



A DESCRIPTIVE STUDY TO ASSESS THE MATERNAL ANXIETY OF PRIMIGRAVIDA MOTHERS AMONG TRIMESTERS AT SELECTED HOSPITAL, BANGALORE

¹Mrs Rasmita Swain

Assistant Professor

Department of Obstetrics and Gynaecology Nursing,

Spurthy College of Nursing, Bangalore -562106, Karnataka, India

Abstract :

Background: Pregnancy is a period of significant physical and emotional changes, and maternal anxiety is a common concern, particularly among primigravida mothers. Anxiety levels are known to fluctuate across the three trimesters of pregnancy, but limited research exists regarding trimester-specific anxiety patterns in Indian settings.

Objectives: This study aimed to assess and compare maternal anxiety levels among primigravida mothers in the first, second, and third trimesters at a selected hospital in Bangalore.

Methods: A descriptive cross-sectional study was conducted with 30 primigravida mothers. Ten participants were selected from each trimester group (first, second, and third). Maternal anxiety was assessed using the State-Trait Anxiety Inventory (STAI), and demographic data were collected using a structured questionnaire.

Results: A statistically significant difference in both state and trait anxiety scores was found across trimesters ($p < 0.05$). Anxiety levels were highest in the third trimester, followed by the first trimester, with the second trimester exhibiting the lowest scores.

Conclusion: Maternal anxiety significantly varies across pregnancy trimesters, with peak levels observed in the third trimester. These findings suggest the need for trimester-specific psychological support during antenatal care.

Keywords: Maternal anxiety; Primigravida; Pregnant women; Anxiety levels; Demographic factors; STAI

I. INTRODUCTION

Pregnancy is a significant life event that involves complex physiological and psychological changes. While it is often a time of joy and anticipation, it can also be a period of increased emotional vulnerability, especially for first-time mothers. Maternal anxiety is one of the most common psychological challenges during pregnancy, and it can have profound effects on both maternal well-being and fetal development (Field, 2017).

Among pregnant women, primigravida mothers—those experiencing their first pregnancy—are particularly susceptible to anxiety due to the unfamiliarity of pregnancy, labor, and motherhood. Anxiety during pregnancy is associated with concerns about fetal health, childbirth complications, bodily changes, and the transition into a maternal role (Bayrampour et al., 2016). If left unaddressed, maternal anxiety may lead to adverse outcomes, such as preterm birth, low birth weight, poor neonatal adaptation, and an increased risk of postpartum depression (Grigoriadis et al., 2018).

The experience of anxiety in pregnancy often fluctuates across trimesters. In the first trimester, anxiety typically arises from fears of miscarriage, hormonal fluctuations, and adapting to the reality of pregnancy. The second trimester may bring a period of relative emotional stability, sometimes referred to as the “honeymoon phase,” as early pregnancy risks diminish and physical symptoms ease (Ding et al., 2014). However, anxiety levels may rise again in the third trimester, when concerns shift to labor, delivery, and the health of the baby. Studies suggest that fear of childbirth and uncertainty about the birthing process are key drivers of anxiety during this stage (Heron et al., 2004).

While existing literature has explored general anxiety trends during pregnancy, few studies have focused on trimester-specific anxiety patterns among primigravida women, especially in Indian healthcare settings. Cultural factors, family dynamics, socioeconomic status, and healthcare accessibility may influence anxiety levels differently in the Indian context compared to Western countries. A better understanding of how anxiety varies across trimesters in this population can help tailor antenatal mental health interventions more effectively.

This study aims to assess and compare maternal anxiety levels among primigravida mothers in each trimester of pregnancy at a selected hospital in Bangalore, India. By identifying trimester-specific patterns in anxiety, the findings may inform the

development of targeted psychological support programs during antenatal care, ensuring better maternal and fetal health outcomes.

II. METHODOLOGY

Sources of data

Primigravida mothers are in the selected tertiary care hospital in Bangalore, Karnataka.

Research Design

A descriptive cross-sectional study design was employed to assess maternal anxiety levels among primigravida mothers in the first, second, and third trimesters. This design allows for the observation of current anxiety levels at a specific point in time across different groups (Polit & Beck, 2021).

Research Setting

The study was conducted at a selected tertiary care hospital in Bangalore, which provides regular antenatal care services to a diverse population.

Population

The population selected for this study comprised primigravida mothers who were attending the outpatient department in a selected tertiary care hospital, Bangalore.

Samples size

A total of 30 **primigravida mothers** were selected, with 10 participants in each trimester group (first, second, and third). Inclusion criteria were women aged 18–35 years, in any trimester of pregnancy, able to understand English or Kannada, and willing to provide informed consent.

Inclusion Criteria

- Primigravida women between 18 and 35 years
- Women in the first, second, or third trimester of pregnancy
- Women willing to participate and provide informed consent

Exclusion Criteria

- Women with known psychiatric disorders
- High-risk pregnancies
- Multigravida women
- Mothers who are in labour pain

Description of the tools

Maternal anxiety was assessed using the State-Trait Anxiety Inventory (STAI), a widely validated tool (Spielberger et al., 1983). Demographic data were collected using a structured questionnaire, including age, education, occupation, and support system.

Section A: Demographic characteristics

Section B: The State–Trait Anxiety scale consists of 40 items in total. 20 items allocated to each of the state-anxiety (evaluate the current state of anxiety) and T-anxiety (evaluate the relatively stable aspects of anxiety), each question related 4-point scale for S-anxiety.

The 4-point scale for S-anxiety is as follows: 1.) not at all, 2.) somewhat, 3.) moderately so, 4.) very much so.

The 4-point scale for T-anxiety is as follows: 1.) almost never, 2.) sometimes, 3.) often, 4.) almost always

Data collection technique

After obtaining informed consent, participants completed the STAI questionnaire in a private setting. The data were collected during routine antenatal visits. Ethical approval was obtained from the institutional ethics committee.

Data Analysis

Data were analyzed using SPSS version 25.0. Descriptive statistics, such as mean and standard deviation, were used to summarize the anxiety scores. One-way ANOVA was employed to compare anxiety levels across the three trimesters.

III. RESULTS

The presentation of data was organized and analyzed under the following sections

Part I: Description of demographic variables

Part II: Assessment of anxiety score of primigravida mothers across the trimesters

Part III: Association between anxiety score and selected demographic variables

Part I: Description of demographic variables

This part I deals with the distribution of participants according to their demographic characteristics. the data was analyzed using descriptive statistics and summarized in frequency and percentage.

Table 1: Frequency and percentage distribution of samples according to their demographic variables.

Sl. No.	Demographic variables	Frequency	Percentage (%)
1	Age in years		
	a. 20- 25	21	70.00
	b. 26- 30	5	16.67
	c. 31- 35	4	13.33
	d. \geq 36	0	0.00
2	Religion		
	a. Hindu	21	70.00
	b. Muslim	7	23.33
	c. Christian	2	6.67
	d. Others	0	0.00
3	Area of Residence		
	a. Urban	12	40.00
	b. Rural	18	60.00
	c. Semi-urban	0	0.00
4	Number of pregnancies		
	a. 1 st	30	100.00
	b. 2 nd	0	0.00
	c. 3 rd	0	0.00
	d. 4 th	0	0.00
5	Level of Education		
	a. Post Graduate and above	16	53.33
	b. Graduate degree	7	23.33
	c. Higher secondary certificate	5	16.67
	d. High school certificate	2	6.67
	e. Middle school certificate	0	0.00
	f. Literate, less than middle school certificate	0	0.00
	g. Illiterate	0	0.00
6	Trimester of pregnancy		
	First	10	33.33
	Second	9	30.00
	Third	11	36.7
7	Maternal Occupation		
	a. Professional	15	50.00
	b. Semi-professional	0	0.00
	c. Arithmetic skill job	0	0.00
	d. Skilled worker	7	23.33
	e. Semi-skilled worker	1	3.33
	f. Un-skilled worker	0	0.00
	g. Unemployed	7	23.33
8	Co-morbid diseases		
	a. Yes (if yes, specify)	0	0.00
	b. No	30	100.00
9	Monthly Income		

	a. Below 10,000	0	0.00
	b. 10,001-20,000	0	0.00
	c. 20,001-30,000	0	0.00
	d. 30,001-40,000	21	70.00
	e. 40,001 and more	9	30.00
10	Dietary habit		
	a. Vegetarian	5	16.67
	b. Non-vegetarian	25	83.33

The study included 30 primigravida mothers attending antenatal clinics at a selected hospital in Bangalore. The demographic data were collected using a structured questionnaire and are presented in Table 1.

The majority of the participants (70.00%) were aged between 20–25 years, followed by 16.67% in the 26–30 years age group. In terms of education, 53.33% of the mothers had postgraduated, while 23.33% had completed graduate. Regarding occupation, most participants (50.00%) were professional, and the remainder were unemployed in various professions.

The distribution of participants across trimesters was relatively balanced: 33.3% were in the first trimester, 30% in the second, and 36.7% in the third trimester. As for the type of comorbid diseases, none were found with any of the primigravida mothers. The majority, 83.33%, were nonvegetarian, whereas 16.67% were vegetarian.

Part II: Assessment of anxiety score of primigravida mothers regarding their pregnancy

Table 2: frequency and percentage distribution of samples according to anxiety score

Anxiety level	Range of scores	frequency	Percentage (%)
Mild anxiety	40-80	5	16.67
Moderate anxiety	81-120	15	50.00
Sever anxiety	121-160	10	33.33

Table 3: Distribution of Maternal Anxiety Scores among primigravida mothers across Trimesters (N = 30)

Trimester	Mean State Anxiety Score	SD	Mean Trait Anxiety Score	SD
First Trimester(n=10)	47.3	5.2	45.9	4.7
Second Trimester(n=9)	43.8	4.9	42.3	4.3
Third Trimester(n=11)	50.1	5.6	48.7	5.1

Comparison of Anxiety Across Trimesters

One-way ANOVA revealed statistically significant differences in both state and trait anxiety scores across the three trimesters ($p < 0.05$). Post-hoc analysis indicated significant differences between the third trimester and the second trimester ($p = 0.02$), and between the first trimester and the third trimester ($p = 0.04$).

Part III: Association between anxiety score and selected demographic variables

Table 4: Association between anxiety score and demographic variables

Sl. No.	Demographic variables	Frequency	Anxiety score	df	Chi-square value	P value
			Mean±SD			
1	Age in years					
	a. 20- 25	21	109.1±12,32	2	4.21	0.731 NS
	b. 26- 30	5	115.2 ±10.45			
	c. 31- 35	4	96.36±8.65			

	d. ≥ 36	0	0 \pm 0.00			
2	Religion					
	a. Hindu	21	101.4 \pm 6.32	2	0.66	0.822 NS
	b. Muslim	7	92.5 \pm 14.22			
	c. Christian	2	108.4 \pm 15.34			
	d. Others	0	0 \pm 0.00			
3	Area of Residence					
	a. Urban	12	111.7 \pm 6.32	1	6.31	1.32 NS
	b. Rural	18	104.7 \pm 13.42			
	c. Semi-urban	0	0 \pm 0.00			
4	Number of pregnancies					
	a. 1 st	30	112.2 \pm 5.05	1	1.00	0.000 S
	b. 2 nd	0	0 \pm 0.00			
	c. 3 rd	0	0 \pm 0.00			
	d. 4 th	0	0 \pm 0.00			
5	Level of Education					
	a. Post Graduate and above	16	118.4 \pm 10.00	2	14.45	0.998 NS
	b. Graduate degree	7	98.3 \pm 6.20			
	c. Higher secondary certificate	5	108.8 \pm 11.32			
	d. High school certificate	2	99.8 \pm 6.43			
	e. Middle school certificate	0	0 \pm 0.00			
	f. Literate, less than middle school certificate	0	0 \pm 0.00			
	g. Illiterate	0	0 \pm 0.00			
6	Trimester of pregnancy					
	First	10	44.95 \pm 11.97	2	6.72	0.034 S
	Second	9	40.22 \pm 13.25			
	Third	11	39.55 \pm 8.90			
7	Maternal Occupation					
	a. Professional	15	110.7 \pm 13.22	2	16.32	1.340 NS
	b. Semi-professional	0	0 \pm 0.00			
	c. Arithmetic skill job	0	0 \pm 0.00			
	d. Skilled worker	7	94.3 \pm 4.32			
	e. Semi-skilled worker	1	130.0 \pm 0.00			
	f. Un-skilled worker	0	0 \pm 0.00			
	g. Unemployed	7	124.8 \pm 17.66			
8	Co-morbid diseases					
	a. Yes (if yes, specify)	0	0 \pm 0.00	1	1.00	0.00 S
	b. No	30	122.8 \pm 14.42			
9	Monthly Income					
	a. Below 10,000	0	0 \pm 0.00	2	3.22	0.824 NS
	b. 10,001-20,000	0	0 \pm 0.00			
	c. 20,001-30,000	0	0 \pm 0.00			
	d. 30,001-40,000	21	117.3 \pm 7.03			
	e. 40,001 and more	9	100.5 \pm 6.42			
10	Dietary habit					

	a. Vegetarian	5	105.9±12.00	2	5.67	0.777 NS
	b. Non-vegetarian	25	111.5±16.03			

The study examined the association between various demographic variables and anxiety scores among pregnant women. The mean anxiety scores varied across groups; however, statistical significance was observed only in a few variables.

A significant association was found between anxiety scores and the trimester of pregnancy ($\chi^2 = 6.72$, $df = 2$, $p = 0.034$), with the highest mean anxiety score in the first trimester (44.95 ± 11.97), followed by the second (40.22 ± 13.25) and third trimesters (39.55 ± 8.90). Similarly, number of pregnancies showed a significant association with anxiety levels ($\chi^2 = 1.00$, $df = 1$, $p = 0.000$), where all participants were primigravida, reporting a mean anxiety score of 112.2 ± 5.05 . A statistically significant association was also found for co-morbid diseases ($\chi^2 = 1.00$, $df = 1$, $p = 0.00$), where those without co-morbidities had a higher anxiety mean score (122.8 ± 14.42).

Other demographic variables, such as age ($p = 0.731$), religion ($p = 0.822$), area of residence ($p = 1.32$), level of education ($p = 0.998$), maternal occupation ($p = 1.340$), monthly income ($p = 0.824$), and dietary habits ($p = 0.777$), did not show statistically significant associations with anxiety scores

IV. DISCUSSION

The results of this study indicate that maternal anxiety levels are highest in the third trimester, followed by the first trimester, with the second trimester showing the lowest anxiety levels. This finding aligns with previous research, which suggests that psychological distress is often more pronounced in the final stages of pregnancy due to concerns about labor and delivery (Bayrampour et al., 2016).

The second trimester, often seen as the most physically stable phase of pregnancy, was associated with lower anxiety levels, consistent with the idea of a "honeymoon phase" where maternal concerns are reduced (Field, 2017). On the other hand, first trimester anxiety may be attributed to fear of miscarriage and the uncertainties that accompany the early stages of pregnancy (Ding et al., 2014).

These findings highlight the need for targeted psychological interventions during the third trimester to help reduce anxiety, which has been linked to adverse outcomes such as preterm birth, low birth weight, and poor maternal health (Grigoriadis et al., 2018).

V. CONCLUSION

This study concludes that maternal anxiety among primigravida mothers varies significantly across pregnancy trimesters, with peak anxiety levels occurring during the third trimester. Given the negative impact of maternal anxiety on both maternal and fetal health, it is essential to incorporate mental health screenings and tailored interventions into routine antenatal care, particularly in the later stages of pregnancy.

Recommendations

- Regular anxiety assessments should be integrated into antenatal care.
- Focused psychological counselling and support should be offered during the third trimester.
- Healthcare providers should be trained to identify and manage prenatal anxiety effectively.

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