



RESEARCH ARTICLE

Sociodemographic Study Of High Risk Pregnancy Admitted In Tertiary Care Centre

Ashvini Jidge¹, Hemlata G Rokade², Rohan Bembre³

ABSTRACT

Background: High-risk pregnancy is influenced by a combination of sociodemographic, reproductive, nutritional, medical and obstetric factors. Identification of these factors during antenatal care is essential for appropriate monitoring, timely intervention and referral. This study was undertaken to describe the sociodemographic, reproductive and selected high-risk pregnancy characteristics among pregnant women attending a tertiary care hospital.

Methods: A hospital-based descriptive cross-sectional study was conducted among 250 high-risk pregnant women attending a tertiary care centre. Data were collected using a pre-designed and pre-tested questionnaire. Sociodemographic characteristics, reproductive history and selected medical and obstetric risk factors were documented. Particular emphasis was given to anaemia, its severity, antepartum haemorrhage, previous caesarean section, hypertension in pregnancy and other high-risk characteristics. Data were entered into an electronic master sheet and analysed using appropriate descriptive statistical methods.

Results: The majority of participants were aged 21–25 years (56.0%), followed by 26–30 years (21.2%). Lower-middle socioeconomic status was most common (40.4%), while secondary education was reported in 36.4%. Most participants belonged to urban areas (75.2%). Among the reported high-risk factors, anaemia was the most frequent, affecting 198 women (79.2%) in the combined study table. In the separate anaemia table, 225 women were reported as anaemic, with moderate anaemia being the predominant category (49.0%), followed by severe (20.0%) and mild anaemia (21.5%). Antepartum haemorrhage was reported in 31 women (12.28%). Regarding reproductive characteristics, 59.6% had their first pregnancy before 20 years, 44.0% reported consanguineous marriage and 73.6% were multigravidae.

Conclusion: The study demonstrates a diverse burden of nutritional, medical, obstetric and reproductive risk factors among high-risk pregnant women. Anaemia constituted the predominant reported risk factor, emphasizing the importance of systematic antenatal screening, early diagnosis and appropriate management. Strengthening risk identification and timely referral may improve the quality of care provided to high-risk pregnant women.

Keywords: High-risk pregnancy; Anaemia; Antepartum haemorrhage; Antenatal care; Pregnancy; Maternal health.

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INTRODUCTION

Pregnancy is a physiological process; however, certain maternal, obstetric, medical, nutritional and social conditions can increase the likelihood of complications for the mother, fetus, or both. Such pregnancies are generally classified as high-risk pregnancies and require closer surveillance, appropriate investigations, timely identification of complications and referral when necessary. High-risk pregnancy is therefore an important component of maternal healthcare because early recognition of risk factors provides an opportunity for appropriate antenatal management and prevention of adverse maternal and fetal outcomes[1,2].

Antenatal care provides an important platform for health promotion, screening, diagnosis and prevention of pregnancy-related complications. The World Health

Organization (WHO) emphasizes that antenatal care should include maternal and fetal assessment, nutritional interventions, preventive measures, counselling and appropriate management of conditions identified during pregnancy[1]. Effective antenatal care is particularly important for women with identifiable risk factors because repeated assessment allows healthcare providers to recognize deterioration and initiate appropriate intervention at an early stage[1].

The burden of high-risk pregnancy is substantial in India. A national survey-based analysis using data from the fifth National Family Health Survey reported that 49.4% of currently pregnant women had at least one high-risk factor, with 33.0% having a single high-risk factor and 16.4% having multiple high-risk factors. The study also demonstrated variation in the prevalence of high-

¹Assistant Professor, Department of Community Medicine, Dr VM GMC, Solapur, Maharashtra, India

²Associate Professor, Department of Community Medicine, Dr VM GMC, Solapur, Maharashtra, India

³Associate Professor, Department of Community Medicine, PMC & RPHRI Parbhani, Maharashtra, India

Corresponding Author: Ashvini Jidge, Assistant Professor, Department of Community Medicine VM GMC Solapur, Maharashtra, India E-mail: jidgeashvini@gmail.com

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risk pregnancy across Indian states and highlighted the importance of systematic identification and monitoring of high-risk pregnancies[2]. These findings emphasize the need for locally generated data describing the characteristics and distribution of risk factors among women receiving antenatal care.

The Government of India has accorded specific importance to identification and management of high-risk pregnancies through the Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA). The programme emphasizes screening for clinical conditions, identification and line-listing of high-risk pregnancies based on obstetric and medical history, appropriate management of identified conditions, birth planning and complication preparedness.³ The expanded high-risk pregnancy framework includes conditions such as severe anaemia, pregnancy-induced hypertension, previous caesarean section, teenage pregnancy, elderly primigravida, grand multiparity and short stature, among other medical and obstetric conditions[4].

Anaemia is one of the important health problems encountered during pregnancy and is particularly relevant in the Indian context. WHO estimates indicate that anaemia remains common among pregnant women globally, with a prevalence of approximately 36.5% in 2019[5]. Anaemia during pregnancy may result from nutritional deficiencies and other underlying conditions and is associated with adverse maternal and pregnancy-related consequences. WHO therefore recommends routine assessment and appropriate prevention and management of anaemia as part of quality antenatal care[1,6]. The 2024 WHO guideline further provides updated haemoglobin cut-offs for defining anaemia and classifying its severity in pregnant women,

supporting standardized assessment in clinical and public-health settings[6].

Bleeding during pregnancy is another important clinical concern requiring prompt assessment. Antepartum haemorrhage may arise from several obstetric conditions and can pose risks to maternal and fetal health. Consequently, identification of vaginal bleeding during antenatal assessment is an important component of high-risk pregnancy screening and clinical management. The Indian maternal-health framework specifically recognizes vaginal bleeding and severe anaemia among symptoms or conditions requiring identification and appropriate referral or management[3,7].

In addition to medical and obstetric conditions, reproductive and sociodemographic characteristics may contribute to the overall risk profile of pregnant women. Maternal age, age at marriage, age at first pregnancy, parity, previous caesarean delivery and consanguineous marriage are relevant characteristics that may help describe the reproductive profile of women receiving antenatal care. Documentation of these characteristics alongside medical risk factors provides a broader understanding of the population requiring enhanced antenatal surveillance.

Despite the availability of national programmes and guidelines for identification of high-risk pregnancies, the distribution of risk factors may vary according to the demographic and healthcare setting. Describing the local profile of high-risk pregnant women can therefore assist healthcare providers in identifying commonly encountered risk factors and strengthening antenatal screening and counselling services. The present study was undertaken to describe the sociodemographic, reproductive and selected medical and obstetric high-risk characteristics among pregnant women attending a tertiary care hospital. The study particularly focuses on anaemia and its severity, antepartum haemorrhage, reproductive characteristics and selected medical and obstetric risk factors, thereby providing a descriptive profile of the high-risk pregnancy population.

MATERIALS AND METHODS

A hospital-based descriptive cross-sectional study was conducted among pregnant women identified as having high-risk pregnancy and admitted to the Obstetrics and Gynaecology ward of a tertiary care centre. The study included a total of 250 high-risk pregnant women. The minimum sample size was calculated using an estimated prevalence of high-risk pregnancy of 20%, 5% allowable error and 95% confidence level; the calculated sample size was 246, which was rounded to 250. The sampling unit was a diagnosed high-risk pregnancy, and the sampling frame

Table 1: Sociodemographic Characteristics and Distribution of High-Risk Pregnancy Factors among Study Participants (n = 250)

<i>Sr. No.</i>	<i>Variable</i>	<i>Category / Risk Factor</i>	<i>No. of Participants (n)</i>	<i>Percentage (%)</i>
A	Age	<20 years	48	19.2
		21–25 years	140	56.0
		26–30 years	53	21.2
		>30 years	9	3.6
		Total	250	100.0
B	Socioeconomic Status (Modified B.G. Prasad)	Upper	9	3.6
		Upper-Middle	31	12.4
		Middle	73	29.2
		Lower-Middle	101	40.4
		Lower	36	14.4
		Total	250	100.0
C	Educational Status	Illiterate	39	15.6
		Primary	64	25.6
		Secondary	91	36.4
		Higher Secondary	39	15.6
		Graduate/Post-Graduate	17	6.8
		Total	250	100.0
D	Type of Family	Nuclear	75	30.0
		Joint Family	94	37.6
		Three-Generation Family	81	32.4
		Total	250	100.0
E	Religion	Hindu	175	70.0
		Muslim	73	29.2
		Buddhist	2	0.8
		Total	250	100.0
F	Area of Residence	Urban	188	75.2
		Rural	62	24.8
		Total	250	100.0
G	High-Risk Pregnancy Factors*	Anaemia	198	79.2
		H/O Chronic Medical Disorders (Other)	57	22.8
		Antepartum Haemorrhage	31	12.4
		H/O Caesarean Section	22	8.8
		Hypertension in Pregnancy	17	6.8
		Age >30 years	9	3.6
		Height <140 cm	9	3.6
		Parity ≥4	7	2.8

Table 2: Distribution of Study Subjects According to Anaemia (n = 250)

Anaemia	No. of Participants (%)
Yes	225 (72.5)
No	25 (9.5)

comprised all high-risk pregnant women admitted to the tertiary care centre. Simple random sampling was used, with eligible participants selected from the daily admission list using computer-generated random numbers.

Women admitted with high-risk pregnancy who were willing to participate and provided written informed consent were included. Women transferred to the operation theatre or labour room, those unwilling to participate, and patients managed exclusively on an outpatient basis were excluded. Data were collected using a pre-designed and pre-tested questionnaire over an 18-month period from 1 January 2017 to 30 June 2018. The collected information was coded and entered into a master Excel sheet. Data were summarized using appropriate descriptive and inferential statistical methods and presented in tables and diagrams. Statistical analysis was performed using SPSS version 20. Institutional Ethics Committee approval was obtained before commencement of the study.

RESULTS

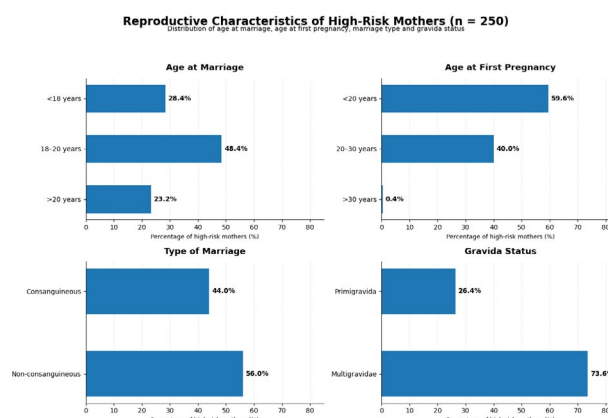
The study included 250 high-risk pregnant women. More than half of the participants (56.0%) were aged 21–25 years, followed by 21.2% aged 26–30 years and 19.2% aged below 20 years, while 3.6% were aged above 30 years. With respect to socioeconomic status, the largest proportion belonged to the lower-middle class (40.4%), followed by the middle class (29.2%). Regarding education, secondary

Table 3: Distribution of Study Subjects According to Antepartum Haemorrhage (n = 250)

Degree of Anaemia	No. of Participants (%)
<7 g/dL (Severe)	50 (20.0)
7–10 g/dL (Moderate)	122 (49.0)
10–11 g/dL (Mild)	53 (21.5)

Table 4: Distribution of Reproductive Characteristics among High-Risk Pregnant Women (n = 250)

Antepartum Haemorrhage	No. of Participants (%)
Yes	31 (12.28)
No	219 (87.6)
Total	250 (100.0)

**Figure 1:** Reproductive characteristics of High-Risk mothers

education was most common (36.4%), while 15.6% were illiterate. Joint families accounted for 37.6% of participants, followed by three-generation families (32.4%) and nuclear families (30.0%). The majority were Hindu (70.0%), while 29.2% were Muslim and 0.8% were Buddhist. Most participants were from urban areas (75.2%), whereas 24.8% were from rural areas.

Among the reported high-risk pregnancy factors, anaemia was the most frequently documented factor, affecting 198 participants (79.2%). Chronic medical disorders other than the specified obstetric conditions were present in 57 women (22.8%). Antepartum haemorrhage was reported in 31 women (12.4%), while a history of caesarean section was present in 22 women (8.8%). Hypertension in pregnancy was documented in 17 women (6.8%). Age above 30 years and height below 140 cm were each reported in 9 women (3.6%), while parity ≥ 4 was reported in 7 women (2.8%). Since individual women could have more than one high-risk factor, the frequencies are not mutually exclusive. The thesis similarly reports that individual high-risk factors could occur in more than one woman and therefore their total frequency does not correspond to the total number of high-risk mothers.

According to Table 2, 225 women were reported as having anaemia and 25 as not having anaemia. Among the reported anaemic participants, moderate anaemia (haemoglobin 7–10 g/dL) was the most frequent category, comprising 122 women (49.0%), followed by mild anaemia with haemoglobin between 10–11 g/dL in 53 women (21.5%). Severe anaemia with haemoglobin below 7 g/dL was reported in 50 women (20.0%). Thus, moderate anaemia constituted the largest reported category among women classified as anaemic. The original thesis also documents substantial anaemia among the 250 participants

and reports 122 women with haemoglobin between 7–10 g/dL and 50 with haemoglobin below 7 g/dL.

Antepartum haemorrhage was reported in 31 of the 250 study participants, accounting for 12.28% of the study population, while 219 women (87.6%) were reported as not having antepartum haemorrhage. Thus, although the majority of women did not have antepartum haemorrhage, it represented an important high-risk pregnancy factor in the study population. The same frequency of 31 women (12.28%) is documented in the original thesis's high-risk-factor results.

Regarding reproductive characteristics, 71 women (28.4%) were married before 18 years of age, while 121 (48.4%) were married between 18 and 20 years and 58 (23.2%) after 20 years. Age at first pregnancy was below 20 years in 149 women (59.6%), between 20 and 30 years in 100 women (40.0%), and above 30 years in one woman (0.4%). Consanguineous marriage was reported in 110 women (44.0%), whereas 140 (56.0%) had non-consanguineous marriages. With respect to gravida status, 66 women (26.4%) were primigravidae and 184 (73.6%) were multigravidae. These findings indicate that early marriage, early first pregnancy, consanguineous marriage and multigravida status constituted notable reproductive characteristics in this high-risk pregnancy population. The original thesis reports the same distribution, including 59.6% with first pregnancy below 20 years, 44% with consanguineous marriage and 73.6% being multigravidae.

DISCUSSION

In the present study, the majority of high-risk pregnant women were aged 21–25 years (56.0%). A predominance of young adult women among high-risk pregnancies has also been reported in other Indian studies, suggesting that high-risk pregnancy is not restricted to women at advanced maternal age[8,9]. The predominance of women from the lower-middle socioeconomic group (40.4%) and those with secondary education (36.4%) further indicates the importance of socioeconomic and educational characteristics in the profile of women requiring enhanced antenatal surveillance.

Anaemia was the most frequently reported high-risk factor in the present study. The anaemia table showed moderate anaemia as the largest category (49.0%), followed by severe anaemia (20.0%) and mild anaemia (21.5%). A prospective study from rural Maharashtra reported anaemia in 77% of pregnant women, demonstrating the continuing high burden of maternal anaemia in the region.¹⁰ Similarly, a large cohort study from eastern rural Maharashtra

documented a substantial burden of maternal anaemia among pregnant women[11]. These findings support the importance of early screening, nutritional assessment and appropriate treatment of anaemia during pregnancy.

Antepartum haemorrhage was reported in 31 women (12.28%) in the present study. Previous caesarean section (8.8%) and hypertension in pregnancy (6.8%) were other notable obstetric and medical risk factors. These findings emphasize the importance of careful obstetric history and systematic antenatal assessment in identifying women requiring closer monitoring.

The reproductive profile showed that 59.6% of women had their first pregnancy before 20 years, 44.0% had a consanguineous marriage and 73.6% were multigravidae. The high proportion of multi gravidae is comparable with findings from other Indian high-risk pregnancy populations[9]. Consanguineous marriage is also relevant because a Maharashtra cohort found an increased risk of maternal anaemia among women reporting consanguineous marriage[10].

Overall, the study demonstrates that high-risk pregnancy in this tertiary-care population was characterized by a combination of nutritional, obstetric, medical and reproductive factors. The particularly high burden of anaemia highlights the need for strengthened antenatal screening and timely management. Evidence from Indian cohorts has also shown that maternal anaemia, particularly more severe anaemia, may be associated with adverse pregnancy outcomes, reinforcing the importance of early recognition and appropriate intervention[12].

CONCLUSION

The present study demonstrates a substantial burden of diverse high-risk characteristics among pregnant women attending a tertiary-care hospital. Anaemia was the predominant reported risk factor, with moderate and severe anaemia forming important components of the anaemia burden. Antepartum haemorrhage, previous caesarean section and hypertension in pregnancy were additional obstetric and medical risk factors. The population was predominantly composed of women aged 21–25 years, from lower-middle socioeconomic backgrounds, with secondary education and urban residence. Early marriage, early first pregnancy, consanguineous marriage and multigravida status were notable reproductive characteristics. These findings emphasize the importance of comprehensive antenatal screening, early recognition of high-risk conditions, appropriate management and timely referral.

REFERENCES

1. World Health Organization. Maternal mortality [Internet]. Geneva (CH): World Health Organization; 2023. Feb 22, [2023 February 22;].<https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>
2. Kuppusamy P, Prusty RK, Kale DP. High-risk pregnancy in India: prevalence and contributing risk factors – a national survey-based analysis. *J Glob Health*. 2023;13:04116.
3. Arjariya R, Tiwari P. Prevalence of High Risk Pregnancy in A Tertiary Care Centre of Sagar Division of M. P. *International Journal of Physiology*. 2021;9(1):36–9.
4. Kovvuru A, Kalvakunta S. High risk pregnancies - The maternal and fetal outcomes in a tertiary care unit. *International Archives of Integrated Medicine*. 2020;7(6):14–20.
5. Nesro J, Dhinsa M, Gelan M. Prevalence of High Risk Pregnant Women Who Attend Antenatal Care and Associated Factors in Jimma Medical Center, Jimma Town, South Western Ethiopia. *International Journal of Womens Health Wellness*. 2021;7:133
6. Singh A, Khatri R, Rana S, Malla R, Thapa S, Acharya I. High risk pregnancy and Fetal outcome at Shree Birendra Hospital. *Journal of Society of Surgeons of Nepal*. 2017;20:20–3.
7. Rajbanshi S, Norhayati MN, NikHazlina NH. High-risk pregnancies and their association with severe maternal morbidity in Nepal: A prospective cohort study. *PLoS One*. 2020 Dec 28;15(12):e0244072
8. Majella MG, Sarveswaran G, Krishnamoorthy Y, Sivaranjini K, Arikrishnan K, Kumar SG. A longitudinal study on high risk pregnancy and its outcome among antenatal women attending rural primary health centre in Puducherry, South India. *Journal of Education and Health Promotion*. 2019 Jan 29;8:12.
9. Prajapati AK, Kumar V, Soni K, Singh NP, Jain PK, Ruchi. Prevalence of high-risk pregnancy among pregnant women enrolled under Pradhan Mantri Surakshit Matritva Abhiyan in government health facilities of district Etawah, Uttar Pradesh: A cross-sectional study. *J Family Med Prim Care*. 2022 May;11(5):1876–82.
10. Mogan KA, Venkatesh U, Kapoor R. Clinico-epidemiological profile of women with high-risk pregnancy utilizing antenatal services in a rural primary health center in India. *J Rural Med*. 2023;18(1):15-20.
11. Majella MG, Sarveswaran G, Krishnamoorthy Y, Sivaranjini K, Arikrishnan K, Ganesh Kumar S. A longitudinal study on high risk pregnancy and its outcome among antenatal women attending rural primary health centre in Puducherry, South India. *J Educ Health Promot*. 2019;8:12.
12. Ahankari AS, Myles PR, Dixit JV, Tata LJ, Fogarty AW. Risk factors for maternal anaemia and low birth weight in pregnant women living in rural India: a prospective cohort study. *Public Health*. 2017;151:63-73.

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