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Antepartum Depression among Pregnant Women Attending Antenatal Care (ANC) Services in Tertiary Hospital of Nepal

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Abstract

Background: Antepartum depression is common complication of women during pregnancy, May affects the mother, child and family adversely with serious consequences like maternal suicide if it left untreated. To assess antepartum depression among pregnant women, a hospital-based cross-sectional study was conducted in Bharatpur Hospital of Chitwan.

Methodology: A cross sectional study was conducted in a tertiary level government hospital using convenient sampling method. A total of 252 pregnant women were interviewed with semi structured questionnaire including Edinburg Postpartum Depression scale (Sensitivity-68.4, Specificity -93.8) to screen for antepartum depression. Data was entered on Epi-data and further analyzed using SPSS.

Results: Out of 252 respondents, 16.7 % were with antepartum depression while 83.3% recorded no antepartum depression. Loneliness (AOR= 24.96, 95% CI (2.92-213.45) and self-harm (AOR= 3.39, 95%CI (1.11-10.38) had higher odds of having antepartum depression.

Conclusions and Recommendations: The study indicates that feeling of self-harm thoughts and thought of loneliness are much important for reducing the problem burden of antepartum depression which affects the health of both mother and child. So, further efforts should be considered and programs targeting health related quality of pregnant women should be incorporated in developing countries like Nepal.

Keywords: Antepartum, depression, Pregnancy, maternal, mental health

Introduction

Pregnancy itself is an important life event in women's life. Few of the women may feel low, stressed, and anxious along with roller coaster of hormones as many of them may suffer from Antepartum depression, one of the major public health issues for women of reproductive age group. Globally about 10 % of mental disorders, primarily depression noticed among pregnant women and beside this around 10-15 % (Lodebo, Birhanu, Abdu, & Yohannes,2020) women in developed country while around 20-40% of women in developing country have been identified with depression during pregnancy or after child birth and in addition African countries have reported more mental health problems among pregnant women and moreover talking about depression during pregnancy it ranges between 10 to 15 percent where pregnant women experiences mood swings which usually last more than two weeks hindering the normal day to day functioning (Lodebo, Birhanu, Abdu, & Yohannes, 2020). A review study has reported the prevalence of antepartum depression to be 15.6% in low and middle-income countries and in the context of Nepal due to lack of wide scale study the rates of depressive symptom among pregnant women is not well known in Nepal, however one recent study conducted in 2019 revealed 18 % with antepartum depressive symptoms (Joshi, Shrestha, & Shrestha, 2019).

Earlier Studies have found that risk factors for antepartum depressive symptoms as perceived health status, pregnancy stress and self-esteem (E.-J. Lee & Park, 2013) age at first pregnancy, duration of the marriage, gestational period, gravidity, health problems, planned pregnancy,

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history of abortion, alcohol intake by partner and sex preference (Joshi et al., 2019) Socio-demographic, obstetric factors, Physiological wellbeing (Babu et al., 2018) poor socioeconomic status, less valued social roles, and status, unintended pregnancy, intimate partner violence, rape, Pre-existing psychological disturbances often surface as depression, substance abuse, or attempts at suicide, presence of chronic medical conditions prior to pregnancy, preeclampsia, hypertension, and gestational diabetes related to antenatal depression (Lodebo et al., 2020). Similarly, in the context of Nepal multiple births, caesarean section deliveries, serious perinatal health problems, illiteracy of the mother, higher parity, never having a son, having an illiterate husband, psychological violence, low socioeconomic and low maternal age have been identified as risk factor associated with depressive symptoms (Clarke et al., 2014).

Promotion of mental health has been prioritized by SDG but however this is still a neglected component in health care system of Nepal and hence antepartum depression receives no public health priority in Nepal. There is the need for further studies to report the status and associated factors of antepartum depression among pregnant mothers. Therefore, the objectives of this study are to find out the status of antepartum depression and identify the factors associated with these depressive symptoms.

Methodology

A cross-sectional study design was used to find antepartum depression among pregnant women attending Bharatpur Hospital for ANC services. All the pregnant women with gestational age 4 to 36 weeks attending ANC services at Bharatpur hospital were included in the study. The sample size was calculated using Cochran simplified formula taking 95% Confidence level and 5 % allowable error and p=18% (where p is the prevalence of antepartum depression) (Joshi et al., 2019) considering 10% of non-response rate, the total sample size of 250 was taken. The ANC register from the respective ward of Bharatpur hospital was observed and the client flow was assessed. Study participants were consecutively enrolled till the calculated sample size was met. This way convenient sampling was conducted and hence non-probability sampling for the study was conducted.

Self-developed structured questionnaire and EPDS tool were used for assessing the Antepartum Depression among pregnant woman attending ANC services at Bharatpur Hospital. The sensitivity, Specificity, Positive predictive value and negative predictive value of the Nepalese version EPDS was found to be 92, 95.6,77 and 99.3% respectively and along with this the best cut off point of EPDS for screening of PPD was found to be 13 and the area of the curve was 0.98 (95% CI 0.970-0.994, p=0.001) and in addition the reliability index i.e. Cronbach alpha is reported to be 0.74 which showed the acceptable range of reliability (Bhusal, Bhandari, Chapagai, & Gavidia, 2016).

In addition, ethical clearance was obtained from institutional review committee of Bharatpur Hospital which operates in accordance with the Guidelines of Nepal Health Research Council (NHRC) and Standard Operating Procedures of IRC –Bharatpur Hospital. Informed consent

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was signed with participants before enrolling them in the study. Also, anonymity and confidentiality of each participant was guaranteed along with the ensurement of with drawl from the study at any time. No pressure or inducement of any kind was applied to encourage population to participate in the research. Collected data was manually checked and entered in Epi-data 3.1 and was exported to IBM SPSS 20 version software for further analysis.

Descriptive statistics like frequencies, percentages, and means were computed. For bivariate analysis, chi-square test was carried out to assess the association between antepartum depression and each explanatory variable. Variables which were statistically significant with p value < 0.05 during bivariate analysis then further analysis was done using binary logistic regression model.

Results and analysis

Table 1: Socio-demographic Information of respondents

Variables	Frequency (F)	Percentage (%)
Age		
<20	41	16.3
20-30	181	71.8
>30	30	11.9
Mean=25.15, Min/Max=16/40		
Gestational age		
4-12	55	21.8
13-26	69	27.4
27-36	128	50.8
Mean=24.85, Min/Max=4/36		
Ethnicity		
Brahmin/Chettri	121	48
Dalit	26	10.3
Janajati	100	39.7
Madeshi	2	0.8
Muslim	3	1.2
Academic Qualification		
School unattended	3	1.2
School attended	4	1.6
Primary	30	11.9
Secondary	171	67.9
Bachelor	35	13.9
Masters and above	9	3.6
Occupation		
Agriculture	34	13.5

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Business	17	6.7
Job	32	12.7
Wage	1	0.4
Housewife	161	63.9
Student	7	2.8

Majority of the participants (71.8%) were of 20-29 years of age with mean age of 25. It was found that only (1.2%) of the participants were found to be illiterate and two-third of the participants (67.9%) had completed their secondary education. Almost two-third (63.9%) of the participants were housewife. All of them were married. Half of the respondents were in third trimester of pregnancy (50.8%)

Table 1 : Husband and Family Related Characteristics of the Respondents

n=252

Variables	Frequency (F)	Percentage (%)
Husband's education		
School attended	16	6.3
School unattended	5	2.0
Primary	24	9.5
Secondary	137	72.2
Bachelor	42	16.7
Master's and above	28	11.1
Husband's occupation		
Agriculture	36	14.3
Business	60	23.8
Job	69	27.4
Abroad job	44	17.5
Wage	38	15.1
Others	5	2.0
Domestic Violence from Husband		
Always	2	0.8
Sometimes	15	6.0
Not usually	39	15.5
Not at all	196	77.8
Couldn't get necessary help from husband		
Always	4	1.6
Sometimes	17	6.7
Not usually	32	12.7
Not at all	199	79
Relationship with husband or close one came to END		
No	241	95.6

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Yes	11	4.4

Participants were asked about education, occupation, violence and about necessary help from their husband. It was found that small proportion (2%) of the respondent's husband were illiterate. Majority of respondent's husband were in job (27.4%) followed by agriculture (23.8%). Talking about domestic violence around 22.2% of women reported to have some sort of domestic violence from husband during life time while 21% reported they couldn't get necessary help from their husband. A very small portion of respondent (4.4%) reported to have felt as if their relationship with husband came to an end.

Table 3: EPDS tool scoring of the Respondents

n=252

Variable	Frequency (F)	Percentage (%)
Been able to laugh		
Yes, I always	174	69
Not usually	54	21.4
Yes, I sometimes	23	9.1
Not at all	1	0.4
Looked forward with enjoyment		
Yes, I always	148	58.7
Not usually	83	32.9
Yes, I sometimes	17	6.7
Not at all	4	1.6
Blamed self unnecessarily		
Not at all	74	29.4
Not usually	64	25.4
Yes, I sometimes	97	38.5
Yes, I always	17	6.7
Anxious or worried		
Not at all	101	40.1
Not usually	31	12.3
Yes, I sometimes	112	44.4
Yes, I always	8	3.2
Felt scared or panicky		
Not at all	105	41.7
Not usually	63	25
Yes, I sometimes	79	31.3
Yes, I always	5	2.0
Something getting top of you		
Yes, I always	103	40.9
Not usually	105	41.7

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Variable	Frequency (F)	Percentage (%)
Yes, I sometimes	39	15.5
Not at all	5	2.0
Difficulty in sleeping		
Not at all	81	32.1
Not usually	66	26.2
Yes, I sometimes	97	38.5
Yes, I always	8	3.2
Felt sad or miserable		
Not at all	33	13.1
Not usually	65	25.8
Yes, I sometimes	146	57.9
Yes, I always	8	3.2
Crying		
Not at all	107	42.5
Not usually	129	51.2
Yes, I sometimes	15	6.0
Yes, I always	1	0.4
Thought of self-harm		
Not at all	212	84.1
Not usually	25	9.9
Yes, I sometimes	14	5.6
Yes, I always	1	0.4

Participants were asked questions from standard tool to measure depression. This tool consisted of ten questions; each question was provided with four options where number value of 0-3 was assigned. A very small proportion of respondent (0.4%) reported who haven't completely been able to laugh and see funny side of things, revealing large proportion of participants been able to laugh and see funny side of things. Talking about been able to look forward with enjoyment only 1.6% reported serious problem of completely not been able to enjoy and look forward. Similarly, 6.7% had serious problem of blaming self unnecessarily, 3.2% had serious problem of being anxious or worried, 2.0% had serious problem of feeling sacred or panicky, 2.0% with serious problem of feeling like something getting top of self, 3.2% reported to have serious sleeping problem and equal percentage of respondent reported having serious problem of being sad and miserable as of sleeping problem while 0.4% reported serious weeping problem and the same portion i.e. 0.4% participant reported serious problem of self-harm with thoughts quite often.

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Table 4: Status of Antepartum Depression of the Respondents

Antepartum depression	Frequency	Percentage (%)
Presence	42	16.7
Absence	210	83.3
EPDS score	*Median (IQR)=8(5), Min/Max= 0/23*	

Among the respondents 16.7% were found depressed according to EPDS score.

Table 5: Bivariate analysis between Antepartum depression and selected independent variables

Variables	Antepartum Depression		P-Value	COR (95% CI)
	Absence (%)	Presence (%)		
Domestic violence from Husband				
No	169 (86.22%)	27 (13.78%)	0.021*	Ref
Yes	41 (73.21%)	15 (26.79%)		2.29 (1.117-4.693)
Couldn't get necessary help from husband				
No	174 (87.44%)	25 (12.56%)	0.001*	Ref
Yes	36 (67.92%)	17 (32.08%)		3.287 (1.611-6.705)
Brain Mind Problem				
No	204 (84.65%)	37 (15.35%)	**0.022**##	Ref
Yes	6 (54.55%)	5 (45.45%)		4.595 (1.333-15.836)
Frightful dreams				
No	35 (94.59%)	2 (5.41%)	0.047*	Ref
Yes	175 (81.40%)	40 (18.60%)		4.000 (0.924-17.323)
Stress and anxiety experience				
No	26 (100%)	0 (0%)	0.016*	Not Applicable
Yes	184 (81.41%)	42 (18.59%)		

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Loneliness				
No	80 (98.76%)	1 (1.24%)	0.000*	Ref
Yes	130 (76.02%)	41 (23.98%)		25.231 (3.404-187.025)
Self-Harm				
No	198 (86.08%)	32 (13.91%)	0.000*	Ref
Yes	12 (54.55%)	10 (45.45%)		5.156 (2.058-12.920)
Stayed hungry due to food shortage during pregnancy				
No	183 (86.32%)	29 (13.68%)	0.003*	Ref
Yes	27 (67.50%)	13 (32.50%)		3.038 (1.408-6.555)
Victim of Domestic Violence				
No	176 (86.69%)	27 (13.31%)	0.004*	Ref
Yes	34 (69.38%)	15 (30.62%)		2.876 (1.386-5.969)
Domestic Violence from parents or teachers				
No	176 (85.85%)	29 (14.15%)	0.025*	Ref
Yes	34 (72.34%)	13 (27.66%)		2.32 (1.096-4.913)
Not Enough help from father in-law and mother in-in-law				
No	134 (89.33%)	16 (10.67%)	0.002*	Ref
Yes	76 (74.51%)	26 (25.49%)		2.865 (1.447-5.675)
Son preference				

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No	103 (88.79%)	13 (11.21%)	0.032*	Ref
Yes	107 (78.68%)	29 (21.32%)		2.147 (1.058-4.359)
Biased by Neighbors				
No	162 (87.57%)	23 (12.43%)	0.003*	Ref
Yes	48 (71.64%)	19 (28.36%)		2.788 (1.402-5.546)

** Denotes significant association (by applying Pearson Chi-Square test at 5% level of significance, # # Denotes significant association (by applying fisher exact test at 5% level of significance), COR denotes crude or unadjusted odds ratio which is computed from bivariate analysis.*

Thirteen different variables (Domestic Violence, couldn't get necessary help from husband, mental health problem, history of suicide among relatives, frightful dreams, loneliness, self-harm, stayed hungry due to food shortage, victim of domestic violence, domestic violence from parents or teachers, not enough help from father in-law and mother in-law, son preference and biased by neighbors) that exhibited statistically significant association.

Table 6: Multivariate analysis of factors associated with Antepartum Depression

Variables	COR (95% of CI)	AOR (95% of CI)	P- value
Loneliness			
No	*Ref*	*Ref*	
Yes	25.231 (3.404-187.025)	24.961 (2.919-213.455)	0.003*
Self-harm			
No	*Ref*	*Ref*	
Yes	5.156 (2.058-12.920)	3.397 (1.112-10.380)	0.032*

From the Multivariate analysis, it was found that in comparison respondents experiencing loneliness had higher odds of having antepartum depression (AOR=24.96) than those not experiencing loneliness. Similarly, another predictor i.e. self-harm; study revealed those who attempted self-harm earlier had higher chances (AOR=3.39) to have antepartum depression as compared with those who didn't attempt.

Discussion

This cross-sectional study is designed to identify the status of ante- partum depression and association of ante-partum depression with several independent variables. Concerning, the

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socio demographic characteristics this study concludes that out of 252 participants, majority of them (71.8%) are found to be between age group of 20-29. This findings is supported by study conducted in Maternity Hospital in Kathmandu which stated that (73%) were between the age group 20-29 (Giri et al., 2015).The findings are found to be similar because the age group of 20-29 is considered as highly productive age group. Majority of the participants (98.8%) are found to be literate which is even more as revealed by the study conducted in rural community of India where 84% of the participants were found to be literate (Shrestha, Hazrah, & Sagar, 2015). This may have been due to different settings i.e., urban and rural. Around 63.9 % of the participants are found to be housewife which is not supported by the findings of study conducted in India which stated 90% of the participants were housewife (Shrestha et al., 2015). This might be because of the difference in sample size, study population and study area between two studies.

The prevalence of ante-partum depression is found to be 16.7%. This finding is nearly consistent to the study conducted in different health facilities of Nepal where 18% of the mothers had ante partum depression (Joshi et al., 2019). However this finding is inconsistent with the finding of hospital based prevalence study done in Banglore which reported 35.7% (Sheeba et al., 2019) of prenatal depression which is more than double of the prevalence as revealed by this study. This difference may be due to diversified socio-economic status, psycho-social factors like social support and socio-cultural factors which might vary across different countries and it might also be due to variation in cutoff point too.

A systematic review on antenatal depression burden and associated factors in India setting revealed prevalence ranging from 9.18% to as high as 65.0% in northern, western and southern part of India (Arora & Aeri, 2019) and the findings of this study lie in between the range as suggested by the study. However, this study is inconsistent with the study conducted in Maternity Hospital Thapathali where the prevalence of depression among mother was found to be 30% (Giri et al., 2015). This difference might be due to difference in period of pregnancy i.e., prenatal study and post-natal study. Moving towards the educational status of the husband, 98% of the participants husband were literate which is supported by the study conducted in India which stated that 91% of the participants husband were literate (Shrestha et al., 2015).

In bivariate analysis, thirteen characteristics i.e. domestic violence, couldn't get necessary help from husband, brain mind problem, history of suicide among relatives, frightful dreams, loneliness, self-harm, stayed hungry due to food shortage, victim of domestic violence, domestic violence from parents or teachers, not enough help from father in-law and mother in-law, son preference and biased by neighbors is found to have association with ante-partum depression while the hospital based prevalence study conducted in Banglore revealed presence of domestic violence, pregnancy related anxiety and a recent history of catastrophic event found to be positive predictor of prenatal depression (Sheeba et al., 2019). Both the study revealed domestic violence as one of the positive predictors of antenatal depression. Another study which was focused on revealing the risk factors for antepartum depression among pregnant women visiting different public health facilities revealed higher odds of antepartum depressive

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symptoms with early gestational age, sex preference, spousal alcohol intake, preference to male child, inadequate support from family/husband and disturbed family environment (Joshi et al., 2019). Both the study revealed two risk factors i.e., son preference and inadequate support from the husband to be positive predictors of antenatal depression. Women with a high level of education and the existence of abnormal signs of a fetus were significant predictors of antenatal depression. A multisite cross-sectional survey conducted in Vietnam revealed different risk factors than this study. The study revealed existence of abnormal signs of a fetus and high level of education to be significant predictors of antenatal depression (Hue et al., 2020) Abnormal sign of fetus wasn't studied under this study however another predictor high level of education wasn't found to be associated with antepartum depression contradicted with the finding of this study. This inconsistency might be due to difference in study areas.

Conclusion and recommendations

The prevalence of ante partum depression is found to be nearly one sixth (16.7%) of the total participants. Domestic Violence, couldn't get necessary help from husband, brain mind problem, history of suicide among relatives, frightful dreams, loneliness, self-harm, stayed hungry due to food shortage, victim of domestic violence, domestic violence from parents or teachers, not enough help from father in-law and mother in-law, son preference and biased by neighbors are found to have associated with ante-partum depression. Loneliness and self-harm had higher odds of having antepartum depression.

Counselling program and reproductive education for women and their family members would be helpful in reducing the problem burden of antepartum depression.

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Self.

Competing Interest

The authors declare no competing interests

Authors Contribution

Concept and design: BP and SS; statistical analysis: BP and SS; writing of the manuscript: BP and NS; revision and editing the manuscript: SKP and MG. All authors read and agreed with the contents of the final manuscript.

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