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"A STUDY TO ASSESS THE PREVALENCE OF LEVELS OF STRESS AMONG HIGH RISK PREGNANT MOTHER ATTENDING OBG OPD IN A TERTIARY CARE TEACHING HOSPITAL BELAGAVI, NORTH KARNATAKA"

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ABSTRACT:

Background:

High-risk pregnancy refers to the conditions that pose a threat to the health or life of mother or fetus, requiring specialized care. Stress is a complex physiological response to demanding situations, can significantly impact pregnancy outcomes. Early and regular antenatal care (ANC) is essential in reducing complications, but the stress in high-risk pregnancies may exacerbate health risks. The prevalence of stress levels among high-risk pregnant mother or women is vital for improving maternal and fetal well-being.

Objectives

To determine the stress level among the high-risk pregnant mother.

To determine the socio-demographic characteristics of high-risk pregnant mother.

To find out association between tests scores of stress level among high-risk pregnant mother with their selected socio demographic variables.

Methodology:

The study was conducted in a tertiary care teaching hospital Belagavi Karnataka, over a period of 6 months in 2024-2025. A total 122 outpatients of Obstetrics and Gynecology Department (OBG) were included in this study; a descriptive approach was done including collection of data through questionnaire-based survey.

Results:

The result of the study showed that, out of 122 respondents, majority of were between the age group of 24-28 i.e. 30.3%. The study reveals that most of the pregnant women i.e. 73.8% experienced moderate stress, followed by 16.4% were mild stress and 9.8% of pregnant mothers reported severe stress.

Conclusion: The study examined stress levels among high-risk pregnant mothers, revealing that most of the pregnant women experienced moderate to mild stress. The present study conducted at the Obstetrics and Gynecology Outpatient Department (OBG OPD) of a tertiary care teaching hospital in Belagavi, North Karnataka, provides valuable insights into prevalence and contributing factors of stress among high-risk pregnant mothers, understanding the need for targeted interventions in maternal healthcare.

Key words: High-risk pregnancy, Prevalence, Perceived Stress, OBG OPD, Antenatal Care (ANC).

INTRODUCTION:

A high-risk pregnancy is a pregnancy where the mother or foetus has an increased chance of experiencing problems. This is due to mother's health, the foetus or events that occur during pregnancy.

According to WHO neurological, mental and substance use disorders are responsible for the burden of disease in women. In worldwide, stress is a very common mental health problem includes women during their time of pregnancy.9

Pregnancy that poses a risk to the mother's or the fetus's health or life is consider high-risk. It frequently necessitates trouble-free deliveries and specialized care from specially trained professionals. Some women are more likely to experience issues even before they get pregnant for several reasons, while other pregnancies become high-risk as they go along. Many women have successful pregnancies because of early and consistent prenatal care. Stress is a complicated pattern of the human physiology's genetically defined reaction to a demanding circumstance. According to the element of perception, variations in physical prowess or overall health, as well as variations in personality, are reflect in human stress responses.A woman's function as a mother is probably impacted by her pregnancy and delivery experiences. Any stress or emotional changes she experiences during pregnancy may interfere with other aspects of mother-infant attachment and child development, as well as having long-term negative effects on both her and her unborn child. The foetal is cognitive and brain development outcomes may be specifically impacted by the stress experienced by the mother throughout the prenatal period.1

The finest condition is pregnancy, but it's also a stressful time for mothers. The mother's level of stress will rise when it is linked to it. Previous pregnancy history like previous history of LSCS, abortion, heart disease, hypertension, still birth, early neonatal death, preterm delivery, foetal growth restriction, blood transfusion, gestational diabetes, and present history of gestational diabetes mellitus, preeclampsia, foetal growth restriction, cardiac disease, renal disease, abnormal body mass index, anaemia and multiple gestation are the most high-risk factors in this study.2

The most prevalent issue that needs extra care during the prenatal and postpartum phases.4

In 2013, there were over 2,89,000 pregnancy-related deaths worldwide, with developing countries accounting for 99% of these deaths. About 56% of all maternal deaths worldwide occur in sub-Saharan African nations. In impoverished nations, a woman's lifetime risk of dying from pregnancy-related problems is 14 times greater than in wealthy nations.

***OBJECTIVES*:**

- To determine the stress level among the high-risk pregnant mother.
- To determine the socio-demographic characteristics of high-risk pregnant mother.
- To find out association between tests scores of stress level among high-risk pregnant mother with their selected socio demographic variables.

METHODOLOGY:

Study design: - Descriptive cross sectional study approach. The collection of the information and data directly from the study through a pre designed and pre tested questionnaire Scheduled.

Setting: - The study was held in KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgavi, which is 2400-bedded super speciality Tertiary Care hospital, established in the year 1996.

The hospital is tertiary care teaching hospital and has been a leader in a field of medical education and health care in North Karnataka.

Inclusion criteria: The inclusion criteria included high-risk pregnant mothers or patients attending OBG OPD.

Exclusion criteria: Exclusion criteria included pregnant women with previous history of anemia, thyroid disorder, Rh-negative pregnancy, HIV, Hbsag and those who are refused to participate also excluded from the study.

Source of data or measurements: - A total of 122 participants will be only high-risk pregnant mothers are selected. After obtaining informed consent from the participants, questionnaire will be administered. The demographic details will be recorded from the participants and previous and present history of risk factors are asked to the participants. Then stress related questions were asked to the participants that is Cohen Perceived Stress Scale, for each participants took 30minutes.

MS excel and SPSS 30.00 program was used to input, manage the data and statistical analysis. Data were summarized using frequency distribution, mean, and mean percentage, standard deviation, Fisher test for quantitative variables and frequency (%) for qualitative variables.

Sample size:- The prevalence of moderate stress were 76% than the sample size was 122.

Institutional ethical clearance:

Institutional Ethical Committee for Human Subjects' Research clearance was obtained from the medical college, before starting the study (Ref No. MDC/JNMCIEC/319 Dated: 31/05/2024). Written informed consent was obtained from all the study participants. Confidentiality was maintained throughout the study. Data was collected through structured questionnaire as a medium of information collection. All the guidelines of ICMR for Biomedical Research 2017 were strictly followed.

RESULTS:

Table 1: Socio-Demographic Characteristics of High-Risk Pregnant Mothers (N=122)

Demographic variable	N	%
Age group		
18 – 23	28	23
24 – 28	37	30.3
29 – 32	32	26.2
33 – 40	25	20.5
Religion		
Hindu	96	78.7
Muslim	25	20.5
Christian	1	0.8
Others	0	0
Education		
Illiterate	2	1.6
Primary	8	6.6
Secondary	40	32.8
PUC	38	31.1
Degree and above	34	27.9
Occupation		
House wife	108	88.5
Cooli	0	0
Government job	3	2.5
Private job	11	9
Agriculture	0	0
Family income		
3000-6000	28	23
6000-9000	20	16.4
9000-12000	38	31.1
12000-15000	36	29.5
Number of children		
0	21	17.2
1	71	58.2
2	29	23.8
3	1	0.8
Above 3	0	0
Number of pregnancy		
1	6	4.9
2	49	40.2
3	47	38.5
Above 3	20	16.4
Tobacco		
No	93	76.2
Yes	29	23.8
Smoking		

No	**122**	**100**
Yes	**0**	**0**
Alcohol		
No	**122**	**100**
Yes	**0**	**0**

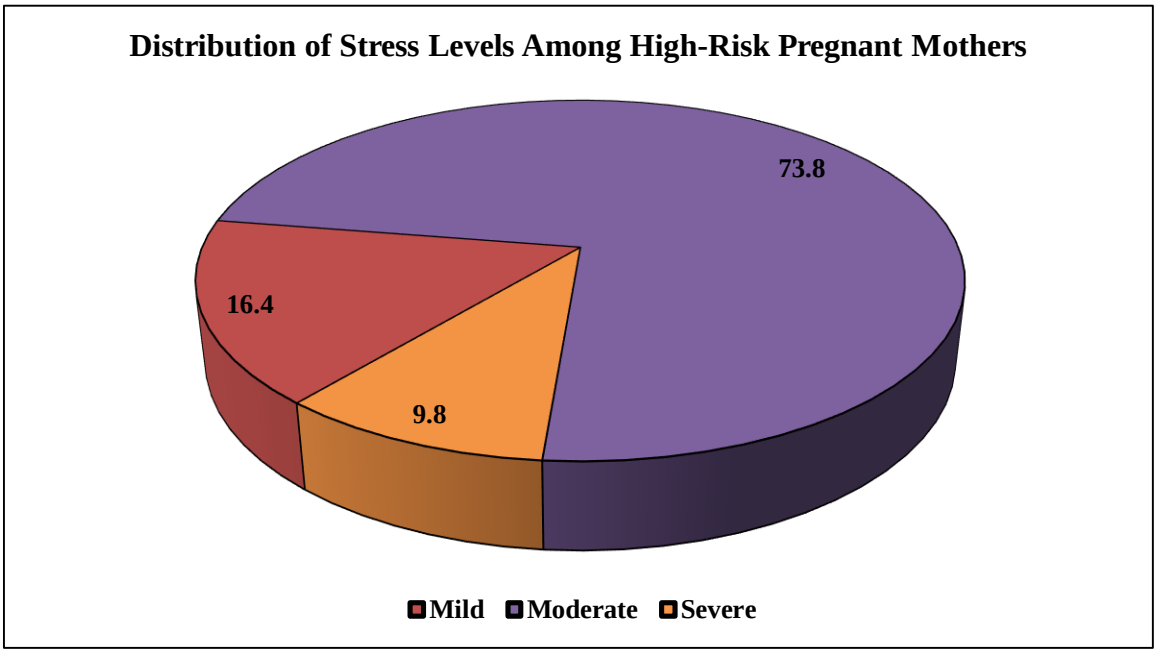
Table 1. Outlines the socio-demographic details of high-risk pregnant mothers visiting the OBG OPD at a tertiary care hospital in Belagavi, North Karnataka. The highest percentage of participants (30.3%) are between 24 and 28 years old, followed by 26.2% in the 29–32 age group. A majority (78.7%) practice Hinduism, while 20.5% are Muslim. In terms of education, 32.8% have completed secondary schooling, 31.1% have studied up to PUC, and 27.9% hold a degree or higher. Most women (88.5%) are housewives, with only 9% employed in private jobs and 2.5% in government jobs. Household income varies, with 31.1% earning between ₹9,000 - ₹12,000 per month, followed by 29.5% in the ₹12,000 - ₹15,000 range. Regarding children, 58.2% have one child, and 23.8% have two. Pregnancy history shows that 40.2% have had two pregnancies, while 38.5% have experienced three. Tobacco use is reported by 23.8% of participants, whereas none consumes Alcohol and Smoking. These findings provide insight into the socio-economic and lifestyle factors influencing high-risk pregnancies, emphasizing the need for targeted healthcare support.

Table 2: Distribution of Stress Levels Among High-Risk Pregnant Mothers (N=122)

Level of stress	**N**	**%**
Mild (0-13)	**20**	**16.4**
Moderate (14-26)	**90**	**73.8**
Severe (27-40)	**12**	**9.8**

Table 2. Determine the stress level among high-risk pregnant mothers. The findings reveals that 73.8% of high-risk pregnant mothers experienced moderate stress, 16.4% had mild stress, and 9.8% faced severe stress.

Fig 1: Stress Levels among High-Risk Pregnant Mothers



73.8% of high-risk pregnant mothers experienced moderate stress, 16.4% had mild stress, and 9.8% faced severe stress.

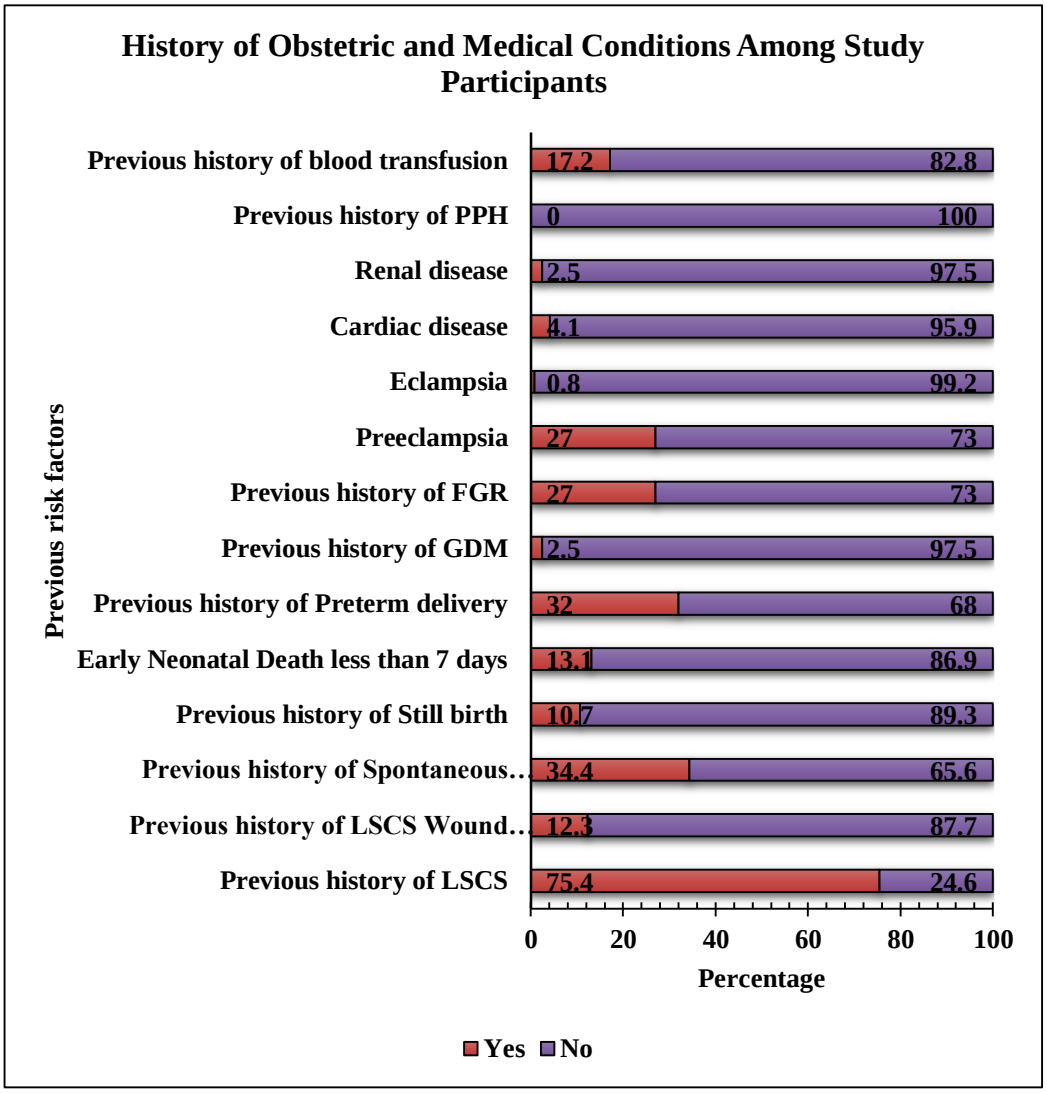
Table 3: Distribution of Previous History of Risk Factors Among High-Risk Pregnant Mothers (N=122)

Risk factors	**Yes**	**No**
	N (%)	**N (%)**
Previous history of LSCS	**92 (75.4)**	**30 (24.6)**
Previous history of LSCS Wound infection	**15 (12.3)**	**107 (87.7)**

Previous history of Spontaneous Abortion	**42 (34.4)**	**80 (65.6)**
Previous history of Still birth	**13 (10.7)**	**109 (89.3)**
Early Neonatal Death less than 7 days	**16 (13.1)**	**106 (86.9)**
Previous history of Preterm delivery	**39 (32)**	**83 (68)**
Previous history of GDM	**3 (2.5)**	**119 (97.5)**
Previous history of FGR	**33 (27)**	**89 (73)**
Preeclampsia	**33 (27)**	**89 (73)**
Eclampsia	**1 (0.8)**	**121 (99.2)**
Cardiac disease	**5 (4.1)**	**117 (95.9)**
Renal disease	**3 (2.5)**	**119 (97.5)**
Previous history of PPH	**0 (0)**	**122 (100)**
Previous history of blood transfusion	**21 (17.2)**	**101 (82.8)**

The table 3 presents various risk factors observed among high-risk pregnant mothers. A significant proportion 75.4% have a previous history of Lower Segment Caesarean Section (LSCS), while 12.3% reported a history of LSCS wound infection. Spontaneous abortion was noted in 34.4% of cases, whereas stillbirth was reported in 10.7%. Early neonatal death (within 7 days) occurred in 13.1% of mothers. Preterm delivery was previously experienced by 32% of the women. Among metabolic and hypertensive conditions, only 2.5% had gestational diabetes mellitus (GDM) in a previous pregnancy, while 27% had a history of foetal growth restriction (FGR), and preeclampsia was noted in 27%. Eclampsia was rare, affecting only 0.8% of cases. Cardiac disease and renal disease were present in 4.1% and 2.5%, respectively. A previous history of postpartum haemorrhage (PPH) were absent in all cases.

Fig 2: History of Obstetric and Medical Conditions Among Study Participants



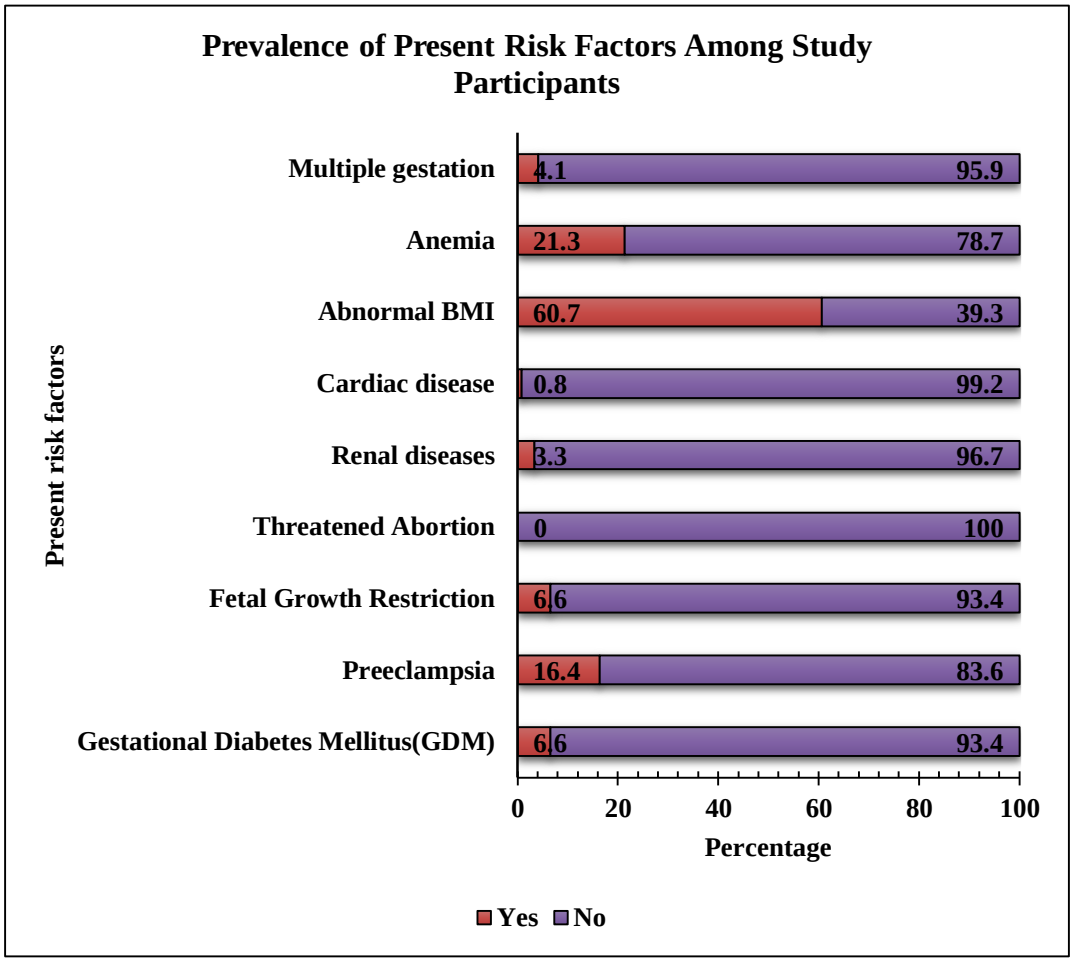
A high proportion 75.4% had a previous history of LSCS, while 34.4% had experienced spontaneous abortion, and 32% had a history of preterm delivery. Hypertensive disorders like preeclampsia were present in 27% of participants, whereas eclampsia was rare 0.8%. Some participants reported early neonatal deaths 13.1% and stillbirths 10.7%, while a history of gestational diabetes mellitus (2.5%) and renal disease (2.5%) was less frequent. Notably, none had a history of postpartum haemorrhage (PPH), and 17.2% had undergone a previous blood transfusion.

Table 4: Distribution of Present History of Risk Factors Among High-Risk Pregnant Mothers (N=122)

Risk factors	Yes	No
	N (%)	N (%)
Gestational Diabetes Mellitus (GDM)	8 (6.6)	114 (93.4)
Preeclampsia	20 (16.4)	102 (83.6)
Foetal Growth Restriction	8 (6.6)	114 (93.4)
Threatened Abortion	0 (0)	122 (100)
Renal disease	4 (3.3)	118 (96.7)
Cardiac disease	1 (0.8)	121 (99.2)
Abnormal BMI	74 (60.7)	48 (39.3)
Anaemia	26 (21.3)	96 (78.7)
Multiple gestation	5 (4.1)	117 (95.9)

Table 4 Shows regarding current pregnancy conditions, 6.6% of mothers were diagnosed with GDM, and 16.4% had preeclampsia. Foetal growth restriction was found in 6.6%, while renal disease 3.3% and cardiac disease 0.8% were less common. Abnormal BMI was seen in 60.7% of cases, making it one of the most prevalent risk factors. Anaemia affected 21.3% of mothers, while multiple gestations were seen in 4.1%.

Fig 3: Prevalence of Present Risk Factors Among Study Participants



Abnormal BMI was the most prevalent risk factor, affecting 60.7% of participants, followed by anaemia at 21.3%. Preeclampsia was observed in 16.4% of cases, while gestational diabetes mellitus (GDM) and foetal growth restriction were each reported in 6.6% of participants. Renal disease 3.3%, cardiac disease 0.8%, and multiple gestations 4.1% were less common. Notably, no cases of threatened abortion were reported in the study group.

DISCUSSION:

Socio-demographic variables of the information of high-risk pregnant mothers

In the current study, it was found that among 122 high-risk mothers in that the highest percentage of participants 30.3% are between 24-28 years old, followed by 26.2% in the 29-32 age group. Religion shows 78.7% of the Hindus, while 20.5% Muslim. Most of the women were housewives that is 88.5% with only 9% employed in private job and 2.5% in government jobs. The education 32.8% were completed secondary schooling, 31.1% were studied up to PUC, and 27.9% hold a degree or higher. The family income varies, with 31.1% earning between 9,000-12,000 per month, followed by 29.5% were 12,000-15,000 range. Regarding children, 58.2% have on child, and 23.8% have two. The pregnancy history shows that 40.2% were two pregnancies, 38.5% were experienced three. Tobacco use were reported by 23.8% of participants, whereas none consumes alcohol and smoking (Table-1). Finding the similar study conducted by Savita Angadi et.al in a HSK Hospital and Research Centre at Bagalkot. The sample size is 50 high-risk pregnant mothers in that 48% was 24-28years, and 28% was 18-23 age group. There is 74% shows Hindu, 18% Muslim religions. Then education was 38% primary and 34% was secondary. 68% of mothers are housewives. The children 50% of mothers had two children's and then there were 50% of mother's that had two pregnancies.[1]

Stress Levels Among High-Risk Pregnant Mothers

In the current study, the findings reveals that the majority of participants were 73.8% who experienced moderate stress, followed by 16.4% had mild stress, and smaller proportion 9.8% of mothers reported severe stress (Table-2). Finding the similar study conducted by Savita Angadi et.al in a HSK Hospital and Research Centre at Bagalkot. That level of stress among high risk pregnant mother's showed that highest 76% respondents had moderate level of stress and 14% respondents had mild level of stress and 10% had severe level of stress.[1]

Previous History Risk Factors Among High-Risk Pregnant Mothers

The 75.4% had previous history of Lower Segment Cesarean Section (LSCS), while 12.3% were reported a history of LSCS wound infection. Spontaneous abortion were noted in 34.4% cases, where as stillbirth were 10.7%. Early Neonatal Death within 7days were 13.1% of mothers, Previous history of Preterm delivery were 32% of the women or pregnant mother. Around 2.5% were Gestational Diabetes Mellitus (GDM), while 27% were previous history of Foetal Growth Restriction (FGR), and Preeclampsia. Cardiac and Renal disease were present in 4.1% and 2.5%(Table 4). The similar study conducted by Farajnezhad F, Fashi Z, et al. (2017), carried out a cross-sectional study of health homes in Savojbolagh nation. The sample size was 4552, in that previous history of Cesarean Section was 782(17.1%), Abortion was 1.9%, preterm delivery 129(2.8%), followed by renal disease was 34(0.7%), cardiac diseases and Hypertension were 93(2.1%), then epilepsy was 105(2.3%), gestational Diabetes was 39(0.8%).[2]

Present History Risk Factors Among High-Risk Pregnant Mothers

Regarding the current pregnancy conditions, 16.4% mothers were diagnosed with preeclampsia, 6.6% had GDM. Foetal growth restriction were 6.6%, while 3.3% were renal disease and Cardiac disease 0.8% were less common. Abnormal BMI were seen 60.7% of cases, it is one of the most prevalent risk factors. Anaemia affected 21.3% of mothers, while multiple gestations were seen in 4.1% (Table 5). Finding the similar study conducted by Prevalence of high-risk pregnancy and some relevant factors in referred women to health centers by Farajnezhad F, Fashi Z, et al. (2017), carried out a cross-sectional study of health homes in Savojbolagh nation, the current pregnancy Abnormal BMI were 23.52%, Anaemia were 2.7% and preeclampsia were 1.5%.2

Another similar study conducted in 2017 by Anita Nath et.al by Prevalence of hypertension in pregnancy and its associated factors among women attending antenatal clinics in Bengaluru, out of 783 respondents the hypertension among pregnant women were 13.9%.[6]

The study conducted in 2017 in North West Ethiopia reveals that 16.8% mothers were had Hypertensive disorder of pregnancy during their current pregnancy.[7] Thus it can be concluded that most of the risk factors in the previous pregnancy were Lower Segment Cesarean Section (LSCS), Spontaneous abortion and the most of risk factors in current or present pregnancy were Abnormal BMI.

Association Between Demographic Variable and Stress Levels Among High-Risk Pregnant Mothers

The current study findings assessed the association between demographic variables and stress levels among high-risk pregnant mothers using the fisher test. The findings indicated variations in stress levels across different groups. The fisher test revealed a significant association between occupation and stress levels ($p = 0.042$).However, there was no significant association between age, religion, education, family income, number of children, number of pregnancies, tobacco use, smoking, alcohol consumption and stress levels, as their p-values were greater than 0.05 (Table 6). The similar study conducted by Savita Angadi et.al in HSK Hospital, Bagalkot, and Findings related to the association between levels of stress scores of high-risk pregnant mother with their selected socio-demographic variables reveals that, there was no significant association was found between stress level scores of high-risk pregnant mother in the group with their selected socio-demographic variables.[1] Thus it can be concluded from the present study that were more satisfied.

CONCLUSION:

The study examined stress levels among high-risk pregnant mothers, revealing that most of the pregnant women experienced moderate to mild stress. The demographic information indicated that the majority of participants identified as Hindu and had completed secondary education, with many being housewives. A statistically significant relationship was found between occupation and stress level among high-risk pregnant mothers. However, while comparing the stress levels in different trimesters of pregnancy, the differences were not statistically significant. The present study conducted at the Obstetrics and Gynaecology Outpatient Department (OBG OPD) of a tertiary care teaching hospital in Belagavi, North Karnataka, provides valuable

insights into prevalence and contributing factors of stress among high-risk pregnant mothers, understanding the need for targeted interventions in maternal healthcare.

***Limitations*:**

The interpretations of the research results are subjected to the following limitations of the study:
Interviewer bias has been try to overcome as by employing the two interviewers.

Recommendations:

Based on the interpretations of the data and conclusion in the present study, the following recommendations are made:

Psychological and Emotional well-being

- Number of parameters to make a pregnancy stress free should be included.
- Prevalence of moderate stress in pregnant women need to have a balanced life during pregnancy. For this counsellor should be appointed.
- The family- member should be made aware of the benefits of stress free pregnancy and the impact on mother and child health.

Physiological well-being

- The government should train the ASHA and Anganwadi personnel, about the importance of stress free pregnancy.
- The personnel should also be trained for early detection of risk factors associated with pregnancy.

Source of funding:

- NIL

Conflict of interest:

- None declared

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