



Original Article

Prevalence and correlates of antenatal depression among women registered at antenatal clinic in North India

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ABSTRACT

Objective: Women pass through many stages throughout her lifetime. Among these phases, pregnancy is crucial phase. If women are not able to cope with this stress, it may lead to adverse outcomes of pregnancy. Early detection of possible depression in pregnant women may lead to decrease in incidence of depression and adverse outcomes of pregnancy. **Materials and Methods:** The present study was done in an urban primary health center of east Delhi where antenatal and postnatal services are provided. Two hundred pregnant women who attended antenatal clinic for their antenatal checkup were included in the study. Edinburgh postnatal depression scale was used to diagnose possible depression. The presence of a statistically significant difference between possibility of depression in terms of various socioeconomic, obstetric, gender issues, life events, previous psychiatric history and family relationships was ascertained using Chi-square/Fisher's exact test. Logistic regression was carried out to determine important confounding variables. **Results:** The mean age of participants was 25.32 ± 3.86 years. Of total 200 women, 42 (21%) women were found to be suffering from possible depression. The possibility of depression was found to be significantly higher in literate participants ($P = 0.001$) and in women who were married after 18 years of age ($P = 0.016$). Participants who wanted the present pregnancy and whose spouses were alcoholic were found to be associated significantly ($P = 0.00$). On applying logistic regression, age and abortion history was found to be significant. **Conclusion:** This study demonstrates that the prevalence of antenatal depression is high in developing countries, and universal screening of depression during antenatal and postnatal period is feasible along with other antenatal and postnatal services provided to them.

KEYWORDS: Antenatal depression, Antenatal services, Pregnancy

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INTRODUCTION

Depression during pregnancy and postpartum is an emerging public health problem, especially in developing countries. World Health Organization has highlighted that nearly one in three pregnant women suffers a significant mental health problem in developing countries [1]. Gender is one of the main determinants of mental health status. Woman passes through many stages, i.e., menarche, puberty, menstrual cycle, pregnancy, abortion, menopause, etc., in her lifetime. These phases are associated with different levels of stress. However, if women are not able to cope with these stresses, it may result in anxiety and depression.

Pregnancy is one of very crucial phases in the lifetime of a woman. The increased recognition of antenatal depression is an area of concern worldwide due to increasing trend of postpartum depression in both the developed and developing nations. Antenatal depressive symptoms are found to be

associated with decreased cognitive development irrespective of postnatal depression [2]. According to a systematic review, antenatal depression affects women from lower and lower-middle-income countries in the range of 5.2%–32.9% in contrast to the high-income countries (7%–20%) [3]. Many studies have revealed that Asian women have increased rates of depression during pregnancy than North American women [4].

Plethora of factors determine the risk for depression during pregnancy such as financial security, previous girl child, inner want for male child, family pressure for male child, infertility treatment, previous complications in pregnancy, stressful life


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events, relationship problems, previous abortions, education status of mother, support from in-laws and marital violence. According to many studies, the depressive symptoms during pregnancy such as loss of interesting pleasurable activities, recurring thoughts of death or suicide, hopelessness, difficulty in concentrating, sadness, feeling of worthlessness, feeling of guilt and change in sleep and eating food may also exaggerate the other medical conditions in the women [5,6].

Antenatal depression is also identified as a main risk factor for preterm birth, low birth weight, birth defects, postnatal depression, etc. [7-9]. If the risk of impaired mental health is assessed in the early phase of these stages and treated accordingly, it will lead to decrease in the incidence of impaired mental health and suicidal rate among women. Several studies suggested that females were more likely to follow up for mental health evaluation if they screened positive for depression in antenatal period than postnatal period [10].

The present study is done with the objective to assess the prevalence of possible depression in pregnant women and to identify the possible association of various socioeconomic factors, obstetric and gender issues, life events, previous psychiatric history, family relationships with antepartum depression, and feasibility of screening depression in primary healthcare settings.

MATERIALS AND METHODS

These are the findings of a cross-sectional pilot service started to see the feasibility of screening and refer the women suffering from possible mental distress. We included all pregnant women attending antenatal clinic in an urban primary health center of east Delhi where antenatal and postnatal services are provided. Screening for noncommunicable diseases such as hypertension, diabetes, and hypothyroidism is a routine service given to all pregnant females. This center caters to the population of 29,000 with 2404 houses and 5827 families in 2018. It comprises of 15,599 males and 13,643 females. Two hundred pregnant women who attended the antenatal clinic for their antenatal checkup during September 2017–January 2018 were included in the study irrespective of their gestation period. Pregnant women with any mental illness, deliberate illness, and previously diagnosed depression were excluded from the study. The study was conducted in accordance with the Declaration of Helsinki and was approved by the local ethics committee of the institute (Approval No. CM/2819/MAMC obtained on Oct. 8 2017). Informed written consent was waived because the study was a retrospective data analysis. All routine information such as personal details, sociodemographic details, obstetric history, and other possible risk factors were taken through a semi-structured questionnaire from all the eligible women.

Study tools and statistical analysis

Edinburgh postnatal depression scale (EPDS)[11] was used to diagnose possible depression in the study participants. This is a ten-question self-rating scale and can be used in pregnant or postnatal women to screen possible depression. The scale indicates how the mother had felt during the last week. Scoring was done, and if the score was found to be 10 or >10, she was referred to higher center where the psychiatric facilities were

Table 1: Distribution of various socioeconomic variables among study participants (n=200)

Variables	n	Proportion (%)
Age (years)		
≤30	183	91.5
>30	17	8.5
Occupation		
Working	12	6.0
Homemaker	188	94.0
Education		
Illiterate	29	14.5
Till 10 th standard	120	60.0
Graduate	37	18.5
Postgraduate	14	7.0
Religion		
Hindu	184	92.0
Muslim	15	7.5
Christian	1	0.5
Family income (per month), USD*		
≤13.51	6	3.0
13.52-26.75	1	0.5
26.76-45.03	4	2.0
45.04-90.07	12	6.0
≥90.08	164	82.0
Didn't know	13	6.5
Family type		
Joint	144	72.0
Nuclear	56	28.0
Overcrowding		
Present	77	38.5
Absent	123	61.5
House		
Owned	120	60.0
Rented	80	40.0

*1 USD=Rs. 69.42

available for further diagnostic evaluation and treatment. EPDS is one of the widely used screening tools for antenatal depression. It has 86% sensitivity, 78% specificity, and 73% positive predictive value in primary health-care setting [12]. The collected data were entered in the Excel sheet and analyzed using SPSS version 20 (IBM Corp, Armonk, New York, USA). The data were expressed in frequency and proportion for categorical variables. The presence of a statistically significant difference between possibility of depression in terms of various socioeconomic factors, obstetric and gender issues, life events, previous psychiatric history, and family relationships was ascertained using Chi-square/Fisher's exact test. Logistic regression was carried out to determine important confounding variables. Possible depression positivity was taken as dependent variable whereas other risk factors such as sociodemographic profile and education were taken as independent variables.

RESULTS

We analyzed data of 200 women. The mean age of participants was 25.32 ± 3.86 years. Most of the participants (183, 91.5%) were equal to or less than 30 years of age [Table 1]. Ninety-four percent (188) of them were homemakers. Most of them (171, 85.5%) were literate. One hundred and

eighty-four (92%) were Hindu followed by Muslim (15, 7.5%). Thirteen participants (6.5%) did not know about their family income. Most of them (144, 72%) were living in joint families. Seventy-seven (38.5%) participants were living in overcrowding. Sixty percent (120) participants were living in their own house.

Of total 200 women, 42 (21.0%) women were found to be suffering from possible depression using EPDS. The possibility of depression was found to be significantly higher in literate participants as compared to illiterate participants ($P = 0.001$). There was no association found between possibility of depression with age, occupation, religion, family income, family type, overcrowding, and house type [Table 2]. The possibility of depression was found to be significantly higher in women who were married after 18 years of age as compared to women married earlier ($P = 0.016$). Participants who wanted the present pregnancy suffered more from possible depression as compared to other participants ($P = 0.036$).

There was no association found between possibility of depression with history of abortion, whether the pregnancy was planned or not, and participants were pressurized for male child or not [Table 3]. The possibility of depression was found to be significantly higher in participants whose spouses were alcoholic as compared to other participants ($P = 0.00$). There was no association found between possibility of depression

with previous personal history of psychiatric illness, family history of psychiatric illness, support of parents, spouse, in-laws, and history of violence/abuse in their family [Table 4]. On applying logistic regression, age and abortion history were found to be significant.

DISCUSSION

The current study shows that 42 women (21%) of the 200 participants had possible antenatal depression which is higher than previous studies [9-13]. A study done by Bavle *et al.* in a tertiary care hospital reported the prevalence of possible antenatal depression to be 12.3% [13]. The observed variations may be attributed to difference in study setting and the study population. Another study done in pregnant women of Peru reported antenatal depression to be 10.3% [14]. The difference in the prevalence of possible depression may be due to use of different scale to diagnose possible depression and different study population. This study included women in their third trimester only whereas our study included all the pregnant women irrespective of their gestational period. As in the first trimester, nausea, vomiting, and hormonal changes make the women anxious and irritated, this could lead to increase in the prevalence of self-reported depression in female. Many studies have also proved that pregnancy and postnatal period also increases the chances of relapse of mental illness.

Table 2: Sociodemographic features in prenatal depression (n=200)

Variable	Possible depression (n=42)	No depression (n=158)	χ^2	P
Age (years)				
≤30	41 (97.62)	142 (89.87)	2.56	0.11
>30	1 (2.38)	16 (10.13)		
Occupation				
Working	4 (9.52)	8 (5.06)	1.17	0.29
Homemaker	38 (90.48)	150 (94.94)		
Education				
Illiterate	13 (30.95)	16 (10.13)	11.61	0.001
Literate	29 (69.05)	142 (89.87)		
Religion				
Hindu	39 (92.86)	145 (91.77)		1.00*
Muslim	3 (7.14)	12 (7.59)		
Christian	0 (0.0)	1 (0.63)		
Family income (USD) [#]				
≤13.51	0 (0.0)	6 (3.79)		0.13*
13.52-26.75	1 (2.38)	0 (0.0)		
26.76-45.03	2 (4.76)	2 (1.27)		
45.04-90.07	3 (7.14)	9 (5.70)		
≥90.08	35 (83.33)	129 (81.65)		
Didn't know	1 (2.38)	12 (7.59)		
Family type				
Joint	26 (61.90)	118 (74.68)	2.68	0.076
Nuclear	16 (38.10)	40 (25.32)		
Overcrowding				
Present	20 (47.62)	57 (36.08)	1.87	0.17
Absent	22 (52.38)	101 (63.92)		
House				
Owned	20 (47.62)	100 (63.29)	3.39	0.65
Rented	22 (52.38)	58 (36.71)		

*Fisher's exact test, [#]1 USD=Rs. 69.42

Table 3: Obstetric factors and gender issues in prenatal depression (n=200)

Variables	Possible depression (n=42)	No depression (n=158)	χ^2	P
Age at marriage (years)				
≤18	16 (38.1)	32 (20.25)	5.79	0.016
>18	26 (61.9)	126 (79.74)		
Gravida				
1	16 (38.1)	57 (36.08)	0.06	0.058
>1	26 (61.9)	101 (63.92)		
Trimester				
First trimester	9 (21.43)	20 (12.66)	2.28	0.32
Second trimester	19 (45.24)	73 (46.20)		
Third trimester	14 (33.33)	65 (41.14)		
History of abortion				
Yes	13 (30.95)	28 (17.72)	3.56	0.06
No	29 (69.05)	130 (82.28)		
Pregnancy planned or not				
Planned	27 (64.29)	104 (65.82)	0.035	0.85
Unplanned	15 (35.71)	54 (34.18)		
Present pregnancy				
Wanted	37 (88.10)	153 (96.84)	0.036*	0.036*
Unwanted	5 (11.90)	5 (3.16)		
Pressure for male child				
Yes	7 (16.67)	13 (8.23)	0.144*	0.144*
No	35 (83.33)	145 (91.77)		

*Fisher's exact test

Table 4: Life events, previous psychiatric history, and family relationships in prenatal depression (n=200)

Variable	Possible depression (n=42)	No depression (n=158)	χ^2	P
History of personal psychiatric illness				
Yes	1 (2.38)	1 (0.63)	21.80	0.377
No	41 (97.62)	157 (99.37)		
Family history of psychiatric illness				
Yes	2 (4.76)	2 (1.27)	0.195*	0.195*
No	40 (95.24)	156 (98.73)		
Support from parents				
Yes	41 (97.62)	156 (98.73)	1.00*	1.00*
No	1 (2.38)	2 (1.27)		
Support from spouse				
Yes	41 (97.62)	157 (99.37)	0.377*	0.377*
No	1 (2.38)	1 (0.63)		
Support from in-laws				
Yes	40 (95.24)	155 (98.10)	0.586*	0.586*
No	2 (4.76)	3 (1.90)		
History of alcoholism in spouse				
Yes	23 (54.76)	30 (1.99)	0.00	0.00
No	19 (45.24)	128 (81.01)		
History of violence/abuse in family				
Yes	2 (4.76)	6 (3.80)	1.00*	1.00*
No	40 (95.24)	152 (96.20)		

*Fisher's exact test

Whereas few other studies conducted in Saudi Arabia reported much higher prevalence of possible antenatal depression as compared to the present study [15,16]. This difference may be due to different study settings, education, and awareness level as well as difference in the screening tool compared to the present study.

The present study reported higher prevalence of possible antenatal depression in literate women, female with age of marriage

more than 18 years, and women who wanted the present pregnancy. This may be due to awareness of the possible changes and outcomes of the pregnancy and added responsibility. The current study showed higher chances of possible antenatal depression in women who had history of alcoholism in spouse.

Some of the challenges we faced in providing this service were that additional workforce was required to apply

Edinburgh depression scale in all these pregnant females. Time devoted per person increased as the additional history was required to assess all the dimensions which could be related to possible depression. In resource-limited setting like primary health care, it was difficult to give sufficient time to each female for mental health screening apart from other services provided. The females who were found to be suffering from possible antenatal depression according to the Edinburgh depression scale and were referred to higher centers could not be followed up whether they had consulted higher center or not. For smooth functioning of these services, there should be referral linkage with higher centers and referred cases should be given priority in these higher centers.

There is lack of research in the area of finding association of antenatal depression with socioeconomic, obstetric and gender issues, life events, previous psychiatric history, and family relationships. There were some limitations as the center caters the population of resettlement colony and slum raising question on the generalization of findings in other settings.

Recommendations

This study demonstrates that the universal screening of depression during antenatal and postnatal period is feasible. More studies are required to study challenges and impact of treatment as the prevalence of possible depression in pregnant females was found to be quite high. Hence, screening possible depression should be made a part of the routine screening services given to all pregnant females.

CONCLUSION

This study demonstrates high prevalence of antenatal depression in developing countries and universal screening of depression during antenatal and postnatal period is feasible along with other antenatal and post-natal services provided to them.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Maternal Mental Health and Child Health and Development in Low and Middle Income Countries. Available from: http://www.who.int/mental_health/prevention/suicide/mmh_jan08_meeting_report.pdf 16. [Last accessed on 29 Dec 20].
2. Koutra K, Chatzi L, Bagkeris M, Vassilaki M, Bitsios P, Kogevas M. Antenatal and postnatal maternal mental health as determinants of infant neurodevelopment at 18 months of age in a mother-child cohort (Rhea study) in Crete, Greece. *Soc Psychiatry Psychiatr Epidemiol* 2013;48:1335-45.
3. Fisher J, Cabral de Mello M, Patel V, Rahman A, Tran T, Holton S, et al. Prevalence and determinants of common perinatal mental disorders in women in low- and lower-middle-income countries: A systematic review. *Bull World Health Organ* 2012;90:139G-49G.
4. Bennett HA, Einarson A, Taddio A, Koren G, Einarson TR. Prevalence of depression during pregnancy: Systematic review. *Obstet Gynecol* 2004;103:698-709.
5. Morylowska-Topolska J, Makara-Studzinska M, Kotarski J. The influence of sociodemographic and medical variables on severity of anxiety and depressive symptoms during particular trimesters of pregnancy. *Psychiatr Pol* 2014;48:173-86.
6. Bisetegn TA, Mihretie G, Muche T. Prevalence and predictors of depression among pregnant women in Debreabor town, Northwest Ethiopia. *PLoS One* 2016;11:e0161108.
7. DiPietro JA, Hilton SC, Hawkins M, Costigan KA, Pressman EK. Maternal stress and affect influence fetal neurobehavioral development. *Dev Psychol* 2002;38:659-68.
8. O'Connor TG, Heron J, Glover V. Alspac Study Team. Antenatal anxiety predicts child behavioral/emotional problems independently of postnatal depression. *J Am Acad Child Adolesc Psychiatry* 2002;41:1470-7.
9. Latendresse G, Wong B, Dyer J, Wilson B, Baksh L, Hogue C. Duration of maternal stress and depression: Predictors of newborn admission to neonatal intensive care unit and postpartum depression. *Nurs Res* 2015;64:331-41.
10. Venkatesh KK, Nadel H, Blewett D, Freeman MP, Kaimal AJ, Riley LE. Implementation of universal screening for depression during pregnancy: Feasibility and impact on obstetric care. *Am J Obstet Gynecol* 2016;215:517.e1-8.
11. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression. Development of the 10-item Edinburgh postnatal depression scale. *Br J Psychiatry* 1987;150:782-6.
12. Shrestha SD, Pradhan R, Tran TD, Gualano RC, Fisher JR. Reliability and validity of the Edinburgh Postnatal Depression Scale (EPDS) for detecting Perinatal Common Mental Disorders (PCMDs) among women in low-and lower-middle-income countries: A systematic review. *BMC Pregnancy Childbirth* 2016;16:72.
13. Bavle AD, Chandahalli AS, Phatak AS, Rangaiah N, Kuthandahalli SM, Nagendra PN. Antenatal depression in a tertiary care hospital. *Indian J Psychol Med* 2016;38:31-5.
14. Gelaye B, Addae G, Neway B, Larrabure-Torrealva GT, Qiu C, Stoner L, et al. Poor sleep quality, antepartum depression and suicidal ideation among pregnant women. *J Affect Disord* 2017;209:195-200.
15. Bawahab JA, Alahmadi JR, Ibrahim AM. Prevalence and determinants of antenatal depression among women attending primary health care centers in Western Saudi Arabia. *Saudi Med J* 2017;38:1237-42.
16. Moawad SA, Gemaey EM, Al-Mutairi HA. Prevalence of depression among Saudi pregnant women. *IOSR J Nurs Health Sci* 2015;4:61-8.