ORIGINAL RESEARCH

Sociodemographic and Obstetric Determinants of Antenatal Depression in Jimma Medical Center, Southwest Ethiopia: Facility Based Case–Control Study

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Background: Worldwide, 10–20% of women experience depression during pregnancy. In sub-Saharan countries, depression during pregnancy is estimated to be 15–57%. Even though there is a high burden of depression during pregnancy, little attention has been given to identify sociodemographic and obstetric determinants in diverse populations like Ethiopia.

Objective: To identify sociodemographic and obstetric determinants of antenatal depression among women attending an antenatal clinic at Jimma Medical Center, southwest Ethiopia.

Patients and Methods: A case–control study was conducted among 246 pregnant mothers (82 cases and 164 controls) attending an antenatal clinic in Jimma Medical Center from June 1 to August 30, 2019. Antenatal depression was assessed using the Beck Depression Inventory-II. Epidata 3.1 and SPSS v24 were used for data entry and analysis, respectively. Adjusted odds ratios (AOR) and 95%CIs were estimated using logistic regression models. Statistical significance was set at $P<0.05$.

Results: Married mothers were 67% (AOR=0.33, 95%CI: 0.15–0.75), housewives were 97% (AOR=0.03, 95%CI: 0.01–0.14), private workers were 87% (AOR=0.13, 95%CI: 0.04–0.44), and government employees were 84% (AOR=0.16, 95%CI: 0.05–0.46), less likely to develop antenatal depression. Multigravida were 88% (AOR=0.12, 95%CI: 0.04–0.37) less likely to develop antenatal depression. Third trimester pregnancy was four times (AOR=4.04, 95%CI: 1.51–10.81) more likely to have depression. Mothers who having wanted pregnancy were 83% (AOR=0.17, 95%CI: 0.04–0.81) less likely to develop antenatal depression compared with mothers having unwanted pregnancy.

Conclusion and Recommendation: Being married, multigravida, having wanted pregnancy and occupation status (housewives, private workers and government employees) can protect mothers from developing antenatal depression. Mothers with third trimester pregnancy were four times more likely to have depression. Designing a screening and intervention strategy for antenatal depression must consider the aforementioned protective and risk factors.

Keywords: antenatal depression, determinants, Ethiopia

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Introduction

Depression is a leading cause of global disability and the second leading cause of global disease burden among peoples of reproductive age group, especially women of childbearing age during pregnancy.[1] Antenatal depression is a form of clinical depression that affects women during pregnancy.[2,3] Approximately, 10–20% of

women experience depression during pregnancy.[4] In low- and middle-income countries (LAMICs), antenatal depression is more prevalent, particularly among poorer women with gender-based risks and prior psychiatric illness.[5] Strong evidence from LAMICs using culturally validated measures shows that antenatal depression is estimated to be 15–57%. Health professionals working in antenatal clinics estimated at least one in four pregnant women experience depression.[6,7]

Depression in pregnancy has negative consequences and adverse health outcomes for mothers and infants. Disability associated with depression in pregnancy is likely to interfere with many essential functions, such as loss of interest in self-care, child care and feeding, and failure to follow antenatal care.[8,9] The risk of suicide or self-harm, alcohol use, and poor weight gain during pregnancy is common in women with depression.[1,7,10] It can also lead to increased risk for prolonged labor, low birth weight, and long-lasting or even permanent effects on child development and well-being in later life.[1,11] In addition, depression during pregnancy results in increased risk for diarrhea and delayed initiation of breastfeeding.[6,7,12]

There are sociodemographic and obstetric factors that put pregnant mothers at risk for depression in addition to physiological and hormonal changes during pregnancy. Older age, less education, being single, unemployment, and low income are some of the sociodemographic determinants of antenatal depression.[13,16] In addition, social factors that can contribute to antenatal depression are marital conflict,[17] intimate partner violence,[18,19] and low/ lack of social support.[20,22] Obstetric factors like unplanned pregnancy and previous pregnancy loss can significantly contribute to antenatal depression.[16,23] In addition, gravidity, history of abortion, and obstetric complications are proven risk factors for antenatal depression.[24] In addition to sociodemographic and obstetric factors, substance abuse is a proven risk factor for antenatal depression.[25,26] Moreover, evidence from a study conducted in southern Ethiopia shows there is significant association between intimate partner violence and antenatal depression.[27]

In Ethiopia, one in three pregnant mothers suffers from depression.[12,28,29] This implies large numbers of pregnant mothers suffer from adverse outcomes of depression in Ethiopia. Since Ethiopia is a multiethnic and multicultural country, there is variation in sociodemographic factors. In addition, there is variation in obstetric factors like planning pregnancy and awareness about pregnancy complications. Moreover, the use of local psychoactive stimulants like

"khat" and locally made alcohol containing drinks during pregnancy also varies in Ethiopia. Despite this prevailing difference, little attention has been given to identify sociodemographic and obstetric determinants of antenatal depression in southwest Ethiopia. The previous researches conducted in Ethiopia[22,27,31] used cross-sectional study design, and did not exclude pregnant mothers with preexisting chronic illnesses like mental illness, hypertension, diabetes mellitus (DM), and HIV/AIDS. These chronic illnesses are risk factors for depression in addition to pregnancy. So, pregnant mothers with the abovementioned chronic illnesses were excluded from this study. Therefore, this case–control study aimed to identify the sociodemographic and obstetric determinants of antenatal depression among mothers attending an antenatal clinic in Jimma Medical Center, southwest Ethiopia.

Patients and Methods
Study Area and Design
A hospital-based unmatched case–control study design was employed. The study was conducted in Jimma Medical Center (JMC), which is located in Jimma town, Southwest Ethiopia. JMC is one of the oldest teaching and service centers in the country, which serves 15 million people in the catchment area. Currently, it provides maternal and child health services for 160,000 outpatients and 45, 000 inpatients with a total of 600 beds per year. The study was conducted from June 1 to August 30, 2019.

Study Population
Cases
- All selected pregnant women attending the antenatal clinic in Jimma Medical Center during the study period found to have depression based on the BDI-II cut-off point 14.[32]
- Pregnant mothers who do not have a history of mental illness, hypertension, HIV/AIDS, and diabetes mellitus.

Controls
- All pregnant women who were attending the antenatal clinic in Jimma Medical Center during study period who scored BDI-II cutoff point less than 14.[32]
- Pregnant mothers who do not have history of mental illness, hypertension, HIV/AIDS, and diabetes mellitus.

A ratio of 1:2 was used to select cases vs controls. Pregnant mothers having a history of mental illness and currently on psychiatric follow-up were excluded from both groups.

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Variables of the Study
Outcome Variable
Antenatal depression.

Independent Variables
Age, residence, educational status, marital status, occupational status and household/family size, gravidity, parity, current pregnancy complication, stages of pregnancy, ANC visit category, wanted pregnancy and history of abortion, family history of mental illness, intimate partner violence (IPV), level of social support, khat use risk, and alcohol use risk.

Sample Size Determination and Sampling Techniques
The sample size was computed using the STATCALC application of Epi Info 7. Statistical software with the assumptions of the following parameters:

- Proportion of nondepressed pregnant mothers (controls) with a previous history of abortion were 16%.[31]
- Proportion of depressed pregnant mothers (cases) with a previous history of abortion was 45.5%.[31]
- 95% confidence interval and 5% margin of error
- 80% power of the study and case to control ratio of 1:2[33] to detect an odds ratio of 2.57.[31]

Thus, the sample size required for the study was 246 (82 cases and 164 controls). To select study participants, all mothers visiting the medical center for antenatal care (ANC) during the data collection period were screened by BDI-II. Following the identification of a case, two respective controls were randomly identified from the same setup. The cases and controls were identified by initial screening of pregnant mothers for depression using the BDI tool. Once cases and controls were identified, further assessment was done to identify determinants using standard questionnaire and record review.

Method of Data Collection and Measurement
Data was collected from all selected pregnant women using semi-structured and pretested interviewer administered questionnaires. Participants' sociodemographic and obstetric factors were assessed using a semi-structured questionnaire through face-to-face interviews and client document review (ANC registration book and medical record).

Depression Screening
The presence and absence of maternal depression was assessed using the Beck Depression Inventory (BDI-II). The tool was developed in 1996 and has a 21-item questionnaire that measures cognitive, affective, somatic, and vegetative symptoms of depression, with each item on the scale ranging from 0 (not at all) to 4 (very extreme symptoms), for two-week period.[32] The tool was translated into 17 different languages and is used worldwide. It was validated in certain population groups with different languages. Furthermore, the tool allows quick assessment of depression and is inexpensive both in clinical and nonclinical setups.[34] The BDI-II tool has excellent internal consistency and reliability,[35] and in the current study the internal consistency was found to be 0.82. The English version of BDI-II is translated to local languages (Afaan Oromo, and Amharic), and finally back translated to English language by another person who has a good command of English, Afaan Oromo and Amharic to check its consistency. The data was collected by the Afaan Oromo and Amharic version questionnaire.

Substance Use Risk Level
Participant's substance use risk was assessed using the Alcohol, Smoking and Substance Involvement Screening Test (WHO ASSIST) version 3.1. The test's total score ranges from 0–31 for tobacco and 0–39 for alcohol and khat (amphetamine-like substance). The total score was categorized as: low-risk score of 0–10, moderate (score 11–26), and high-risk (score $\geq$27) for alcohol. For tobacco and khat the score is similar and categorized as: low (score 0–3), moderate (score 4–26), and high (score $\geq$27).[36] In the current study, the internal consistency of ASSIST was found to be 0.71.

Level of Social Support
Participants' level of social support was assessed by the Oslo Social Support Scale (OSS-3). The scale has a three-item questionnaire that is used to assess the level of social support. It has a sum score scale ranging from 3–14 with three broad categories: "poor support" 3–8, "moderate support" 9–11 and "strong support" 12–14.[37] In this study, the internal consistency of OSS-3 was found to be 0.83.

Maternal Intimate Partner Violence
Maternal IPV was assessed using the hurt/insult/threaten/scream (HITS)[38] scale. HITS is validated and the most commonly used tool to screen IPV among women with a cutoff score of $\geq$10.[38,40] In this study, the internal consistency of OSS-3 was found to be 0.78.

The English version questionnaire was translated to Afaan Oromo and Amharic, and finally translated back to English language by another person who has a good command of English, Afaan Oromo and Amharic to check its consistency. The data was collected by the Afaan Oromo and Amharic version questionnaire. Six trained female psychiatry nurses collected the data. The data collection was supervised by three clinical nurses.

Statistical Analysis

Data was checked for completeness and entered into EpiData version 3.1, and then exported to SPSS version 24.0 (IBM Corporation, Armonk, NY, USA) statistical software for analysis. Model fitness was checked using the Hosmer–Lemeshow goodness of fit statistic (P=0.75), and log likelihood statistics. Multicollinearity was checked by the variance inflation factor (VIF <10) and tolerance. Variables were candidates for multiple logistic regression after checking assumptions like meaningful coding, outliers and large/adequate sample. Descriptive statistics such as mean, frequency and percentage were calculated, and presented using tables. Bivariate logistic regression analysis was done and all independent variables that were associated with a dependent variable with a P-value of less than 0.25 were included in the multivariable logistic regression analysis. A multivariable logistic regression analysis was employed to determine independent determinants. Adjusted odds ratio (AOR) with 95%CI and a P-value of less than 0.05 was used to decide statistically significant associations.

Ethics Approval and Consent to Participate

Ethical approval was obtained from the Institutional Review Board of Jimma University Institute of Health. Participants were fully informed about the purpose and objective of the study. Mothers who agreed to participate gave written consent. Confidentiality was maintained by omitting identifiers from the study tool and privacy was ensured during the interview. The study was conducted in accordance with the Declaration of Helsinki.

Results
Sociodemographic Characteristics of the Study Participants

The response rate of the study was 246 (100%). Eighty-two cases and 164 controls participated in the

study. The mean age and standard deviation of the study participants were 25.0 ± 4.63 years for cases and 26.09 ± 5.39 years for controls. The majority of cases (61.0%) and more than half the controls (52.4%) were in the age category of 18–25 years. The majority of cases (84.1%) and controls (88.4%), were living in urban areas. Regarding educational status, more than one-third both of the cases (40.2%) and of the controls (37.8%) attained higher education. More than one-third (42.7%) of the cases and more than half (54.9%) of the controls were married. More than one third of cases (37.9%) and controls (37.8%) were housewives. Regarding family size, 47 (57.3%) of cases were 2 and 75 (45.7%) of controls were ≥4 (Table 1).

Table 1 Sociodemographic Characteristics of the Study Participants Attending Antenatal Clinic in Jimma Medical Center, Southwest Ethiopia (n=246)

Variable	Case (n=82) n (%)	Control (n=164) n (%)	Chi-squared, P-value
Age			2.81, 0.244
18–25	50 (61.0)	86 (52.4)	
26–33	27 (32.9)	58 (35.4)	
≥34	5 (6.1)	20 (1.2)	
Residence			0.880, 0.348
Urban	69 (84.1)	145 (88.4)	
Rural	13 (15.9)	19 (11.6)	
Educational status			6.493, 0.090
No formal education	8 (9.7)	18 (10.9)	
Primary education	9 (11.0)	38 (23.2)	
Secondary education	32 (39.0)	46 (28.0)	
Higher education	33 (40.2)	62 (37.8)	
Marital status			7.568, 0.023
Single	31 (37.8)	35 (21.3)	
Married	35 (42.7)	90 (54.9)	
Divorced/separated/ widowed	16 (19.5)	39 (23.8)	
Occupational status			27.741, <0.001
Housewife	31 (37.9)	62 (37.8)	
Private work	12 (14.5)	38 (23.2)	
Gov't worker	18 (22.0)	54 (32.9)	
Others (daily labor, farmer)	21 (25.6)	10 (6.0)	
Household/family size			15.197, 0.001
2	47 (57.3)	56 (34.2)	
3	17 (20.7)	3 3(20.1)	
≥4	18 (22.0)	75 (45.7)	

Obstetric Factors

Most cases, 60 (73.2%) were primigravida and most controls, 99 (60.4%) were multigravida. More than one-third both of cases (40.2%) and of controls (44.5%) were primiparous. Regarding current pregnancy complication, the majority both of cases (59.7%) and of controls (62.2%) had no complication. The majority of cases (62.2%) and of controls (44.5%) were third trimester pregnancies. The majority of cases (59.8%) and more than half of the controls (51.8%) were fourth ANC visit category. The majority both of cases (85.4%) and of controls (73.8%) wanted pregnancy (Table 2).

Table 2 Obstetric Factors Among Study Participants Attending the Antenatal Clinic in Jimma Medical Center, Southwest Ethiopia (n=246)

Variables	Case (n=82) n (%)	Control (n=164) n (%)	Chi-Squared, P-value
Gravidity			24.600, <0.001
Primigravida	60 (73.2)	65 (39.6)	
Multigravida	22 (26.8)	99 (60.4)	
Parity			1.281, 0.527
Primiparous	33 (40.2)	73 (44.5)	
Multiparous	29 (35.4)	61 (37.2)	
Grand multiparous	20 (24.4)	30 (18.3)	
Current pregnancy complication			0.137, 0.711
No	49 (59.7)	102 (62.2)	
Yes	33 (40.3)	62 (37.8)	
Stages of pregnancy			12.079, 0.002
First trimester	15 (18.3)	41 (25.0)	
Second trimester	16 (19.5)	50 (30.5)	
Third trimester	51 (62.2)	73 (44.5)	
ANC visit category			7.002, 0.072
First	11 (13.4)	10 (6.1)	
Second	10 (12.2)	33 (20.1)	
Third	12 (14.6)	37 (22.6)	
Fourth	49 (59.8)	84 (51.2)	
Wanted pregnancy			7.620, 0.006
No	12 (14.6)	43 (26.2)	
Yes	70 (85.4)	121 (73.8)	
History of abortion			0.137, 0.711
No	49 (59.7)	101 (61.6)	
Yes	33 (40.3)	63 (38.4)	

Note: Current pregnancy complication is defined as having at least one of the following recorded pregnancy complications: vaginal bleeding, pregnancy induced hypertension, anemia during pregnancy, gestational diabetes, and hyperemesis gravidarum.

Psychosocial and Substance Use Risk Related Factors

The majority of cases (70.7%) and controls (79.9%) do not have a family history of mental illness. Regarding IPV, 15.9% of cases and 21.1% of controls had experienced IPV. The majority, both of cases (56.1%) and of controls (53%), had strong social support. One-fourth (25.6) of both groups had moderate risk khat use. In addition, 17.1% of the cases and 28.7% of the controls had moderate risk alcohol use (Table 3).

Determinants of Depression Among Mothers Attending Antenatal Clinic

All seven variables with a *P*-value less than 0.25 in the bivariate logistic regression analysis (marital status, occupational status, household size, gravidity, stages of pregnancy, wanted pregnancy, alcohol use risk level) were included in the final multivariable logistic regression model for analysis. Five variables were found to be independent predictors of depression. These variables are marital status, occupational status, gravidity, stage of pregnancy (gestational age), and wanted pregnancy. Married mothers

Table 3 Psychosocial and Substance Use Related Factors Among Study Participants Attending the Antenatal Clinic in Jimma Medical Center, Southwest Ethiopia (n=246)

Variables	Case (n=82) n (%)	Control (n=164) n (%)	Chi-Squared, P-value
Family history of mental illness			2.569, 0.109
No	58 (70.7)	131 (79.9)	
Yes	24 (29.7)	33 (21.1)	
Intimate partner violence (IPV)			0.655, 0.418
No	69 (84.1)	131 (79.9)	
Yes	13 (15.9)	33 (21.1)	
Level of social support			0.656, 0.720
Poor	23 (28.0)	44 (28.8)	
Moderate	13 (15.9)	33 (20.1)	
Strong	46 (56.1)	87 (53.0)	
Khat use risk			0.000, 1.000
No/mild	61 (74.4)	122 (74.4)	
Moderate	21 (25.6)	42 (25.6)	
Alcohol use risk			3.935, 0.047
No/mild	68 (82.9)	117 (71.3)	
Moderate	14 (17.1)	47 (28.7)	

were 67% less likely hood (AOR=0.33, 95%CI: 0.15–0.75) to develop antenatal depression compared with single and divorced/separated/widowed mothers. In the occupational status category, housewives were 97% (AOR=0.03, 95%CI: 0.01–0.14), private workers were 87% (AOR=0.13, 95%CI: 0.04–0.44) and government employees were 84% (AOR=0.16, 95%CI: 0.05–0.46), less likely to develop antenatal depression compared to their comparators.

Pregnancy-related factors like gravidity, gestational age, and wanted pregnancy were independent determinants of depression among pregnant mothers attending antenatal clinic. Multigravida were 88% (AOR=0.12, 95%CI: 0.04–0.37) less likely to develop antenatal depression compared primigravida. Regarding gestational age, women in their third trimester of

pregnancy are four times (AOR=4.04, 95%CI: 1.51–10.81) more likely to develop depression compared to their first and second trimester pregnancy.

Mothers who wanted pregnancy were 83% (AOR=0.17, 95%CI: 0.04–0.81) less likely to develop antenatal depression compared with mothers having unwanted pregnancies. All psychosocial and substance use related factors/variables were not independently associated with antenatal depression in the final logistic regression model (Table 4).

Discussion

Previous studies conducted regarding antenatal depression have focused on the prevalence and associated factors of

Table 4 Bivariate and Multivariate Logistic Regression Analysis of Factors Associated with Depression Among Pregnant Mothers Attending the Antenatal Clinic in Jimma Medical Center, 2019 (n=246)

Variable	Case (n=82) n (%)	Control (n=164) n (%)	COR (95%CI)	AOR (95%CI)	P-value
Marital status					0.008*
Single	31 (37.8)	35 (21.3)	1.00	1.00	0.375
Married	35 (42.7)	90 (54.9)	0.43 (0.23–0.81)	0.33 (0.15–0.75)	
Divorced/separated/widowed	16 (19.5)	39 (23.8)	0.46 (0.21–0.98)	0.65 (0.25–1.69)	
Occupational status					
Housewife	31 (37.9)	62 (37.8)	0.20 (0.09–0.49)	0.03 (0.01–0.14)	<0.001*
Private work	12 (14.5)	38 (23.2)	0.09 (0.03–0.27)	0.13 (0.04–0.44)	0.001*
Government employee	18 (22.0)	54 (32.9)	0.14 (0.05–0.34)	0.16 (0.05–0.46)	0.001*
Others[a]	21 (25.6)	10 (6.0)	1.00	1.00	
Household size					
2	47 (57.3)	56 (34.2)	1.00	1.00	0.78
3	17 (20.7)	33 (20.1)	0.61 (0.30–1.23)	1.17 (0.35–3.86)	0.08
≥4	18 (22.0)	75 (45.7)	0.28 (0.15–0.54)	0.94 (0.51–1.11)	
Gravidity					
Primigravida	60 (73.2)	65 (39.6)	1.00	1.00	<0.001*
Multigravida	22 (26.8)	99 (60.4)	0.24 (0.13–0.43)	0.12 (0.04–0.37)	
Stages of pregnancy					
First trimester	15 (18.3)	41 (25.0)	1.00	1.00	0.787
Second trimester	16 (19.5)	50 (30.5)	1.64 (0.66–4.03)	0.84 (0.23–3.00)	0.005*
Third trimester	51 (62.2)	73 (44.5)	3.43 (1.53–7.65)	4.04 (1.51–10.81)	
Wanted pregnancy					
No	12 (14.6)	43 (26.2)	1.00	1.00	0.026*
Yes	70 (85.4)	121 (73.8)	0.30 (0.09–0.97)	0.17 (0.04–0.81)	
Alcohol use risk level					
No/mild	68	117 (71.3)	1.00	1.00	0.27
Moderate	14	47 (28.7)	0.51 (0.26–0.99)	0.58 (0.22–1.53)	

Notes: [a]Farmer/daily labor/cleaner. *P-value <0.05.
Abbreviations: ANC, antenatal care, COR, crude odds ratio, AOR, adjusted odds ratio.

antenatal depression.[12,16,22,23,29] However, this study was conducted using a case–control study design to identify determinants of antenatal depression by comparing pregnant mothers with and without depression. We used the standard Beck Depression Inventory (BDI-II) tool to detect the presence of depression among pregnant women visiting the antenatal clinic. Thus, cases and controls were classified, and they were interviewed by considering a ratio of one to two of cases to controls. In our study, marital status, occupational status, gravidity, gestational age and wanted pregnancy were found to be determinants of depression among pregnant women.

In this study, it was revealed that married pregnant women were 67% less likely to develop antenatal depression compared to pregnant women in other categories (single and divorced/separated/widowed). This finding is in agreement with other studies that found being married was protective from antenatal depression.[13,16] This may imply that married women gain support from their husband and share information regarding life stressors related to their pregnancy; thus, decreasing the chance of acquiring depression during pregnancy. This study also found that housewives, private workers, and government employees were 97%, 87%, and 84% less likely to develop antenatal depression than others (farmers, daily laborers, and cleaners), respectively. This findings agrees with the finding of a study conducted in Gondar, Ethiopia.[28] This might be due to the fact that stress is associated with occupation or work burden and lack of enough rest. The other possible reason is that in the Ethiopian context, mothers who are involved in farming, daily labor, and cleaning are mostly from low socioeconomic class. Therefore, low socioeconomic status may mediate the observed association.

In addition, ANC clients who had wanted/unplanned pregnancy were 83% less likely to develop antenatal depression compared to clients who had unwanted pregnancies. This is consistent with a study conducted in South Africa,[23] rural Ghana,[16] and Ethiopia.[30,41]

This might be an indication of the importance of decision-making before getting pregnant by women, which possibly mitigates predisposition to antenatal depression. Furthermore, mother's experienced unplanned pregnancies might experience poor relationships with partners, which further hinders social support from relatives and increases the level of marital conflict. Stress related to unplanned role transition, fear of increased financial pressure of a new child, and psychological readiness for parenthood could be factors.[42,43]

In our study, multigravida mothers were 88% less likely to develop antenatal depression compared to primigravida. This finding showed that women facing first pregnancy are at higher risk of developing depression than women who have more than one pregnancy. This could be related to the lack of experience in parenthood and increased fear related to pregnancy and its outcome.

Finally, we found that gestational age (stage of pregnancy) was another determinant of antenatal depression; ie pregnant women in the third trimester pregnancy were four times more likely to develop antenatal depression compared to women in first and second trimester pregnancies. This may be due to increased body weight and stressful feelings as labor approaches when pregnancy progresses. Third trimester pregnancy is associated with trouble in sleeping, shortness of breath, and false labor contractions.[44] These pregnancy-related changes can precipitate depression and resemble vegetative symptoms of depression.

Unlike other studies, the current study did not find any association between history of abortion and current pregnancy complication with antenatal depression. Rather, unwanted pregnancy is significantly associated with antenatal depression. This might be due to the fact that the psychological impact of unwanted pregnancy in the case of single, divorced, separated or widowed mothers/women in the Ethiopian cultural context is more severe than abortion because unwanted pregnancy is considered as a result of sex outside marriage bed. Therefore, mothers having unwanted pregnancies were less likely get support from their relatives and community and in addition, were less likely prepared for a pregnancy-related need and complications. In this study, IPV levels were high in both depressed and nondepressed women. This might be due to the fact that early marriage and being pregnant are risks for IPV,[45,46] according to studies conducted in Ethiopia. Therefore, both depressed and nondepressed pregnant mothers are at risk for IPV.

Strength and Limitations of the Study

The major strength of this study is the use of culturally validated tools and relatively strong study design compared to previous studies. However, this study is not without limitations. Since the study was institution-based, its generalizability is limited. The other limitations of this study are inclusion of women with obstetric complication and the BDI

tool that could overestimate symptoms of depression through the physical symptoms that normally exist during pregnancy.

Conclusion and Recommendation

Pregnant mothers who were married, multigravida, and having wanted pregnancy were less likely to develop antenatal depression compared to their counterparts. In addition, mothers who were housewives, private workers, and government employees were less likely to have depression compared to daily laborers, farmers, and cleaners. Mothers with third trimester pregnancy were more likely to have depression. Designing a screening and intervention strategy for antenatal depression at the antenatal clinic must consider the aforementioned protective and risk factors. In addition, we recommend further longitudinal studies using standard diagnostic tools.

Data Sharing Statement

The datasets used and analyzed during the current study are included in the manuscript.

Author Contributions

All authors contributed to data analysis, drafting and revising the article, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

Disclosure

The authors declare that they have no competing interests to disclose.

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