

Research Paper

## Depression and Fear Associated with Childbirth in Primigravid Women - A Cross-Sectional Study

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### ABSTRACT

**Background:** Pregnancy represents a major transitional phase in a woman's life; however, a substantial proportion experience apprehension related to childbirth, commonly referred to as tokophobia, which may adversely affect maternal well-being and pregnancy outcomes. Antenatal depression and anxiety are recognized predictors of postpartum psychological morbidity. Primigravid women appear particularly susceptible, yet Indian data on antenatal fear and depressive symptoms remain limited. **Aim:** To determine the prevalence of fear of childbirth and depression among primigravid women and to evaluate their association with selected sociodemographic and obstetric factors. **Materials and Methods:** This cross-sectional study was carried out over 18 months in the Obstetrics and Gynecology outpatient department of Aarupadai Veedu Medical College and Hospital, Puducherry. A total of 115 primigravid women aged 18–40 years, with no history of abortion or diagnosed medical or psychiatric illness, were enrolled through convenience sampling. Sociodemographic and obstetric details were obtained using a semi-structured proforma. Fear of childbirth was assessed using a standardized (FOC) questionnaire, and depressive symptoms were screened with the Edinburgh Postnatal Depression Scale (EPDS). Statistical analysis was done using descriptive statistics, chi-square tests, and logistic regression analysis, with statistical significance at  $p < 0.05$ . **Results:** The mean age of the participants was  $25.5 \pm 4.7$  years, with most participants from lower socioeconomic groups (77.4%) and rural settings (80.9%). Fear of childbirth was common, with 31.3% experiencing mild fear, 27.8% moderate fear, and 27.0% severe fear. Mild depressive symptoms were found in 13% of the participants. Fear of childbirth was significantly associated with socioeconomic status, rural residence, and increasing gestational age, whereas depressive symptoms were significantly associated with rural residence and increasing gestational age. Educational status, religion, and family structure had no significant associations. **Conclusion:** Fear of childbirth is very common in

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primigravid women, whereas antenatal depression is relatively rare and mild. Socioeconomic disadvantage, rural residence, and advancing pregnancy are important determinants of psychological susceptibility, emphasizing the need for early screening and targeted antenatal care.

**Keywords:** *Fear of Childbirth, Tokophobia, Antenatal Depression, Socioeconomic Status, Primigravida, Pregnancy*

Mo<sup>M</sup>therhood and pregnancy can be considered as significant and rewarding experiences in a woman's life, which are generally accompanied by feelings of joy and emotional fulfillment. However, childbirth can be an intensely stressful and challenging experience, and it is only natural for a woman to experience fear or apprehension regarding the same. Research suggests that over one-fifth of pregnant women experience some degree of fear in relation to childbirth, while 6% experience fear that is severe enough to be debilitating. Such intense fear of childbirth is known as tokophobia and is more commonly observed among primigravid women.<sup>1</sup>

Fear of pregnancy can lead to increased stress and anxiety levels, which can manifest in the form of emotional problems, behavioral issues, or physical complaints. Antenatal depression and anxiety, as well as exposure to stressful life events during pregnancy, are established risk factors for the development of postpartum depression.<sup>2</sup>

Fear of childbirth is a significant psychological issue that has the potential to negatively affect both the mental state of mothers and pregnancy outcomes. In more severe or improperly treated cases, fear of childbirth may prevent women from seeking pregnancy, increase stress responses for both the mother and the baby, and increase the preference for elective caesarean sections as a way of avoiding the pain of childbirth.<sup>3</sup> The antenatal period is a particularly significant time for early detection of psychological issues. Because pregnant women regularly attend antenatal appointments, this is a particularly good time to screen for the early onset of depression, anxiety, and fear of childbirth, before the issue worsens.

Although significant, there is a lack of studies in the Indian population that examine the fear of childbirth and depression in pregnant women. More studies are required to better understand the scope of this issue in the Indian population and to develop effective screening tools, counseling, and antenatal support. Because fear of childbirth in multiparous women is associated with previous pregnancy outcomes, we chose to focus our study only on primigravid women. To establish the relationship between fear and depression in primigravid women during the antenatal period. This study assists in decreasing the depression and fear of childbirth in primigravid women, hence ensuring a healthy life for both the mother and the baby. The current study sought to evaluate the depression and fear of childbirth in primigravid women.

### **MATERIAL & METHOD**

This cross-sectional study was conducted over a period of 18 months in the antenatal Obstetrics and Gynaecology outpatient department of Aarupadai Veedu Medical College and Hospital, Puducherry. The study population comprised primigravid women attending the antenatal clinic. Women aged between 18 and 40 years who consented to participate were included, while those with a history of previous abortion or with pre-existing medical or neuropsychiatric disorders were excluded.

## Depression and Fear Associated with Childbirth in Primigravid Women - A Cross-Sectional Study

The convenience sampling method was used, and a total of 115 participants were recruited. The sample size was calculated using the single proportion formula with an expected prevalence of 17.7%, absolute precision of 7%, and significance level of 5%, as a reference from a similar study done by Jaju et al. Institutional Research Committee and Institutional Ethics Committee approvals were obtained prior to the start of the study. Participants were selected if they met the inclusion criteria after taking written informed consent. Sociodemographic and obstetric information was collected using a semi-structured proforma. Fear of childbirth was measured using the Fear of Childbirth scale, and depressive symptoms were screened using the Edinburgh Postnatal Depression scale.

### *Statistical analysis:*

The collected data was systematically organized and analyzed using appropriate statistical analysis. Descriptive statistics was presented using mean, standard deviation, frequency, and percentage. Relationships between categorical variables, such as fear of childbirth and depressive symptoms, were analyzed using chi-square and t-test, whereas multiple logistic regression analysis was used to assess the effect of different sociodemographic and obstetric variables. The level of significance was set at  $p < 0.05$ .

## RESULT

The present study included a total of 115 cases meeting the inclusion criteria with a mean age of  $25.52 \pm 4.71$  years.

*Table 1: Distribution of demographic details*

		Count	N %
Education	Graduate	25	21.7%
	High	73	63.5%
	Middle	17	14.8%
Occupation	House wife	115	100.0%
SES	Lower	89	77.4%
	Middle	26	22.6%
Religion	Christian	19	16.5%
	Hindu	75	65.2%
	Muslim	21	18.3%
Type of family	Joint	20	17.4%
	Nuclear	95	82.6%
Residence	Rural	93	80.9%
	Urban	22	19.1%
Trimester	1	15	13.0%
	2	47	40.9%
	3	53	46.1%

Most of the participants had completed high school (63.5%), followed by graduates (21.7%), and those with middle school education (14.8%); all were housewives, which reflects homogeneity in their occupation. Most of the participants belonged to the lower socioeconomic group (77.4%), and the remaining belonged to the middle socioeconomic group (22.6%). Nuclear families were predominant (82.6%), and the remaining 17.4% lived in joint families. A predominantly rural background was seen, with 80.9% of the participants living in rural areas and 19.1% living in urban areas. Regarding gestational age, most of the women were in the third trimester (46.1%), followed by the second trimester (40.9%), and the remaining were in the first trimester (13.0%).

**Table 2: Distribution according to fear category**

		Count	N %
Fear category	No fear	16	13.9%
	Mild	36	31.3%
	Moderate	32	27.8%
	Severe	31	27.0%
Depression category	Mild	15	13.0%
	No	100	87.0%

Fear of childbirth was also prevalent, with 31.3% of the participants experiencing mild fear, 27.8% moderate fear, and 27.0% severe fear, but only 13.9% no fear. Depression was less common, with only 13.0% of the participants showing mild depression and 87.0% no depressive symptoms. The mean fear of childbirth score was  $11.6 \pm 5.9$ , and the mean EPDS score was  $5.9 \pm 2.6$ . This indicates that the participants experienced low to moderate fear and mild depressive symptoms.

**Table 3: Mean level of fear and depression category with age**

		Age Mean $\pm$ SD	p-value
Fear category	No fear	24.2 $\pm$ 3.7	0.21
	Mild	24.4 $\pm$ 4.1	
	Moderate	26.5 $\pm$ 6.0	
	Severe	26.6 $\pm$ 4.0	
Depression category	Mild	25.6 $\pm$ 4.0	0.92
	No	25.5 $\pm$ 4.8	

Age was not significantly different among categories of fear of childbirth ( $p = 0.21$ ) or depression ( $p = 0.92$ ), which suggests that there was no relationship between maternal age and the level of fear or depression.

**Table 4: Showing the association of variable with fear category**

		Fear category				Chi-square (p-value)
		No fear N (%)	Mild N (%)	Moderate N (%)	Severe N (%)	
Education	Graduate	4 (25.0)	9 (25.0)	6 (16.8)	6 (19.4)	2.72 (0.84)
	High	9 (56.3)	20 (55.6)	22 (68.8)	22 (71.0)	
	Middle	3 (18.8)	7 (19.4)	4 (12.5)	3 (9.7)	
SES	Lower	4 (25.0)	27 (75.0)	28 (87.5)	30 (96.8)	33.74 (0.01)*
	Middle	12 (75.0)	9 (25.0)	4 (12.5)	1 (3.2)	
Religion	Christian	3 (18.8)	5 (13.9)	5 (15.6)	6 (19.4)	1.38 (0.96)
	Hindu	9 (56.3)	25 (69.4)	22 (68.8)	19 (61.3)	
	Muslim	4 (25.0)	6 (16.7)	5 (15.6)	6 (19.4)	
Type of family	Joint	3 (18.8)	7 (19.4)	4 (12.5)	6 (19.4)	0.74 (0.86)
	Nuclear	13 (81.3)	29 (80.6)	28 (87.5)	25 (80.6)	
Residence	Rural	5 (31.3)	29 (80.6)	30 (93.8)	29 (93.5)	32.11 (0.01)*
	Urban	11 (68.8)	7 (19.4)	2 (6.3)	2 (6.5)	
Trimester	1	7 (43.8)	7 (19.4)	0 (0.0)	1 (3.2)	52.15 (0.01)*
	2	9 (56.3)	20 (55.6)	15 (46.9)	3 (9.7)	
	3	0 (0.0)	9 (25.0)	17 (53.1)	27 (87.1)	

\* $p < 0.05$  was considered statistically significant

## Depression and Fear Associated with Childbirth in Primigravid Women - A Cross-Sectional Study

Analysis of the relationship between fear of childbirth and selected sociodemographic and obstetric variables revealed that educational level, religion, and family type were not significantly associated with fear of childbirth. The distribution of fear was similar across different educational levels ( $\chi^2 = 2.72$ ,  $p = 0.84$ ), religious groups ( $\chi^2 = 1.38$ ,  $p = 0.96$ ), and family types ( $\chi^2 = 0.74$ ,  $p = 0.86$ ). However, socioeconomic status was significantly associated with the level of fear ( $\chi^2 = 33.74$ ,  $p = 0.01$ ), where women from lower socioeconomic status more often experienced mild, moderate, and severe fear, and women from middle socioeconomic status predominantly experienced no fear. Residence was also significantly associated with fear ( $\chi^2 = 32.11$ ,  $p = 0.01$ ), where women from rural areas experienced higher levels of fear compared to women from urban areas, where no fear was predominant. Gestational age was highly significantly associated with the level of fear ( $\chi^2 = 52.15$ ,  $p = 0.01$ ), where severe fear was predominantly experienced in the third trimester, moderate fear in the second trimester, and no fear in the first and second trimesters. In general, lower socioeconomic status, rural residence, and increasing pregnancy gestation contributed to fear of childbirth, whereas education, religion, and family type were not significant predictors of fear level.

**Table 5: Association of depression categories in relation to selected sociodemographic and obstetric variables**

		Depression category		Chi-square (p-value)
		Mild N (%)	No Count	
<b>Education</b>	Graduate	4 (26.7)	21 (21.0)	0.25 (0.882)
	High	9 (60.0)	64 (64.0)	
	Middle	2 (13.3)	15 (15.0)	
<b>SES</b>	Lower	14 (93.3)	75 (75.0)	2.50 (0.113)
	Middle	1 (6.7)	25 (25.0)	
<b>Religion</b>	Christian	2 (13.3)	17 (17.0)	0.845 (0.655)
	Hindu	9 (60.0)	66 (66.0)	
	Muslim	4 (26.7)	17 (17.0)	
<b>Type of family</b>	Joint	1 (6.7)	19 (19.0)	1.38 (0.240)
	Nuclear	14 (93.3)	81 (81.0)	
<b>Residence</b>	Rural	15 (100.0)	78 (78.0)	4.08 (0.05)*
	Urban	0 (0.0)	22 (22.0)	
<b>Trimester</b>	1	0 (0.0)	15 (15.0)	11.61 (0.01)*
	2	2 (13.3)	45 (45.0)	
	3	13 (86.7)	40 (40.0)	

\* $p < 0.05$  was considered statistically significant

The association between depression categories and selected sociodemographic and obstetric variables revealed that educational status, socioeconomic status, religion, and family type were not significantly related to depressive symptoms. The distribution of mild depression and no depression among participants with different educational statuses was similar ( $\chi^2 = 0.25$ ,  $p = 0.882$ ), and socioeconomic status was not significantly related to depression, despite the fact that a greater proportion of mildly depressed women belonged to the lower socioeconomic group ( $\chi^2 = 2.50$ ,  $p = 0.113$ ). The distribution of depression categories by religious affiliation was also similar ( $\chi^2 = 0.845$ ,  $p = 0.655$ ), and by family type ( $\chi^2 = 1.38$ ,  $p = 0.240$ ). However, place of residence was borderline significantly related to depression ( $\chi^2 = 4.08$ ,  $p = 0.05$ ), with all cases of mild depression occurring in rural women. The trimester of pregnancy was significantly related to depression status ( $\chi^2 = 11.61$ ,  $p = 0.01$ ), with mild depressive symptoms being predominantly present in the third trimester, and no depression

being more common in the first and second trimesters. In general, the results of this study suggest that rural residence and increasing gestational age may be contributing factors to the development of depressive symptoms, while education, socioeconomic status, religion, and family structure are not significant factors.

### DISCUSSION

Pregnancy and motherhood are viewed as happy and fulfilling experiences; however, the experience of childbirth can induce fear and anxiety in many women. Tokophobia, or the fear of pregnancy and childbirth, is experienced by over 20% of pregnant women, with 6% of them having a disabling fear, especially among primigravid women. This fear can be experienced through emotional, behavioral, and physical symptoms, and is closely associated with antenatal depression and anxiety, both of which are predictors of postpartum psychological morbidity.

The study was conducted on 115 primigravid women with a mean age of  $25.52 \pm 4.71$  years, which is similar to that found by Johnson et al.,<sup>2</sup> and Nazir et al.<sup>4</sup> where the majority of antenatal women belonged to the age group of 20-25yrs and 24-29yrs respectively. Similar to our findings of a predominantly rural population (80.9%), studies from India by Johnson et al.,<sup>2</sup> Nazir et al.,<sup>4</sup> and Immanuel et al.<sup>5</sup> have also found a higher representation of rural women, which reflects the increased use of public antenatal services in rural areas.

In the current study, most participants (77.4%) belonged to the lower socioeconomic group, which is in line with the findings of Gelaw et al.,<sup>6</sup> and Ramlingappa et al.,<sup>7</sup> who found that the lower socioeconomic group was common among women with childbirth-related fear. Though education was not found to have a significant association with fear or depression in the current study, Ramlingappa et al.,<sup>7</sup> and Nazir et al.,<sup>4</sup> found that education affects the levels of fear, indicating that the effect of education may differ in different sociocultural settings.

In the current study, all the participants were housewives, similar to the findings of Nazir et al.,<sup>4</sup> and Gursay et al.,<sup>8</sup> who found that the largely unemployed population had higher levels of childbirth-related fear. Though nuclear families were common in the current study, unlike the findings of Nazir et al.,<sup>4</sup> the structure of the family was not found to have a significant association with fear or depression in the current study.

Most of the women in the current study were in the third trimester of pregnancy (46.1%), followed by the second trimester (40.9%), and the first trimester (13.0%). All pregnancies were planned, family supported, and none of the participants reported prior medical or psychiatric illness. Fear of childbirth was prevalent, with 31.3% experiencing mild fear, 27.8% moderate fear, and 27.0% severe fear, while only 13.9% reported no fear. The mean fear of childbirth score was  $11.6 \pm 5.9$ , indicating an overall low to moderate level of fear among the participants.

This is consistent with various literature sources that have demonstrated a high degree of variability in prevalence, ranging from 15.8% in Sweden,<sup>9</sup> 24% in Australia,<sup>10</sup> to over 40% in Turkey<sup>11</sup> and Ethiopia.<sup>6</sup> Among the Indian literature sources, Jaju et al.,<sup>1</sup> Johnson et al.,<sup>2</sup> and Immanuel et al.,<sup>5</sup> Previous sources have also demonstrated a prevalence of fear of childbirth ranging from 17% to 45%, thus validating the observation that fear of childbirth is a prevalent concern during pregnancy. In the current study, fear was found to have a significant association with socioeconomic status ( $\chi^2 = 33.74$ ,  $p = 0.01$ ), with women from

## Depression and Fear Associated with Childbirth in Primigravid Women - A Cross-Sectional Study

lower socioeconomic status groups experiencing greater fear, and those from middle socioeconomic status groups more often experiencing no fear. Place of residence was also found to have a significant association with fear ( $\chi^2 = 32.11$ ,  $p = 0.01$ ), with rural participants more often reporting mild to severe fear, while in urban participants, the predominant fear was no fear. Gestational age had a strong impact on the level of fear ( $\chi^2 = 52.15$ ,  $p = 0.01$ ), with severe fear being most prevalent in the third trimester, moderate fear in the second trimester, and minimal or no fear being largely restricted to the first and second trimesters. However, age, educational status, religion, and family type did not have a significant relationship with fear. Thus, the results of this study suggest that lower socioeconomic status, rural settings, and higher gestational age are the important determinants of fear of childbirth in this study population. The results of this study are in agreement with Gelaw et al.,<sup>6</sup> who found that 40 (10.3%) of the pregnant women had a low degree of fear, 154(39.8%) had a moderate degree of fear, 98(25.3%) had a high degree of fear, and 95(24.5%) had a severe degree of fear of childbirth. Similarly, Huang et al., found gestational age, social support, and socioeconomic conditions to be the important predictors of fear.<sup>12</sup> The dominance of severe fear during the third trimester in our study is also supported by Nazir et al., which revealed that 22.7% of primigravida women had high fear of childbirth, 39.1% had moderate fear, and 38.2% had low fear, 4 and Bist et al., who found that anxiety increased as the time of delivery drew near.<sup>13</sup>

In contrast to Nieminen et al., who found no relationship between gestational age and fear, our results show a clear trimester-related gradient, possibly due to increased anticipation and lack of childbirth preparation in primigravid women.<sup>9</sup> Sociocultural conditions that impede open communication about fears of childbirth, as described by Korukcu et al.,<sup>11</sup> may also contribute to increased fear levels in rural areas like ours. Most women (87.0%) did not show depressive symptoms, while 13.0% had mild depression. The average EPDS score was  $5.9 \pm 2.6$ . This is similar to Jaju et al.<sup>1</sup> who reported antenatal depression between 8.7% and 9.8%, and Milgrom et al., who found antenatal depressive symptoms in 9% of women.<sup>14</sup>

However, educational status, socioeconomic status, religion, and family type did not demonstrate a significant association with depressive symptoms in the study population. Place of residence showed a borderline statistically significant association with depression ( $\chi^2 = 4.08$ ,  $p = 0.05$ ), where all participants with mild depressive symptoms were from rural areas. Gestational age showed a significant association with depression ( $\chi^2 = 11.61$ ,  $p = 0.01$ ), where mild depression was more common in the third trimester, and the absence of depression was more prevalent in the first and second trimesters. Age did not demonstrate any significant association with depression in this study population. In our study, depression was significantly associated with trimester of pregnancy and borderline associated with rural residence, which is consistent with Milgrom et al.<sup>14</sup> and Huang et al., who identified gestational stage and psychosocial stressors as key predictors of antenatal depressive symptoms.<sup>12</sup> Like Immanuel et al., depression did not remain a strong predictor of fear of childbirth after adjustment, suggesting that fear and depression, although correlated, may have different underlying factors.<sup>5</sup> The prevalence of mild depression in the third trimester, as found in our study, supports the findings of Toohill et al.,<sup>10</sup> and Bist et al.,<sup>13</sup> who highlighted that the psychological distress of women increases as the time for childbirth draws near, especially in primigravida who are not adequately prepared.

### **Limitation**

The study also has some limitations that need to be kept in mind while analyzing the results. Since it is a cross-sectional study, it is not possible to determine the relationship between

## Depression and Fear Associated with Childbirth in Primigravid Women - A Cross-Sectional Study

fear of childbirth, depression, and its related factors in terms of time and causality. The study used convenience sampling, which may not be generalizable to other institutions. The study also used self-administered questionnaires, which may have response bias. There may be some confounding variables that may have affected the results.

### CONCLUSION

Among the 115 primigravid women, fear of childbirth during antenatal periods was a common phenomenon, whereas depression was mild and less frequent. The intensity of fear was significantly higher among women belonging to lower socioeconomic groups, rural residents, and those in advanced pregnancy, especially in the third trimester. However, education, religion, and family structure had no effect on fear and depression. In conclusion, the results emphasize that although depression was less common, fear of childbirth is still a common phenomenon in primigravid women and is affected by socioeconomic status, residence, and gestational age. Early detection and targeted antenatal counseling, especially in women in advanced pregnancy and those from rural or lower socioeconomic backgrounds, may reduce fear and improve psychological well-being.

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## Depression and Fear Associated with Childbirth in Primigravid Women - A Cross-Sectional Study

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### ***Conflict of Interest***

The author(s) declared no conflict of interest.

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