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Original Research Article

A study to determine various factors associated with high-risk pregnancies

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ABSTRACT

Background: All pregnancies are at risk even though most of the pregnancies and childbirth worldwide are uneventful. Early and regular prenatal care helps many women have healthy pregnancies and deliveries without complications. With this background, our study was planned to determine various factors associated childbirths with high-risk pregnancies among women attending ante natal care centre of Delhi.
Methods: This was a cross-sectional, observational study conducted at the antenatal clinic of a primary health centre (PHC) during March-April 2023 in 50 high risk pregnancies. Details of pregnant women with a minimum of one high risk factor available were recorded.
Results: Prevalence of adequate knowledge of government schemes and facilities plays a key role in determining the booking status of antenatal women. In our study, we found that 64% of the females presented to the ante natal clinic (ANC) in the first trimester of the pregnancy, 20% in the second trimester and 16% were in the third trimester at the time of their first visit. Severe anemia was present in 32% of the patients, while diabetes mellitus, hypertension and infectious diseases, each of which were found in 24% patients.
Conclusions: With the increasing age of the female, advancing gestational age and lower socio-economic status, the number of risk factors present in a female tends to rise significantly. Therefore, a younger female from a higher socio-economic class presenting to the antenatal clinic in early stages of gestation would have a better pregnancy outcome due to lesser number of risk factors associated.

Keywords: Antenatal care, High-risk pregnancy, Maternal and child health

INTRODUCTION

Although pregnancy is considered to be a physiological state, it can comprise of various risks and complications to the life of the mother as well as the fetus. Every pregnancy is unique where one may require special attention and care from the beginning due to pre-existing medical conditions or due to implied complications in later stages.

According to the National Institute of Health and Family Welfare, India, any unexpected or unanticipated medical or obstetric condition associated with a pregnancy with an actual or potential hazard to the health or well-being of the mother or fetus is considered a 'high-risk pregnancy'.

Any pregnancy can be considered to be at a greater risk as compared to a normal pregnancy if the mother is hypertensive, diabetic, susceptible to infections or complications from a previous pregnancy, or any other issues that might arise during pregnancy.[1]

All pregnancies are at risk even though most of the pregnancies and childbirth worldwide are uneventful. Almost 15% of all the pregnant women can develop

potentially life-threatening complications which might require skilled care with some requiring major intervention for survival.[2]

Early and regular prenatal care helps many women have healthy pregnancies and deliveries without complications. Women with complicated pregnancies may require lifestyle changes, medication regimens, technical support, and even hospitalization. Nurses can foster an environment of security and trust during preconception, antenatal, intranatal, and postnatal care to enhance the health and well-being of mother and fetus.[3]

It is becoming more evident that preventive care may reduce or eliminate the toll exacted by some of the more frequent problems, such as poor nutrition, substance abuse, or failure to comply with effective regimens for treating common medical disorders.[4]

Various factors such as medical conditions, age, parity, previous history of caesarean section, multiple pregnancy, environment and geography, socio economic status, literacy rate, lack of family planning services and lack of accessibility to health care affect the incidence and prevalence of high-risk pregnancies.

In order to overcome the issue of increasing maternal morbidity and mortality, the Government of India launched the Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) for identification of high-risk pregnancy in 2016.[5]

Very few studies have been conducted in our region pertaining to the factors associated with such cases. Therefore, this study was planned to know the contributing factors of such high-risk pregnancies among women residing in Delhi.

METHODS

A prospective, questionnaire-based study done over 2 months, March-April 2024 among pregnant females attending the antenatal clinic at a primary healthcare centre of Delhi.

Sample size was calculated to be 50 patients, based on previous studies, which was taken by convenient sampling. Pregnant females who were having one or more risk factor were included.

Antenatal clinics are special clinics established exclusively for providing essential services to pregnant females. These include registration of pregnancy, checkup of the mother, recording of basic parameters like weight and blood pressure, laboratory investigations such as hemoglobin, blood grouping, blood sugar, testing for infectious diseases like HIV, hepatitis B and C, syphilis, urine tests, immunization, provision supplementary tablets, counselling for danger signs of pregnancy, birth preparedness, nutrition, and importance of spacing, contraception, immunization and breastfeeding, obstetrician consultation and routine checkup, follow-up, and referral services.

Each antenatal woman has a comprehensive case record which is updated during every visit by the health workers. Confidentiality of information for all pregnant women is maintained under a unique identity number.

High-risk pregnancy was classified based on the guidelines provided by Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) for identification of high-risk pregnancy by health-care workers.[5] The parameters considered for diagnosis of high-risk pregnancy were also defined as per the guidelines provided by PMSMA.

Antenatal women with the following conditions were categorized under high-risk pregnancy: severe anemia with hemoglobin level <7 gm/dl; hypertensive disorder in pregnancy (blood pressure >140/90 mmHg); pregnant women positive for HIV/syphilis; hypothyroidism (thyroid-stimulating hormone values- first trimester: 0.1-2.5 mIU/l, second trimester: 0.2-3 mIU/l, and third trimester: 0.3-3 mIU/l); gestational diabetes mellitus (glucose challenge test ≥140 mg/dl); twin pregnancy or multiple pregnancy; previous history of lower segment cesarean section; younger primi (age <20 years) or elderly gravida (age >35 years); malpresentation; bad obstetric history (history of congenital malformation; stillbirth, abortion, premature birth, and obstructed labor); Rh incompatibility; and low-lying placenta or placenta previa.

Data collection

Antenatal case details were noted from pre-existing record of pregnant females attending the antenatal clinic and noting details in a validated questionnaire from similar previous studies.

Inclusion criteria

Cases with at least one risk factor of high-risk pregnancy.

Exclusion criteria

Non pregnant females and incomplete records.

Statistical analysis

The data collected in a proforma was then tabulated using Microsoft data analysis tool and was statistically analysed. The results were expressed as percentages and tabulated.

Ethical clearance

This being purely retrospective, observational, record based study, patients were not contacted in the design, conduct or reporting, hence ethical committee approval was not required for this study.

RESULTS

A total of 186 females were screened, of which 50 were included in the analysis as per selection criteria. Hence the prevalence of high-risk pregnancy in the given study was found to be 26.8% (Figure 1).

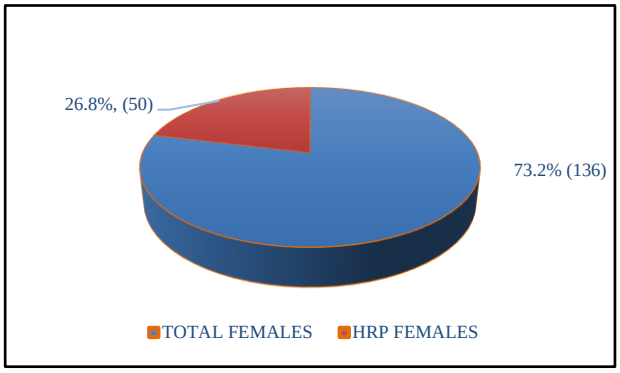

Figure 1: Prevalence of high-risk pregnancy.

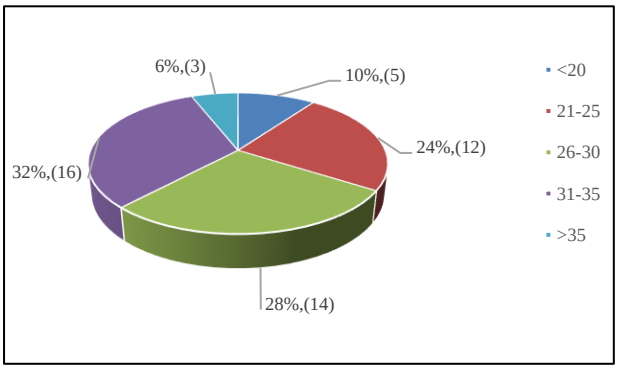

Figure 2: Age of patients (in years).

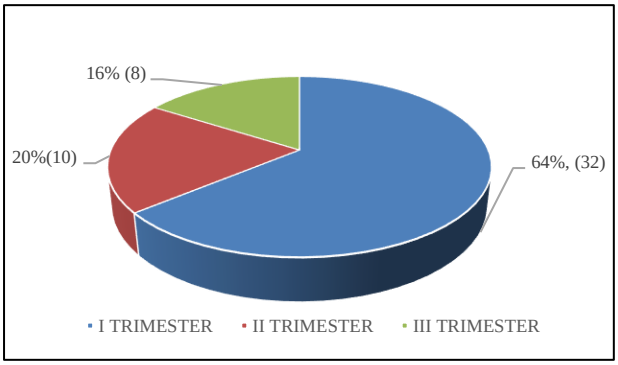

Figure 3: Gestational age of mothers on 1st ANC visit.

In terms of socio-demographic profile, it was observed that 32% patients belonged to the age group of 31-35 years (Figure 2) while in terms of gestational age, it was seen that 64% females presented for the first time in the ANC OPD during the first trimester of the pregnancy (Figure 3).

60% of the pregnant females were educated upto 6-12th standard (Figure 4) and 64% belonged to lower socio-economic class (Figure 5).

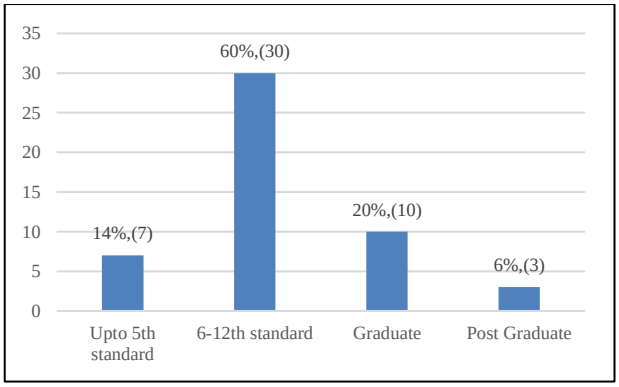

Figure 4: Literacy status of antenatal mothers.

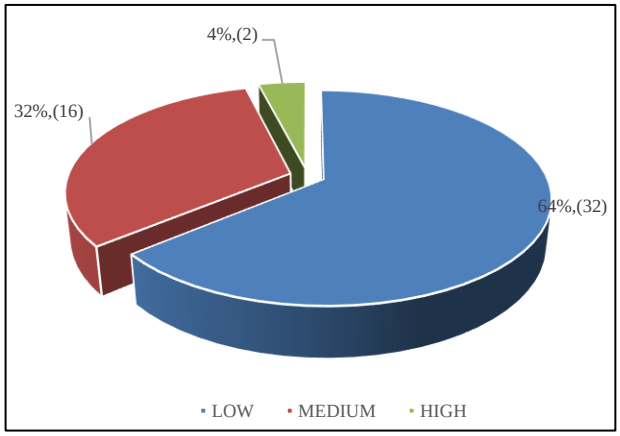

Figure 5: Socio-economic status.

The distribution of various risk factors is depicted in Figure 6, indicating that severe anemia was present in 32% of the patients, while diabetes mellitus, hypertension and infectious diseases each of which were found in 24% patients.

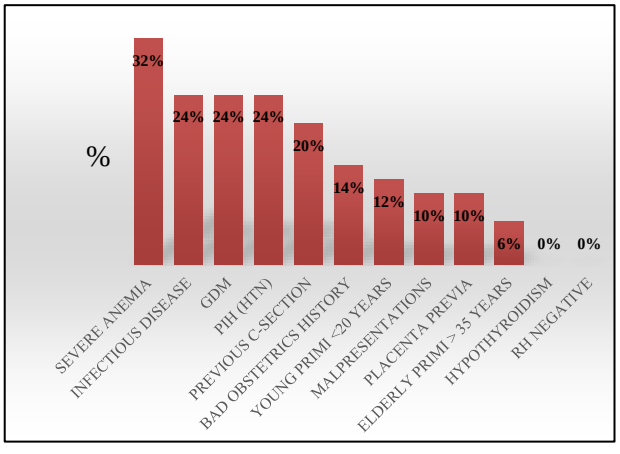

Figure 6: Distribution of various risk factors.
GDM: Gestational Diabetes Mellitus; PIH: Pregnancy Induced Hypertension

The relationship between the demographics of the patient and the number of risk factors present in each pregnancy is illustrated in Figure 7.

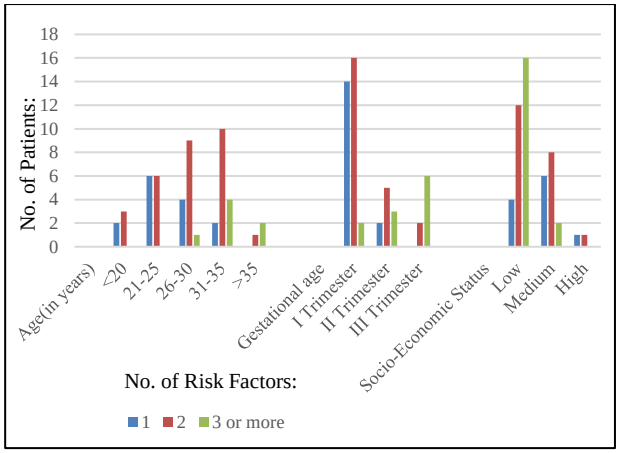

Figure 7: Relationship of patient demographics with the number of risk factors.

DISCUSSION

Among all pregnancies, nearly one-third of Indian pregnant women had at least one high-risk factor and sixteen percent of women had multiple-high risks.[6] Prevention of high-risk pregnancy may not always be possible but it can be prevented with good care and counselling [7]

In our study, it was observed that the prevalence of high-risk pregnancy was 26.8% which is similar to that in the country (29.4%).[8] However, it is much higher than the global prevalence of 15%, as India being a developing nation is still lacking behind in many facilities for the pregnant mothers.[9]

The advancing age of the mother is a major cause of concern while determining high risk pregnancy. In our study, we found, 32% participants being between 31-35 years of age, 28% between 26-30 years and 6% were more than 35 years old. As customs permit, often marriages occur at very early ages so by the time a female reaches her 30s she is already a multigravida and any pregnancy after this age is usually bound to have high risk complications associated with it.

It was also found that 64% of the females presented to the ante natal clinic (ANC) in the first trimester of the pregnancy, 20% in the second trimester and while 16% were in the third trimester at the time of their first visit. Prevalence of adequate knowledge of government schemes and facilities plays a key role in determining the booking status of antenatal women. WHO recommends minimum 4 ANC visits to ensure a healthy pregnancy.[8]

Considering educational levels as an important marker, we discovered that 64% of the females in our study had low level of education, i.e. between 6th to 12th standard. 14% were educated less than 5th standard and 20% were graduate while only 2% were post graduate.

Thus, education of the pregnant female is of utmost importance to reduce and effectively tackle the issues related with a high-risk pregnancy. Due to lack of proper knowledge and education, the number of ANC visits are often less; most females present directly at term in critical stages with complications and therefore become difficult to manage. Later, they don't follow any family planning practices and hence the vicious cycle continues.

When considering the patients on the basis of socio-economic status being low, medium and high having Rs 0-5000, 5001-10,000 and >10,001 per month family income respectively, we found 64%, 32% and 4% patients in the respective categories. According to Puducherry study, pregnancy loss, eclampsia and still birth were also more associated in case of low socio-economic strata.[1]

On comparing the distribution of the various risk factors, we found that severe anemia was present in 32% of the patients, which can be attributed to poor nutrition, availability of lesser food portion for the females in the household and multiple pregnancies. This high prevalence of anemia is more likely to present with a risk of atonic post-partum haemorrhage which can be a life-threatening complication. Anemia in the mother can lead to small fetus and cardiac failure in the mothers.[7] Other common risk factors were diabetes mellitus, hypertension and infectious diseases, each of which were found in 24% of the patients included. Thus, these appear to be the major risk factors in our selected locality. Similar results were found in a study by Prajapati et al.[10]

Although important progress has been made in the last two decades, about 2,87,000 women died during and following pregnancy and childbirth in 2020. This number is unacceptably high.[11] Most pregnant women access skilled antenatal care at least once, but globally, only 69 per cent receive four antenatal care visits.[12] The relationship of individual factors with the number of risk factors found in each high-risk pregnancy is indicative that with the increasing age of the female, advancing gestational age and lower socio-economic status, the number of risk factors present in a female tends to rise significantly. Therefore, a younger female from a higher socio-economic class presenting to the antenatal clinic in early stages of gestation would have a better pregnancy outcome due to lesser number of risk factors associated.

Counselling of young married couples may create a channel for greater information flow, for planned parenthood.[13] As maternal mortality is remarkably sensitive to standards of obstetric care available, thus regular sensitisation programmes are needed to improve the awareness of pregnant females towards beneficial government schemes.[14] These mothers can be referred to a tertiary care centre early, so that they can be managed better, thus improving the maternal and perinatal outcome. It also helps to avoid the problems of reaching the tertiary care centre as an emergency. Therefore, boosting the access and utilization of antenatal care coverage among

pregnant women can ensure the best health outcomes for their pregnancy.[15]

This is a single centric study among a limited number of participants. Thus, we cannot claim to represent the entire population. The limitations give scope for further research in this area.

CONCLUSION

Nearly one-third of all pregnancies are high risk pregnancy in India, therefore, such high-risk pregnancy must be identified at primary health care centres so that we can categorize the antenatal mothers, thus identifying those at risk. Initiatives like PMSMA can help to detect these avoidable risk factors in time and help in reduce the MMR in our country.

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