

Original Research Article

Predictors of Antenatal Depression in a Tertiary Hospital in Nigeria.

ABSTRACT

Background: Antenatal depression is very common in pregnant women all over the world. Women in the developing and poor countries are more at risk. Several risk factors have been identified and some of them may lead to unbearable pregnancy situations that pose a threat to mother and the baby. If pregnancy must be made pleasurable for mothers, then the risk factors which predict depression in pregnancy must be identified and considered in antenatal care.

Objective: To identify risk factors which are predictors to antenatal depression in pregnant women.

Methods: Within the months of January and February 2021, all the pregnant women who registered for antenatal care in the teaching hospital, who met the study inclusion criteria were assessed for depression using the English version of Edinburgh Postnatal Depression scale (EPDS) and a study designed risk factor questionnaire which contained socio-demographic variables and other factors. Data obtained were analysed using the statistical package for social sciences (SPSS) version 23. Variables were compared using chi squared and t-tests and p values < 0.05 were statistically significant.

Results: Five hundred (500) respondents completed the study, 158 (31.6%) were depressed. Risk factors of co-habiting, threats to life, and/or pregnancy, fight with spouse and other forms of abuse, previous abortions and child health challenges were predictors of antenatal depression.

Conclusion: Depression in pregnancy should be part of routine antenatal care by obstetricians noting the predictors.

Key words: Antenatal depression, EPDS, Socio-demographic variables, Predictors, Obstetric risk factors.

INTRODUCTION:

Comment [jj1]: Can give statistical results for significant variables

Depression is among the most prevalent mental health problems that occur during pregnancy. It is said to affect one in every four women [1]. The symptoms increase more in pregnant women than none pregnant women [1,2]. These symptoms may include loss of pleasure in virtually everything, disturbances in most areas of life including a threat to life [3]. Depression is one of the top five contributors to global disease burden, depression. Such risk factors may include early marriage, poor educational status, increased affecting over 30 million people in Africa [4]. Women in developing countries such as Nigeria, are said to be more exposed to the risks of developing antenatal exposure to domestic violence, unplanned pregnancies, lack of social support, poor obstetrics history, etc [5].

Comment [jj2]: Its is related to pregnancy or general women / general population.

Studies within the African continent have also highlighted on other factors such as fear of pregnancy, unwanted pregnancy, history of debt, lack of support from relations and co-habiting as a marriage variable, as strong risk factors [6-9]. In spite of these findings, depression has remained a neglected public health problem among pregnant women in the African continent [10]. This may be due to the fact that antenatal care traditionally focuses on physical health, neglecting the psychological problems which recurs often and impacts negatively on mothers and the unborn children [11].

There is therefore an urgent need to identify and highlight various factors which may be responsible for such high prevalence of antenatal depression. A few studies have reported on predictors of antenatal depression in the African continent [11,12]. In Ethiopia the most commonly reported predictors include low income, unplanned pregnancies, still births, threats to pregnancy, intimate partner violence and poor social support [13-15]. World Health Organization (WHO) in its report on maternal mental health and child health and development in low and middle income countries (2008) reported a wide range of 12.5-42% prevalence rate for antenatal depression [16]. African countries, Nigeria in particular were considered in this report, which highlighted risk factors but did not advice on predictors. This study intends to identify predictors of antenatal depression in this part of the world where it has been reported to be on the increase [9].

Comment [jj3]: Check the sentence, could have been written in different form

METHODS:

Study setting and data collection;

The study was carried out in the department of obstetrics and gynaecology of Rivers State University Teaching Hospital Port Harcourt, Nigeria. The department provides services to all women requiring obstetrics and gynaecological care and the antenatal unit attends to all pregnant women requiring antenatal care. The study was cross-sectional questionnaire study, covering the months of January and February 2020. It captured all women who registered for antenatal care and follow up review in the unit. Only women who were in good mental physical health, who had a minimum of primary education were selected for the study. All pregnant women who met the study criteria were properly educated about the study, after

Comment [jj4]: As the study is discussing about depression, why good mental health people recruited

which they were requested to sign a consent form. Only those who consented to the study were allowed to participate in the study.

Data was obtained by means of personal interview with respondents. Each respondent was given two questionnaires, one was a socio-demographic and risk factor study questionnaire, and the second was the Edinburgh Postnatal Depression scale (EPDS). The study questionnaire assessed respondents in three areas of socio-demographic information, financial and spouse's information and obstetrics histories.

Study instruments and data analyses

Antenatal depression was measured using EPDS, developed by Cox et. al 1987 and validated for detecting depression both ante-partum and postpartum [17,18,19]. It is used all over the world to screen for antenatal depression by researchers [20,21]. It contains 10 specific questions, with four likert scale response options (most of the time, sometimes, not often and never), targeting stress indicators occurring within the previous week in the pregnant women. It is a simple tool, with a sensitivity and specificity of 86% and 78% respectively. Scores are recorded as 0, 1,2,3, or 3,2,1,0, according to symptom severity. The English version of EPDS was used and respondents who scored 12 and above were considered depressed.

Comment [jj5]: Likert's

Data obtained were fed into the statistical package for social science SPSS version 23.0, and all relevant descriptive statistical variables were computed using student t-test and chi squared test to determine associations between means of continuous variables and categorical variables respectively. Linear multiple regression analysis was used to determine the predictors of antenatal depression from a set of significant associations at bivariate analysis ($p < 0.05$).

RESULTS:

Nine hundred and twenty (920) booked pregnant women were seen during the period of study and 500 (54.4%) consented to the study. Of this 500 women that consented to the study, 158 had EPDS score of 12 and above giving a prevalence rate of 31.6% for antenatal depression.

Socio demographic characteristics of respondents

The mean age of respondents was 34.12 ± 7.8 years with the 30-39yr age group forming 48% of the respondents. Seventy eight percent of the respondents had tertiary education, and majority of them (69%) were unemployed. The socio-demographic variables of age ($p=0.107$), level of education ($p=0.404$), and employment status ($p=0.119$) did not show any significant association with depression. Four hundred and seventy five (95%) of respondents were married, 20 (4%) were single, and 5 (1%) were co-habiting. All the five co-habiting respondents were depressed ($p=0.002$), but on multiple regression using 'being single' as reference, being married had OR; 0.532 (95% CL=0.216-1.311), cohabiting OR; 1974.084. Table 1 shows all the significant risk factors and their associations with depression.

Social history and support from relations

Among all the social variables assessed which included spouses employment, family support, smoking and use of alcohol and illicit drugs, support from spouse ($p=0.013$), threat to life ($p=0.007$) and fight with spouse ($p=0.013$), showed strong association with depression. Logistic regression analysis showed support from spouse OR; 0.407, (95%CL=0.204-0.813), threat to life OR;3.342, (95%CL1.374-8.572) and fight with spouse OR:2.655, (95%CL=1.231-5.723). Table 1 shows details of the associations.

Obstetric variables with depression

Obstetric variables of gestational age, planned pregnancy, parity, family size, previous caesarean sections and mothers' health challenges did not show any significant associations with depression. Table 1 also shows the variables of lost pregnancies (still birth) $p=0.001$, history of child death ($p=0.002$) and health challenges from children ($p=0.012$) and their levels of association on logistic regression.

Variable	Frequency. n=500	Depressed n=158	Not depressed n=342	P values/others
Marital status				P=0.002, OR;0.532, 95%CL=.216-1.311
Cohabiting	5 (1%)	5 (3.2%)	0(0.0%)	OR;1975.6
Married	475 (95%)	144(91.1%)	331(96.8%)	
Single	20(4%)	9(5.7)	11(3.2%)	
Support from spouse				P=0.013, OR;.407, 95%CL=.204-.813
No	35(7%)	18(11.4)	17(5.0%)	
Yes	468(93%)	140(88.6%)	325(95%)	
Fight with spouse				P=0.013, OR:2.65595%CL=1.231-5.723
No	472(94.4%)	143(90.5%)	329(96.2%)	
Yes	28(5.6%)	15(9.5%)	13(3.8%)	
Threat to life/pregnancy				P=0.007, OR;3.432, 95%CL=1.374-8.572
No	480(96.0)	146(92.4%)	329(97.7%)	
Yes	20(4.0%)	12(7.6%)	8(2.3%)	
No of pregnancies lost				P=0.001, OR:1.11,, 95%CL=.881-1.389
0	347(69.1%)	95(60.1%)	252(73.7%)	
1	105(21.0%)	50(31.6%)	55(16.1%)	
>2	48(9.6%)	13(8.2%)	35(10.2)	
Death of children				P=0.002, OR:1.907, 95%CL=1.232-3.953

0	443(88.6%)	133(84.2%)	310(90.0%)	
1	47(9.4%)	17(10.8%)	30(8.8%)	
≥2	10(2.0%)	8(5.1%)	2(0.6%)	

Child health challenges p=0.012, OR:2.977 95%CL=1.276-6.944

No	477(95.4%)	145(91.8%)	332(97.1%)	
Yes	23(4.6%)	13(8.2%)	10(2.9%)	

Table 1 Showing Risk Factors and their associations with Depression.

Predictors of Antenatal Depression

Table 2 shows the risk factors of co-habiting, spouse bill payment, threat to life, fight with spouse, child health challenges and child death and strong associations with depression, when further multivariate analysis was done using child death as numeric.

Predictors	Crude odd ratios	Adjusted odd ratio AOR	p-values for AOR	95%CL for AOR
Cohabiting	5.32	197.6	0.002	1.60-3.623
Spouse bill payment	0.407	0.397	0.011	0.195-0.810
Threat to life	3.432	2.018	0.007	0.750-5.428
Fight with spouse	2.655	2.328	0.040	1.040-5.208
Child health challenges	2.977	2.279	0.012	0.933-5.568
Child death	1.907	1.987	0.003	1.259-3.138

Table 2 showing predictors of Antenatal Depression (predictors when child death is used as numeric. Note: 'NO' is the reference category for all categorical predictors. Nagelkarke R² =0.079 (for all predictors)

DISCUSSION:

In this study, the prevalence of antenatal depression was 31.6% using an EPDS score of 12 and above. The mean age of respondents was 34.12±7.8 years, with 78.2% having tertiary education and 69% being unemployed. The socio-demographic variables of age p=0.117, level of education p=0.404 and employment status p= 0.119 did not show any significant association with antenatal depression. This is contrary to other studies where younger age, low education and unemployment were strong predictors of antenatal depression

[1,12,22,23]. Ninety five percent of the respondents were married, 4% were single and 1% co-habiting. Marital status showed a strong association with antenatal depression $p=0.002$, using 'single' as reference category in logistic regression, married; OR:0.532, 95%CL=0.216-1.311, co-habiting; OR:198.68, 95%CL=0.216-1.311, making co-habiting which is a component of marital status a predictor of antenatal depression. This may slightly differ from other studies that reported being single as predictive [10,12,22,24].

In this study, social variables of spouse employment, family financial support, smoking and alcohol use did not show any significant association with depression, but lack of social and financial support from spouses showed a strong association $p=0.013$, OR:0.407, 95%CL.204-.813, this may be in keeping with other similar studies [8,22,24,25,26], but was not predictive in this study. Fight with spouse; $p=0.013$, 95%CL=1.22-5.723, is in agreement with several other studies [6,7,10,25,27,28]. In this study, 60% respondents who reported threat to life or pregnancy were depressed $p=0.007$, OR: 3.432, 95%CL=1.374-8.572, in keeping with other studies [7,10,29].

The mean gestational age was 29.7 ± 8.46 weeks, 76% of respondents planned their pregnancies and over 30% had two or more previous confinements. These obstetric variables did not show any significant association with depression which was appropriately distributed across the three trimesters. Stillbirth has been reported severally as a predictor to antenatal depression [6,10,15,22]. Our finding is in keeping with these studies but was not predictive; OR:1.11, 95%CL=0.889-1.389. This study did not see any significant association between history of previous caesarean sections and depression; $p=0.690$. In this study, 8 out of 10 respondents who had lost at least two children previously to death, were depressed; $p=0.002$, OR:1.907, 95%CL=1,232-2.953. Respondents who had children with serious health challenges showed a strong association with depression; $p=0.0012$, OR: 2.977, 95%CL=1.276-6.944. Death of children and child health challenges turned out to be strong predictors to antenatal depression.

Conclusion:

Antenatal depression is common in pregnant women with a prevalence of 31.6%. Co-habiting, threat to life or pregnancy, fight with spouse and other forms of abuse, previous abortions and child health challenges were strong predictors of antenatal depression. There is an urgent need to improve reproductive health services to include routine screening of pregnant women for depression during antenatal visits to reduce the burden of antenatal depression and its associated maternal and fetal morbidities and mortalities.

Study strength and limitation

This is a cross sectional study, which tried to highlight on various factors which may predict antenatal depression. The setting of this study is cosmopolitan and may not have represented the majority of pregnant women in the region, and most of the cases may have been referred

cases. The inclusion criteria also eliminated all the uneducated women. There is always a place for confirmation of depression with structured clinical interviews.

Consent:

Consent was obtained from all supervising authorities, and all the respondents signed a written consent.

REFERENCES:

1. Fisher J, Mcd M, Patel V, Rahman A, Tran T, Ea HS. Prevalence and determinants of common perinatal disorders in women in low and lower-income countries: A systemic review. *Bull. World Health Organ.* 2012; 90(2): 139-149.
2. Evans J., Heron J., Francomb H., Oke S., Golding J. Cohort study of depressed mood during pregnancy and after childbirth. *Bmj*; 2001; 323(7307): 257-260.
3. Sadock Bj, Sadock VA, RuzP. Synopsis of psychiatry and Behavioural Sciences/clinical psychiatry. In Kaplan and Sadock (Eds). *Mood Disorders 11th edition*, Wolters Kluwer, 2019; 347-386.
4. WHO Guidelines Approved by the Guidelines Review Committee mhGAP intervention Guide for mental, neurological and Substance use disorder in Non-Specialised Health setting; Mental Health Gap Action Programme (mhGAP). Geneva; WHO: 2010.
5. Abel Fakadu Dadi, Haileab Fakadu Wolde, Adhanon G. Baraki, and Yemesgen Y. Akalu. Epidemiology of Antenatal Depression in Africa; A Systemic review and meta- analysis. *Bmc pregnancy and Childbirth* 2020; 20: 251.
6. Martha A. Sahille, Mesfin T. Segni, Tadesse Awoke and Desrelegn Bekele. Prevalence of predictors of antenatal depressive symptoms among women attending Adama Hospital Antenatal Clinic, Adama Ethiopia. *Journal of Nursing and midwifery*, 2017; vol. 9(5): pp 58-65.

7. Bisetegn TA, Ihreta G., Muche T. Prevalence of Predictors of Depression among pregnant women in Debreabor Town, Northwest Ethiopia. 2016; Plos-one 11(9): e0161108. <https://doi.org/10.1371/journal.pone.0161108>.
8. Dauda Sulyman, Muhammed B Aminn, Kazeem Ayinda, Lamarin M. Dattijo. Antepartum depression among women attending antenatal clinic in a Nigerian Teaching Hospital. Nigerian Journal of Medicine, 2021; vol. 30: issue 5, Sept.-Oct.
9. Enyidah Nonyenim S., Nonye-Enyidah Esther I. Prevalence of Antenatal Depression in a Teaching Hospital South/South Nigeria. International Journal of Medical Sciences and Diagnosis Research, 2021; volume 5, issue 10: oct. pp42-50.
10. Beyene GM, Azale T., Galaye KA. Et. al. (2021) Depression remains a neglected public health problem among pregnant women in Northwest Ethiopia. Public Health, 2021; 78: 132.
11. Bekalu Thomas Chuma, Getu Sagaro, Feleke H. Astawesegn. Magnitude and predictors of antenatal depression among pregnant women attending antenatal care in Sodo Town, Southern Ethiopia. Facility based cross-sectional study. Depression Research and Treatment. 2020; 6718342.
12. Okechukwu Thompson and Ike Duwapo Ajayi. Prevalence of Antenatal Depression and Associated Risk Factors among pregnant women attending antenatal clinics in Abeokuta North Local Government Area, Nigeria. Depression Research and treatment, 2016; article ID4518979.
13. Shah SMA, Bowen A, Afridi I, Nonshad G, Muhajarine N. Prevalence of Antenatal Depression; Comparison between Pakistani and Canadian women. J. Pak Med. Assoc. 2011; 61: 242.
14. Duke B, Ayano G, Bedasi A. Depression among pregnant women and associated factors in Hawassa city, Ethiopia. An institution based cross-sectional study. Reprod. Health, 2019; 16(1): 25.
15. Lancaster CA, Gold KJ, Flynn HA, Yoo A, Marcus SM, Davis MM. Risk factors for depressive symptoms during pregnancy; A systemic review. Amj. Obstet. Gynecol. 2010; 202(1): 5-14.
16. World Health Organization. Maternal Mental Health and child Health and development in low middle income countries; Report of the meeting, Geneva, Switzerland. 30 Jan-Feb, 2008.
17. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression; Development of the 10-item Edinburgh Postnatal Depression Scale. Bri. J Psychiatry, 1987; 150: 782-786.
18. Hanlon C, Medhin G, Alem A, Araya M, Abdulahi A, Hughes M. Detecting perinatal common mental disorders in Ethiopia; validation of the self-reporting questionnaire and Edinburgh Postnatal Depression Scale. J. Affect. Disorder, 2008; 108(3): 251-270.

19. Murry L, Carothers AD. The validity of Edinburgh Postnatal Depression Scale in a community Sample. *BrJ. Psy.* 1990; 157: 288-290.
20. Chowe-Sungani G, Chipps J. A Systematic review of screening instruments for depression for use in antenatal services in low resource settings. *BMC Psychiatry.* 2017; 17 (1).
21. Su KP, Chiu TH, Huana CL et. al. Different cut off points for different trimesters? The use of Edinburgh Postnatal Depression Scale and Becks depression inventory to screen for depression in pregnant Taiwanese women. *Gen. Hospital Psychiatry* 2007; 29(5): 436-341.
22. Adewuya Abiodun, Ola BA, Olutayo Alaba, Atinuke OD. Prevalence and correlates of depression in late pregnancy among Nigerian women. *Depression and Anxiety.* 2007; 24(1): 15-21.
23. Overbeck G, Rasmussen IS, Siersma V et. al. Depression and Anxiety symptoms in pregnant women in Denmark during COVID-19. *Scandinavian Journal of Public Health.* 2021; N0.5, article ID 110032535.
24. Mushudat A, Bello Mojeed. Prevalence and correlates of depression among women attending antenatal clinic in Lagos. Faculty of psychiatry, National Postgraduate Medical College of Nigeria. 2014.
25. Desiree Govender, Salochni Naidoo, Myra Taylor. Antenatal and Postnatal depression; Prevalence and associated risk factors among Adolescents in KwaZulu- Natal, South Africa. *Depression and Treatment.* 2020; volume article ID 5364521.
26. Abel Fakadu Dadi, Emma RM, Richard W, Telake AB, Lillian M. Antenatal Depression and it's Potential causal mechanism among pregnant mothers in Gunder town; Application of structural equation model. *BMC Pregnancy and Childbirth.* 2020; 20: article no 168.
27. Sheeba B, Anita Nath, Chadra S Matgud, Murali Krisha, Shushashree V. Vindhya and Venkafa S. Prenatal depression and it's associated risk factors among pregnant women in Bangalore. A hospital based prevalence study. *Front. Public Health.* 2019; 03.
28. Kaiyo-utete M, Dambi JM. Antenatal Depression; An examination of prevalence and it's associated factors among pregnant women attending Harare Polyclinics. *BMC Pregnancy and Childbirth.* 2020; 20: 197.
29. Getrinet Ayano, Getachew T and Shegaye S. Prevalence and determinants of antenatal depression in Ethiopia; A systematic review and meta -analysis. *Plos Global Public Health.* 2019; doi 59/10.137/ID 0211764.

UNDER PEER REVIEW