeria; this was not the case with pregnant adolescents in northwest Nigeria.⁷

This study's peculiar limitations were identified. The study captured only pregnant adolescents receiving antenatal care in specific facilities and excluded those living in unofficial facilities or not attending any form of antenatal care. This may limit generalizability to pregnant adolescents in Kaduna State. Information on socio-economic status and IPV was self-reported. Due to the sensitive nature of early marriage to the cultural and religious context of Northern Nigeria, there may be cases of under-reporting of intimate partner violence and recall bias.

CONCLUSION

Although several social-demographic factors were assessed to determine their influence on depression, only the participants' level of education and that of their partners were statistically proven to contribute to antepartum depression. The conclusion drawn based on this finding is that adolescents who were better educated were less likely to be depressed compared to those with little or no formal education. Likewise, for those whose partners had a good level of education. Therefore, education is proven to be a protective factor against

antepartum depression for pregnant adolescents or adolescent females in early marriage. Introducing screening for IPV and antepartum depression should be incorporated into the antenatal clinic program for women, especially victims of child marriage. Adolescent mothers are at particularly high risk for experiencing IPV and depressive symptoms; efforts aimed at early intervention and prevention of IPV are important components of their clinical care. This will ensure the good health and well-being of the adolescents and their unborn children. Also, follow-up should be ensured for at least 6 months after delivery.

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