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Original Research Article

Prevalence of Depression among Women Attending Antenatal Clinic at BPKIHS

Kriti Chaudhary[1*], Gayatri Rai[1], Dr. Pritha Basnet[2], Prof. Dr. Baikuntha Raj Adhikari[3], Prof. Sami Lama[4]

[1]Department of Maternal Health Nursing, College of Nursing, BPKIHS, Dharan-18, Sunsari, Nepal
[2]Department of Obstetric & Gynecology, BPKIHS, Dharan-18, Sunsari, Nepal
[3]Department of Psychiatry, BPKIHS, Dharan-18, Sunsari, Nepal
[4]Department of Psychiatric Nursing, BPKIHS, Dharan-18, Sunsari, Nepal

***Corresponding Author:** Kriti Chaudhary
Department of Maternal Health Nursing, College of Nursing, BPKIHS, Dharan-18, Sunsari, Nepal

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Abstract: Pregnancy is a time of increased vulnerability for the development of anxiety and depression because there are profound physiological and emotional changes in the mother during this period. Depression and anxiety are the most common psychiatric disorders during pregnancy and the symptoms can range from mild to severe. The study aimed to identify the prevalence of depression and its associated risk factors among pregnant women. A descriptive cross-sectional research was conducted among 414 pregnant women attending antenatal clinic at BPKIHS through Systematic Random Sampling. Data were collected by interview technique using standardized and validated Edinburgh Postnatal Depression (EPDS) tool and Self-administered questionnaire. Data were analyzed using descriptive and binary logistic regression in SPSS version16. The prevalence of antenatal depression among the study population was 24.2 %. Antenatal depression was significantly associated with religion, gender of previous child, mode of previous delivery, fear of current pregnancy and complication, previous abortion, preferred sex of current child. Antenatal depression was 4 times more among the respondents having female child than male child (AOR= 4.135, CI: 1.146-14.924). Likewise, respondents who have the history of abortion were 4 times more likely to develop Antenatal depression (AOR=4.063, CI: 0.386-42.720). Similarly, respondents with the history of fear related to pregnancy complication were 3 times higher to develop Antenatal depression (AOR= 2.973, CI: 1.447-6.107).The study revealed that nearly 1/4th of the respondents had developed depression during antenatal period. Antenatal depression was higher among the respondents having the history of fear related to pregnancy, abortion and having previous male child. Therefore, screening pregnant women for depression during ANC visits and the provision of mental health education counseling services is recommended to mitigate the adverse health outcome of the problem.

Keywords: Depression, EPDS tool, pregnant women.

BACKGROUND

Pregnancy is a time of increased vulnerability for the development of anxiety and depression because there are profound physiological and emotional changes in the mother during this period. Depression and anxiety are the most common psychiatric disorders during pregnancy and the symptoms can range from mild to severe. A recent review has shown that antenatal depression and anxiety are significant risk factors for postnatal depression in both developed and developing countries, together with a previous history of psychiatric illness, poor marital relationship, stressful life events, a negative attitude towards the pregnancy, and lack of social support (Biaggi *et al.*, 2016).

Antenatal depressive disorders are significant health problems; especially in low and middle income countries. Though reports on prevalence rates lack consistency, substantial higher rates are from developing countries .A systemic

review of 15 counties reported 32.2% prevalence rate of antenatal depressive disorders. Standard survey was carried out on ten Michigan Obstetric units and the report viewed 20% prevalence rate. Another study conducted among pregnant women at Ankara antenatal settings found prevalence of 33.1%. And also; a hospital based study in Hong Kong took the samples at the antenatal clinic revealed 37% prevalence of depressive symptoms (Martha *et al.*, 2017).

Some studies have shown that depressive episodes occur more frequently during the first and third trimester of pregnancy, compared with the second, possibly because the most vulnerable women are more likely to experience stress when they are coping with the new event of becoming mothers, and when they are about to deliver and start a new life . The fact that many women present anxiety or depressive symptoms at one or two time points implies that only one screening is not enough during pregnancy (Biaggi *et al.*, 2016)

It is now widely recognized that maternal depression, anxiety and stress during pregnancy have powerful long-term effects on both mother and baby (Biaggi *et al.*, 2016; Dunkel Schetter & Tanner, 2012). Therefore, the lack of recognition of antenatal depressive disorders has serious implications. Pregnant women with depression are also more likely to suffer from obstetrical complications such as pre-eclampsia, spontaneous abortions and preterm birth (Biratu & Haile, 2015). Babies are also at increased danger for intrauterine growth retardation, preterm delivery, impaired postnatal growth (Martha *et al*., 2017).

A psychosocial assessment should be a common practice for all women during the antenatal period. This would help health professionals to identify women with a high-risk profile but not currently symptomatic and, therefore, offer them preventive interventions. Unfortunately, this assessment is not always conducted, and therefore many women are not identified as being at risk for, or as currently suffering from, antenatal anxiety and depression (Biaggi *et al.*, 2016).

Despite being an important public health issue, most Nepali and Indian studies of maternal depression have focused on post-natal depression, and there is paucity of data on depression during pregnancy (Ajinkya *et al.*, 2013).Therefore, this study is aimed to determine the prevalence of antenatal depression and its associated risk factors among pregnant women.

METHODOLOGY

A descriptive cross-sectional research design was carried out in antenatal clinic of B.P.Koirala Institute of Health Sciences, Dharan. Total 414 pregnant women who met the eligibility criteria were enrolled through systemic random sampling technique. Ethical approval was obtained from the institutional Review committee BPKIHS, Dharan (IRC /2120/021). Informed written consent was obtained from each participant prior to data collection. A self –developed questionnaire and Edinburgh Postnatal Depression Scale (EPDS) tool both in English and Nepali versions were used for data collection. Part-I included Socio-demographic characteristics and Part-II included EPDS tool for screening the level of depression. Instrument was pretested among 10% of the sample size in the same setting to identify the feasibility, completeness, comprehensiveness and appropriateness. Necessary modifications were made as per the inconvenience faced during pretest. Data was collected by interviewing the participants in a separate room by the researcher self. The collected data was checked on the same day for completeness to find out errors and missing of information. Data obtained were coded and entered in SPSS 16 for statistical analysis. Descriptive statistics was used to describe the socio-demographic and other related variables. Inferential statistics; Logistic regression was used to find out the association between antenatal depression and suggested related factors.

RESULTS

Table 1: Socio-demographic characteristics of pregnant women (n=414)

Characteristics	Categories	Frequency	Percentage
Age in Years	< 20	22	5.3
	20-29	285	68.8
	≥ 30	107	25.8
Mean ± SD age (years) 26.51± 4.836			
Occupational Status	Service	24	5.8
	Home maker	219	52.9
	Business	47	11.4
	Farmer	102	24.6
	Student	15	3.6
	Daily Wages	2	0.5
	Overseas employment	5	1.2
Educational Status	Illitrate	7	1.7

Characteristics	Categories	Frequency	Percentage
	Read and write only	24	5.8
	Basic level	68	16.4
	Higher Secondary Level	229	55.3
	University / College	86	20.8
Religion	Budhist	36	8.7
	Hindu	326	78.7
	Christian	31	7.5
	Muslim	6	1.4
	Others	15	3.6
Type of Family	Nuclear Family	124	30
	Joint Family	290	70
Place of Residence	Urban	221	53.4
	Rural	193	46.6
Marital Status	Married	414	100
Types of Marriage	Love Marriage	227	54.8
	Arrange Marriage	187	45.2
Duration Of Marriage (years)	< 5	236	57.0
	5-10	140	37.3
	>10	38	9.2
Currently living with	In-laws house	200	48.3
	Maternal house	34	8.2
	Only husband and wife	180	43.5
Life style behaviors	Smoking	4	1.0
	Alcohol Consumption	3	0.7
	Pica	29	7.0
	Nothing bad consumption	378	91.3

Table 1 depicts that around two third (68.8%) of the respondents belonged to the age group 20-29 years with mean age 26.51years and standard deviation of ± 4.836. More than half of the respondents were home maker (52.9%) and had Higher Secondary level education (55.3%). Majority of the respondents were Hindu (78.7%) and belonged to joint family (70%). 53.4% of the respondents were residing in Urban areas were as 54.8% had love marriage and the duration of for marriage was less than 5 years among 57% of the respondents. Almost half (48.3%) of the respondents were currently living with their in-laws. Almost all (91.3%) respondents did not have any bad consuming habits.

Table 2: Socio-demographic Characteristics of respondent's Spouse (n=414)

Characteristics	Categories	Frequency	Percentage
Age in Years	< 20	2	0.5
	20-29	172	41.5
	≥ 30	240	58.0
Mean ± SD age (years) 31.21± 5.704			
Educational Status	Illitrate	6	1.4
	Read and write only	19	4.6
	Basic level	64	15.5
	Higher Secondary Level	243	58.7
	University / College	82	19.8
Occupational Status	Service	71	17.1
	Business	108	26.1
	Farmer	71	17.1
	Driver	34	8.2
	Daily Wages	22	5.3
	Overseas employment	107	25.8
	Social worker	1	0.2
Relationship with Husband and his family	Good	414	100

Table 2 reveals that more than half(58%) of the respondent's spouse belonged to age group ≥ 30 years with mean age 31.21years and standard deviation of ± 5.704. 58.7 % of the respondent's spouse had higher secondary education. Around one fourth of the respondent's spouses were having any kind of business (26.1%) and also employment in overseas (25.8%). All the respondents had good relationship with their husband and his family.

Table 3: Obstetric and Infant Health Characteristics of Respondents (n=414)

Characteristics	Categories	Frequency	Percentage
Gravida	Primigravida	187	45.2
	Multigravida	227	54.8
Gender of Child	Male	91	22.0
	Female	105	25.4
Mode of Previous Delivery	Spontaneous Vaginal Delivery	136	32.9
	Cesarean Delivery	51	12.3
	Instrumental Delivery	9	2.2
Birth Spacing	≤ 3	257	62.0
	4-5	48	11.6
	>5	109	26.3
Current Pregnancy	Planned	359	86.7
	Unplanned	55	13.3
Week of Gestation	1st Trimester	84	20.3
	2nd Trimester	201	48.6
	3rd Trimester	129	31.2

Table 3 shows that most of the respondents (54.8%) were multigravida women. 32.9% of the respondents had spontaneous vaginal delivery and more than half (62%) of the respondents had birth spacing of ≤ 3 years. Majority (86.7%) of the respondents had planned pregnancy and all most half (48.6%) were in 2nd trimester.

Table 4: Depression among Antenatal Mothers (n= 414)

Characteristic	Category	Frequency	Percentage
Prevalence of Depression	No Depression	314	75.8
	Depression	100	24.2
Preferred Gender of Child	Male	56	13.5
	Female	50	12.1
	No sex preference	308	74.4
No. of ANC visits	≤ 4	284	68.6
	≥ 5	130	31.4
Perceived Antenatal Care	Happy	43	10.38
	Satisfied	311	75.12
	OK	49	11.83
	Worried	11	2.65
Fear related to current pregnancy and complications	Yes	193	46.6
	No	221	53.4
Bad Obstetric History	No Abortion	334	80.7
	Abortion	60	14.5
	Stillbirth	20	4.8

Table 4 depicts that around one fourth (24.2%) of the respondents had depression. Majority (74.4%) of them expressed whatever as preferred gender of the child. More than half (68.6%) of the respondents had ≤ 4 number of antenatal visits. 75.12% of them perceived satisfaction with antenatal care. Nearly half (46.6%) of the respondents had fear related to current pregnancy and its complications. Majority (80.7%) of the respondents had no Bad Obstetric history.

Table 5: Association of respondent demographic characteristics with Antenatal Depression (n=414)

Characteristics	Categories	EPDS Score		P value
		≥12(%)	< 12 (%)	
Age in Years	< 20	9	13	0.101
	20-29	70	215	
	≥ 30	21	86	
Occupational Status	Service	9	15	0.128
	Home maker	50	169	
	Business	10	37	
	Farmer	23	79	
	Student	5	10	
	Daily Wages	0	2	
	Over seas employment	1	4	
Educational Status	Illitrate	2	5	0.804
	Read and write only	7	17	
	Basic level	60	8	
	Higher Secondary Level	64	165	
	University / College	20	66	
Religion	Budhist	3	33	0.000*
	Hindu	86	240	
	Christian	2	29	
	Muslim	5	1	
	Others	4	11	
Type of Family	Nuclear Family	25	99	0.214
	Joint Family	75	215	
Place of Residence	Urban	61	160	0.080
	Rural	39	154	
Types of Marriage	Love Marriage	65	162	0.019*
	Arrange Marriage	35	152	
Currently living with	In-laws house	51	149	0.622
	Maternal house	9	25	
	Only husband and wife	40	136	
	Others	0	4	
Life style behaviors	Smoking	2	2	0.239
	Alcohal Consumption	0	3	
	Pica	4	25	
	Nothing bad consumption	94	284	

* Pearson's Chi square test, Level of significance at <0.05.

Table 5 shows that antenatal depression was significant with the religion (0.000) and types of marriage (0.019).

Table 6: Association of Respondent's spouse demographic characteristics with Antenatal Depression (n=414)

Characteristics	Categories	EPDS Score		p value
		≥12(%)	< 12 (%)	
Age in Years	< 20	0	2	0.006*
	20-29	55	117	
	≥ 30	45	195	
Educational Status	Illiterate	1	5	0.861
	Read and write only	4	15	
	Basic level	9	55	
	Higher Secondary Level	66	177	
	University / College	19	63	

Characteristics	Categories	EPDS Score		p value
		≥12(%)	< 12 (%)	
Occupational Status	Service	13	58	0.000*
	Business	35	73	
	Farmer	18	53	
	Driver	2	32	
	Daily Wages	12	10	
	Abroad	20	87	
	Social worker	0	1	

* Pearson's Chi square test, Level of significance at <0.05.

Table 6 reveals that antenatal depression was significant with the respondents' spouse age (0.006) and occupational status (0.000).

Table 7: Association of Obstetric and Infant Health factors with Antenatal Depression (n=414)

Characteristics	Categories	EPDS Score		p value
		≥12(%)	< 12 (%)	
Gravida	Primidgravida	54	133	0.042*
	Multigravida	46	181	
Gender of previous Child	Male	24	67	0.002*
	Female	12	93	
Mode of Previous Delivery	Spontaneous Vaginal Delivery	28	108	0.037*
	Cesarean Delivery	6	45	
	Instrumental Delivery	2	7	
Birth Space	≤ 3	65	150	0.006*
	4-5	15	67	
	>5	17	92	
Current Pregnancy	Planned	91	266	0.246
	Unplanned	9	46	
Week of Gestation	1st Trimester	12	72	0.009*
	2nd Trimester	61	140	
	3rd Trimester	27	102	
Preferred Gender of Current Child	Male	7	49	0.033*
	Female	17	33	
	Whatever	76	232	
No. of ANC visit	≤ 4	63	221	0.166
	≥ 5	37	93	
Fear related to current pregnancy and complications	Yes	66	126	0.000*
	No	34	187	
Bad Obstetric History	No Abortion	72	262	0.020*
	Abortion	19	41	
	Stillbirth	9	11	

* Pearson's Chi square test, Level of significance at <0.05.

Table 7 depicts that there is significant association between gravida, gender of previous child, mode of previous delivery, birth spacing, week of gestation, preferred gender of current child, fear related to current pregnancy and its complications, bad obstetric history and antennal depression.

Table 8: Binary Logistic Regression showing factors associated with Antenatal Depression (n=414)

Characteristics	Categories	Adjusted		
		Odds Ratio (OR)	95% CI for OR	p- value
Educational Status	Secondary Level	2.266	0.888-5.782	0.087
	Others	1.00		
Type of Family	Nuclear Family	0.599	0.243-1.475	0.265
	Joint Family	1.00		
Religion	Muslim	11.340	0.510-251.909	0.125
	Others	1.00		
Type of marriage	Love Marriage	1.111	0.505-2.444	0.793
	Arrange Marriage	1.00		
Gravida	Primigravida	0.709	0.098-5.120	0.733
	Multigravida	1.00		
Gender of Previous Child	Female	4.135	1.146-14.924	0.030
	Male	1.00		
Current Pregnancy plan	Unplanned	2.916	0.762-11.161	0.118
	Planned	1.00		
Preferred child Sex in current pregnancy	Male	1.253	0.892-1.760	0.193
	No sex preference	1.00		
Bad obstetric history	Abortion	4.063	0.386-42.720	0.243
	Still birth	1.00		
Fear of pregnancy and complication	Fear	2.973	1.447-6.107	0.003
	Not having fear	1.00		

Table 8 depicts that Antenatal depression was 4 times more among the respondents having female child than male child (AOR= 4.135, CI: 1.146-14.924). Likewise, respondents who have the history of abortion were 4 times more likely to develop Antenatal depression (AOR=4.063, CI: 0.386-42.720). Similarly, respondents with unplanned pregnancy (AOR= 2.916, CI: 0.762-11.161) and the history of fear related to pregnancy and its complications were 3 times higher to develop Antenatal depression (AOR= 2.973, CI: 1.447-6.107).

DISCUSSION

The findings in current study revealed that 24.2% of the respondents had depressive symptoms during antenatal period. Similarly, a cross-sectional study conducted in Sindhupalchowk district, Nepal, 2018 among 164 pregnant women through multi-stage sampling technique revealed that 23.8% had depression (Aryal *et al.*, 2018). The study done at urban Primary Health Center, East Delhi among 200 pregnant women using EPDS scale for antenatal depression showed 21% prevalence rate demonstrating high in developing countries (Dahiya *et al.*, 2020). The findings were similar with the study done in Godawari municipality, Lalitpur, Nepal. This study stated the prevalence of antenatal depression at 24.8% (95% CI: 19.2 to 30.7) (Chalise *et al.*, 2022). The study findings are also supported by a research article on "Prevalence of antenatal depression in South Asia: a systematic review and meta-analysis"; where the prevalence of antenatal depression was 24·57% (Mahendran *et al.*, 2018). In contrast, the study done in outpatient Department of Obstetrics in a Tertiary Care Hospital, Bengaluru showed the prevalence rate of depression as 12.3% (Bavle *et al.*, 2016). However, the current prevalence is higher than the prevalence of antenatal depression noted as 18% among the women visiting public health facilities for antenatal checkups in Kathmandu in the year 2017 (Chalise *et al*., 2022; Joshi *et al*., 2019).

The study done in Godawari municipality, Lalitpur, Nepal also revealed that socio-demographic variables such as age, family type, educational level of participants and their spouse and occupation of participants did not have any statisti- cally significant relationship with antenatal depression whereas occupational status of spouse was found to be associated with antenatal depression (Chalise *et al.*, 2022) which is similar to the current study. The current study showed the associated factors for antenatal depression were unplanned pregnancy, fear related to pregnancy and complications, history of abortion and preferred male child in current pregnancy. The study findings supported by a hospital based cross sectional study conducted at Adama Hospital, Adama, Ethiopia depicted previous abortion, fear of pregnancy complications, and unwanted pregnancy were found to have strong association with depressive disorders (Martha *et al.*, 2017). A study conducted in Addis Ababa public health centers, Ethiopia using The Edinburgh Postnatal Depression Scale (EPDS) also revealed unplanned pregnancy as associated factor of antenatal depression (Biratu & Haile., 2015).

Another study done in Kochi Health Center, Jimma town, Ethopia; 2021 also revealed significant association between antenatal depression pregnancy planning and history of abortion (Tesfaye & Agenagnew, 2021). A cross-sectional study conducted in Sindhupalchowk district, Nepal, 2018 also supported the current study findings depicted as history of unplanned pregnancy as independently associated with antenatal depression (Aryal *et al.*, 2018).

A study done at urban Primary Health Center, East Delhi showed that application of Logistic regression was found to be significantly associated with abortion history (Dahiya *et al.*, 2020). Likewise, a study conducted at Obstetrics in a Tertiary Care Hospital, Bengaluru howed EPDS scores statistical significance for unplanned pregnancy and educational status (Bavle *et al.*, 2016). The study conducted at Godawari municipality, Lalitpur, Nepal also supported that independent predictors of antenatal depression as gravida, intent of pregnancy and sex preference of child (Chalise *et al*., 2022).

The current study depicted that Antenatal depression was 4 times more among the respondents having female child than male child (AOR= 4.135, CI: 1.146-14.924). Likewise, respondents who have the history of abortion were 4 times more likely to develop Antenatal depression (AOR=4.063, CI: 0.386-42.720). Similarly, respondents with unplanned pregnancy (AOR= 2.916, CI: 0.762-11.161) and the history of fear related to pregnancy and its complications were 3 times higher to develop Antenatal depression (AOR= 2.973, CI: 1.447-6.107). This is in line with the study from Lalitpur, Nepal that showed the participants who had unintended pregnancy had twofold increase in odds (AOR: 2.547, 95%CI: 1.204 to 5.388) of depression. Similarly, the preference of the child sex by the participants' families was noted as one of the important predictors of antenatal depression increased by twofold (AOR: 2.531, 95%CI: 1.204 to 5.321) among participants whose family wished to have a male child as compared with the participants whose family had no sex preference of the unborn child (Chalise *et al*., 2022). Another study from Sindhupalchowk district of Nepal also revealed higher odds of antenatal depression among women having unplanned pregnancies as three- fold increase in odds of depression (AOR: 3.43, 95% CI: 1.78 to 6.62) as compared with women with planned pregnancy (Aryal *et al.*, 2018).The male child preference by the participants' family was also noted as an important predictor of antenatal depression. This was alike with another study conducted in Nepal, where the preference for a male child by the family was found to have almost fourfold increase in odds of depression (AOR: 3.7, 95%CI: 1.2 to 11.6) among pregnant women (Ajinkya *et al.*, 2013). Similar finding where shared by the study conducted in rural Maharashtra, India; preferred to have a male child were thrice more at odds (AOR: 3.0, 95%CI: 1.4 to 6.5) of depression among pregnant women (Shidhaye *et al*., 2017). The sex of the unborn child influencing mothers' psychological well-being as because the women in Nepalese society are under family and social pressure to have a male child, as a son is considered a symbol of prestige and someone who will preserve the family name and legacy. This might be the reason that the sex of the unborn child is influencing mothers' psychological well-being (George *et al*., 2016; Joshi *et al*., 2019; Chalise *et al*., 2022).

CONCLUSION

Nearly 1/4th of the respondents had developed depression during antenatal period and significantly associated with religion, type of marriage, gender of child, current child sex, birth spacing, gravida, week of gestation, mode of previous delivery, fear of pregnancy, and abortion. Antenatal depression was higher among the respondents having the history of fear related to pregnancy, abortion and having previous male child.

Therefore, screening pregnant women for depression during ANC visits and the provision of mental health education counseling services is recommended to mitigate the adverse health outcome of the problem.

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CONFLICT OF INTEREST

The author declared that there are no any potential conflicts of interest with respect to the research and publication of this article.

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