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Original Research Article

Assessment of stress prevalence among pregnant women in Kerala

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ABSTRACT

Background: Pregnancy is a period of significant physiological and emotional transformation. This is a stressful time, which may have a negative impact on mother and baby health. The present study was conducted with the aim of finding the prevalence of stress level among pregnant women in Kerala and to check the correlation between emotional intelligence (EI) and perceived stress among the pregnant women.
Methods: A cross-sectional study was conducted to observe among 130 pregnant women at a tertiary care center in Kochi, Kerala. The stress level was measured by perceived stress scale (PSS) and emotional intelligence was assessed in four areas: self-awareness, self-management, social awareness and relationship management. Descriptive statistics, Pearson's Chi-square test and Spearman's rho test were used in the statistical analysis.
Results: A total of 130 pregnant women with 84.6% reporting moderate stress, 9.2% high stress and 6.2% mild stress. There was a significant negative correlation between levels on stress and social awareness, the only individual domain of emotional intelligence. Demographic factors were not significantly related to stress levels such as employment status, medical comorbidities and socioeconomic class.
Conclusions: Relatively high stress levels are common among most pregnant women in this area. Prevention of urinary tract infection (UTI) can be crucial in enhancing emotional intelligence skills, especially social awareness, which must be targeted and utilized by specific antenatal screening and psychological support systems for whole mother well-being.

Keywords: Emotional intelligence, Maternal health, Perceived stress scale, Pregnancy, Stress

INTRODUCTION

In Kerala, all population members are literate and almost 100% of birth events are occurring in institutions, but maternal mortality and morbidity and neonatal mortality and morbidity rates have not changed significantly.[1] Pregnancy is a great time in a woman's life. It is also a significant life change, with deep physiological, psychological and social changes, making women especially susceptible to stress. Maternal stress has been consistently linked to poor obstetric outcomes, including preterm delivery, low birth weight, impaired fetal growth, and offspring neurodevelopmental problems.[2-4]

Maternal stress activates maternal neuroendocrine pathways, specifically the hypothalamic pituitary adrenal (HPA) axis, which leads to increased cortisol levels that can negatively affect placental function and fetal development.[5,6]

The prevalence of perceived stress during pregnancy varies widely across populations and is influenced by sociodemographic status, cultural norms, parity, and access to healthcare services.[7,8] Indian studies have reported a substantial burden of antenatal stress, with moderate to high stress levels observed among pregnant women attending tertiary care centers.[9-11] Emotional intelligence (EI) is defined as the ability to identify and

manage emotions and is becoming a key asset in coping with antenatal stress.[12,13] In India, two protective factors against antenatal stress are social awareness (capability to understand others' emotions and respond well to social environment) and two empowering factors (self-awareness and self-management) to support antenatal stress.[14,15] The Kerala state has high standards of maternal health care services; however, there is a lack of adequate research on the prevalence of perceived stress as a public health problem. The correlation of the four domains of emotional intelligence with the perceived stress during early pregnancy is important to understand so that interventions can be targeted. Thus, the present study was designed to determine the level of perceived stress among pregnant women in Kerala and to explore the relationship between perceived stress, EI and selected demographic variables.

METHODS

Study design and setting

It was a cross-sectional observational study carried out in the Department of Obstetrics and Gynecology of Amrita Institute of medical sciences in Kochi, Kerala, India from January to June, 2024. In this study, a total number of 130 pregnant women were included.

Inclusion criteria

Women in the study included who were pregnant up to 12 weeks.

Exclusion criteria

Pregnancies unlikely to be viable or cases where patients were being treated for psychiatric disorders or where the patients' gestations were over 12 weeks old were excluded.

Study tools

Structured questionnaire was used for collecting data, which was divided into two parts: sociodemographic history and obstetric history. We also used two validated instruments:

The perceived stress scale (PSS)

This measured the level of stress experienced and rated it for mild (0–13), moderate (14–26) and high (27–40).[18,19]

Emotional quotient (EQ) questionnaire

The four components of self-awareness (5-25 points), self-management (1-25 points), social-awareness (5-25 points) and relationship-management (5-25 points) were assessed using an emotional quotient (EQ) questionnaire.

A participant information sheet was provided and consent was obtained with a written informed consent form. Furthermore, the study was approved with ethical clearance before the data was collected by the ethical committee of the institution.

Statistical analysis

Analysed data with the IBM statistical package for the social sciences (SPSS) statistics version 20.0. The frequencies and percentages of categorical variables were used to summarize them. To explore relationships between stress and demographic using a Pearson's Chi square test.

Spearman's rho used to see how the different parts of stress and emotional intelligence were related to each other. If the $p<0.05$, considered the results as statistically significant, for the stress levels and demographic factors analysis.

RESULTS

A total 130 pregnant women were included in the study. The demographic and obstetric characteristics of study pregnant women are summarized in the Table 1. Most of the pregnant women were above 30 years 50 (38.5%) followed by 26-30 years 48 (36.9%) and 20-25 years 32 (24.6%). A majority of the pregnant women were non-working 88 (67.7%), and 42 (32.3%) were working.

In terms of socioeconomic status, higher proportion was middle class 90 (69.2%) and lower socioeconomic status 40 (30.8%). As far as gravidity is concerned, more than half 74 (56.9%) of the respondents were primigravida and 56 (43.1%) were multigravida.

Table 1: Demographic profile of pregnant women (n=130).

Variable	Category	Number (n=130)	Percentage (%)
Age (years)	20–25	32	24.6
	26–30	48	36.9
	>30	50	38.5
Employment	Working	42	32.3
	Non-working	88	67.7
Socioeconomic	Middle	90	69.2
	Lower	40	30.8
Gravidity	Primigravida	74	56.9
	Multigravida	56	43.1

Table 2: Distribution of medical comorbidities and stress levels among pregnant women (n=130).

Variables	Category	Number (n=130)	Percentage (%)
Medical comorbidities	Present	22	16.9
	Absent	108	83.1
Type of comorbidity	Thyroid dysfunction	18	13.8
Stress level	Moderate stress	110	84.6
	High stress	12	9.2
	Low stress	8	6.2

Table 3: Association of employment and health condition with stress.

Variables	Moderate stress, N (%)	High stress, N (%)	P value
Employed	78 (87.6)	7 (7.9)	0.144
Unemployed	32 (78.0)	5 (12.2)	
With comorbidities	26 (86.7)	3 (10.0)	0.976
Without comorbidities	84 (84.0)	9 (9.0)	

The results were depicted in Table 2, show the distribution of medical comorbidities and stress levels of the 130 pregnant women. In total, 22 (16.9%) of the pregnant women reported at least one medical comorbidity, and the majority of them 108 (83.1%) reported no medical comorbidity. Thyroid dysfunction was the most frequent of the comorbidities, with 18 (13.8%) of the pregnant women affected. As far as stress level is concerned, a majority of pregnant women 110 (84.6%) reported moderate stress. A smaller percentage 12 (9.2%) reported high stress levels, and only 8 (6.2%) had low stress. This means that the majority had moderate stress levels with relatively few at either end of the spectrum.

Spearman's rho correlation analysis showed no significant correlation between PSS and self-awareness (p=0.147), self-management (p=0.952) and relationship management (p=0.359). Of those who were employed, the majority 78 (87.6%) had moderate stress and 7 (7.9%) had high stress. Moreover, 32 (78.0%) of the unemployed pregnant women reported moderate stress and 5 (12.2%) reported high stress. The difference between the stress levels of employed and unemployed pregnant women did not reach a statistically significant level (p=0.144) (Table 3).

As far as medical comorbidities were concerned, 26 (86.7%) of the pregnant women with medical comorbidities had moderate stress and 3 (10.0%) had high stress. 84 (84.0%) of the individuals without comorbidities had moderate stress and 9 (9.0%) had high stress. This difference was also not statistically significant (p=0.976). In general, the results suggest that the employment status and medical comorbidities were not significantly related to stress among the study population (Table 3).

DISCUSSION

This cross-sectional observational study was conducted among 130 pregnant women. The current study found that a vast majority, 110 (84.6%), of pregnant women in Kerala experienced moderate stress. These findings are consistent with South Indian studies reporting a high prevalence of antenatal stress in tertiary care centers, where social awareness is linked to heightened stress, suggesting emotional intelligence as a protective measure during pregnancy.[9,11,14,15] Once social awareness is recognized, women may be better able to identify their emotional needs and access social support resources provided by the collective group.[10,13]

The results obtained in the present study are similar to previous studies conducted in Kerala and other parts of India. One study among antenatal women in Kerala revealed a significant level of stress among low-risk pregnant women.[16] In contrast to studies conducted in other regions, demographic variables did not show a significant association with stress in the present study, suggesting that psychological constructs may be more predictive of gestational distress in this region than material variables.[17] The biological implications are also significant, as evidence confirms that high maternal cortisol levels increase the risk of low birth weight.[18,19] Cultural factors unique to Kerala, such as high literacy, may contribute to "over-information" stress through social media exposure.[20,21] Environmental stressors, including inadequate housing and lack of family support, also remain significant determinants.[20,22] These findings underscore the need for midwife-led psychoeducational programs and emotional intelligence training.[14,23]

A cross-sectional study conducted by Chandola identified that work-to-family conflict and family-to-work conflict may arise from the inability to balance multiple roles, resulting in stress and ill health.[24] Findings from other studies show that higher perceived social and partner support, along with adequate support from in-laws, appears to reduce the risk of antenatal anxiety and stress among pregnant women.[25,26] The study emphasizes the importance of routine psychological assessment during antenatal visits. Pregnant women may experience greater stress due to factors such as concerns regarding their own

and their baby's health, family responsibilities, employment, and lack of social support.

Limitations

The present study has certain limitations: the study was conducted at a single tertiary care center which may limit the generalizability of the results to the population of Kerala. The cross-sectional study design gives a snapshot of stress, but cannot capture changes in stress over time. In addition, the study only included 130 pregnant women and was restricted to the first trimester (up to 12 weeks of gestation), and did not consider the specific physiological and psychological stressors present during the third trimester.

CONCLUSION

The present study reveals that moderate stress is very common in pregnant women of Kerala. Perceived stress was significantly related to low social awareness. Results indicated that there is a need to introduce psychosocial interventions and training in EI and regular psychological screening into the routine antenatal care. Work on strengthening the emotional support system may play a major role in mitigating the stressors that one experiences and therefore contribute to the support of good maternal mental health and pregnancy outcomes.

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