ORIGINAL ARTICLE

Prevalence and Determinants of Postpartum Anxiety among Women Availing Health Services at a Rural Maternity Hospital in South India

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Abstract

Introduction: Anxiety is defined as a feeling of worry, nervousness, or unease about something with an uncertain outcome. Though depression is the leading cause of disability for women worldwide, there is a paucity of literature regarding postpartum anxiety among rural Indian women.

Aims and objectives: To estimate the prevalence of postpartum anxiety and its determinants among women availing health services at a rural maternity hospital in the Ramanagara district of south Karnataka.

Materials and methods: The study included 231 postpartum women from the second day of delivery to 6 months postpartum attending the rural maternity hospital.

Results: Our study consists of 46.7% of women belonging to 20–24 age-group and 76.2% belonging to lower middle/lower class. Prevalence of mild postpartum anxiety was found to be 88.17%, generalized anxiety being 10%, and severe anxiety as 1.3%. There was significant association between postpartum anxiety and depression (*p*-value = 0.00).

Conclusion: There is a need for screening women for mental ill-health during and after pregnancy. National programs should include these assessments at the primary healthcare level.

Keywords: Anxiety, Depression, Hospital, Postpartum, Rural.

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Introduction

Anxiety is defined as a feeling of worry, nervousness, or unease about something with an uncertain outcome. Though depression is the leading cause of disability for women worldwide,[1] postpartum anxiety is equally, if not more prevalent, than postpartum depression.[2] Postpartum anxiety is defined as greater sensitivity to stress, causing some to feel overwhelmed, fearful or panicky after childbirth.[3] Postpartum anxiety may persist beyond the postpartum period and lead to other psychological problems, maladjustment symptoms, and high suicidal tendencies.[4] A recent report from Center for Disease Control and Prevention, USA estimates that 1 in 9 women experience symptoms of postpartum depression and anxiety.[1] The prevalence is higher during the early postpartum period (<2 months) than the late postpartum period (2–6 months).[5]

Postpartum anxiety has been associated with *a prior* fear of giving birth, fear of death, and lack of self-confidence.[6] Studies have found that women with a history of generalized anxiety disorder (GAD), lower education, lack of social support, and personal history of child abuse, cesarean delivery, and premature delivery have the highest risk of postpartum anxiety.[7] Diagnostic and Statistical Manual for Mental Disorder 5 (DSM5) offers various criteria for anxiety disorders like anxiety, worry, or associated symptoms that make it hard to carry out day-to-day activities and responsibilities.[3] Anxiety disorders are associated with elevated maternal cortisol which is a predictor of negative neonatal outcomes, impaired cognitive development, and future behavioral problems.[3] Anxious mothers are more likely to prematurely stop breastfeeding, which affects the baby's growth and development.[8] The prevalence of postpartum anxiety has been found to range from 13 to 40%.[9]

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Various known tools, like Anxiety Stress Scale, Edinburgh Postnatal Depression Scale (EPDS), GAD Scale, Postpartum Worry Scale, etc., exist to determine anxiety and depression among postpartum women.[6,7,9,10]

For a long time, postpartum anxiety went unmeasured along with postpartum depression and has only appeared relatively recently in the medical literature. There is a paucity of literature regarding postpartum anxiety among rural Indian women. The consequences of not attending to this problem can lead to deficits in early neurodevelopment and cognitive development in the infant and adverse mental health outcomes in the mother.

This study was conducted with the objective of estimating the prevalence of postpartum anxiety and its determinants among women availing health services at a rural maternity hospital in the Ramanagara district of south Karnataka.

Materials and Methods

The cross sectional study was conducted at a missionary-run, secondary level maternity hospital in Ramanagara district, 55 km from Bangalore city with a daily outpatient attendance of around 250 and approximately 150–200 deliveries per month. The data were collected over a period of 2 months (December 2019 to January 2020). The study included all postpartum women from the second day of delivery to 6 months postpartum, who were availing health services at the hospital. Based on a previous study in urban Delhi,[5] where the prevalence of postpartum anxiety was found to be 17%, the sample size was calculated to be 226, with 5% absolute precision and 95% confidence limits. Study participants were enrolled using a consecutive sampling technique. Women who were critically ill and with known mental health problems were not included in the study.

Ethical permission was obtained for the study from the Institutional Ethics Committee, St. John's Medical College, Bangalore (IEC 31/2019). Written informed consent was taken from the participants, following which, a pretested, face-validated, four-part interview schedule, translated into the local language (Kannada), was used to collect data. The interview schedule comprised of (1) sociodemographic and obstetric details; (2) possible factors contributing to anxiety; (3) GAD-7 Scale;[9] and (4) ten item-EPDS.[10]

GAD-7 is a 7 item questionnaire developed by Robert et al., Columbia University, New York with a known sensitivity of 89% and specificity of 82% at cutoff score of 10, while screening for anxiety. Based on the GAD score,[9] study subjects were classified as having no anxiety (<5), mild anxiety,[5–9] moderate anxiety,[10–14] and severe anxiety (≥15). One of the most common variables associated and studied with anxiety is depression. In this study, EPDS has been used to screen for depression. EPDS is a ten-item screening tool with a known sensitivity of 59.5% and specificity of 88.4% in diagnosing depression at a cutoff score of 13. Based on EPDS score,[10] subjects were classified as having no depression (<8), possible depression,[9–11] and depression (≥13).[11] Women found to be anxious or depressed were referred to a psychiatrist for further evaluation and management.

The data collected was entered in MS Excel and analyzed using Statistical Package for the Social Sciences (SPSS Version 16) (Publisher: IBM Corp., USA, 2011). The variables are described by calculating proportions, mean standard deviation (SD), and median with interquartile range. Association between the outcome variable (anxiety) and the various exposure variables was determined using chi-square test, Fisher's exact test, independent t-test, and Mann–Whitney *U* test as applicable. A "*p*" value of less than 0.05 was considered to be statistically significant.

Results

A total of 231 women participated in the study. The mean age of the study subjects was 23.95 ± 3.4 SD years. The majority were Hindu by religion, belonged to general caste, were homemakers by occupation, and most were educated till high school and higher. The mean years of education of the study population is 11.78 ± 2.2 (Table 1). The majority belonged to a nuclear family, were of lower-middle or lower socioeconomic class, and were primiparous (Table 2).

With GAD-7, 11.3% were found to have postpartum anxiety (10% and 1.3% screened as moderate and severe anxiety, respectively). With EPDS, 12.5% were found to have depression, while 14.3% screened for possible depression.

Women who reported alcohol use by their husbands were more likely to have postpartum anxiety than women who did not and this was statistically significant ($p = 0.002$) (Table 2). Postpartum women classified as having "possible depression" and "depression" were more likely to have "moderate" or "severe" anxiety than women with no depression and this was found to be statistically significant ($p < 0.001$). Pearson's correlation test revealed that for every one-point increase in anxiety score, there was a 0.723 point increase in depression score (correlation coefficient = 0.036, $p = 0.01$). For every one-point increase in the EPDS score, there was a 1.6 point increase in the GAD-7 score (correlation coefficient = 0.62; $p = 0.01$).

Table 1: Sociodemographic profile of the study participants (*N* = 231)

Variable	*Category*	*Total N (%)*
Religion	Hindu	210 (90.9)
	Muslim	20 (8.6)
	Others	1 (0.4)
Caste	General	178 (77.1)
	SC/ST	48 (20.7)
	OBC	5 (2.1)
Occupation	Daily-wage laborer	30 (12.9)
	Housewife	189 (81.8)
	Salaried employee	9 (3.8)
	others	3 (1.4)
Education status	Illiterate	3 (1.3)
	Primary	10 (4.3)
	Middle school	36 (15.6)
	High school	116 (50.2)
	Higher secondary	35 (15.2)
	Diploma	29 (12.6)
	Professional degree	2 (0.8)

Table 2: Screening results of GAD-7 and EPDS among study subjects (*N* = 231)

Variable	*Category*	*Total N (%)*
GAD-7	No anxiety	4 (1.7)
	Mild anxiety	201 (87.0)
	Moderate anxiety	23 (10.0)
	Severe anxiety	3 (1.3)
EPDS	Depression	29 (12.5)
	Possible depression	33 (14.3)
	No depression	169 (73.6)

Table 3: Association of postpartum anxiety with various exposure variables (*N* = 231)

			Postpartum anxiety		
Variable	*Category*	*Total N (%)*	*No/mild 205 (88.7)*	*Moderate/severe 26 (11.3)*	*p-value*
Age in years	<20	20 (8.6)	18 (90.0)	2 (10)	0.24*
	20–24	108 (46.7)	96 (88.9)	12 (11.1)	
	25–30	84 (36.4)	77 (91.7)	7 (8.3)	
	>30	19 (8.2)	14 (73.7)	5 (26.3)	
Type of family	Nuclear	138 (59.9)	127 (92.0)	11 (8.0)	0.108*
	Joint/3 generation	93 (40.0)	78 (83.8)	15 (16.2)	
Socioeconomic status	Upper/upper middle	6 (2.6)	6 (100)	0	0.553*
	Middle	49 (21.1)	48 (97.9)	1 (2.1)	
	Lower middle/lower	176 (76.2)	120 (68.2)	56 (31.8)	
Gainfully employed	Yes	42 (18.2)	41 (97.7)	1 (2.3)	0.47*
	No	189 (81.8)	164 (86.7)	25 (13.3)	
Gender of the baby	Male	121 (52.4)	108 (89.3)	13 (10.7)	0.099*
	Female	110 (47.6)	97 (88.2)	13 (11.8)	
Birth weight	<2.5 kg	48 (20.7)	41 (85.4)	7 (14.6)	0.24*
	>2.5 kg	183 (79.3)	162 (88.5)	31 (16.9)	
Parity	Primi	155 (64.6)	141 (90.9)	14 (9.03)	0.40*
	Multi	76 (32.9)	64 (84.2)	12 (15.8)	
Previous BOH[a]	Yes	8 (3.5)	8 (100)	0	0.59*
	No	223 (96.5)	197 (88.3)	26 (11.6)	
Postpartum depression	Depression	29 (12.6)	12 (41.4)	17 (58.6)	<0.001**
	Possible depression	33 (14.3)	16 (48.5)	17 (51.5)	
	No depression	169 (73.1)	150 (88.8)	19 (11.2)	
Alcohol use in husband	Yes	106 (45.9)	86 (81.2)	20 (18.8)	0.002**
	No	125 (54.1)	122 (97.6)	3 (2.4)	

*Chi-square test; **Fisher's exact test; [a]BOH: bad obstetric history—previous IUD/stillbirth/neonatal/infant death

There was no significant association found between postpartum anxiety and other variables like age, type of family, socioeconomic status, gainful employment, parity, previous obstetric history, and gender of the baby.

Various other concerns and worries were documented as possibly contributing to postpartum anxiety (Table 3). Major family concerns reported were alcohol consumption by husband (45.8%), feeling of isolation from the rest of the family (18.7%), and worries about financial difficulties (15.6%). Subjects also reported worries related to their baby: worried about baby's weight or milk intake (29.5%), worried that baby will stop breathing (28.2%); feeling that motherhood is harder than anticipated (28.2%), and feeling unattractive after childbirth (2.8%).

Discussion

A variety of scales have been used in the published medical literature on assessing postpartum anxiety such as the Depression and Anxiety Stress Scale and the State Anxiety Inventory, which were done on an outpatient basis including structured diagnostic interviews. Other scales that have been used less frequently include the EPDS that has both depression and anxiety factor scores and the Postpartum Worry Scale that was developed specifically for postpartum-specific anxiety. In a case-control study[12] done in rural setting in Lahore by using Hospital Anxiety and Depression Scale, reported anxiety and depression during the antepartum period was 38% and 18%, respectively, and during the postpartum

period, the prevalence of anxiety and depression was 28% and 12%, respectively. The prevalence of postpartum depression was found to be 13% in a meta-analysis by Hara et al.[13] and this was similar to our study, and the strong predictors of postpartum depression being past history of psychopathology and psychological disturbance during pregnancy, poor marital relationship, and low social support and stressful life events.

During the last few years, a number of studies have examined preventive programs for postpartum depression.[14–16] In contrast, only few studies have focused on appropriate preventive interventions for postpartum anxiety disorders.[15,16] A study done among 310 Canadian[17] women who completed mood and anxiety questionnaires at approximately 3 months postpartum, the prevalence of anxiety during pregnancy, and the early postpartum period (15.8% and 17.1%, respectively) which exceeded that of depression (3.9% and 4.8%, respectively), and there was evidence of association with other psychiatric illnesses. In a study done in Qatar based[18] on the depression, anxiety, and stress scale, the prevalence of postpartum anxiety was 13% which is similar to the findings of this study. A study by Paul et al.[19] included 1123 postpartum women and found that 17% of mothers had anxiety based on State-Trait Anxiety Inventory scores. Elevated State-Trait Anxiety scores occurred more often than elevated depression scores at each assessment (2 weeks, 2 months, and 6 months) and were associated with primiparity and women delivering by cesarean delivery. In another community-based prospective study[20] done in the rural setting of Vellore, among 359 women in their last trimester, the prevalence of postpartum depression was found to be 19.8% and signs and symptoms are clinically indistinguishable from major depression that occurs in women during other times. This study also included measures like gender preference, relationship with in-laws, and adverse life events in the previous years. A study[21] has described that postpartum anxiety may be masked by depression on most occasions. The higher prevalence of depression in our study may have masked by anxiety and, therefore, we found a lower prevalence of anxiety.

In a study[22] done in German with included 78 mothers, 30 mothers had postpartum anxiety disorders without depression based on the Structured Clinical Interview for DSM-IV. Mothers with postpartum anxiety reported lower bonding than healthy mothers. Another study[23] from German, reported anxiety and depression in postpartum women to be 11.1% and 6.1%, respectively. While the prevalence of anxiety was similar to our study, the level of depression in our study was higher. This may be attributed to the study population demographic difference as the German participants were highly educated and predominantly belonged to the middle class socioeconomic group.

A study[24] from Canada which included 522 postpartum women, the prevalence of anxiety symptoms decreased from 23% in the first week to 17% at 4 weeks and 15% at 8 weeks postpartum. We found that one of the significant factors associated with postpartum anxiety was the consumption of alcohol by the husband. About 45% of the participants reported that they are anxious about their husband continuing to drink after the baby was born. We were not able to find any other factors like family stress, fear of childbirth, or abuse by family members as factors contributing to anxiety. With nearly half the women living in a joint family in our study area, the presence of social support meant a lower level of family and home stressors. With most of the women being educated, they felt able to express their concerns when they come for a routine antenatal checkup, which probably allayed their fears and anxieties in the postpartum period. A study[10] among Israeli women, found that among those who developed postpartum anxiety, 75% reported feeling anger, fear, or emotional detachment during childbirth. However, anxiety was surprisingly, not related to obstetric or birth complications. A randomized control study[25] in Turkey found that music helped significantly in lowering postpartum anxiety and pain, massaging infants has also helped them to lower anxiety in postpartum women.

Even though effective psychological and pharmacological treatments exist for depression, even in industrialized countries, less than half of the women who suffer benefit from them. The situation is much worse in the developing countries where <5% of women tend to avail care.[26] The situation is surmised to be similar for postpartum anxiety. The National Mental Health Survey of India 2015–2016 revealed that the prevalence of mental disorders in adult females was 7.5%, with predominance in depressive disorders and neurotic and stress-related disorders and GAD.[27] But our study showed the prevalence of anxiety to be higher because pregnancy and perinatal period may aggravate the existing complications.

There is a lack of literature among Indian women on the link between postpartum anxiety and depression. Systematic review[28] has shown that both postpartum anxiety and depression are strongly determined by lack of social support, history of abuse or domestic violence, unwanted pregnancy, and single mother and thus the complex relationship between the two conditions with the multifactorial association.

The prevalence rates of postpartum anxiety disorders found in this study indicate that there is a need for using simple-to-use screening tools for anxiety such as GAD-7 in the postpartum period. The implementation of a screening instrument routinely applied for postpartum anxiety disorders would help to initiate measures for those suffering from anxiety including family and individual counseling and referral for further evaluation and management. Further research may be conducted to explore the connection between postpartum anxiety and antenatal mental health disorders.

Conclusion

The prevalence of postpartum anxiety was found to be 11.3%, and the prevalence of postpartum depression was 12.5%. There was a significant association between postpartum anxiety and postpartum depression and between alcohol use by husband and postpartum anxiety in women. With more than one in ten postpartum women suffering from postpartum anxiety, there is a need for using simple-to-use screening tools for anxiety in the postpartum period, which if routinely applied would help in early identification and initiation of corrective measures for those suffering from anxiety.

Limitations

This was a hospital-based study, which may not have included all the factors that could have led to anxiety and depression; and pre-pregnant mental health status was not measured.

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