

A study to assess the prevalence of high-risk pregnancy among antenatal mothers enrolled under Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) in a rural area of Jhajjar district.

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I. Abstract

Pregnancy is a crucial phase associated with potential complications affecting maternal and fetal outcomes. High-risk pregnancies significantly contribute to maternal morbidity and mortality, especially in rural areas. This study aimed to assess the prevalence of high-risk pregnancy among antenatal mothers enrolled under PMSMA in a rural area of Jhajjar district. A quantitative descriptive cross-sectional design was adopted with a sample of 100 antenatal mothers selected through convenient sampling. Data were collected using a structured questionnaire and PMSMA-based high-risk checklist. The findings revealed that 38% of antenatal mothers had high-risk pregnancies, with severe anemia being the most common condition. Significant associations were found with age, education, income, gravida, parity, abortion history, and birth interval. The study concludes that high-risk pregnancy is prevalent and emphasizes the need for early detection, improved antenatal care, and health education.

II. Keywords

High risk pregnancy, prevalence, antenatal mothers, Pradhan Mantri Surakshit Matritva Abhiyan, maternal health, rural population, antenatal care, maternal morbidity, pregnancy complications.

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III. Introduction

Pregnancy is a natural physiological process, yet it carries risks that can threaten maternal and fetal health. High-risk pregnancy arises due to medical, obstetric, or socioeconomic factors such as anemia, hypertension, diabetes, and poor healthcare access.

Globally, maternal mortality remains a concern, particularly in developing countries. Despite improvements in India, rural populations still face higher risks due to limited healthcare access and awareness.

To address these challenges, the Government of India launched PMSMA to ensure quality antenatal care and early identification of high-risk pregnancies.

Need for the Study

High-risk pregnancies remain underdiagnosed in rural areas due to:

- Poor awareness
- Limited healthcare access
- Inadequate antenatal visits
- There is limited data on the prevalence of high-risk pregnancy among PMSMA beneficiaries in rural Haryana. This study helps in:
 - Identifying the burden of high-risk pregnancy
 - Evaluating PMSMA effectiveness
 - Improving maternal healthcare planning

Objectives

1. To assess prevalence of high-risk pregnancy
2. To identify types of high-risk conditions
3. To find association with sociodemographic variables
4. To find association with obstetric variables

Hypothesis

- H₁: Significant association exists between high-risk pregnancy and sociodemographic variables
H₂: Significant association exists between high-risk pregnancy and obstetric variables

IV. Review of literature

In relation to the current study on the prevalence of high-risk pregnancy among antenatal mothers enrolled under the Pradhan Mantri Surakshit Matritva Abhiyan in a rural area of Jhajjar district, the literature review focuses on studies related to prevalence, types of high-risk conditions, and associated sociodemographic and obstetric factors.

It also highlights the role of antenatal care services, especially PMSMA, in early identification and management of high-risk pregnancies. The reviewed literature has been organized under relevant headings to support the objectives of the study and to provide a clear conceptual understanding of the research problem.

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Rani et al. (2022) concluded that the utilization of Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) services significantly improved maternal health outcomes by enabling early identification of high-risk pregnancies, timely referral, and reduction of maternal complications, especially in rural areas. The study emphasized that structured antenatal check-ups, routine risk assessments, and regular monitoring under PMSMA played a crucial role in preventing adverse maternal and fetal outcomes. By facilitating early detection of medical and obstetric risk factors, PMSMA helped minimize preventable morbidity and mortality among antenatal mothers. However, the study also noted challenges, such as limited awareness about PMSMA services and accessibility issues in remote rural regions, which could affect service utilization. Overall, PMSMA has strengthened maternal healthcare delivery by promoting systematic screening and management of high-risk pregnancies.

V. Methodology

Research approach- Quantitative approach

Research design- Descriptive cross-sectional research design

Target population- antenatal mothers

Sample size- 100

Sampling technique- convenience sampling

Research setting- Mothers enrolled under PMSMA

Socio Demographic variables- Age, religion, type of family, education of mother, occupation of mother, family income.

Tool- Questionnaire, a PMSMA based high risk pregnancy checklist, and a structured knowledge questionnaire.

Research variables- Prevalence of high risk pregnancy

VI. Results

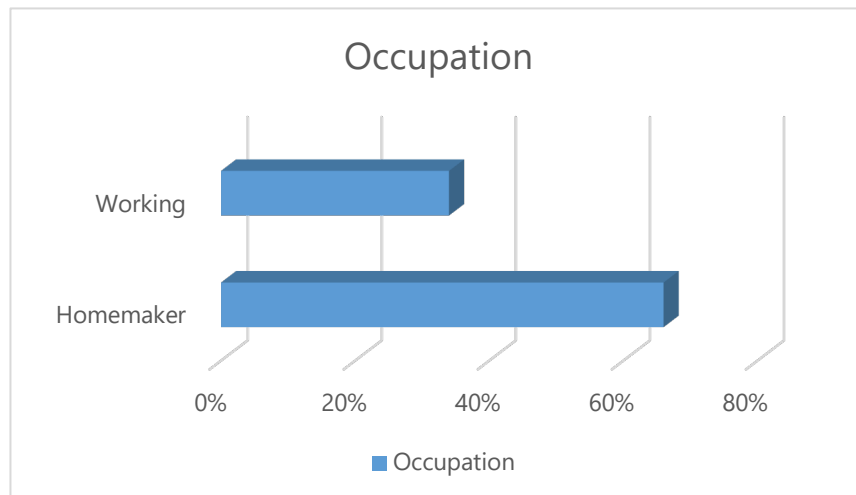
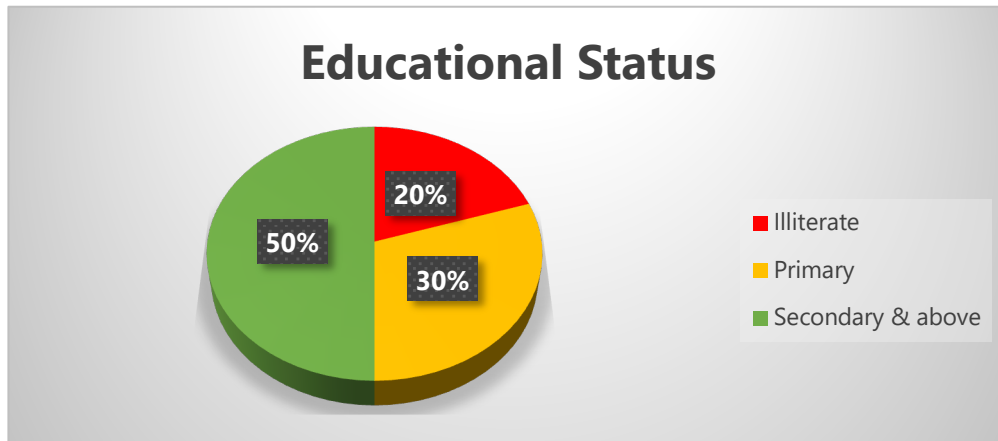
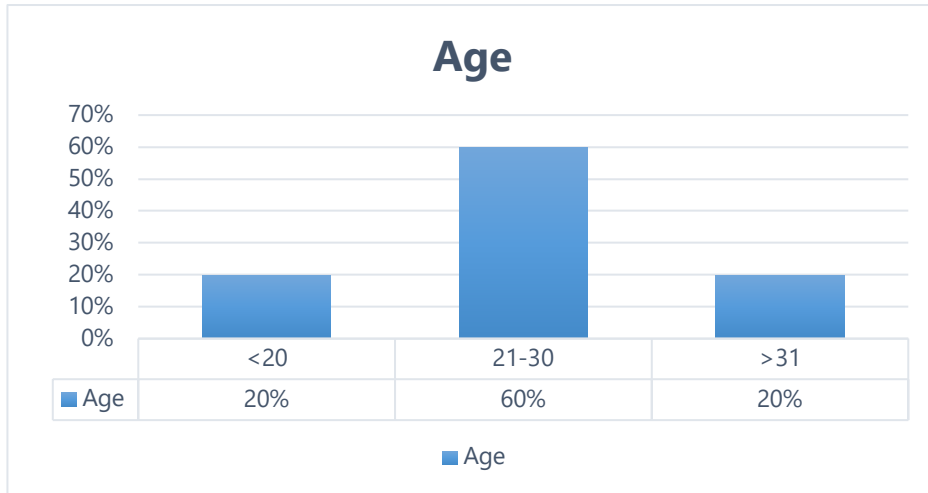
Analysis is the categorising ordering manipulating and summarization off the data to obtain answer for a research question. Interpretation of result is the communication of facts, findings, measurement, and observations. For achieving the research results, the collected data must be preceded and analysed in an orderly manner. The collected data were coded and a master sheet was prepared for systemic analysis of result as per the following objectives of the study the quantitative result for computed using descriptive and inferential statistics on the objectives of the study.

Table 1: Distribution of Antenatal Mothers According to Selected Sociodemographic and Obstetric Variables (N = 100)

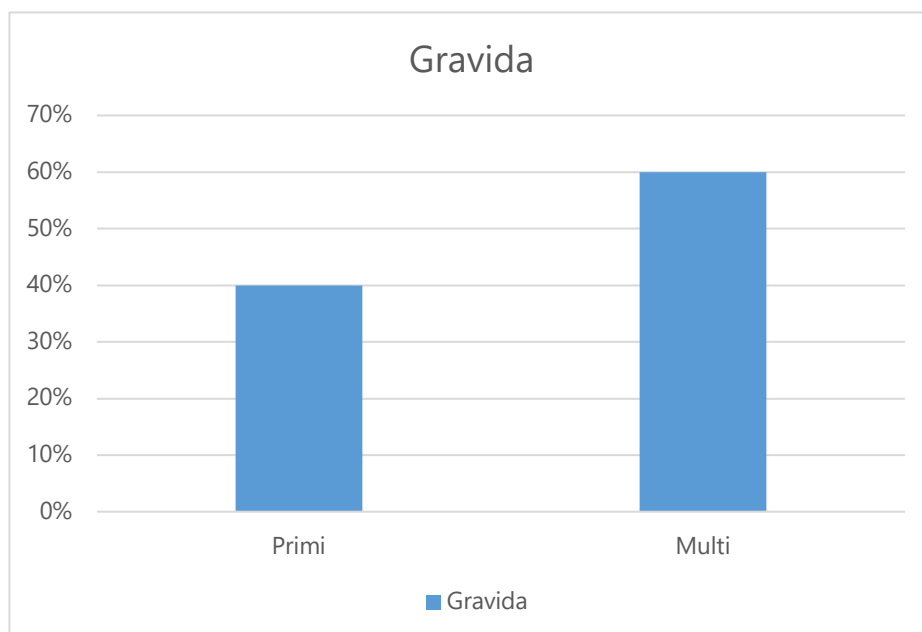
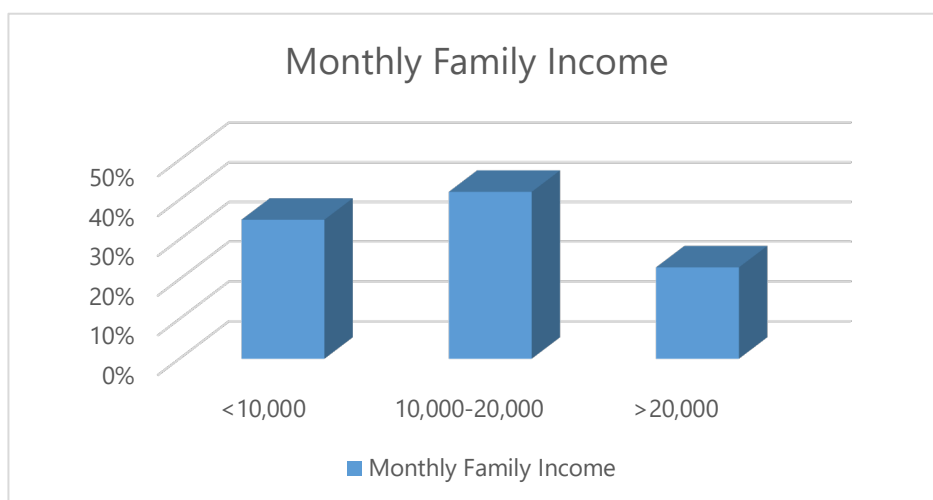
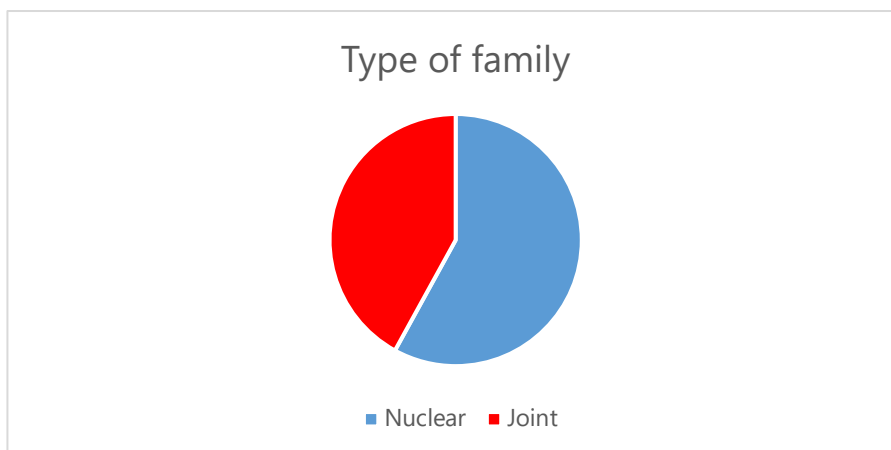
Variables	Category	Frequency (f)	Percentage (%)
Sociodemographic Variables			
Age (years)	<20	20	20%
	21–30	60	60%
	≥31	20	20%
Educational Status	Illiterate	20	20%
	Primary education	30	30%
	Secondary & above	50	50%
Occupation	Homemaker	66	66%
	Working	34	34%
Type of Family	Nuclear	58	58%
	Joint	42	42%
Monthly Family Income	< ₹10,000	35	35%
	₹10,000–20,000	42	42%
	> ₹20,000	23	23%
Obstetric Variables			
Gravida	Primi	40	40%
	Multi	60	60%
Parity	Nullipara	40	40%
	Multipara	60	60%
Gestational Age	< 28 weeks	25	25%
	28–36 weeks	45	45%
	≥ 37 weeks	30	30%

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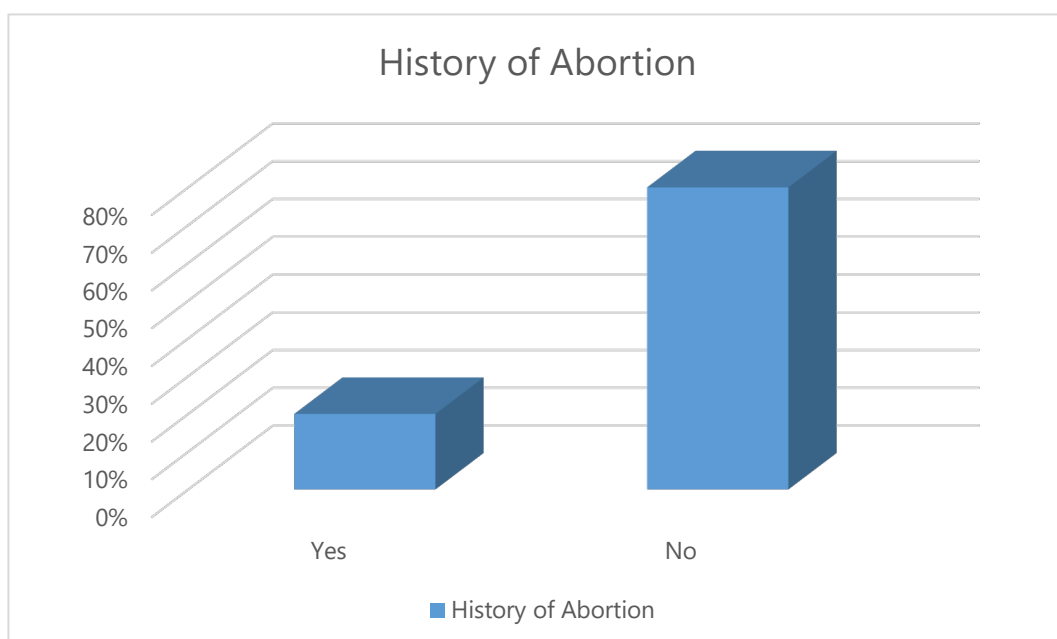
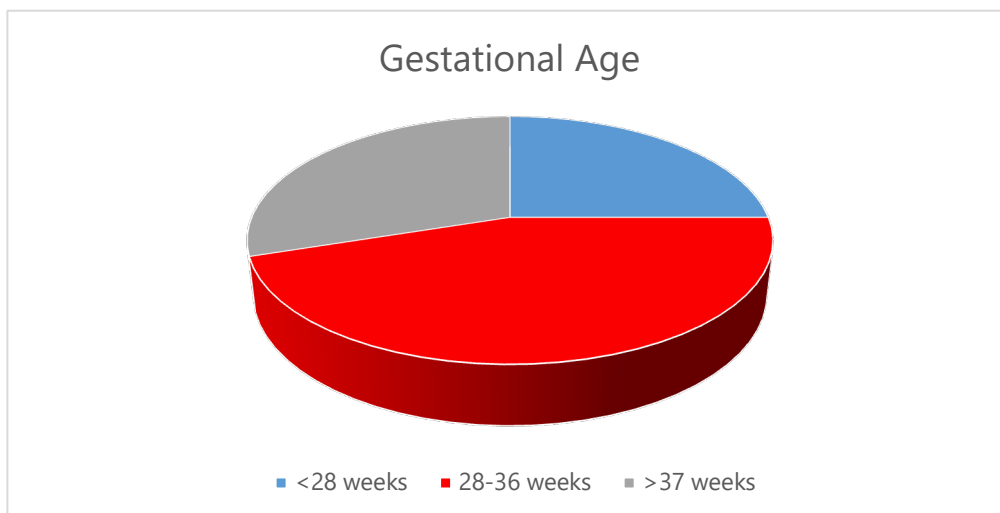
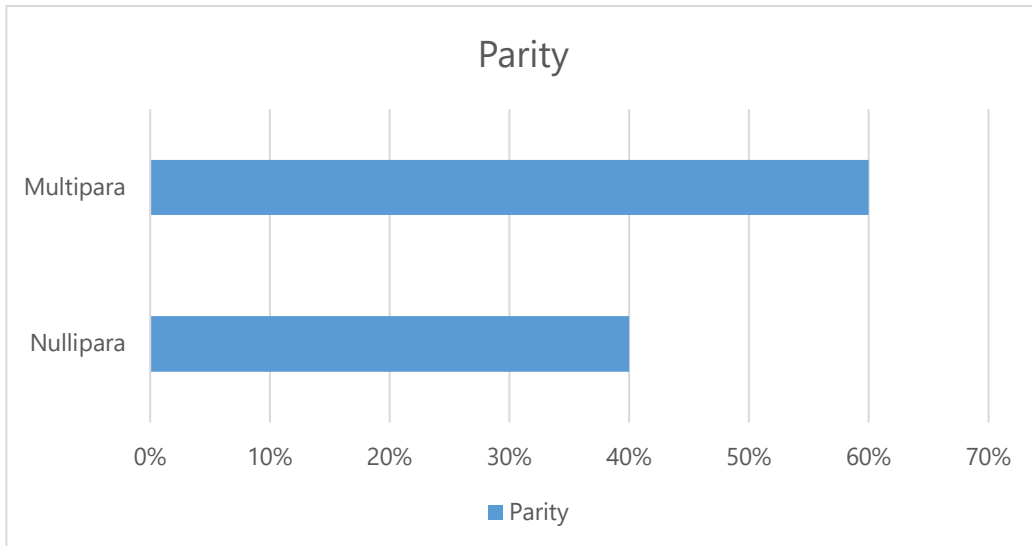
Variables	Category	Frequency (f)	Percentage (%)
History of Abortion	Yes	20	20%
	No	80	80%
Birth Interval	< 2 years	30	30%
	≥ 2 years	70	70%



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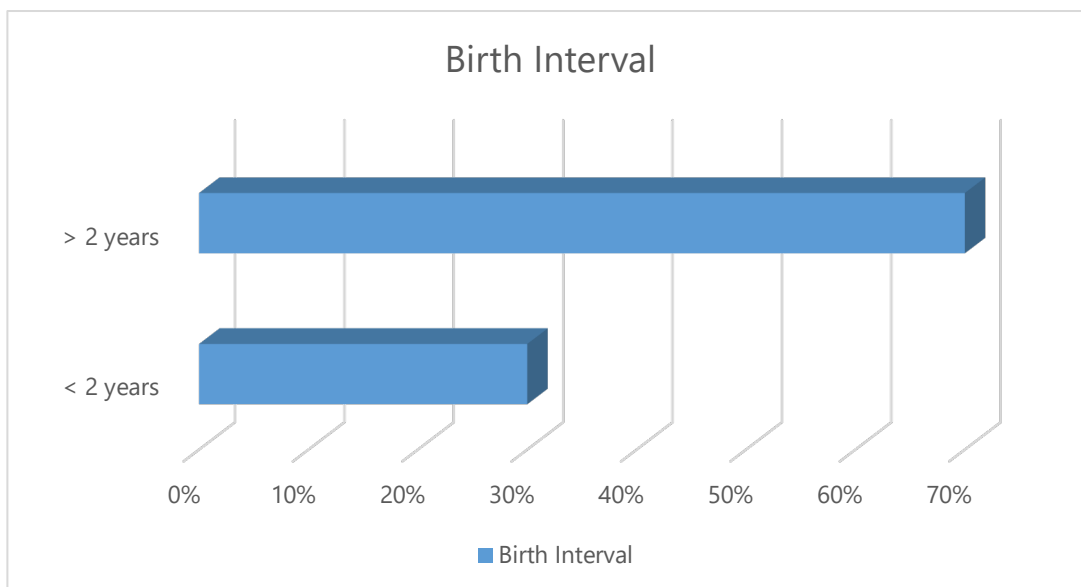


Table 2: Prevalence of high-risk pregnancy among antenatal mothers enrolled under PMSMA

All 100 antenatal mothers enrolled under Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) in the selected rural area were assessed using PMSMA high-risk pregnancy criteria. Each mother was categorized as

either high-risk pregnancy or normal pregnancy based on the presence of one or more high-risk conditions (such as anemia, hypertension, gestational diabetes, previous LSCS, etc.).

(N=100)

Pregnancy status	Number of antenatal mothers
High-risk pregnancy	38
Normal pregnancy	62
Total	100

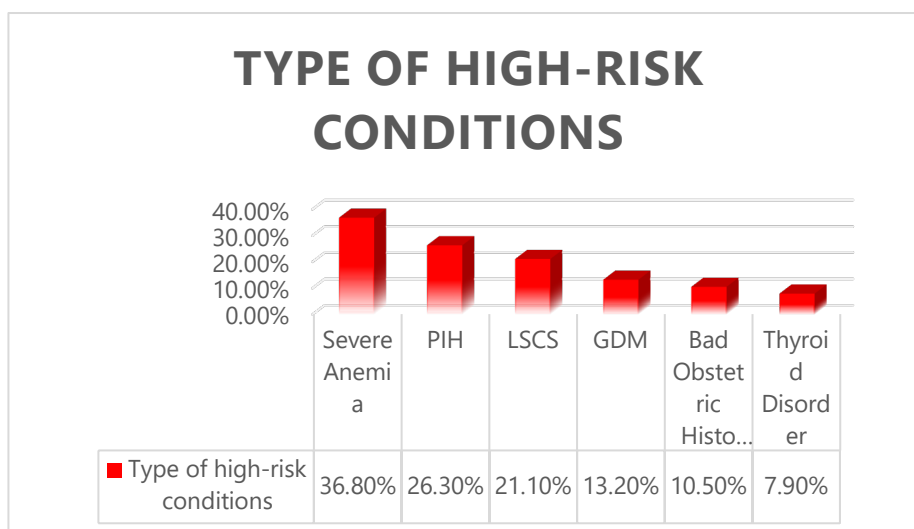
This finding indicates that more than one-third of antenatal mothers in the selected rural area were identified as having high-risk pregnancies, highlighting the importance of regular screening and monitoring under PMSMA to prevent maternal and fetal complications.

Objective 2

Table 3: Types of high-risk pregnancy conditions among antenatal mothers enrolled under PMSMA
Distribution of High-Risk Pregnancy Conditions

(N = 38)

Type of high-risk condition	Number of mothers	Percentage
Severe anemia	14	36.8%
Pregnancy-induced hypertension (PIH)	10	26.3%
Previous LSCS	8	21.1%
Gestational diabetes mellitus (GDM)	5	13.2%
Bad obstetric history	4	10.5%
Thyroid disorder	3	7.9%



Among the antenatal mothers identified with high-risk pregnancy, **severe anemia (36.8%)** was the most common high-risk condition, followed by pregnancy-induced hypertension (26.3%) and previous LSCS (21.1%).

Table 4: Association between High-Risk Pregnancy and Selected Sociodemographic Variables (N = 100)

Sociodemographic Variables	Category	High-risk Pregnancy	Normal Pregnancy	Total	χ^2 value	p-value	Association
Age (years)	≤20	6	14	20	9.12	<0.05	Significant
	21–30	18	42	60			
	≥31	14	6	20			
Education	Illiterate	12	8	20	6.84	<0.05	Significant
	Primary	10	20	30			
	Secondary & above	16	34	50			
Monthly Family Income	< ₹10,000	20	15	35	7.26	<0.05	Significant
	₹10,000–20,000	12	30	42			
	> ₹20,000	6	17	23			
Occupation	Homemaker	26	40	66	1.82	>0.05	Not Significant
	Working	12	22	34			
Type of Family	Nuclear	22	36	58	0.96	>0.05	Not Significant
	Joint	16	26	42			

The merged table shows that **age, education, and monthly family income** had a **statistically significant association** with high-risk pregnancy among antenatal mothers enrolled under PMSMA, whereas **occupation and type of family** did not show significant association.

Table 5: Association between High-Risk Pregnancy and Selected Obstetric Variables among Antenatal Mothers (N = 100)

Obstetric Variables	Category	High-risk Pregnancy	Normal Pregnancy	Total	χ^2 value	p-value	Association
Gravida	Primi	10	30	40	6.40	<0.05	Significant
	Multi	28	32	60			
Parity	Nullipara	12	28	40	4.18	<0.05	Significant

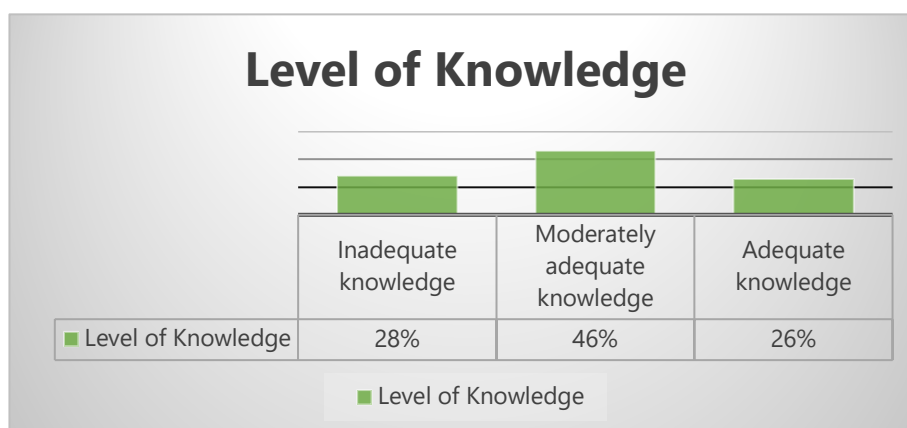
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Obstetric Variables	Category	High-risk Pregnancy	Normal Pregnancy	Total	χ^2 value	p-value	Association
	Multipara	26	34	60			
History of Abortion	Yes	15	5	20	14.72	<0.001	Highly Significant
	No	23	57	80			
Birth Interval	< 2 years	18	12	30	8.96	<0.05	Significant
	\geq 2 years	20	50	70			

The merged table indicates that **gravida, parity, history of abortion, and birth interval** showed a **statistically significant association** with high-risk pregnancy among antenatal mothers enrolled under PMSMA. History of abortion showed a **highly significant association**, indicating it as a major obstetric risk factor.

Table 6: Distribution of Antenatal Mothers According to Level of Knowledge on High-Risk Pregnancy (N = 100)

Level of Knowledge	Score Range	Number of Mothers	Percentage (%)
Inadequate knowledge	0–10	28	28%
Moderately adequate knowledge	11–20	46	46%
Adequate knowledge	21–30	26	26%
Total		100	100%



The findings revealed that **46%** of antenatal mothers had **average knowledge**, **28%** had **poor knowledge**, and only **26%** had **good knowledge** regarding high-risk pregnancy.

Table 7: Mean and Standard Deviation of Knowledge Scores Regarding High-Risk Pregnancy among Antenatal Mothers (N = 100)

Variable	Maximum Score	Mean	Standard Deviation (SD)
Knowledge regarding high-risk pregnancy	30	17.8	± 4.6

The mean knowledge score of antenatal mothers regarding high-risk pregnancy was **17.8 \pm 4.6** out of a maximum possible score of 30.

VII. Discussion

The present study was conducted to assess the prevalence of high-risk pregnancy among antenatal mothers enrolled under the Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) in a rural area of Jhajjar district. A descriptive cross-sectional research design was adopted, and a sample of 100 antenatal mothers was

selected using an appropriate sampling technique. Data were collected using a structured checklist for identifying high-risk pregnancy conditions based on PMSMA guidelines, a sociodemographic and obstetric questionnaire, and a structured knowledge questionnaire regarding high-risk pregnancy. The findings of the study revealed that 38% of antenatal mothers were identified

as having high-risk pregnancies. Severe anemia was the most common high-risk condition, followed by pregnancy-induced hypertension and previous cesarean section. Significant associations were found between high-risk pregnancy and selected sociodemographic variables such as age, educational status, and monthly family income. Similarly, obstetric variables including gravida, parity, history of abortion, and birth interval showed statistically significant associations with high-risk pregnancy. The assessment of knowledge revealed that the majority of antenatal mothers had poor to average knowledge regarding high-risk pregnancy, with a mean knowledge score of 17.8 ± 4.6 . Overall, the study highlights that high-risk pregnancy is prevalent among rural antenatal mothers and is influenced by both sociodemographic and obstetric factors, along with inadequate maternal knowledge. The findings emphasize the need for strengthening PMSMA services, promoting health education, early identification of high-risk conditions, and ensuring timely referral and follow-up to improve maternal and fetal outcomes in rural areas.

VIII. Conclusion

The present study concluded that high-risk pregnancy is a significant maternal health concern among antenatal mothers enrolled under Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) in the rural area of Jhajjar district. The prevalence of high-risk pregnancy was found to be considerable, with more than one-third of the antenatal mothers identified as high-risk. Severe anemia and pregnancy-induced hypertension were the most common contributing factors to high-risk pregnancy. The study also established that selected sociodemographic variables such as maternal age, educational status, and family income, as well as obstetric variables including gravida, parity, history of abortion, and birth interval, had a significant association with high-risk pregnancy. Furthermore, the study revealed that the majority of antenatal mothers possessed only poor to average knowledge regarding high-risk pregnancy, which may contribute to delayed recognition of complications and inadequate utilization of antenatal services. The findings underscore the importance of early screening, regular antenatal check-ups, health education, and effective implementation of PMSMA services to identify and manage high-risk pregnancies promptly. Strengthening awareness and preventive strategies at the community level can play a vital role in reducing maternal and fetal morbidity and mortality in rural populations.

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