Sarcouncil Journal of Medical Sciences

ISSN(Online): 2945-3526

Volume- 04| Issue- 12| 2025

Research Article

Received: 01-11-2025 | Accepted: 25-11-2025 | Published: 10-12-2025

Prevalence of High-Risk Pregnancy among Pregnant Women Attending Antenatal Care Unit at a Public Hospital in Dhaka City

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Abstract: Background: Pregnancy is the time when a fetus grows in the uterus. High-risk pregnancies involve conditions that raise the chance of complications for the mother, baby, or both. Though only 10–30% of pregnancies fall into this category, they cause 70–80% of perinatal health issues and deaths. Aim: This study aims to examine the socio-demographic characteristics of the respondents to gain insights into their background and context. It also seeks to identify medical, obstetric and other related complications that contribute to high-risk pregnancies among them. Method: A descriptive cross-sectional study using a quantitative approach was conducted to assess the prevalence of high-risk pregnancy at a public hospital in Dhaka. The study included 90 pregnant women attending the antenatal care unit at Shaheed Suhrawardy Medical College & Hospital during the data collection period. Only pregnant women present at the outpatient department were included, while non-pregnant or absent individuals were excluded. Results: This study involved 90 pregnant women aged under 18 to over 35, with nearly half aged 24–29. Most had a height of ≥145 cm, and common weight ranges were 51–70 kg. The majority were Muslim, had good educational backgrounds (96% literate), and about 42% came from low-income families. Most were married to non-relatives, and 17% had not received TT vaccines. Multiparity was common, with 30% having a third pregnancy. Only 21.11% attended their fourth ANC visit, while many did not take iron (31%) or calcium (33%) supplements. About 32.22% had anemia, 9% hypertension, and 8% diabetes, along with other chronic conditions like asthma, thyroid disease. Nearly 39% had high-risk factors from previous pregnancies, such as abortion or obstructed labor. Current complications affected 18.9%, including issues like abdominal pain and UTIs, with some rare but serious cases like placenta previa and IUGR. Overall, 39% of women had current or past risk factors, highlighting the need for better antenatal screening, care, and education. Recommendation: The study recommends raising awareness about antenatal care, especially in rural and slum areas, and calls for regular monitoring of high-risk pregnancies to guide resource allocation. It highlights the need to educate adolescents and pregnant women on nutrition and healthy habits. Key risk factors identified include anemia, cesarean delivery, abortion, and high salt intake, with links to weight, income, TT vaccination, and supplement use. Conclusion: Addressing these issues through targeted policies and regional health interventions is crucial to reduce maternal and neonatal complications in Bangladesh.

Keywords: Pregnant Women, Antenatal Care, Public Hospital.

INTRODUCTION

Pregnancy refers to the period during which a fetus develops in a woman's uterus. A high-risk pregnancy is one where certain condition increase the likelihood of complications for the mother, fetus, or newborn during pregnancy or childbirth. This category is characterized by factors that adversely affect the health of the mother, fetus, or both. Although only about 10-30% of pregnant women are considered high-risk, they are responsible for a significant proportion around 70-80%of perinatal health problems and mortality (Gomindes,2022).

The World Health Organization reports that approximately 800 women die each day from preventable causes related to pregnancy, with nearly all these deaths occurring in developing countries. Globally, 20% of pregnancies are considered high-risk, and these pregnancies account for 50% of perinatal deaths. The prevalence of high-risk pregnancies varies significantly between countries, ranging from 31.4% in northern India to 40.1% in Nigeria and 59.3% in Tunisia. Additionally, the prevalence of high-risk pregnancies differs across various regions within Iran. (Farajnezhad, 2017).

Approximately 41.5% of women in Bangladesh faced high-risk pregnancies characterized by multiple health issues. (Abedin,2020). A high-risk pregnancy refers to any pregnancy that poses increased health risks or complications for the mother, fetus, or both during pregnancy or childbirth. Around 15% of women experience life-threatening complications during pregnancy, and 50-60% of those with maternal complications undergo cesarean delivery. A study showed that common obstetric complications include breech presentation (17.9%), heavy bleeding (7.2%), obstructed labor (7.7%), and prolonged labor (0.2%). Additionally, high-risk pregnancies account for 75% of perinatal deaths. (Kuppusamy,2023)

Every year, approximately 9.5 million women worldwide face complications during pregnancy

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DOI-https://doi.org/10.5281/zenodo.17885010

and childbirth, leading to over 300,000 maternal deaths. Over the past two decades, around 1.3 million maternal deaths occurred among Indian women, contributing to 12% of global maternal mortality. In 2015, Bangladesh had a maternal mortality rate (MMR) of 176, surpassing the targeted MMR of 143 set by the Millennium Development Goals (MDGs). This higher rate in Bangladesh underscores the need for thorough investigation into the causes of maternal mortality to achieve the Sustainable Development Goal (SDG) target of less than 70 maternal deaths per 100,000 live births by 2030(Hossain,2023).

The complications of high-risk pregnancies are classified into different areas includes preterm birth (before 37 weeks) and post-term delivery (after 42 weeks), previous mode of delivery such as assisted vaginal delivery or cesarean section, low birth weight (under 2.5 kg), macrosomia, and the status of the birth (live birth with congenital anomalies, stillbirth, or abortion), organ failure, DIC (disseminated intravascular coagulation), HELLP syndrome, or death. Benefits of early detection of high-risk pregnancies depend on early detection, including social and emotional well-being and the avoidance of medications, irradiation, and other teratogens.

The primary goals of the ANC include ensuring maternal health during pregnancy, identifying and managing high-risk cases, preventing complications, reducing maternal and infant mortality and morbidity, alleviating maternal delivery concerns, educating mothers about childcare, nutrition, sanitation and hygiene, providing family planning guidance and caring for children under five year's old who accompany pregnant mothers (Austin ,2022).

Efforts that are tried to avoid the formation of pregnancy with high risk, namely the coverage of antenatal services increased at least during pregnancy must be examined 6 (six) times, after which all pregnant women given treatment and antenatal screening to carry out early detection in a pro-active manner, understand the problems experienced during pregnancy so that they are aware, recognize the danger characteristics and risk aspects pregnancy, improve service quality, utilization of facilities and planned health service facilities (Agustini,2022).

Justification

A high-risk pregnancy is one of the complicated factor or factors adversely affecting the pregnancy outcome (maternal, perinatal, or both) (Gomindes,2022). Maternal and perinatal deaths as well as poor pregnancy outcomes is recognized as one of the major public health problems in Bangladesh. The common immediate causes of adverse pregnancy outcomes are mainly understood in terms of women's physiological health during pregnancy and childbirth. Although pregnancy is a universal part of female physiology and biology, this event is shaped by the surrounding social environment (Abedin,2020).

Every year, nearly 500,000 women die globally because of pregnancy related causes. For each death, nearly 118 women suffer from life-threatening events or severe acute morbidity. Perinatal outcomes can be changed significantly through early detection and special intensive care for high-risk pregnancies. All pregnancies should therefore be screened for the presence of risk factors. Factors to be considered include age, parity, social class, history of chronic disease (diabetes mellitus, hypertension, heart disease, thyroid disease, etc.), history of previous pregnancy complications, and multiple previous pregnancies (Gomindes,2022).

Hence, adequate (a minimum of four visits, as recommended by the WHO) Antenatal Care should be done to identify high-risk pregnancies at an early stage and manage any pregnancy-related complications to ensure acceptable maternal and perinatal outcomes. The objectives of the present study were determining the prevalence of high-risk pregnancy and thus the government was be taken action plan to reduce maternal mortality and morbidity so that they could achieve SDG goal and committed target. The need for thorough investigation into the causes of maternal mortality to achieve the Sustainable Development Goal (SDG) target of less than 70 maternal deaths per 100,000 live births by 2030(Hossain,2023).

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being and the avoidance of medications, irradiation, and other teratogens.

Research Aim

To determine the prevalence of High-Risk Pregnancy Among Pregnant Women Attending Antenatal Care Unit at a public Hospital in Dhaka City.

Research Question

What is the Prevalence of High-Risk Pregnancy Among Pregnant Women Attending Antenatal Care Unit at a public Hospital in Dhaka City?

Specific objectives

- To explore the socio-demographic characteristics of the respondents.
- To determine the high-risk pregnancy due to medical complications of the respondents.
- To understand high-risk pregnancy due to obstetric and other complications of the respondents.

Research variables

Socio-Demographic variables

- Age
- Height
- Weight (kg)
- Religion
- Educational Qualification
- Family Income
- Biological relationship
- TT vaccine
- Blood group
- Parity
- Gravida
- Number of Antenatal care visit
- Iron supplements
- Gestational age

Factors related variables

- Medical factors
- Obstetric factors
- Other factors

Operational definition

High risk Pregnancy

A high-risk pregnancy is one where there's a greater likelihood of health problems for the mother, the fetus, or both, compared to a typical pregnancy. This can be due to a variety of factors, including pre-existing medical conditions, advanced maternal age, or complications during a previous pregnancy.

In this study, the women refer to the respondents who are suffering in complications with medical factors (anemia, diabetes mellitus, hypertension, asthma & other chronic illness), obstetric factors(mode of last delivery, complications during pregnancy, complications during delivery& complications after birth) and others attending factors (history of substance use, contraception history, regular exercise, fruits & vegetables, high salt consumption and other factors) at Antenatal Care Unit at a public hospital in Dhaka City.

High risk pregnancy refers to pregnancy women who come to ShSMCH for ANC follow up and pregnancy complicated by conditions such as Anemia, Preeclampsia, Gestational diabetes mellitus, APH, malpresentation, multiple pregnancy and age of 18 years or less that adversely affect the maternal and fetal outcome.

Prevalence

In epidemiology prevalence is the proportion of a particular population found to be affected by a medical condition at a specific time.

Prevalence refers to number of women with factors associated pregnancy related complications attended at Antenatal Care Unit at a public hospital in Dhaka City during the data collection period.

LITERATURE REVIEW

This chapter presents the literature related to the prevalence of high-risk pregnancy attending Antenatal Care Unit. The review covers (1) High risk pregnancy (2) Prevalence of high-risk pregnancy, (3) Socio demographic variables (4) identify medical factors influencing high risk pregnancy (5) identify obstetrical factors influencing high risk pregnancy (6) determine socio-demographic characteristics influencing high risk pregnancy (7) outcome of high-risk pregnancy respectively.

Identification of high-risk pregnancy, causes, and its complications through quality antenatal care helps in achieving favorable maternal, obstetric and neonatal outcome.

Concept of High-Risk Pregnancy

Any pregnancy that involves increased health risk or complications for the mother, foetus, or both during pregnancy or childbirth is referred to as high-risk pregnancy. (Kuppusamy, 2023). 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'.

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Prevalence

According to the World Health Organization about 800 women die of pregnancy-related preventable causes daily and 99% of these deaths occur in developing countries. The global prevalence of high-risk pregnancies has been reported to be 20%, also 50 percent of perinatal mortality is because of high-risk pregnancy. The prevalence of high-risk pregnancy varies from country to country. For example, in north of India is 31.4%, Nigeria, 40.1% and Tunisia, 59.3%. Also, the prevalence of high-risk pregnancies varies in different regions of Iran. (Farajnezhad *et al.,* 2017).

In Bangladesh, High risk pregnancy remains a major challenge due to a combination of factors such as inadequate prenatal care, malnutrition, early marriage, and limited access to emergency obstetric services. A study conducted in tertiary care hospitals in Dhaka reported that 18-30% of pregnant women attending antenatal clinics had high-risk factors, such as pre-eclampsia, anemia, or previous obstetric complications (Chowdhury *et al.,* 2019). Rural areas often report a higher prevalence due to delayed access to healthcare and insufficient awareness of antenatal care (Ahmed *et al.,* 2020).

Classifications

High-risk pregnancies are typically classified based on various factors such as:

Pre-existing maternal health conditions: high blood pressure (hypertension) preeclampsia, diabetes / gestational diabetes, kidney disease, heart disease, thyroid disorders, epilepsy, obesity, HIV/AIDS, depression and anxiety.

Previous pregnancy history: History of previous preterm birth, preeclampsia, stillbirth, recurrent miscarriages, or a baby with a genetic condition or birth defect, previous cesarean section

Factors Related to the Current Pregnancy: Advanced Maternal Age, chromosomal abnormalities, miscarriage, Adolescent Pregnancy, nutritional deficiencies, multiple gestation, smoking, alcohol/ substance use.

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, hypertensive disorder with blood pressure 140/90 mmHg, pregnant women positive for HIV/syphilis, hypothyroidism, gestational diabetes mellitus, twin pregnancy or multiple pregnancy; previous history of lower segment cesarean section; younger primi (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.

Determinants of High-Risk Pregnancy

Common determinants of High-risk pregnancy include maternal age (below 18 or above 35 years), multiparity, low socioeconomic status, pre-existing conditions such as diabetes or hypertension, and adverse obstetric history (Khatun *et al.,* 2020). In Dhaka city, urban slums and underserved areas report higher high-risk pregnancy prevalence due to poor living conditions, lack of education, and limited access to healthcare facilities (Rahman *et al.,* 2022).

Another study found that the prevalence of high-risk pregnancy is more due to having a bad obstetric history, pregnancy-induced hypertension, being elderly gravida, Rh-negative, and having other risk factors. Factors such as the education status of pregnant women, age at pregnancy, and parity of pregnant women were found to be significantly associated with the prevalence of high risk. (Prajapati, 2022).

The ShSMCH serves a diverse population, including both low and middle-income groups, making it an ideal setting for studying. Hence, all the pregnancies need to be evaluated for high-risk pregnancy through routine antenatal care provided by the health-care professionals.

Clinical Features:

High-risk pregnancies need special care because there is a greater chance of problems for the mother, the baby, or both. Some warning signs in a high-risk pregnancy include strong or constant headaches that don't go away. If a pregnant woman sees blurry or double, or sees spots in her vision, this could be a sign of high blood pressure. Pain in the stomach, especially in the upper or lower belly, can mean there is a serious problem, like preeclampsia or early labor. Chest pain should be taken seriously as it may be a sign of heart or lung problems. Feeling dizzy or faint can happen if the mother has low blood pressure or anemia. If the mother feels very tired all the time, it might be caused by anemia or another health issue.

If the baby moves less than usual, it can be a sign of distress and should be checked right away. Swelling in the hands, feet, or face especially if it

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happens suddenly can also be a warning sign. Severe nausea and vomiting that don't stop can lead to dehydration and need medical care. Back pain that is strong or lasts a long time might be a sign of a urinary infection or early labor. A fast or irregular heartbeat can mean the mother has heart, blood, or thyroid problems.

Socio-demographic Factors influencing high risk pregnancy

About three fourths of maternal deaths are caused due to the complications during pregnancy and childbirth period. Hemorrhage, excessive vomiting, convulsion/fits, and oedema face/feet/body were considered as the high-risk pregnancy related complications. Moreover, heavy bleeding, prolonged labor, high fever or discharge, and convulsions were selected as pregnancy related complications in a study on health care seeking behavior. A study conducted in Dhaka slums found that postpartum hemorrhage and eclampsia were the main causes of maternal deaths. The contribution of these major complications to high MMR deserves attention, mortality rate. Unluckily, there are few studies on complications during/after pregnancy or after delivery in urban, and the slum areas of Bangladesh. Therefore, it is timely to focus on the risk factors of pregnancy and childbirth related complications so that strategies can be developed to reduce maternal mortality and morbidity as well as child mortality to achieve the SDGs.

Age is considered a factor in high-risk pregnancies because both very young and older maternal ages are associated with increased risks for complications during pregnancy and childbirth. Teenage Pregnancy risks (<18 years): Higher risk of preterm birth, low birth weight, and pre-eclampsia. Increased likelihood of socioeconomic challenges and reduced access to prenatal care, which can worsen outcomes. Advanced Maternal Age (≥35 years) risk: Greater risk of chromosomal abnormalities (e.g., Down syndrome). Increased incidence of gestational diabetes, hypertension, miscarriage, and stillbirth and higher likelihood of cesarean delivery and complications like placenta previa or placental abruption.

Height is considered a factor in high-risk pregnancy because shorter maternal height is associated with several adverse pregnancy outcomes, primarily due to anatomical and nutritional factors. Short stature (commonly defined as <145cm) is often associated with a smaller pelvic size, which can lead to cephalopelvic disproportion a condition where the baby's head is too large to pass through the birth canal. This increases the risk of obstructed labor and the need for cesarean delivery. Shorter women are more likely to have babies with low birth weight and preterm births, possibly due to maternal nutritional deficiencies or uterine size constraints. Maternal short stature can also reflect childhood under nutrition, which may correlate with long-term health and socioeconomic disadvantages, compounding risks in pregnancy.

Both underweight and overweight can significantly impact pregnancy outcomes, making it a key factor in high-risk pregnancies. Underweight, may lead to intrauterine growth restriction (IUGR), preterm birth, and low birth weight. Nutritional deficiencies can affect fetal development. Overweight and Obesity, increases the risk of gestational diabetes, preeclampsia, cesarean delivery, and stillbirth. Higher likelihood of developing chronic conditions such as hypertension that can complicate pregnancy.

Religion can significantly influence the experiences and outcomes of high-risk pregnancies, affecting medical decisions, emotional well-being, and access to care. Certain religions may discourage interventions like cesarean sections, blood transfusions, or prenatal testing. Many religions, including Catholicism and Islam, restrict abortion, even if the pregnancy endangers the mother's life or involves fetal anomalies. This can exacerbate risks in high-risk pregnancies. Some individuals prioritize prayer, faith healing, or traditional remedies over modern medical care, which may delay critical treatments. In some religious contexts, women may avoid seeking care if only male healthcare providers are available. Some religious beliefs impose food restrictions, which may lead to nutritional deficiencies critical for the health of mother and baby. Religious or cultural traditions may favor home births over hospital deliveries, increasing risks in emergencies

Educated women are more likely to understand the factors contributing to high-risk pregnancies, such as pre-existing conditions, advanced maternal age, or poor nutrition etc. Women with low education may not understand factors contributing to high-risk pregnancies, such as pre-existing medical conditions, unhealthy lifestyles, or advanced maternal age. Symptoms like bleeding, swelling, or decreased fetal movements may go unnoticed or be misinterpreted, delaying necessary medical

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intervention. Educated women are more likely to attend regular check-ups, but those with limited education may not prioritize or access these services, increasing complications. Women with low education are more likely to give birth at home or in non-medical settings, raising risks of maternal and neonatal mortality.

Families with limited income often struggle to afford routine antenatal care or access to specialized medical services. As a result, important health conditions such as high blood pressure, gestational diabetes, or infections may go unnoticed and untreated, raising the risk of complications. A healthy pregnancy depends on a well-balanced diet rich in essential nutrients, but financial hardship can limit access to nutritious food, leading to issues like malnutrition, anemia, and low birth weight in babies. Marriages between blood relatives involve partners who share similar genetic traits. If both individuals carry the same faulty gene, it increases the risk of passing inherited disorders to their child, such as thalassemia, cystic fibrosis, or other metabolic conditions. This significantly heightens the chances of miscarriage, stillbirth, or congenital disabilities.

TT vaccine protects both mother and newborn by inducing antibodies that pass to the fetus. Lack of TT vaccination is a significant risk factor for neonatal tetanus, especially in areas with poor hygiene or unskilled birth attendance. WHO recommends at least 2 doses of TT for pregnant women to reduce maternal and neonatal tetanus-related morbidity and mortality. Timely administration of two or more doses of TT is essential for safe pregnancy outcomes.

Certain blood types have been associated with increased risks of complications such as preeclampsia, gestational hypertension, and hemolytic disease of the fetus and newborn. Pregnant women with blood group AB had a higher risk of developing preeclampsia compared to those with blood group O. (Manjunatha & Anita,2015). Mothers with blood type A had a higher risk of fetal stillbirth compared to those with B or O blood types.

Nulliparity/First pregnancies are associated with a higher risk of preeclampsia, a serious complication involving high blood pressure and organ damage. Additionally, primiparous women may experience a slower first stage of labor compared to multiparous women. While multiparous women may experience specific complications like placental abruption, preterm labor, and a higher risk of certain obstetric conditions. Having had 5 or more live births is linked to an increased risk of preterm delivery, especially in low socioeconomic groups.

Gestational age is a critical determinant of pregnancy outcomes. Pregnancies ending before 37 weeks are termed preterm, and they carry increased risks of neonatal respiratory distress syndrome, hypothermia, sepsis, low birth weight, and even neonatal death. Preterm birth can be caused by infections, maternal malnutrition, hypertensive disorders, or poor antenatal care. On the other hand, pregnancies extending beyond 42 weeks are called post-term, which are associated with macrosomia (large baby), meconium aspiration syndrome, stillbirth, uterine rupture, and complicated labor due to cephalopelvic disproportion.

Missed ANC visits can lead to delayed detection and treatment of complications like preeclampsia, gestational diabetes, anemia, and infections. Women who don't receive regular ANC are more likely to have premature births and infants with low birth weight, which can lead to various health problems for the baby. Lack of ANC has been linked to increased rates of stillbirth, a devastating outcome for families ANC visits provide opportunities for women to receive counseling and education on topics like healthy pregnancy, nutrition, breastfeeding, and childbirth preparation, which can empower them to make informed choices.

Lack of iron supplements can cause fatigue, breathing difficulties, fainting, and palpitations. It can lead to premature birth, low birth weight, and postpartum depression. Iron deficiency can increase the risk of postpartum hemorrhage and infections. This can affect the developing fetus's brain, leading to compromised cognitive function and potentially affecting long-term mental health. These can have long-term health implications for the infant. Severe iron deficiency anemia can increase the risk of infant death shortly after birth.

Calcium is an essential micronutrient during pregnancy, supporting fetal skeletal development and maternal cardiovascular health. Inadequate calcium intake is a significant risk factor for hypertensive disorders of pregnancy, especially preeclampsia and eclampsia, which are major contributors to maternal and perinatal morbidity and mortality in developing countries like

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Bangladesh. Calcium deficiency can also lead to uterine muscle irritability, increasing the risk of preterm labor.

Medical factors influencing high risk pregnancy

The World Health Organization defines anemia in pregnant women as Hb concentration less than 11.0 g/dl. In pregnant women, anemia increases risk for maternal and child mortality. Severe anemia is associated with fatigue, weakness, breathlessness, dizziness, drowsiness and perceived pale ness of the skin. (Wanyama, 2016). Anemia is a major problem worldwide, affecting over 1.6 billion people. It is estimated that anemia affects 56% of women of reproductive age, 59% of pregnant women, 63% of lactating women, and 70% of young children in India (Duggan, 2020). Where In Bangladesh, anemia affected around half of the adolescent girls 52%, pregnant 50% and lactating women 49% (BDHS, 2011).

Asthma is a significant health issue because it is the serious medical problems with complain of shortness of breath or chest tightness (approximately two-thirds) during the pregnancy period. Studies have shown that having asthma during pregnancy puts both mother and baby at risk for complications. Some complications include spontaneous abortion, antepartum and postpartum hemorrhage, placental abruption, gestational diabetes, cesarean section, placenta previa, premature rupture of membranes, preterm birth, a higher risk of a breech presentation, pulmonary embolism, and maternal intensive care unit admission. They are also at an increased risk of experiencing transient hypertension of pregnancy, preeclampsia, or eclampsia (Regina Maria de Carvalho-Pinto, 2023).

Human immune deficiency virus (HIV) Infection has become a global epidemic, that shown to be the cause of acquired immunodeficiency syndrome (AIDS). Symptoms include fever, pharyngitis, rash, myalgia, arthralgia, diarrhea, and headache Acute HIV infection during pregnancy or lactation is associated with high risk of transmitting HIV to their infants. Some consequences are increased spontaneous miscarriages, stillbirths, increased perinatal mortality, intrauterine growth restriction, low birth weight, and chorioamnionitis (Chilaka,2021). Global estimates suggest that 19.2 million women were living with HIV in 2019 constituting 52% of all adults living with the infection. HIV prevalence is notably higher among women in sub-Saharan Africa. Researchers have described about 25% of deaths among pregnant women to HIV infection. (Ozim, 2023).

Rh incompatibility is a condition that occurs when a Rh-negative mother carries a Rh-positive fetus, leading to the production of maternal anti-D antibodies that attack fetal red blood cells, resulting in complications like fetal anemia, jaundice, hydrops fetalis, and even stillbirth. Globally, severe Rh disease affects around 277 per 100,000 live births, while in Bangladesh, approximately 5-6% of the population is Rh-negative, increasing the risk of Rh incompatibility-related complications (Júnior *et al.,* 2024).

Gestational diabetes mellitus (GDM) is abnormal glucose tolerance with onset or first recognition during pregnancy. (Sweeting *et al.*, 2022). Risk factors for developing gestational diabetes mellitus include being overweight or obese, older maternal age, high parity, high household income, hypertension, and a family history of any type of diabetes (Nakshine & Jogdand, 2023). Maternal cardiovascular disease (CVD) and type 2 diabetes, as well as macrosomia and delivery difficulties in the newborn, premature birth, hypoglycemia at birth, and shoulder dystocia can result from gestational diabetes mellitus (Nakshine & Jogdand, 2023). Globally, approximately 1 in 6 live births is affected by gestational diabetes mellitus. Regionally, incidence rates range from 6.6% in Japan and Nepal to 45.3% in the UAE (Sweeting *et al.*, 2022). In Bangladesh, the overall prevalence of gestational diabetes mellitus was found to be 35%.(Mazumder *et al.*, 2022).

Disorders of the thyroid include both over and mild/subclinical hypothyroidism and hyperthyroidism. Hypothyroidism is estimated to occur in 0.3-0.5% of pregnancies. Hyperthyroidism during gestation, usually caused by Graves's disease, is rare (0.2%). (Dharamaraj,2016). The prevalence of hypothyroidism in pregnancy in low- and middle-income countries has been reported to be 5–31.6%, which is higher than the prevalence in developed countries. Maternal complications include miscarriage, pregnancy-induced hypertension, preterm labor, placental abruption, heart failure, and thyroid storm. Fetal and neonatal complications include stillbirth, low birth weight, goiter, hyperthyroidism, and hypothyroidism. (Dharamaraj, 2016)

High blood pressure during pregnancy, defined as a reading of 140/90 mmHg or higher after the 20th

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week of gestation in women with previously normal blood pressure, is a major cause of maternal death. High blood pressure during pregnancy has no exact cause but is linked to risks like first pregnancy, multiple babies, diabetes, age under 20 or over 35, stress, obesity, kidney disease, and family history. It can lead to serious problems like preeclampsia, seizures, stroke, and long-term heart disease. It can also lead to serious complications for baby such as preterm birth, restricted growth, stillbirth, or neonatal death (Khatun *et al.*,2024). Ratio of hypertension during pregnancy is approximately 8.8% in urban areas and 5% to 9% in rural regions in Bangladesh. (Hemapriya *et al.*,2020).

Obstetrical factors influencing high risk pregnancy

Several studies have demonstrated that preeclampsia is linked with the failure of the trophoblastic invasion of maternal spiral arteries which leads to obstacles the flow of adequate blood and oxygen to the developing fetus, cause maternal liver and kidney damage and sometimes progress to eclampsia, a serious condition involving seizures (Ali, 2021). Worldwide, approximately 12% of maternal deaths are solely attributed to preeclampsia. According to WHO estimates, the prevalence of preeclampsia has been reported 12% in Bangladesh. Today, eclampsia is rare in developed countries, but it continues to occur in developing nations, with mortality rates reaching up to 15%. (Kharaghani *et al.*,2016) The factors linked to preeclampsia or eclampsia are complex and interconnected. that being a first-time mother, having a history of preeclampsia or eclampsia, a family history of the condition, obesity or overweight, chronic hypertension, anemia during pregnancy, and insufficient antenatal care visits all increase the risk of developing preeclampsia or eclampsia. (Meazaw *et al.*,2020).

Adolescent pregnancy estimated that 16 million 15–19-year-old women give birth every year, accounting for approximately 11% of all births worldwide. In low- and middle-income countries, pregnancy has been reported as the main factor of death in adolescent girls. Young maternal age has usually been considered a high risk in relation to adverse pregnancy outcomes. Younger maternal age is associated with being unmarried, primiparous and under-educated, alcohol/substance abuse, heavy smoking and inadequate prenatal care, which may lead to adverse pregnancy outcomes. Adolescents pregnancy increased risk of prematurity, low birth weight, genitourinary infection, premature rupture of membrane. Younger adolescent mothers showed a higher risk of early neonatal death related to preterm delivery and low birth weight. (Demirci *et al.*,2016)

Breech presentation and other less common malpresentations affect up to 3%-4% of pregnancies at term and are even more common at earlier gestation. (Duffy *et al.*, 2018). The risk of neo natal morbidity and mortality and stillbirth is often greater in low- and middle-income countries than in high-income countries. Mal presentation was associated with increased maternal mortality and morbidity, particularly postpartum hemorrhage. (Gardberg *et al.*, 2011).

The impact of preterm labor extends far beyond the newborn period, placing significant financial strain on families and society. Furthermore, socioeconomic disadvantages, large families, and limited access to healthcare, particularly among less educated populations contributing to higher rates of infant mortality. In 2010, preterm birth was the second leading cause of death in children under five, with a substantial portion of newborn deaths occurring within the first 24 hours. Preterm labor is a critical obstetric emergency with severe consequences for both infants and families, and a significant public health issue. It's a leading cause of infant mortality, accounting for 75% of deaths globally. A significant number of newborns are premature each year, highlighting the global scale of the problem. The antenatal, labor, and postnatal periods are crucial for survival. While preterm labor can be unpredictable, early identification of risk factors and preventive measures are essential. Pregnant women with a previous cesarean sections were significantly associated with increased risks of uterine rupture; morbidly adherent placenta, maternal near miss, severe maternal outcome, and placenta previa.Newborns of women with previous cesarean sections were significantly associated with increased risk of NICU admission, neonatal near miss, preterm birth, and decreased risk of macerated stillbirth. (Chumnan, 2019)

Multiple pregnancies carry higher maternal and perinatal risks than singleton pregnancies, including pre-eclampsia, hypertension, hyperemesis, anaemia, postpartum haemorrhage, and increased rates of preterm birth, fetal growth restriction, and low birth weight. Perinatal mortality is 2–3 times higher in multiples. Twin pregnancies increase the risk of postpartum

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haemorrhage due to uterine atony and elevated blood volume demands, though significant haemorrhage is rare. They are also a major risk factor for pre-eclampsia. Early identification and low-dose aspirin (150 mg/day) in high-risk women reduce preterm preeclampsia by 62%.

The most common maternal complication was Perineal tear. Out of perineal tears, most common was second degree perineal tear. Second most common complication was Cervical tear. Other complications were episiotomy extension and vaginal laceration. Atonic PPH was seen in patients. Traumatic PPH was seen in patients with cervical laceration which was managed by prostaglandins with suturing of tears and intravenous oxytocin drip.

NICU admission was seen in 27.84% of total delivered babies out of which 23.29% were forceps delivered and 4.54% were vacuum delivered. 12.50% of delivered babies developed hyperbilirubinemia and were taken to NICU for phototherapy out of which 11.36% were forceps delivered babies. 2 babies had instrumental marks and bruising, 2 babies developed cephalohematoma and 2 babies had episodes of convulsions due to hypoxic- ischemic encephalopathy. (Ganchi F M, 2023)

Ectopic pregnancy leading cause of first-trimester maternal mortality, accounting for 9–14% of maternal deaths and 5–10% of all pregnancy-related deaths. (Mullany, 2023) Risk Factors for Ectopic Pregnancy are age of more than 35 years, cigarette smoking, documented fallopian tube pathology, history of Infertility, pelvic inflammatory disease, pregnancy while an intrauterine device is in place, pelvic surgery, previous ectopic pregnancy, previous fallopian tube surgery and in vitro fertilization (Suliman,2023)

Antepartum hemorrhage (APH) is as an important cause of perinatal mortality and maternal morbidity worldwide. In addition to maternal morbidity secondary to acute hemorrhage and operative delivery, the fetus may be compromised by uteroplacental insufficiency, premature birth and perinatal death. (Long, 2021). Women with a history of APH are at increased risk for adverse perinatal outcomes including small for gestational age and growth restricted fetuses, therefore initiation of serial ultrasounds is recommended. (Dibaba, 2021)

Obstructed labour results from failure of descent of fetal presenting part in the birth canal for mechanical region, in spite of good uterine contraction and it leads to various maternal and fetal complications. It accounts for about 8% of total maternal death in Bangladesh. Several studies from other developing countries found an incidence ranging from 2-8% of all hospital deliveries (J A *et al.*,2012). Obstructed labor is one of the five major causes of maternal morbidity and mortality in developing countries. Inadequately developed health-care systems including poor infrastructure, poor transportation, and poor obstetric services are also major contributors to obstructed labor.(Bako *et al.*,2018)

PPH results from various obstetric complications, which can be categorized into four primary causes. Uterine atony is the most common cause, accounting for up to 80% of cases, where the uterus fails to contract effectively after delivery (Liu, 2021). Placental complications, such as placenta previa, placenta accreta spectrum (PAS), and retained placenta, significantly contribute to severe hemorrhage. Trauma, including genital tract lacerations, uterine rupture, or instrumental deliveries, can also lead to excessive bleeding (Elaazia, 2025). Additionally, coagulopathy, involving disorders affecting blood clotting such as disseminated intravascular coagulation (DIC), increases the risk of PPH (Elaazia, 2025).

Studies showed that there are some factors affecting abortion including: uterine abnormalities, immune system disorders, hormonal disorders, anatomical defects and endometriosis, mother's age, environmental factors, infections, maternal diseases such as genetic disorders and chromosomal abnormalities, endocrine disorders such as hypothyroidism and diabetes, medication use, smoking, alcohol, caffeine, exposure to mobile phone radiation, use of contraceptive drugs, trauma, blood factors and other unknown factors. It is estimated that of the 210 million pregnancies that occur each year, 2 some 80 million are unintended. Globally 13% or 1 in 8 maternal deaths were due to unsafe abortion. Abortion leads to a high burden of complications including: bleeding, uterine infection, toxic shock syndrome, sepsis, acute kidney failure, parametria, peritonitis, and even maternal deaths (Hashemi S, 2024).

We found that, preterm labour was comparatively high in case group. Birth weight of babies born to UTI mother was significantly lower than their

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counterpart. The increased occurrence of preterm labor and UTI-related delivery can result from inflammatory reactions by cytokines and prostaglandin mediators caused by uro-pathogens' colonization of amniotic fluid. These bacteria develop the collagenase and phospholipases A and C, which serve as the precursors for the pro-contractile prostaglandins E2 and F2a. In one sample, the problem for Escherichia coli (E coli), the most prominent UTI cause organism among pregnant women, with multi-drug-resistant strains, should be dealt with in this study in order to minimize the likelihood of adverse maternal and neonatal results (Prajapati, 2022). In our studies, we observed that E. coli, led by pseudomonas and klebsiella, was the most prevalent cause of UTI. The most common condition was asymptomatic bacteriuria. Lower abdomen pain (22.6 percent) and headache were followed (19.5 percent). (Chowdhury,2021)

Placenta previa is a condition that increases risks for both mother and baby, such as bleeding, preterm birth, and low birth Weight. About one-third cases of antepartum hemorrhage belong to placenta previa. The incidence of placenta previa ranges from 0.5-1% amongst hospital deliveries. In 80% cases, it is found to multiparous women. The incidence is increased beyond the age of 35, with high birth order pregnancies and in multiple Pregnancy. (Patel,2024)

Outcomes:

- Maternal risks: adolescent women whose ages range from 15 to 17 years; older women who were more than 35 years; women who were below 140 cm in height, women with a higher body mass index (BMI)≥30.0 kg/m2 were categorized into High-risk pregnancy.
- Lifestyle risks: women who regularly smoke, use tobacco products besides cigarettes, and consume alcohol were categorized as high-risk.
- Medical risk: Women had severely anemic hemoglobin (Hb) of <7.0 g per decalitre.
- Current health risks: women with their current pregnancies had any co-morbidities such as diabetes, hypertension, chronic respiratory diseases including asthma, thyroid disorders, heart diseases, cancer, and chronic kidney disorders.
- Previous birth outcome risks: pregnant women with higher birth order (five and above); Women with short birth spacing (inter-pregnancy interval i.e. last birth to time of current conception was less than 18 months) and long birth interval (more than 59 months), Women who had a history of preterm deliveries, i.e., births given at eight or fewer months (approximately <37 weeks of gestation). Women with a history of adverse birth outcomes such as miscarriage, abortion, or stillbirth and women whose most recent delivery was a caesarean section and were classified into the high-risk group (Kuppusamy, 2023).

Preventive Measures:

The article emphasizes the need for improved access to quality antenatal care, early detection and management of risk factors, nutritional support, education on pregnancy complications, and lifestyle modifications to enhance maternal and fetal health outcomes. (Nesro, 2021)

The prevalence of High-risk pregnancy among pregnant women in Dhaka reflects broader systemic and individual-level challenges in maternal healthcare. Addressing these issues requires targeted interventions to improve ANC utilization, early identification of risk factors, and strengthening referral systems. Studies focusing on facilities like ShSMCH can provide valuable insights into urban maternal health and inform evidence-based policies to reduce the burden of High-risk pregnancy.

RESEARCH METHODOLOGY

This chapter contains description of research design, study place, study duration, population, sample size, sampling techniques, ethical consideration, data collection procedure, data analysis and interpretation and data presentation.

Study Design

A quantitative approach, descriptive type of cross-sectional study design was carried out to determine the prevalence of high-risk pregnancy at a public hospital of Dhaka city.

Study Period

The study was conducted from July 2024 to June 2025.

Study Place

Shaheed Suhrawardy Medical College (ShSMCH) is the 14th government medical college hospital of Bangladesh which was established in 1963. It is situated in the north-western part of Dhaka beside the National Parliament House, having a unique architectural campus and excellent academic atmosphere. Shaheed Suhrawardy Medical College Hospital is a 1350 bedded tertiary level hospital

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with modern medical facilities including thirty-five departments. We chose Shaheed Suhrawardy Medical College & Hospital for our research on the "Prevalence of High-Risk Pregnancy Among Pregnant Women Attending Antenatal Care Unit" for several important reasons. The hospital has a well-established Antenatal Care (ANC) corner along with "high risk feto maternal corner" that accommodates a big number of pregnant women from different socioeconomic backgrounds. The hospital receives a high number of antenatal care patients every day, offering a large and diverse sample for our study. Its well-functioning obstetrics and gynecology department handles a wide range of normal and complicated pregnancies, making it ideal for studying high-risk conditions. As a tertiary referral hospital, it receives complicated cases from all over the country, which enriches our research. The hospital maintains accurate patient records and has modern diagnostic support, ensuring data reliability. It provides 24/7 emergency obstetric services, allowing us to observe critical cases in real time. As a government hospital, it offers extensive support to poor and underprivileged patients, many of whom are more likely to experience high-risk pregnancies due to lack of education, poor nutrition, or limited access to private care. Studying this group helps us better understand the factors contributing to high-risk pregnancy in low-income populations. The hospital's academic environment also supports student research, and its central location in Dhaka ensures easy access and coordination.

Study Population

The study population in this study consisted of all pregnant mothers those who were attending antenatal care unit in Shaheed Suhrawardy Medical College & Hospital in Dhaka City during data collection period

Sample Size

The population in this study has been considered all pregnant women attending antenatal care unit at a public hospital in Dhaka city. The total number of population was 400, because approximately 30 women attend in the ANC unit for getting their service in a day. Due to our time bound among the target population 25% of has been taken in this study as sample size which is 90 in number.

Sampling Technique

Considering this, we were choosing our study population to be pregnant women who were attending at outdoor women of ShSMCH. Some of the inclusion criteria were followed by individuals. We did not include people who were not pregnant, or those who were severely ill. The sampling technique in this study was Convenient sampling technique. According to Arikunto (2010:p.112),if the subject more than 100, then we can take 10 - 15% or 20 – 25% or more from the total population as sample. In this research, researchers took 25% of the population. The total population was approximately 400 pregnant women, so the sample was 90 followed by inclusion criteria.

Selection Criteria

Inclusion criteria

- Respondents who received antenatal care in antenatal unit in ShSMCH.
- Respondents who participated voluntarily in the study to give information.
- Respondents who were available in the antenatal unit during data collection period
- Pregnant women who was mentally well

Exclusion Criteria

- Respondents who did not meet the inclusion criteria

Research Tool

The instrument of this study was developed by the group members based on the basis of study objectives and variables after reviewing relevant studies. The questionnaire was consisted of two parts: 1) Demographic characteristics; and 2) Women with different risk factors in pregnancy.

Validity of the instrument

The validity of the instrument was examined by a panel of three experts (subject teacher and Guide teacher) in related field. The researcher modified the instruments based on expert recommendations.

Reliability of the instrument

Pre- test was conducted on 10 women those received antenatal care at OPD in Dhaka Medical College Hospital (DMCH), Dhaka for reliability and acceptability of the questionnaire. After reviewing and pretesting of the questionnaire, the necessary corrections was made for finalizing of data collection procedure by the researchers.

Data collection

Data for this research were collected using quantitative method. The study was focus on a vulnerable area in Bangladesh specifically Antenatal care unit at a public Hospital in Dhaka city. In this area, 90 women who have been exposed to various high risk impacts in pregnancy were selected for in-depth interviews that was

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conducted. Before the interviews, informed written consent were obtained from all participants. This study was conducted on pregnant women for identifying prevalence of high-risk among pregnant women attending antenatal care unit in Shaheed Suhrawardy Medical College Hospital in Dhaka city.

Ethical Consideration

Written permission: Written permission was obtained from the Principal, College of Nursing, Mohakhali, Dhaka and concerned hospital authority for data collection to conduct the study.

Written consent: Written consent was taken from the respondents with their signature after explaining the study purpose and ensured them that this information will be used for academic purpose only.

Voluntary participation: Researchers ensured the respondents that they had freedom to participate in this study and they were allowed to withdraw themselves any time from the study, if any confusion arise.

Confidentiality and Anonymity: Researchers also ensured them that their confidentiality and anonymity were maintained strictly regarding the obtained information and ensured them to not publish anywhere. The collected data was kept under lock and key in safe place and it was destroyed after completion of the study.

Data collection procedure

Data collection was started after obtaining permission from the director of Shaheed Suhrawardy Medical College & Hospital (ShSMCH) in Dhaka City.

A semi structured questionnaire was prepared for face-to-face interview in the English to Bengali language for data collection. It was collected by using structured (closed ended) and unstructured questionnaire (open ended) method at the place at ANC of that hospital from 8.00 am to 2.00 pm on each official day for given data collection period. The purpose of the study was explained to the participants, and written consent was obtained from them. The participant took about 10 minutes to complete the questionnaire.

Data Management

Collected data was checked, organized, coded and edited manually for omission, inconsistency and improbability and then it was placed in the master sheet to facilitate the analysis processing.

Analysis and Interpretation

All collected data were analyzed by using Xcel program and computer with this formula (=C2/B2*100) for describing statistics such as percentages and mean were used to describe the subject characteristics. We did it manually with individual variables. Results were presented by using tables, pie and bar charts with interpretation.

RESULTS

General Information of the Pregnant Women

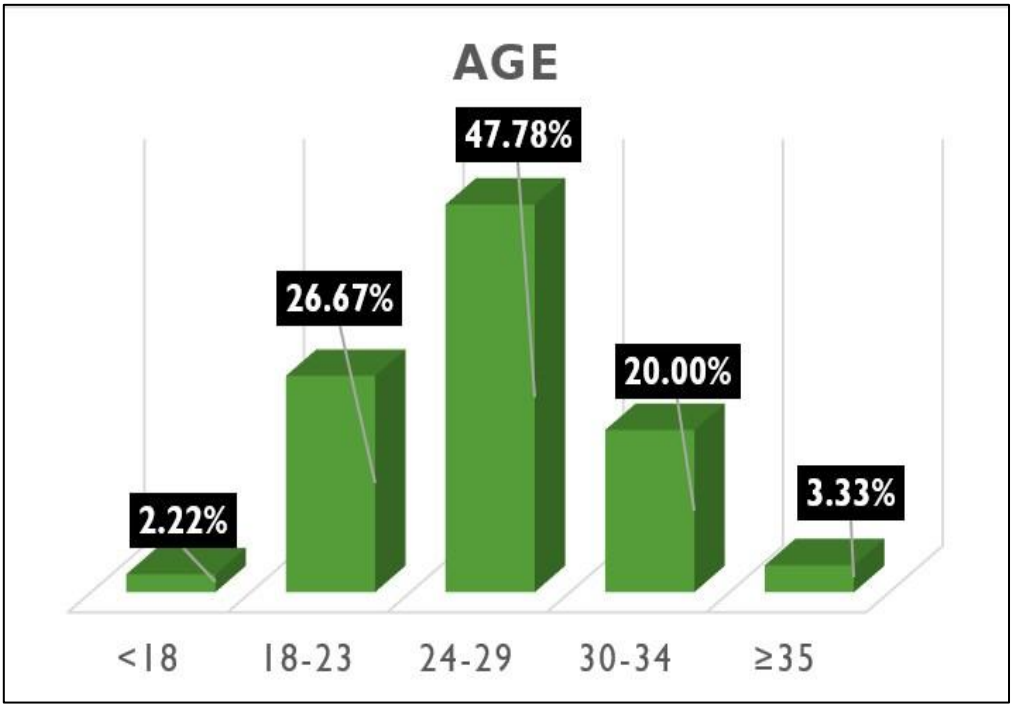

Figure-1: Distribution of age of the respondents

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Description: The above chart clearly shows that 47.78% respondents age were in between 24–29 years which was majority in number, 26.67% within 18–23 years, 20% in 30–34 years, 3.33% in ≥35 years and 2.22% respondents were in ≤18 years which was minority in number.

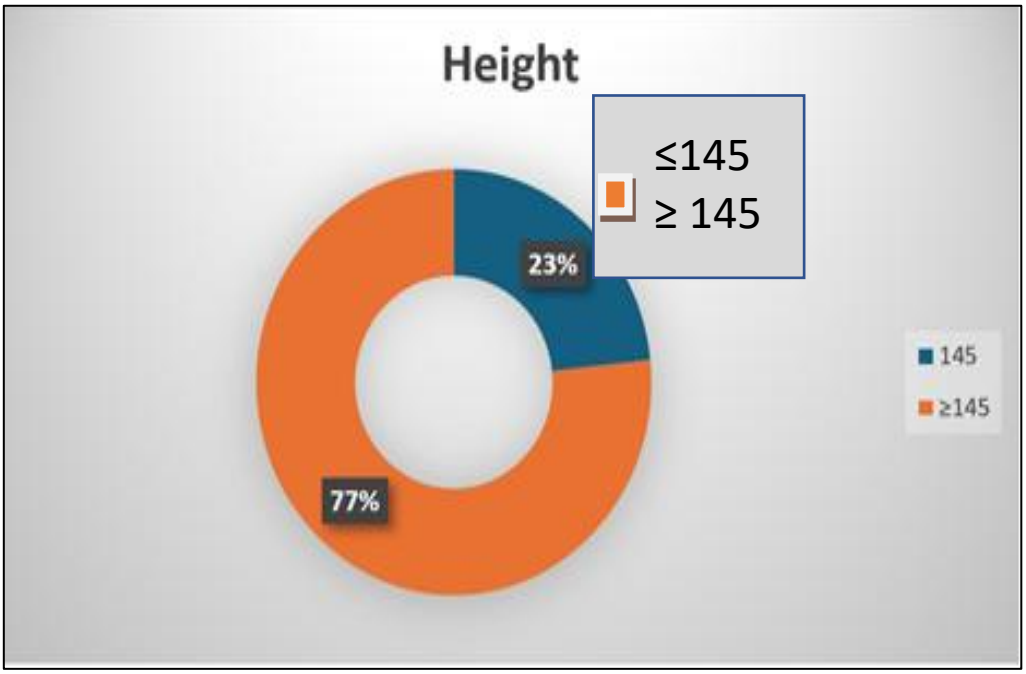

Figure-2: Distribution of height of the respondents

Description: The above pie chart shows that 77% respondents height were ≥ 145cm which was majority in number, 23% were in ≤145 cm.

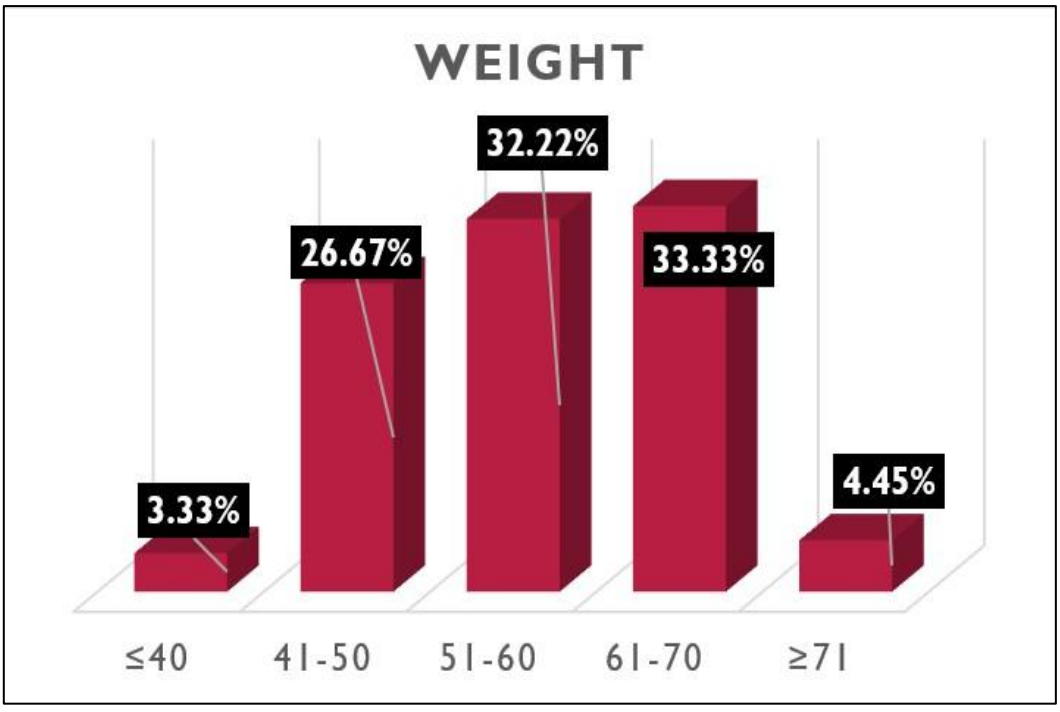

Figure-3: Distribution of weight of the respondents

Description: Above column chart shows that 33.33% of respondents had a weight between 61-70 kg, which was the majority in number. 32.22% of respondents weighed between 51-60 kg, followed by 26.67% in the 40-50 kg range. A minority of respondents were in the <40 kg (3.33%) and ≥70 kg (4.44%) categories.

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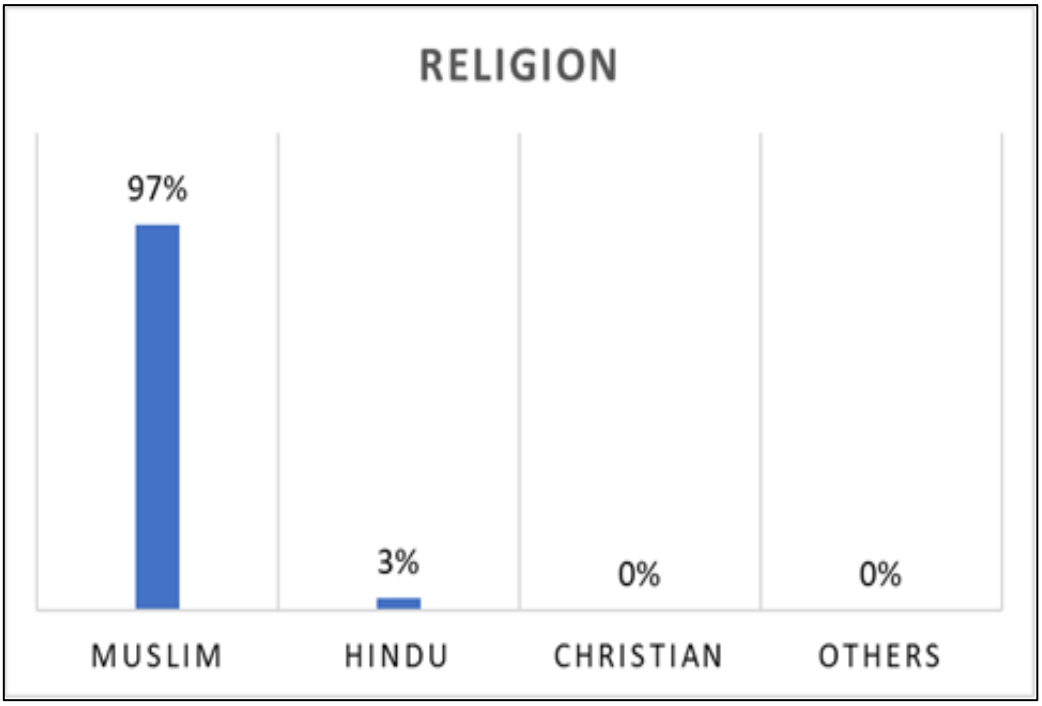

Figure-4: Distribution of religion of the respondents

Description: The above column chart shows that out of 90 respondents 97% were Muslim and 3% were Hindu, there was no Christian or others.

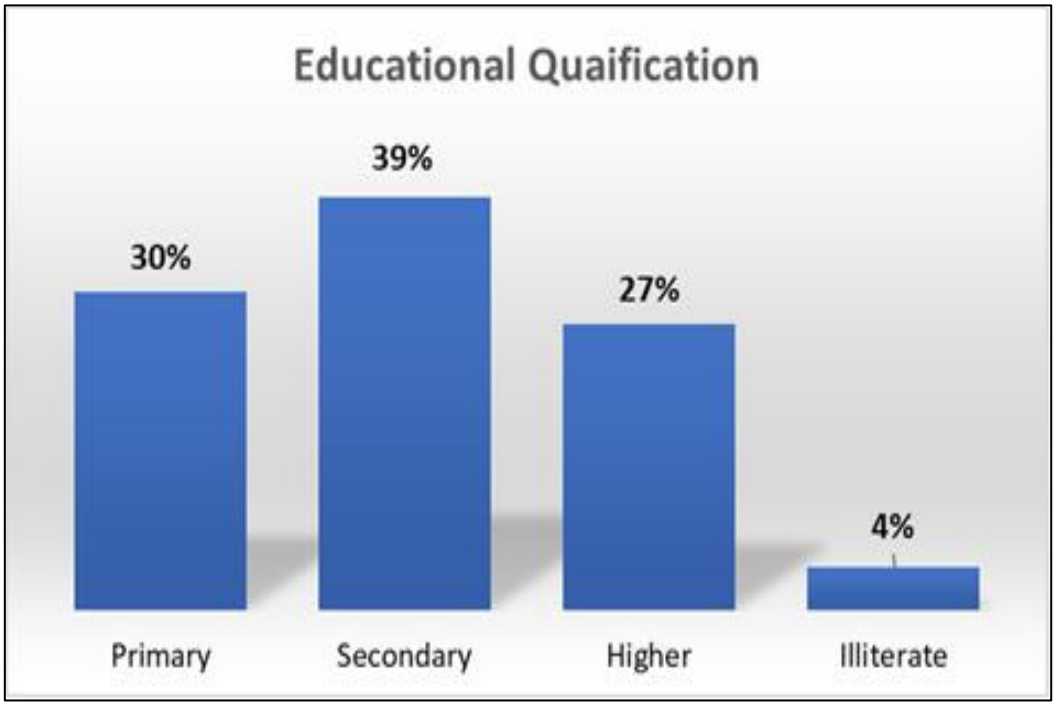

Figure-5: Distribution of educational qualification of the respondents

Description: Above the figure shows the educational qualification of 90 respondents. Among the respondents, 39% had a Secondary education, 30% had primary education, 27% had a Higher education, and 4% were Illiterate.

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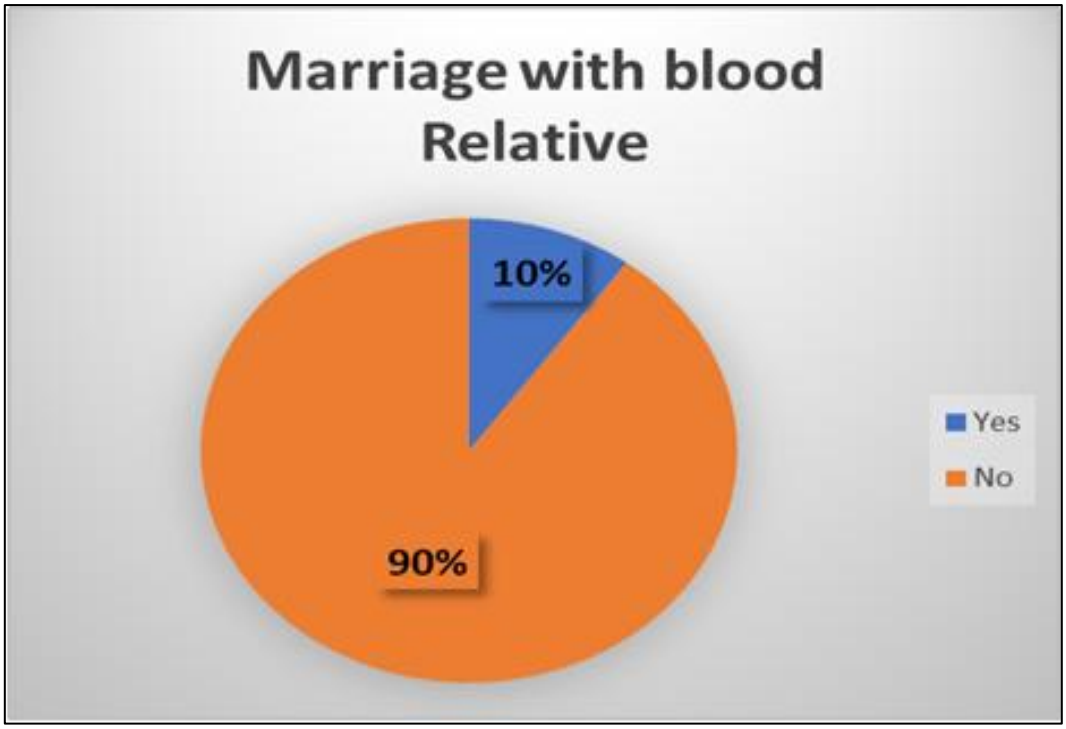

Figure-6: Distribution of family income of the respondents

Description: Above the chart shows the family income of respondents. 53% respondent's income was between 20k-40k which majority in number were,42% in <20k, and minor number (5%) respondents income was>40k.

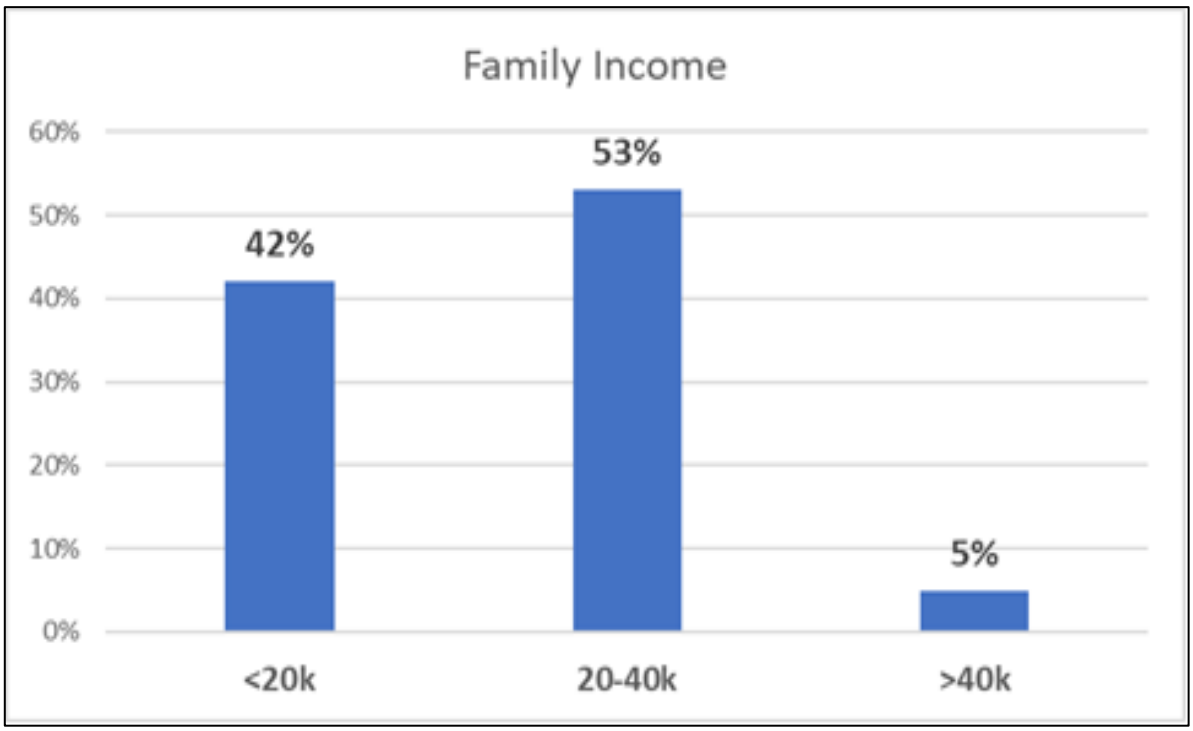

Figure-7: Distribution of marriage with blood relative of the respondents

Description: The above column chart shows that out of 90 respondents 90% got married to non-blood relatives and while only 10% got marriage to blood relatives.

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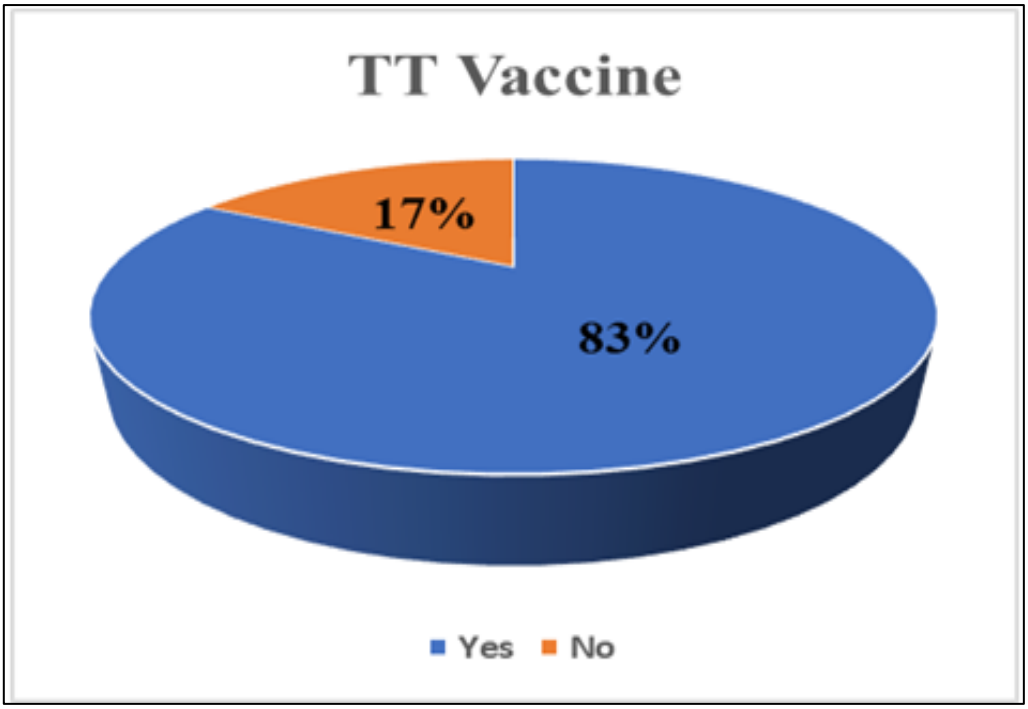

Figure-8: Distribution of TT vaccine of the respondents

Description: The above chart indicates that 83% respondents received TT vaccine while 17% did not.

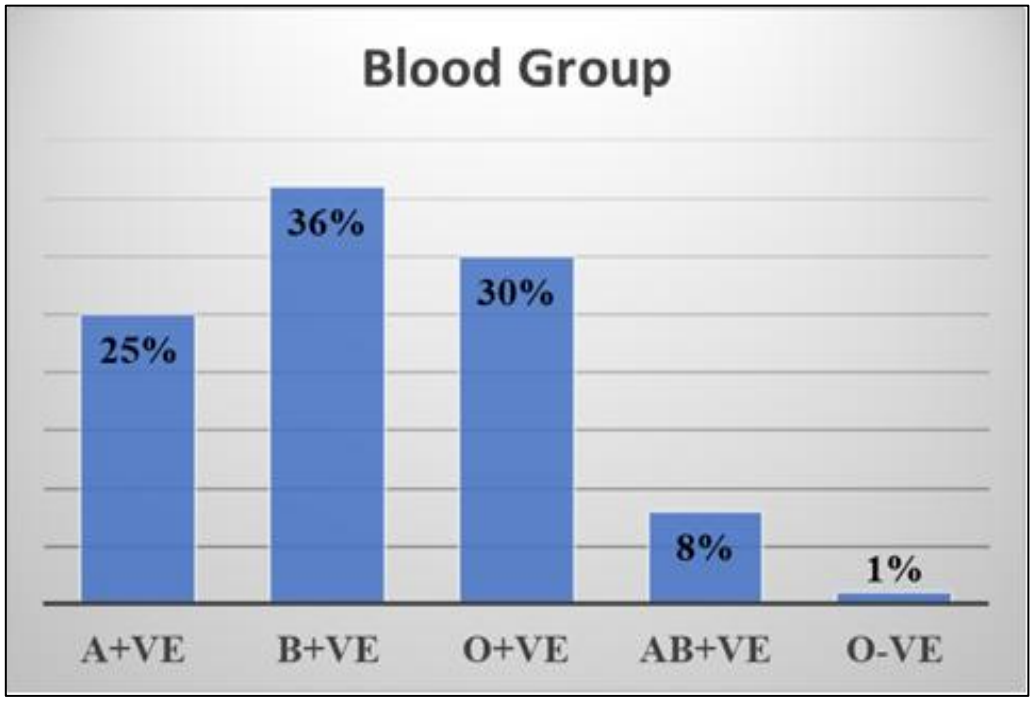

Figure-9: Distribution of blood group of the respondents

Description: The above bar chart illustrates that B+ve was the most prevalent blood type, accounting for 36% of the respondents. Following O+ve was the second most common at 30%, and A+ve represents 25% of the respondents. AB+ve was making up 8%, while O-ve was found in only 1% of the respondents

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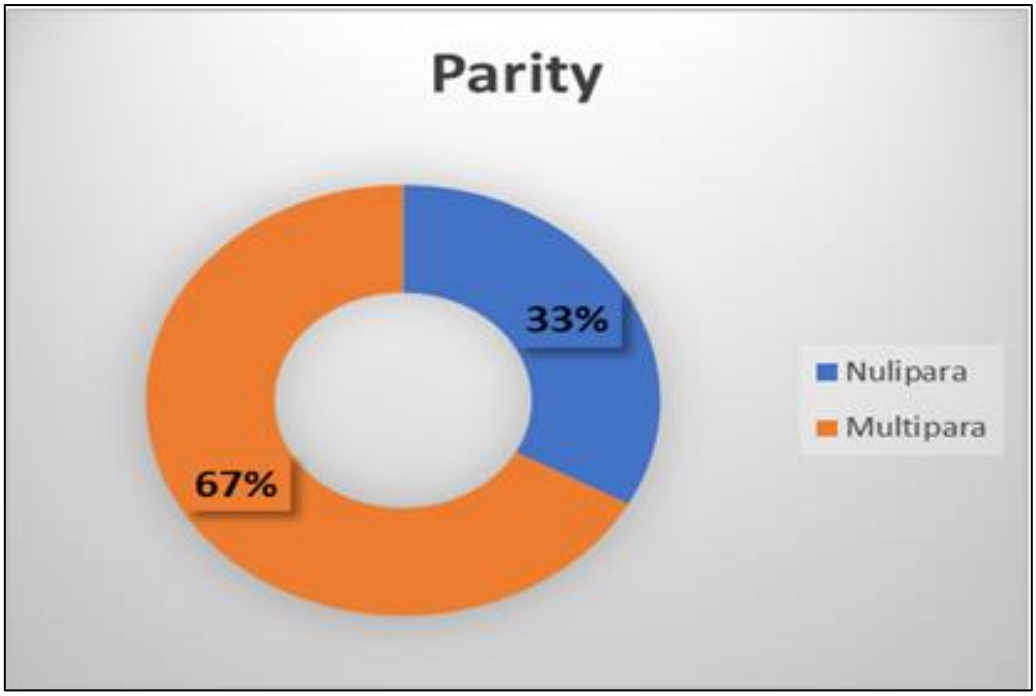

Figure-10: Distribution of parity of the respondents

Description: The chart illustrates the distribution of parity. It shows that Multipara accounting for 67% and Nullipara with 33% of respondents.

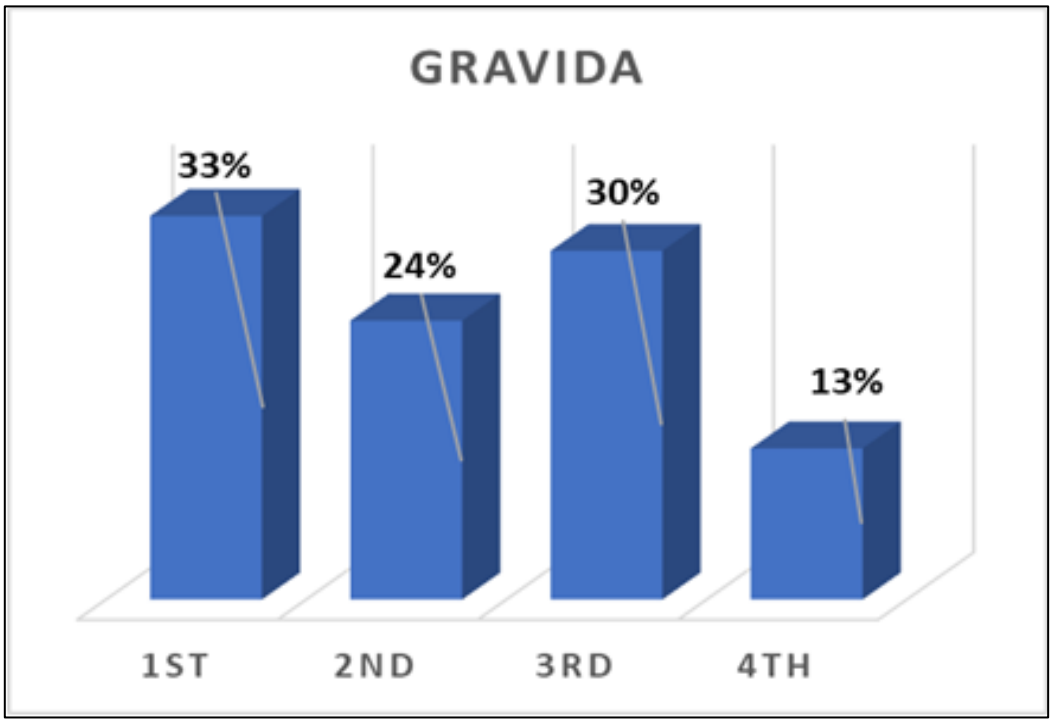

Figure-11: Distribution of gravida of the respondents

Description: The above chart shows the distribution of Gravida. It shows that 1st gravida was 33%, 3rd gravida was at 30%,2nd gravida at 24% and 13% of respondents were 4th gravid.

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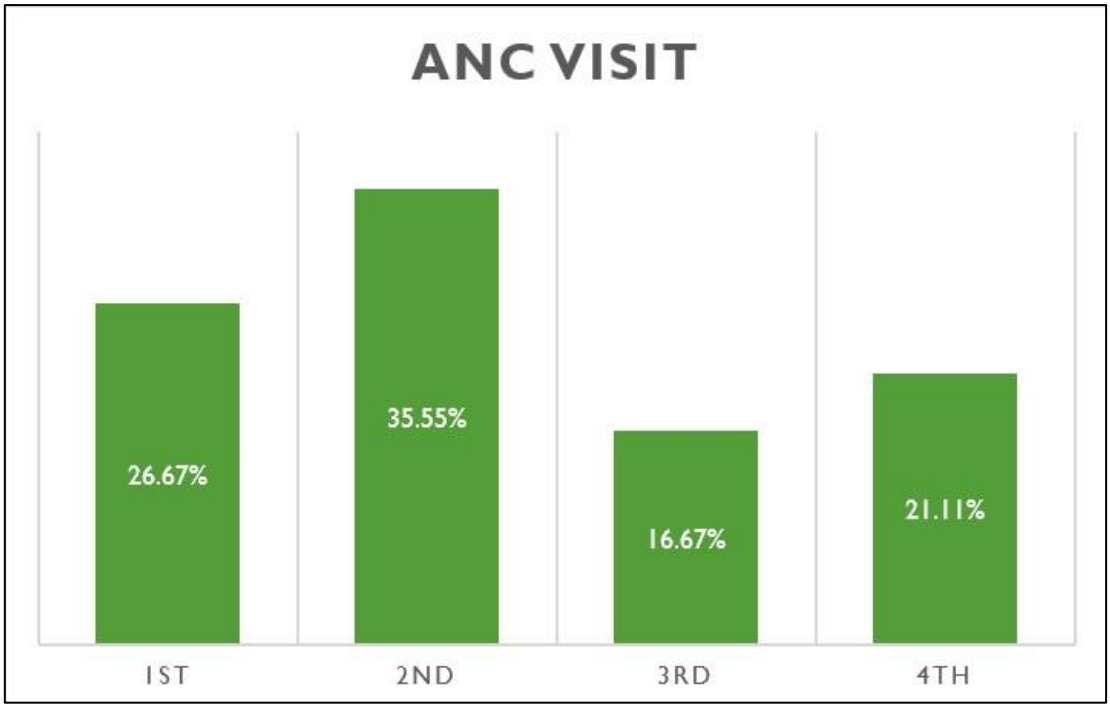

Figure-12: Distribution of number of ANC visit of the respondents

Description: The chart shows the distribution of the number of Antenatal Care (ANC) visits. It shows that the 35.55% respondents have completed 2nd visit, the 1st visit at 26.67%. The 3rd visit accounts for 16.67%, and 4th or more visits with 21.11%.

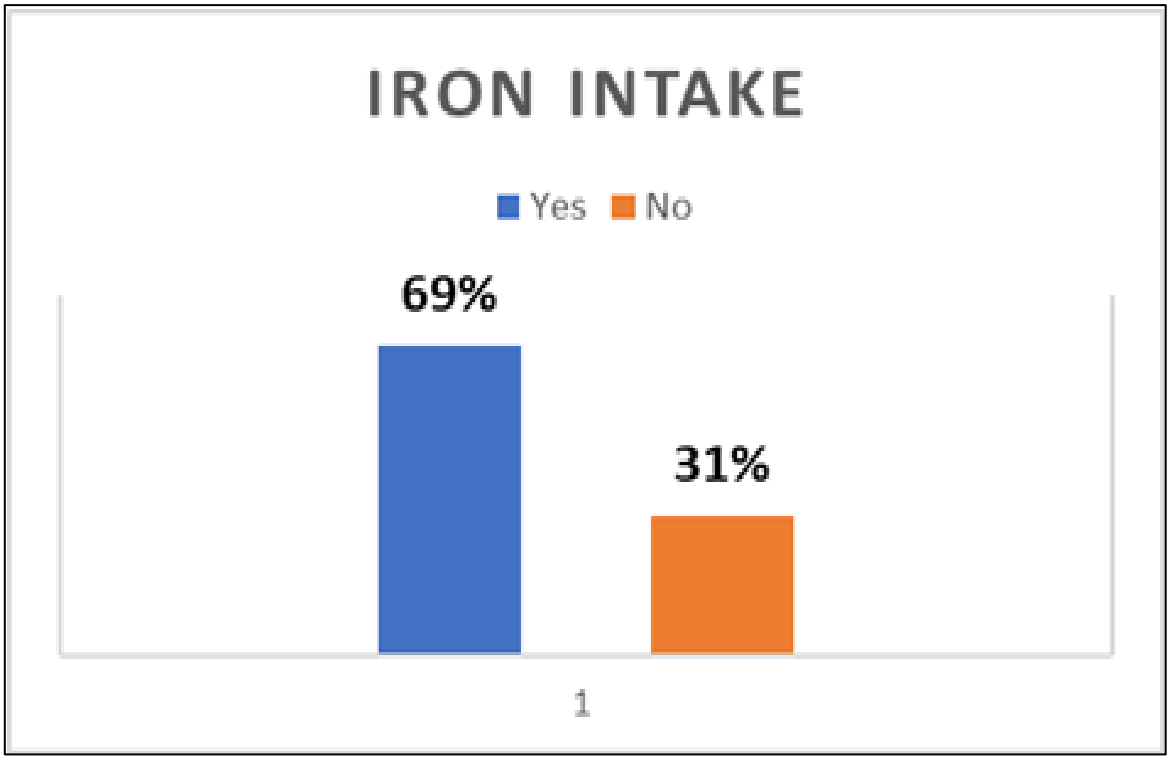

Figure-13: Distribution of consumption of iron supplements of the respondents

Description: The above chart indicates that 69% respondents took iron supplements while 31% did not.

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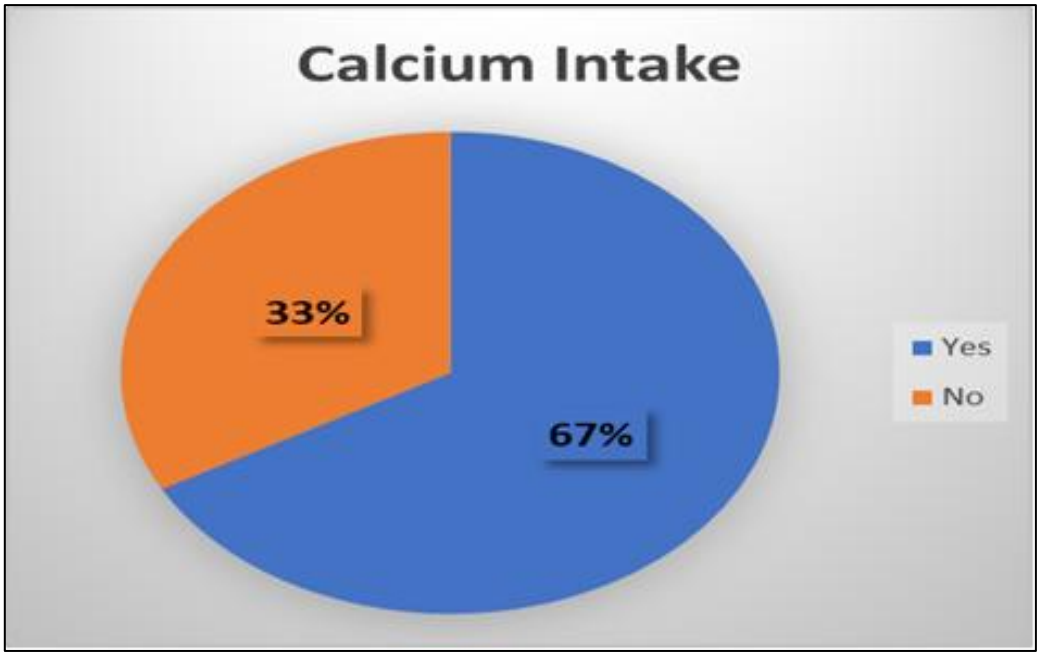

Figure-14: Distribution of calcium intake of the respondents

Description: The above chart indicates that 67% respondents took calcium supplements while 33% did not.

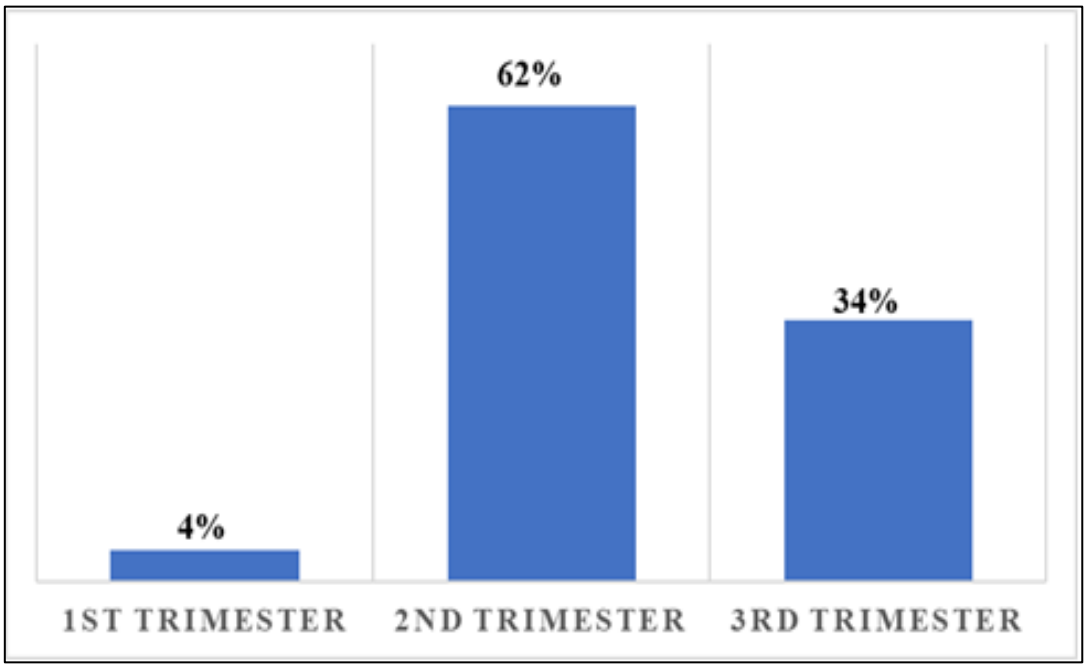

Figure-15: Distribution of gestational age of the respondents

Description: The above chart shows that Gestational age of 62 % respondents were in 2nd trimester (13-27 weeks), 34% were in 3rd trimester (28-40 weeks) and 4% were in 1st trimester (1-12 weeks).

Part 2: Risk Factors Related Information

Table-1: Distribution of medical condition in pregnancy

n = 90

Name of variables	Frequency(f)	Percentage (%)
1.Anemia		
mild	18	20
moderate	9	10
severe	2	2.22

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not anemic	61	67.78
2. Diabetes Mellitus		
yes	7	7.78
No	83	92.22
3. Hypertension		
yes	8	8.89
no	82	91.11
4. Asthma		
yes	2	2.22
no	88	97.78
5. Other chronic illness		
yes	3	3.33
no	87	96.67

Description:
The above table shows that pregnant women attending Antenatal care unit, 20 % had mild, 10% had moderate, 2.22% had severe anemia and 67.78% not anemic women. 7.78% had diabetes mellitus and 92.22% without diabetes mellitus. 8.89% had hypertension and 91.11% had no hypertension. 2.22% had asthma and 97.78% no asthma. 3.33% other chronic illness and 96.67% had no other chronic illness. These medical conditions are the risk factors of high-risk pregnancy.

Table-2: Distribution of obstetrics related factors in previous pregnancy n = 90

Name of variables	**Frequency(f)**	**Percentage (%)**
1.Mode of last delivery		
Normal vaginal delivery	22	24.44
Caesarean delivery	32	35.56
Instrumental delivery	4	4.44
Primi gravida	32	35.56
2.Complications during pregnancy		
Ectopic pregnancy	0	0
Abortion	16	17.78
PIH	1	1.11
APH	1	1.11
Others	0	0
No complications	72	80
3.Complications during delivery		
Excessive bleeding	1	1.11
Eclampsia	2	2.22
Obstructed labour	10	11.11
Multiple birth	0	0
Others	0	0
No complications	77	85.56
4.Complications after birth		
PPH	4	4.44
Infection	1	1.11
Others	0	0
No complications	85	94.45

Description:
Out of 90 women assessed, 36 (40%) experienced high-risk factors such as (35.56%) c/s and (4.44%) instrumental delivery in their previous pregnancies with 35.56% had primi gravid women. These also included complications during pregnancy such as abortion (17.78%), pregnancy-induced hypertension (1.11%), antepartum hemorrhage (1.11%) and (80%) no complications; complications during delivery including excessive

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bleeding (1.11%), eclampsia (2.22%), and obstructed labour (11.11%)and (85.56%) without any complications; and postpartum complications such as postpartum hemorrhage (4.44%) and infection (1.11%) and (94.45%) no complications.

Table-3: Distribution of related factors in current pregnancy n = 90

Variables	Frequency(f)	Percentage (%)
1.History of substance use		
Smoke cigarette	1	1.11
Tobacco use	3	3.33
Consume Alcohol	0	0
Others	6	6.67
No use	80	88.89
2.Contraception history		
Oral pill	35	38.89
Injection	10	11.11
IUCD	3	3.33
Others	12	13.33
No	30	33.34
3.Regular exercise		
Yes	31	34.44
No	59	65.56
4.Fruits and Vegetables		
Regularly	73	81.11
weekly	2	2.22
Sometimes	15	16.67
Never	0	0
5.High salt consumption		
Yes	39	43.33
No	51	56.67
6.Complications related to present pregnancy		
Abdominal pain	6	6.68
Cough	3	3.33
UTI	2	2.22
Hypothyroidism	3	3.33
Oligohydramnios	2	2.22
PROM	4	4.45
Placenta Previa	1	1.11
IUGR	1	1.11
CMV	1	1.11
Itching	2	2.22
Lower Back Pain	2	2.22
No complications	63	70

Description:

Based on the data from 90 participants, smoke cigarette (1.11%), Tobacco use (3.33%), Others substance use (6.67%) and non user anything (88.89%); oral pill (38.89%), injection (11.11), IUCD (3.33%), Others (13.33%) and rest of the participants didn't use any contraception's. (34.44%) women did exercise regularly and (65.56%) didn't. Fruits and vegetables intake regularly (81.11%), weekly (2.22%), sometimes (16.67%). Extra salt consumption yes (43.33%), no (56.67%). 27 women (30%) reported complications related to their current pregnancy, indicating a prevalence of high-risk pregnancy. These complications included abdominal pain (6.68%), cough (3.33%), urinary tract infection (2.22%), hypothyroidism (3.33%), oligohydramnios (2.22%), premature rupture of membranes (4.45%), placenta previa (1.11%), intrauterine growth restriction (1.11%),

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CMV infection (1.11%), itching (2.22%) and lower back pain (2.22%).

DISCUSSION

Socio-demographic information

A total 90 pregnant women with the age range under 18 to more than 35, among them nearly half (47.78%) was 24-29 years old and most of (77%) women's height was ≥ 145 cm. Among all women, 33.33% age range 61-70kg and 32.22% were 51-60kg. Most of the respondents were Muslim and educational qualification was good number of respondents (86%) whereas only 4% was illiterate. Regarding family income, less than half of the respondents (42%) belongs to low income in family and among them. majority of got married with non-blood relatives and 17% who didn't get their TT vaccine and negative blood group was rare.

The respondents who multiparity was high and Gravida of the women was 30% of 3rd and 13% of 4th. This study showed that only 21.11% pregnant women attended for 4th visit and rest of all were not attended in regular visit and 31% women didn't received iron and 33% calcium supplements during their pregnancy times. Near to similar study was conducted in Jimma Medical Center, Jimma Town, South Western Ethiopia by Nesro *et al.*, on Prevalence of High-Risk Pregnant Women Who Attend Antenatal Care and Associated Factors argues that expanding the utilization of antenatal care, early detection, problem identification and management for all pregnant women should be under taken. (Nesro *et al.*, 2021). Among total pregnant women of gestational age, more than half (62 %) were in 2nd trimester (13-27 weeks).

Risk Factors in Pregnancy

Among the 90 pregnant women assessed, 20% had mild, 10% had moderate and 2.22% had severe anemia, a condition widely recognized as a major risk factor for maternal and fetal morbidity (WHO, 2021). Additionally, 8.89% had hypertension, and 7.78% were diagnosed with diabetes mellitus, both of which are known to increase the risk of complications such as preeclampsia, preterm birth, and neonatal morbidity. Chronic illnesses including asthma (2.22%) and other chronic conditions (3.33%) were also reported, underlining the complexity and medical vulnerability of this population.

Notably, 38.9% of the pregnant women reported experiencing high-risk factors in previous pregnancies, with the most common issues including abortion (17.78%) and obstructed labor (11.11%). These past complications are strong indicators of risk recurrence and the need for close monitoring in subsequent pregnancies (ACOG, 2020). Although some individual complications such as pregnancy-induced hypertension and eclampsia were less frequent (1–2%), their clinical significance remains high due to their potential for adverse maternal and neonatal outcomes.

The current pregnancy complications reported by 18.9% of pregnant women further emphasized the burden of high-risk pregnancies. Present issues included abdominal pain (6.68%), PROM (4.44%) cough (3.33%) urinary tract infection (2.22%), and oligohydramnios (2.22%), among others. These conditions are often associated with poor perinatal outcomes such as fetal growth restriction and preterm delivery. Rare but serious complications such as placenta previa (1.11%) and intrauterine growth restriction (1.11%) were also noted, requiring specialized antenatal and possibly tertiary care support.

The data clearly suggest that a significant proportion of the antenatal population (39%) is either currently or previously affected by risk factors associated with high-risk pregnancies, underscoring the urgent need for targeted interventions, early screening, and individualized care plans. The findings are consistent with global reports indicating that high-risk pregnancies account for 15–40% of all pregnancies, particularly in low- and middle-income countries (WHO, 2021).

The high prevalence of medical and obstetric risk factors among the study population calls for strengthened ANC services, especially in terms of risk identification, management protocols, and patient education. Future research should explore long-term maternal and neonatal outcomes among high-risk groups and evaluate the effectiveness of risk-reduction strategies implemented during antenatal care.

Limitation of the study

The limitation of the study that faced the researchers during conducting the research.

- The study was conducted only one hospital Shaheed Suhrawardy Medical College & Hospital, so the finding cannot be generalized to all the settings in Bangladesh.
- Due to time constraint, the study involved only 90 respondents. So, the results may not coincide with large scale survey.

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- There was no allocated budget for this research project to carry out the study smoothly. Research expenditure was provided by the researchers.
- There were no internet facilities for the researcher.

CONCLUSION

A high-risk pregnancy is anything that put the mother, fetus or neonate at increased risk for morbidity or mortality during pregnancy or childbirth and it is defined as one which is complicated by factor or factors that adversely affect the pregnancy outcome (maternal, fetus or both). Although only 10-30% of the mothers seen in antenatal period can be classified as high risk but they account for 70-80% of perinatal mortality and morbidity.

From the total of study participant's, the prevalence of anaemia is 32.22%, caesarean section 35.56%, abortion 17.78% high salt consumption 43.33% that are founded as the major health problems. High risk pregnancy shows a significant association with weight, family income, biological relationship between husband and wife, TT vaccine, blood group, iron and calcium intake.

In Bangladesh, the high prevalence of high-risk pregnancies is a matter of concern, and it could be a probable factor for high maternal and neonatal morbidity and mortality in the country. Further investigations are required focusing on specific factors such as anaemia, caesarean section, abortion, salt consumption and adverse birth outcome issues. The government should focus on regional-specific health issues and regional policies on socio-behavioural interventions to improve lifestyle practices. There is also a need of regular monitoring the high-risk pregnancies through health system, data harmonisation and tracking to prevent adverse maternal and neonatal outcomes.

Recommendation

According to these study findings, to reduce the prevalence of high-risk pregnancies, the following recommendations was proposed by the investigators-

- Arrange community awareness program especially rural and slum areas about the importance of antenatal care during pregnancy.
- Health authorities should monitor the prevalence of high-risk pregnancies and use the data to allocate resources and plan interventions effectively.
- This study highlights the need of providing education to adolescent, pregnant mother about nutrition and healthy lifestyle.
- This study will serve as a references and guide for future researchers. Further research should to conduct on prevalence of high-risk pregnant women among different medical college hospital in different division of Bangladesh or all over the country on a large scale.

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LIST OF ABBREVIATIONS

ShSMCH - Shaheed Suhrawardy Medical College Hospital
MMR - Maternal Mortality Rate
MDGs - Millennium Development Goals
SDG - Sustainable Development Goal
DIC - Disseminated Intravascular Coagulation
HELLP – Hemolysis, Elevated Liver enzymes and Low Platelets
ANC – Antenatal Care
WHO – World Health Organization
PMSMA- Pradhan Mantri Surakshit Matritva Abhiyan
Hb -Hemoglobin
HIV - Human immune deficiency virus
AIDS – Acquired immunodeficiency syndrome
DM - Diabetes mellitus
GDM - Gestational diabetes mellitus
CVD - cardiovascular disease
NICU -Neonatal Intensive Care Unit
PPH – Post Partum Hemorrhage
APH - Antepartum hemorrhage
PAS -Placenta accreta spectrum
UTI – Urinary Tract Infection
BMI – Body mass index
DMCH- Dhaka Medical College Hospital
OPD - Outpatient Department
PIH -Pregnancy induce hypertension
TT vaccine – Tetanus vaccine
IUCD - Intrauterine Contraceptive Device

Source of support: Nil; **Conflict of interest:** Nil.

Cite this article as:
Naher, M. A., Akter, R., Khatun, H., Das, J. R., lovely, M., Begum, M., Jhomur, S. S., Biswas, B., Akter, P., Akter, K. and Moni, M. R. "Prevalence of High-Risk Pregnancy among Pregnant Women Attending Antenatal Care Unit at a public Hospital in Dhaka City." *Sarcouncil journal of Medical sciences* 4.12 (2025): pp 7-30.

Publisher: SARC Publisher