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A Study to Assess the Stress Level among Antenatal Mothers in Selected Maternity Hospitals

Smruti Bhalendu Vaishnav[1], Arati Govindlal Mishra[2]

[1]Professor, Obstetrics and Gynecology Pramukh Swami Medical College, Bhaikaka University, Karamsad
[2]PhD Scholar, Broad Discipline Nursing Bhaikaka University, Karamsad

Corresponding Author: Arati Govindlal Mishra

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ABSTRACT

Background: Pregnancy is a critical period marked by physiological and psychological adjustments that may increase maternal stress. Elevated stress during pregnancy is associated with adverse maternal and fetal outcomes. Understanding stress levels among antenatal mothers is essential for early intervention and the integration of mental health care into antenatal services.
Aim: To assess the level of stress among antenatal mothers in selected maternity hospitals and to determine the association between stress levels and selected demographic variables.
Methods: A descriptive cross-sectional study was conducted among 120 antenatal mothers selected through random sampling from maternity hospitals in Junagadh, Gujarat. The Perceived Stress Scale (PSS-10) was used to measure stress levels, categorized as low, moderate, or high. Chi-square analysis was used to examine associations between stress levels and demographic variables such as education, occupation, economic status, and parity.
Results: Most antenatal mothers experienced moderate stress (83.33%), followed by low stress (14.16%) and high stress (2.51%). Occupation ($\chi^2 = 25.4$, $p = 0.001$) and parity ($\chi^2 = 21.0$, $p = 0.008$) showed statistically significant associations with stress levels, whereas educational status and economic status were not significantly associated ($p > 0.05$).
Conclusion: Moderate stress was highly prevalent among antenatal mothers, indicating the need for routine psychological screening during antenatal care. Working women and first-time mothers were more vulnerable to stress and may benefit from focused interventions. Incorporating stress management strategies such as yoga, counseling, and health education into antenatal care can enhance maternal mental well-being and improve pregnancy outcomes.

Keywords: Antenatal mothers, Perceived Stress Scale, stress level, pregnancy, parity, occupation, maternal mental health.

INTRODUCTION

Pregnancy is a unique and sensitive phase in a woman's life, characterized by extensive physiological, psychological, and social adjustments. These changes, although essential for fetal development, often make pregnant women emotionally vulnerable, placing them at increased risk for stress and anxiety. Maternal stress during the antenatal period has been widely recognized as a major public health concern, as it can influence maternal mental health, fetal development, pregnancy outcomes, and subsequent maternal–infant interaction.

Timely identification and appropriate management of stress are therefore critical to safeguarding maternal well-being and ensuring healthy pregnancy outcomes. Understanding the level of stress among antenatal mothers is essential for planning effective psychological support, health education, and targeted interventions.

Background of the Study

Maternal stress is common during pregnancy, yet it often remains unnoticed and untreated. Elevated stress levels have been linked with complications such as preterm birth, low birth weight, developmental delays, and postpartum depression. Multiple factors—such as physical discomfort, emotional instability, hormonal fluctuations, economic challenges, limited family support, and fear of labor—can contribute to increased stress among pregnant women.

The Perceived Stress Scale (PSS), developed by Cohen in 1983, is a reliable and widely used tool to assess how individuals perceive stress in terms of unpredictability, uncontrollability, and overload in daily life. Earlier findings from a randomized controlled trial conducted in selected maternity hospitals of Junagadh indicated that many antenatal mothers exhibit moderate to high stress levels. These observations underscore the importance of early stress screening and structured stress reduction programs within antenatal care services.

Aim of the Study

To assess the level of stress among antenatal mothers in selected maternity hospitals.

Objectives of the Study

1. To determine the level of stress among antenatal mothers using the Perceived Stress Scale (PSS).
2. To associate stress levels with selected demographic and obstetric variables such as education, occupation, economic status, and parity.

METHODOLOGY

Research Approach and Design

A descriptive cross-sectional survey design was adopted to assess stress levels among antenatal mothers.

Setting of the Study

The study was conducted in selected maternity hospitals of Junagadh, Gujarat.

Population and Sampling

The study population included 120 antenatal mothers who were attending antenatal clinics in the selected maternity hospitals. Participants were selected using simple random sampling.

Inclusion Criteria

- Antenatal mothers aged 20–35 years with gestational age between 14–24 weeks.
- Women able to understand Gujarati.
- Women willing to participate and provide consent.

Exclusion Criteria

- High-risk or precious pregnancies likely to influence maternal and fetal outcomes.
- Women with anemia, history of APH/PPH, hypertension, malpresentation, polyhydramnios, multiple pregnancies, chronic hypertension, cardiac conditions, or obesity.

Data Collection Tool

The Perceived Stress Scale (PSS-10) by Cohen (1983) was used to assess stress. It consists of 10 items scored on a 5-point Likert scale. Stress levels were categorized as:

- Low stress: 0–13
- Moderate stress: 14–26
- High stress: 27–40

Ethical Considerations

Ethical approval was obtained from the Institutional Ethics Committee (IEC/BU/135/Faculty/5/318-16/11/2021).

Written informed consent was obtained from all participants, and confidentiality and anonymity were assured.

RESULTS

Stress Level among Antenatal Mothers (N = 120)

Baseline assessment revealed the following distribution:

- **Moderate Stress:** 83.33% (n = 100)
- **Low Stress:** 14.16% (n = 17)
- **High Stress:** 2.51% (n = 3)

The majority of antenatal mothers experienced moderate stress, indicating that psychological stress during pregnancy is common. A smaller proportion showed low stress, while a very small subgroup exhibited high stress, identifying them as vulnerable and in need of focused psychological support. These findings emphasize the importance of routine stress assessment and the incorporation of interventions—such as yoga therapy, counseling, or relaxation techniques—within antenatal care services.

Association between Demographic Variables and Stress Levels

Table 1: Association between selected demographic variables and stress levels.

Sr No.	Variable	Categories	Low	Moderate	High	Total	Chi Square	DF	P Value	Sig/non-Sig
1.	Educational Status	Primary Education	1	18	1	20	12.8	6	0.04	S
		Secondary Education	9	21	2	32				
		Graduation	4	22	0	26				
		Post Graduation	3	39	0	42				
2.	Occupation	Working woman	1	9	3	13	25.4	2	**0.000003 < 0.001**	S
		Homemaker	16	91	0	107				
3.	Economic status	Poor	1	3	0	4	1.39	4	0.8	NS
		Average	12	80	2	94				
		Good	4	17	1	22				
4.	No. of delivery	Frist	3	75	2	80	21.5	3	**0.000083 < 0.001**	S
		second or third	14	25	1	40				

The association between selected demographic variables and stress levels among antenatal mothers was examined using the Chi-square test. The results are summarized below.

Educational Status

A statistically significant association was observed between educational status and stress levels ($\chi^2 = 12.8$, df = 6, $p = 0.04$). Although stress varied across primary, secondary, graduate, and postgraduate groups, most women reported moderate stress. This indicates that educational attainment did not substantially alter stress perceptions during pregnancy, even though the overall association reached statistical significance.

Occupation

A highly significant association was found between occupation and stress levels ($\chi^2 = 25.4$, df = 2, $p < 0.001$). Working women showed higher proportions of both low and high stress when compared to homemakers, who predominantly reported moderate stress. This suggests that employment-related responsibilities and work pressures may contribute to elevated stress among employed pregnant women.

Economic Status

Economic status did not show a statistically significant association with stress levels ($\chi^2 = 1.39$, df = 4, p = 0.80). Stress scores were similar across poor, average, and good socioeconomic categories. This indicates that in this study population, financial background was not a major determinant of psychological stress during pregnancy.

Number of Deliveries (Parity)

Parity demonstrated a statistically significant association with stress levels ($\chi^2 = 21.5$, df = 3, p <0.001). First-time mothers exhibited a higher proportion of moderate stress compared to multiparous women. This may be attributed to unfamiliarity with the childbirth process, greater apprehension, and uncertainties commonly associated with first pregnancies.

DISCUSSION

The present study examined stress levels among antenatal mothers in selected maternity hospitals of Junagadh, Gujarat, and analyzed the association between stress and selected demographic variables. The findings indicate that a substantial majority of participants experienced moderate stress (83.33%), with fewer reporting low (14.16%) or high (2.51%) stress. This high prevalence of moderate stress highlights psychological stress as a common and clinically significant concern during pregnancy and reinforces the importance of routine mental health screening within antenatal care services.

The predominance of moderate stress in this study is consistent with existing literature, which describes pregnancy as a period of heightened vulnerability due to emotional, physiological, and social transitions. Previous studies by Alder et al. (2007) and Alderdice and Lynn (2011) similarly report high rates of maternal stress and anxiety during pregnancy. The biopsychosocial framework outlined by Dunkel Schetter (2011) further explains that stress during pregnancy emerges from an interplay of biological changes, psychological responses, and social environments, underscoring that even uncomplicated pregnancies may be emotionally demanding.

A significant association was found between occupation and stress levels. Working women demonstrated higher proportions of both low and high stress compared with homemakers. Employment-related pressures, including physical workload, job strain, and the challenge of managing occupational and household responsibilities, may contribute to elevated stress. These findings align with the observations of Lobel et al. (2008), who reported that work–family conflict and employment stressors significantly increase pregnancy-specific stress.

Parity also showed a statistically significant association with stress. Primigravidae experienced higher stress levels than multiparous women, consistent with earlier research indicating that first-time mothers often experience heightened fear, uncertainty, and concern about labor, body changes, and parenting (DiPietro, 2010). As Kingston et al. (2012) note, lack of prior childbirth experience may increase psychological vulnerability, highlighting the need for targeted educational and emotional support for this group.

In contrast, economic status was not significantly associated with stress in this study. This suggests that, within this population, stress is more strongly influenced by psychosocial and physiological factors than by socioeconomic differences. Although educational status reached statistical significance, no clear pattern emerged across educational categories, suggesting that higher education does not necessarily protect against stress during pregnancy.

These findings carry important implications for antenatal care. Given that most women experience moderate stress, integrating routine psychological screening using validated tools such as the PSS-10 is essential. Tailored interventions should be prioritized for groups identified as more

vulnerable—particularly working women and first-time mothers. Evidence-based approaches such as yoga, mindfulness, relaxation therapy, counseling, and structured antenatal education have been shown to reduce maternal stress and improve maternal–fetal outcomes (Guardino & Dunkel Schetter, 2014; Wadhwa, 2005). Incorporation of such interventions into routine antenatal services may enhance maternal well-being and support healthy pregnancy outcomes.

Strengths and Limitations

A key strength of this study is the use of a validated tool (PSS-10) and a random sampling method, which enhances the credibility and generalizability of the findings within the study setting. However, limitations include the single-district setting, which may limit external applicability. Additionally, stress was measured at a single point in time, although stress levels may vary across trimesters. As with all self-reported measures, responses may be subject to recall or social desirability bias.

Implications for Practice and Future Research

The findings underscore the need for mental health screening as an integral component of antenatal care. Healthcare providers should implement stress-reduction strategies tailored to high-risk groups and offer education, counseling, and supportive interventions throughout pregnancy. Future research should consider longitudinal designs to examine stress patterns across gestational periods and evaluate the impact of structured interventions such as yoga or counseling. Further exploration of family support, partner involvement, cultural factors, and coping mechanisms may deepen understanding of maternal stress and inform comprehensive intervention programs.

Overall, this study reaffirms antenatal stress as a pressing public health issue and highlights the need for preventive, supportive, and therapeutic strategies within maternal healthcare to promote psychological well-being and optimal maternal–fetal outcomes.

CONCLUSION

The study found that the majority of antenatal mothers experienced moderate levels of stress, underscoring the importance of routine psychological screening during pregnancy. Significant associations with occupation and parity highlight the need for additional support for working women and first-time mothers. In contrast, educational status and economic class did not show strong influence on stress experiences. These findings reinforce the importance of integrating structured stress-reduction strategies—such as yoga, relaxation therapy, mindfulness-based practices, counseling, and antenatal education—into routine maternal healthcare to enhance psychological well-being and promote healthier pregnancy outcomes.

Declaration by Authors

Ethical Approval: Approved

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Conflict of Interest: The authors declare no conflict of interest.

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