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Research Article  
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## Awareness and Utilisation of Antenatal care among Pregnant Women in Uromi, Esan North East Local Government Area, Edo State

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### ABSTRACT

Antenatal care (ANC) plays an important role in reducing maternal morbidity and mortality risks by making available the needed preventive and diagnostic services this study aims to assess the level of awareness, the extent of utilization and to identify the factors influencing antenatal care (ANC) services among women in Esan North East Local Government Area, Uromi, Edo State. Three specific objectives with corresponding research questions and hypotheses guided the study. A descriptive cross-sectional study design was used. The study population consisted of 1505 pregnant women utilizing antenatal care services in Uromi, Esan North East Local Government Area, with a sampling population of 373. A 30-item researcher-designed questionnaire was used for data collection. The instrument's validity was established by two experts from the Department of Nursing Sciences at the College of Health Sciences, Igbinedion University, Okada. Frequencies and percentages were used to answer the research questions, and chi-square statistics were used to test the null hypotheses regarding awareness and utilization of antenatal care services among pregnant women based on age, marital status, educational levels, and occupation. All hypotheses were tested at a .05 alpha level of significance. The results showed that pregnant women in Uromi, Esan North East, had high awareness of antenatal care services (89%), local availability (88.0%), and the importance of visits (90.6%). However, they faced significant barriers such as financial constraints (80.4%), transportation issues (75.6%), and age-related discomfort (98.7%). Despite high awareness and local availability of antenatal care services, pregnant women in Esan North East face significant barriers like financial constraints, transportation issues, and age-related discomfort.

Keywords: Awareness, utilization, antenatal pregnant women

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### INTRODUCTION

Complications during pregnancy are leading causes of disability and death and among women of childbearing age globally. In 2019, global maternal mortality rate (MMR) was estimated at 211 maternal deaths per 100,000 live births, WHO (2020) This maternal mortality rate for 2019 was significantly higher than the rate for 2018. Disturbingly, WHO (2024), reported that about 287

000 maternal deaths were recorded in 2020, representing an overall global maternal mortality ratio of 216 maternal deaths per 100,000 live births with a large number being preventable WHO, (2022). Sub-Saharan Africa and Southern Asia accounted for around 87% (253 000) of the estimated global maternal deaths in 2020. Sub-Saharan Africa alone accounted for around 70% of

maternal deaths (202 000), while Southern Asia accounted for around 16% (47 000). According to Namatovu,(2018) Sub-Saharan Africa and South Asia bear a disproportionate burden, accounting for 85% of these fatalities in 2016. Though there was a nearly 50% reduction in maternal deaths from complications during pregnancy and childbirth from 1990 to 2013, mortality rates remain inexcusably high, particularly in low-income countries such as those in Africa WHO (2020).Almost 95% of all maternal deaths occurred in low and lower middle-income countries in 2020, and most could have been prevented WHO (2024). Despite the fact that United Nations Sustainable Development Goals state that by 2030, the global maternal mortality rate (MMR) should be lower than 70 per 100,000 live births, MMR is still one of Africa's leading causes of death among women Onambele (2022).

According to WHO (2024), its 2020 report revealed that the maternal mortality ratio in the African Region was estimated at 531 deaths per 100 000 live births. Countries with extremely high maternal mortality rates are South Sudan with 1223 deaths, followed by Chad with 1063 deaths and Nigeria with 1047 deaths per 100 000 live births. Maternal morbidity and mortality continue to pose notable challenges, with Sub-Saharan countries alone responsible for 66% of the global maternal mortality rate (United Nations Children's Fund (UNICEF),(2018). In 2014,direct obstetric causes account for 73% of maternal deaths, underscoring the critical need for effective maternal healthcare services (UNICEF, 2018). Preventable obstetric complications like postpartum haemorrhage, hypertensive disorders, unsafe abortions, obstructed labour, and sepsis contribute greatly to these mortality rates (UNICEF, 2018).

Antenatal care (ANC) plays an important role in reducing these risks by making available the needed preventive and diagnostic services. In spite of WHO recommendations for early initiation of ANC, Nigeria struggles with a maternal mortality rate of 917 deaths per 100,000 live births, underscoring persistent gaps in healthcare access and utilization WHO(2024) UNICEF, (2018). Studies highlight barriers to ANC utilization in Nigerian localities where inadequate knowledge and utilization hinder effective service uptake (Okpala *et al.*, 2019). In the same vein, data from Nigerian localities show differences between ANC registrations and exact facility deliveries, representing suboptimal healthcare engagement among pregnant women (Ikem General Health Care Centre, 2015).

ANC services encompass a range of medical interventions aimed at safeguarding maternal and foetal health. Antenatal care, also known as prenatal care, is a comprehensive healthcare approach provided to pregnant women to ensure the wellbeing of mother and the developing foetus. It can also be referred to as the 'care before birth' to promote the good health of mother

and foetus. Antenatal care is given different meanings by different scholars, among others the meaning that says ANC defined by Hamdi and Mohamed (2021) is a comprehensive care during pregnancy, ANC includes vital components such as physical examinations, laboratory tests, immunizations, and health counselling (WHO, 2017). These services are vital for early detection of pregnancy-related risks and complications, thereby facilitating timely interventions and improving maternal outcomes Padoan (2020) and Kitchen (2023). It is advocated as the cornerstone for reducing children's deaths and improving maternal health" (Sylvia, 2019). In view of Dickson *et al.*, (2018), antenatal care is a service that reduces the risk of maternal mortality. Again, it is the services offered to mother and unborn child during pregnancy. It is an essential part of basic primary healthcare during pregnancy, and offers a mosaic of services that can prevent, detect and treat risk factors early on the pregnancy (Kuhnt and Vollmer, 2017).

Antenatal care ensures healthy outcomes of women and newborns. It is also a key entry point for pregnant women to receive a broad range of health promotion and preventive health services. Moreover, it is one of the key factors in predicting the outcome of childbirth which helps detect early risk factors and potential complications of pregnancy. Antenatal care is a sort of preventive care that aims to provide frequent check-ups that allow physicians or midwives to manage and prevent any health concerns during pregnancy while also promoting healthy lifestyles that benefit both mother and child Dickson (2018). During antenatal care sessions, women receive health education on the need to practice exclusive breastfeeding, as well as how they can prevent pregnancy related complications. The WHO recommends that antenatal care be initiated within the first trimester of pregnancy with at least four visits, and optimally eight visits (Tuncalp, Pena-Rosas and Lawrie, 2017). In UNICEF (2017), around 85% globally and approximately 77% in developed countries attends antenatal care. Adequate antenatal care can contribute to timely identification and management of pregnancy related complications. This, in turn, can significantly reduce the risk of maternal mortality by addressing issues before they become life-threatening. Reductions in maternal and early child mortality remain high on the global development policy agenda (United Nations Sustainable Development Goal, 2017) and it can be overcome through antenatal care awareness

In order to support ANC utilization and pregnancy-related complications, it is very important to educate pregnant women about the benefits and necessity of ANC services. Timely initiation of ANC within the first 12 weeks of gestation, followed by regular visits as recommended by WHO, ensures timely monitoring and management of pregnancy Alem (2022) and WHO,(2016). By promoting awareness and utilization of quality

ANC services, healthcare systems can effectively reduce maternal morbidity and mortality, thereby safeguarding the health of women and their unborn children.

Awareness refers to a general comprehension or familiarity with a particular subject. According to Vera *et al* (2020), awareness encompasses public or common knowledge or understanding about a social, scientific or political or familiarity with various objects, events, ideas, or methods of doing things. Health knowledge specifically pertains to information and understanding acquired through education on topics related to proper health. Ahmed (2019), emphasized the critical importance of awareness and understanding of ANC (Antenatal Care) for effectively utilizing its services. Accurate knowledge of ANC services contributes positively to maternal and child health outcomes. However, mere knowledge of ANC services is insufficient to ensure safe and successful childbirth. The utilization of ANC services by pregnant women also plays a crucial role in reducing maternal morbidity and mortality Watts and Crimmins (2020) defined health care utilization as the measurement and evolution of the various dimensions of accessing and using health care services by individuals to prevent and treat health issues, promote health maintenance, or gather information about their health status and prognosis. The utilization of maternal health services is a pivotal strategy in mitigating risks associated with pregnancy and childbirth (Rurangirwa *et al.*, 2017). Timely utilization of ANC services is essential for improving maternal health outcomes. However, some common avenues through which antenatal awareness is raised are; prenatal classes, educational materials, digital platforms, community health workers, workplace programs, government initiatives, peer support groups, among others. While for effective antenatal care utilization by pregnant women, there would be regular check-up, prenatal test, blood pressure monitoring, health education counselling, nutritional guidance, hydration and exercise, birth preparation and among others.

A pregnant woman is defined as a woman carrying a developing foetus in her uterus. According to NICHHD (2024), pregnancy is the period during which a foetus grows inside a woman's womb or uterus. Pregnancy typically occurs following sexual intercourse but can also result from assisted reproductive technology procedures. The outcome of pregnancy may include a live birth, spontaneous miscarriage, induced abortion, or stillbirth. Pregnancy spans approximately nine months, calculated from the woman's last menstrual period (LMP) and is traditionally divided into three trimesters, each lasting about three months. Factors such as economic status, parity, educational level and age may influence the awareness and utilization of ANC among pregnant women. Esan North East Local Government Area, located in Uromi, Edo State, Nigeria, is a predominantly rural area where traditional beliefs and practices often

influence health-seeking behaviours. The awareness and utilization of antenatal care services in this region is of particular interest due to the interplay of socio-cultural, economic, and educational factors that impact pregnant women's access to and use of these services. The healthcare facilities in Uromi town will serve the purpose of this study because of the many women in the area, therefore, they provide an essential context for assessing the awareness and utilization of ANC. Despite the availability of antenatal care services at the health facilities in Uromi Esan North East Local Government Area, there remains a considerable gap in the awareness and utilization of these services among pregnant women in Esan North East Local Government Area. Preliminary observations suggest that many women either do not attend the recommended number of ANC visits or initiate care late in their pregnancies. This underutilization of ANC services poses significant risks, including increased maternal and neonatal morbidity and mortality, WHO (2023). The problem is compounded by various barriers such as limited access to healthcare facilities, financial constraints, lack of transportation, and insufficient knowledge about the importance of regular antenatal visits, Alibhai *et al* (2022). It is not unlikely that poor utilization of antenatal care among pregnant women in Esan North East Local Government Area, Edo State may militate for the death of pregnant women.

Incidentally, none of such studies on awareness and utilization of antenatal care among pregnant women, to the best knowledge of the researcher, has been conducted in Esan North East Local Government Area, Edo State. Following from this, there is the need to study the awareness and utilization among pregnant women in Uromi, Esan North East Local Government Area, Edo State in order to help the relevant stake holders re-strategize some plans for implementation to curb the prevailing situation which is imperative. Addressing these issues is critical to improving maternal and child health outcomes in the region.

### **Purpose of the study**

The purpose of this study is to assess the level of awareness and the extent of utilization of antenatal care (ANC) services among pregnant women in Esan North East Local Government Area, Uromi, Edo State. The study aims to identify the factors influencing the awareness and utilization of these services, examine the barriers to accessing ANC, and assess the impact of ANC on maternal and neonatal health outcomes in the region

### **Objectives of the study**

The primary objective of this study is to assess the awareness and utilization of antenatal care services

among pregnant women in Uromi, Esan North East Local Government Area, with a focus on the primary healthcare facilities. The specific objectives are:

1. To assess the level of awareness and understanding antenatal care services among pregnant women in Uromi, Esan North East Local Government Area
2. To examine the pregnant women level of utilization in Uromi, Esan North East Local Government Area.
3. To identify the barriers/factors that hinder the pregnant women from accessing and utilizing antenatal care services utilization in Uromi, Esan North East Local Government Area.

### Research questions

The study seeks to answer the following research questions:

1. What is the level of awareness and understanding of antenatal care services among pregnant women in Esan North East Local Government Area?
2. What extent do pregnant women in Uromi utilize antenatal care services in Esan North East Local Government Area?
3. What barriers/factors that hinder the pregnant women from accessing and utilizing antenatal care services?

## LITERATURE REVIEW

### Concept of antenatal care

Antenatal Care (ANC) is a personalized care provided to a pregnant woman with emphasis on the woman's overall health, preparation for childbirth and readiness for complications. It is said to be timely, friendly, simple and safe service to a pregnant woman, furthermore [Mohamoud et al \(2022\)](#). Antenatal Care is an important determinant of maternal health outcomes and one of the basic components of maternal care on which the life of mothers and babies depend. According to [Akhtar et al. \(2018\)](#), it is the entry point to the health care system and determines whether a mother will deliver in a health facility and whether she will take the baby for preventive services like immunizations and growth monitoring UNICEF (2019). The goal of the ANC package is to prepare for birth and parenthood as well as prevent, detect, alleviate, or manage the three types of health problems during pregnancy that affect mothers and babies UNICEF (2024).

### The concept of antenatal care awareness

Awareness of ANC encompasses the knowledge of its availability, purpose, and benefits. And consciousness

that pregnant women have regarding various aspects of their pregnancy, maternal health, and the importance of seeking appropriate healthcare during the antenatal period [Ahmed \(2019\)](#). It encompasses information about the changes occurring during pregnancy, potential risks and complications, and the significance of regular check-ups and interventions provided by healthcare professionals. According to [Shafqat et al \(2019\)](#), antenatal awareness has a positive influence on pregnant women's satisfaction with services. According to [Bashir et al \(2023\)](#) Knowledge, attitude, and practices for an antenatal check-up during pregnancy is a key indicator of a healthcare facility in a community and its practice is useful for lowering infant and maternal mortality. [Manju et al \(2018\)](#) stated that antenatal awareness is often promoted through healthcare providers, educational programs, and community initiatives. By enhancing awareness, pregnant women can make informed decisions, actively participating in their care, and contribute to positive maternal and child health outcomes. In the study conducted by [Jaiswal et al \(2022\)](#), they opined that the adverse effects can be minimized if pregnant women are aware to ensure necessary registration, regular antenatal check-ups, and early diagnosis of high-risk pregnancy.. Antenatal awareness is promoted through various channels and initiatives aimed at providing information, education, and support to pregnant women. However, some common avenues through which antenatal awareness is raised are; prenatal classes, educational materials, digital platforms, community health workers, workplace programs, government initiatives, peer support groups, among others.

Prenatal classes or antenatal classes are one of the avenues for antenatal awareness. It is a structured environment for pregnant women to learn about pregnancy, childbirth, and postpartum care. According to [NGA \(2021\)](#), antenatal classes and groups have formed a core part of maternity care awareness for many years and aim to help prepare women and their partners for birth. Such classes create awareness that is designed to help build confidence in women and expectant partners, empowering them during labour and birth. While the content of the classes varies from region to region often with the introduction of hypnosis, mindfulness and other holistic therapies. These classes for awareness may cover topics such as labour preparation, breastfeeding, and newborn care. In view of this, [Ciochoń et al \(2022\)](#) opined that antenatal awareness through education is an important component of antenatal care that prepares and facilitates the acquisition of women's skills and confidence required for positive experiences throughout pregnancy, birth and the postnatal period. Therefore, antenatal classes can make use of educational materials while teaching [Aji et al \(2019\)](#).

Educational materials serve as a source for antenatal

awareness in many health facilities. Herval *et al* (2019), health education during pregnancy is important to improve maternal and children outcomes. Educational material, also known as teaching/learning materials (TLM) are any collection of materials including animate and inanimate objects and human and non-human resources that a teacher may use in teaching and learning situations to help achieve desired learning objectives. Therefore they enhance awareness Lewis (2018). Educational material such as pamphlets, brochures, posters, and other written materials are used to aid antenatal awareness. They are distributed in healthcare facilities, community centres, and public spaces to provide information on antenatal care, nutrition, and general maternal health Thanaraj *et al* (2022). Instructional materials may aid a pregnant woman in concretizing a learning experience to make learning more exciting, interesting and interactive Digital platforms are one of the sources of antenatal awareness.

Digital platforms such as websites, apps, and online resources offer a convenient way for creating awareness for pregnant women about antenatal care. Digital healthcare platforms in this study are defined as collections of applications and technologies used to support the delivery of healthcare services. According to Toutziaraki *et al* (2024), the Internet is a widely utilized platform for accessing health-related information and pregnant women are no different in this regard. In the opinion of Lobo *et al* (2020), digital health applications, ecosystems, and platforms are increasingly used for antenatal awareness or to meet the needs of perinatal people with estimates of pregnancy-related internet use ranging from 90% to 97% of pregnant people. So, digital health is expected to have growing importance because of its potential to provide health prevention, consultation, treatment, and management while simultaneously providing an opportunity to reduce costs and improve access to care and patient satisfaction, which together may lead to better informed and more engaged antenatal patients Willis *et al* (2022) and Wang *et al* (2022). However, they may provide articles, videos, and interactive tools to enhance awareness International Telecommunication Union, (2017). These digital platforms can also be used by the community health workers.

In antenatal awareness, community health workers (CHW) or outreach workers serve as important agents. The CHW is able to bridge the social and professional gap between communities and health services and between women and midwives in the absence of care from a midwife ICM (2017). So, it is safe say that CHW are agents of antenatal care awareness. Straughen *et al* (2023). Community health workers or outreach workers may visit communities to provide information and education on antenatal care. They serve as a link between healthcare facilities and the community. In view

of WHO, (2021), community health workers (CHWs) are health care providers who live in the community they serve and receive lower levels of formal education and training than professional health care workers such as nurses and doctors. This human resource group has enormous potential to extend health care services to vulnerable populations, such as communities living in remote areas and historically marginalized people, to meet unmet health needs in a culturally appropriate manner, improve access to services, address inequities in health status and improve health system performance and efficiency. According to WHO (2021), CHWs through trained programme, go door-to-door, creating awareness by encouraging pregnant women to attend their antenatal care appointments at the closest health centre, where staff not only monitor the health of the mother and fetus but can also deliver the first dose of sulfadoxine-pyrimethamine, a medicine given after the first trimester to prevent malaria in pregnancy. Community health workers can organize a program in their workplace for antenatal awareness.

Workplace programs offer programs or resources to support pregnant employees, providing information on antenatal care, maternity leave policies, and workplace accommodations. It is common for women to work during pregnancy and still have access to safety measures to ensure the health of pregnant women at the workplace. The workplace can be an important place for learning and development, and in which knowledge can be created (Avis, 2018). In a workplace, peer support groups connecting with other pregnant women through support groups allow for the sharing of experiences and knowledge. Peer support can play a vital role in reinforcing antenatal awareness. A peer group is both a social group and a primary group of people who have similar interests, age, background, or social status. The members of this group are likely to influence the person's beliefs and behaviour. In view of Vollet, (2017), peer groups contain hierarchies and distinct patterns of behaviour. In a high school setting for example, 18 year olds are a peer group with 14 year olds because they share similar and paralleled life experiences in school together. In contrast, teachers do not share students as a peer group because teachers and students fall into two different roles and experiences. The above channels work together to enhance the antenatal awareness by empowering pregnant women to make informed decisions and actively engage in their healthcare during pregnancy and this awareness will help them for proper antenatal care utilization.

### **The concept of antenatal care utilization**

When pregnant women seek care services from healthcare providers (i.e. doctor, nurse, nurse/midwife, auxiliary midwife, community health nurse/officer), it is

termed as antenatal care utilization Dickson & Ahinkorah, (2018). Antenatal care utilization involves expectant mothers actively engaging in the healthcare services during pregnancy. It also refers to the extent to which pregnant women engage with and receive the recommended antenatal care services during pregnancy. Antenatal care utilization, as defined by (WHO, 2016) represents the active participation and attendance of pregnant women in the series of healthcare services and interventions provided during pregnancy. It encompasses the frequency, timing, and content of prenatal check-ups and consultations with healthcare providers, aiming to monitor maternal health, promote healthy behaviours, and prevent or address pregnancy-related complications. Antenatal care utilization, as articulated by Dickson & Ahinkorah, (2022). The extent and pattern of pregnant women's engagement with healthcare services during pregnancy is antenatal utilization Mouhoumed & Mehmet (2021), According to Dickson, & Ahinkorah, (2018), numerous studies on the determinants of ANC utilization have found an association between the socio-demographic, reproductive, and obstetric variables of the mother with the utilization of ANC. In this regard, the risk of dying from pregnancy-related issues can often be averted when there is proper utilization of antenatal care services

Higher antenatal care utilization is associated with improved maternal and fetal outcomes, as it enables the early detection and management of potential health risks, health education, and the establishment of a continuum of care that extends from pregnancy through childbirth and the postpartum period. Moreover, antenatal care services are expected to be utilized effectively by the pregnant women Ali *et al*, (2020). According to Arefaynie *et al* (2022) The frequency of antenatal care utilization enhances the effectiveness of the maternal health programs to maternal and child health. This utilization of effective antenatal care utilization by pregnant women are the practice and uptake of regular check-up, prenatal test, blood pressure monitoring, health education counselling, nutritional guidance, hydration and exercise, birth preparation and among others.

[Mouhoumed](#) & Mehmet (2021), opined that regular checkups is one of the effects of antenatal care utilization. Pregnant women are to attend scheduled antenatal visits to track the baby's development, address concerns, and receive necessary guidance. According to Neji *et al* (2020), a checkup is seen as effective in preventing illness and promoting health as well as reducing morbidity and mortality.

Timely and quality antenatal care (ANC) is an essential element of universal health coverage and a key determinant for the prevention of maternal mortality. The study conducted by Rustagi *et al* (2021) showed that a lack of access and utilization of antenatal care especially among socioeconomically disadvantaged populations.

Prenatal test is one of the check-up recommendations for pregnant women.

Prenatal test form an integral part of antenatal care utilization, its participation and diagnostic tests recommended by healthcare providers to detect and manage any health issues in the mother or fetus. According to Dungan (2022), prenatal testing involves testing the fetus before birth (prenatally) to determine whether the fetus has certain abnormalities, including certain hereditary or spontaneous genetic disorders. Blood pressure level can be determined through prenatal test. Through antenatal utilization, evidence-based screenings for detecting maternal problems and implementing prompt treatments interventions such as timely maternal HIV diagnosis can reduce neonatal transmission of HIV to less than 5% with initiation of antiretroviral treatments. Vasconcelos *et al* (2022). They revealed in their study that proper antenatal care utilization can in many ways help pregnant women with high blood pressure.

Utilization of antenatal services has in many ways improved blood pressure monitoring by pregnant. Dougall *et al* (2022). It has been termed very important hence it helps to identify and manage hypertension, a common pregnancy-related concern. In view of Dungan (2022), blood pressure is the pressure of blood against the vessels as it moves through the body. Health education can help the pregnant women to understand their body system as regards to blood pressure. According to Chappell, (2019), self-monitoring of blood pressure (BP) in pregnancy could improve the detection and management of pregnancy hypertension, while also empowering and engaging women in their own care. He further stated that health education counselling is needed for there to be effective antenatal utilization.

Health education is an effective tool that helps improve health in developing nations. Health education counselling is needed by pregnant women in order to acquire knowledge about pregnancy, childbirth, and postpartum care through counselling and educational resources. It not only teaches prevention and basic health knowledge but also conditions ideas that re-shape everyday habits of people with unhealthy lifestyle especially for pregnant women (Servejeet, 2018). Nutritional guidance can be better understood through health education. Nutritional guidance is a balanced diet with essential nutrients, and takes prenatal supplements as advised by healthcare professionals. According to Ota, Hori, Mori, Tobe-Gai and Farrar (2015), a healthy nutrient during pregnancy contains adequate energy, protein, vitamins and minerals, obtained through the consumption of a variety of foods, including green and orange vegetables, meat, fish, beans, nuts, pasteurized dairy products and fruit. Nutritional guidance is very important in the life of pregnant women especially during their birth preparation.

Again, antenatal utilization help equip pregnant women for birth preparation. It is a means of developing a birth plan, discuss preferences with healthcare providers, and understand the birthing process. Mesele & Anmut, (2022) see birth preparedness as the processes of preparing for a typical birth while also foreseeing the actions that will be necessary in the event of an emergency. Antenatal physical exercise has roles in health maintenance, prevention, and treatment of disease for pregnant women and fetuses Belachew *et al* (2023). Therefore it informs the decision for adequate hydration and exercise and both are important aspects of maintaining a healthy pregnancy. Proper hydration is crucial for supporting the increased blood volume, amniotic fluid, and other physiological changes during pregnancy Da-Silva, *et al* (2017). Exercise, when done safely and with guidance from healthcare providers, offers numerous benefits for both the mother and the developing baby. Recent studies by Rodriguez-Blanque, *et al* (2019) have shown that exercise during pregnancy prevents excessive weight gain, gestational diabetes and high blood pressure. It benefits not only the mother but also the fetus, since it reduces the risk of macrosomia and lowers the risk of premature birth Da-Silva, *et al* (2017). However, hydration and exercise is one of the antenatal care utilization.

Antenatal care (ANC) utilization has been a subject of concern in worldwide due to various challenges that impact access and adherence to recommended care. Previous studies have attempted to examine the antenatal care utilization in some countries such Dickson *et al* (2018) who investigated on women's utilization of antenatal care services in Ghana which revealed that 88% of women utilized antenatal care. Nigeria's maternal mortality ratio of 576/100,000 live births is one of the highest in the world. Nigeria's prenatal and neonatal mortality rates of 49/1,000 total births and 39/1,000 live births respectively, are also unacceptably high Aniekan *et al.*, (2022). These poor maternal and child health indicators may be due to low utilization of facility-based services. For instance, only 67% of pregnant women in Nigeria received antenatal care compared to 96% in Ghana (Aniekan *et al.*, 2022). Similarly, only 39% of women delivered in health facilities in Nigeria compared to 95% in Botswana (Aniekan *et al.*, 2022).

In Nigeria, a significant proportion, specifically 41%, of women who utilized ANC did not deliver in a healthcare facility, as reported by Nabbuye-Sekandi *et al*, (2019). Studies suggest that dissatisfaction with the ANC experience may be a contributing factor to this low level of institutional delivery among ANC users, as noted by Finlayson & Downe, (2019). Reflecting the overall low rates of antenatal care and institutional delivery in Nigeria (36%), maternal outcomes are suboptimal, with the country ranking among the top 26 nations in maternal mortality, recording 576 deaths per 100,000 live births

from 1990 to 2019, according to WHO data. Despite comprising only 2.45% of the world's population, Nigeria accounts for a significant 19% of maternal deaths, as reported by (WHO, 2019). Contrarily, many developing countries have successfully reduced maternal mortality by expanding maternal service utilization through policy innovations, as highlighted by the Ministry of Health and Family Welfare (MHFW) in 2020.

### **Factors/barriers for poor awareness and utilization antenatal care**

The utilization rate of (ANC) in Nigeria, a lower-middle-income country, is notably low, with only approximately 61% of pregnant women seeking care from a skilled provider at least once during their pregnancy. This percentage is in contrast to the documented average of 79% for all lower-middle-income countries, as indicated by Ajayi *et al.*, (2021). ANC plays a pivotal role in effectively managing prenatal morbidities and has the potential to facilitate institutional delivery and postpartum care, thereby contributing to improved maternal and newborn health outcomes, as highlighted by Aniebue & Aniebue, (2018). Their study showed that maternal education, wealth status, place of residence, parity and ethnicity determined the utilization of antenatal care. Factors that affect the focused antenatal care among pregnant women are; maternal age, marital status, educational levels, economical status and parity.

### **Maternal age**

Maternal age refers to the age of the mother at the time of delivery. Teenage mothers may require more education on prenatal care, nutrition, and parenting while older mothers may concern about their pregnancy complications or balancing family work. However, age of 18 to 30 is deemed as most convenient for pregnancy. Studies carried out by Andere & Kyallo (2019) observed that childbirth at a young age or advanced maternal age associated with increased risk of adverse maternal perinatal outcome, such as postpartum haemorrhage, eclampsia, and cephalopelvic disproportion, as well as adverse infant outcomes including preterm birth, poor fetal growth, among others. Age is a significant determinant of ANC utilization. According to Putunywa *et al* (2022) younger women, especially adolescents, often have lower rates of ANC utilization. This can be due to a lack of knowledge, social stigma, and dependency on family members who may not prioritize ANC. For instance, a study in Ethiopia found that adolescent mothers were less likely to attend ANC visits compared to older women, citing reasons such as fear of disclosure of pregnancy and lack of support from partners or family members Damilola *et al* (2022). In another study, it was observed that older women, particularly those beyond

typical childbearing age, may also underutilize ANC services. This can be attributed to assumptions of self-sufficiency and misperceptions about the risks associated with their age. A study conducted in Nigeria reported that older maternal age was associated with reduced ANC attendance due to a perceived lower risk of complications Damilola et al (2022). For the purpose of this study, maternal age is the level of experience gathered by the pregnant women as regards to awareness and utilization of antenatal care. However, marital status is also among the demographic variables that determines this study.

### **Marital status**

Marital status refers to an individual's legal and social relationship status in terms of marriage. Marital support and stability can contribute to a pregnant woman's mental health, potentially reducing stress and anxiety levels. This emotional support may positively impact the decision to prioritize and attend antenatal care appointments. Marital status is also the achieved characteristic, in the sense that marital behavior is socially defined and influenced, rather than having any biological properties. Nghargbu *et al* (2019) Children are typically assumed to be single (never married), whereas adults are generally classified as being single, married, separated, divorced, or widowed, although people may change categories at various times in their lives Nghargbu *et al* (2019). However, educational levels are also seen as a determinant for antenatal awareness and utilization.

### **Educational levels**

Educational levels refer to the different educational opportunities and pathways available to individuals. Women with higher levels of education are associated with an increased likelihood of recognizing the importance of antenatal care and following medical recommendations. Educated women are more likely to be aware of and utilize ANC services Ahmed & Manzoor, (2019) Educational level here typically correspond to the number of years a person spends in formal schooling. Because there's no federal education system in place, each province and territory is responsible for developing and administering their own curriculum. Some areas only require 11 years of education for both elementary and secondary schooling, while others require 12 years. There are three main levels of education, and these are: elementary, secondary and postsecondary (tertiary) (Glavin, 2017). Therefore, it can significantly influence ANC utilization. Higher levels of education are associated with better awareness and use of ANC services. As education enhances knowledge about the importance of ANC, empowers women to make informed health decisions, and improves communication with healthcare providers Raru *et al* (2022). A study in Nepal found that

women with secondary or higher education were more likely to utilize ANC services compared to those with no formal education Neupane & Doku, (2018). In contrast, low educational attainment is linked with misconceptions about pregnancy and reliance on traditional practices. For example, a study in Tanzania found that women with no formal education were less likely to attend ANC visits due to a lack of awareness and understanding of the benefits of ANC Gross et al.(2018).

### **Economic status**

Economic status refers to household's financial well-being and position within the broader economic context. Younger women and those with higher income levels also show higher utilization rates Aziz Ali et al., (2020). It directly affects a woman's ability to afford the costs associated with antenatal care, including medical fees, transportation, and other related expenses. It is also a descriptive term for the position of persons in society, based on a combination of occupational, economic and educational criteria, usually expressed in ordered categories, that is, on an ordinal scale Hiram and Lorraine, (2020). Lower-income individuals may face financial barriers that can hinder regular attendance at prenatal appointments. Economic status is a significant determinant of ANC utilization. Women from low-income households face several barriers to accessing ANC services, including direct costs of ANC services, transportation, and associated expenses can be prohibitive (Hiram & Lorraine, 2020). Economic constraints can limit access to healthcare facilities, particularly in rural or underserved areas. Women in low-income households may prioritize work over health appointments due to economic pressures. : Esther *et al* (2024), a study in Kenya revealed that women from the poorest quintile were less likely to attend the recommended number of ANC visits compared to those from wealthier households. Economic barriers are often compounded by other social determinants, leading to significant disparities in ANC utilization Aziz Ali et al., (2020).

### **Parity**

Parity is the number of children in a family. The larger the family the more is expected of the parent's responsibility. It is often observed that higher fertility is highly exhibited by the poor who are more likely to be exposed to dirty environment than people who belong to the wealthy quintiles Etim, (2016). Parity, or the number of pregnancies a woman has had, influences ANC utilization. Multiparous women (those with multiple pregnancies) may perceive less need for ANC due to their previous experiences. Additionally, women with many children may find it challenging to attend ANC

appointments due to care giving responsibilities and resource allocation (Hirsi & Mohamud, 2021). Dickson *et al.* (2018) carried out a study in Ghana and discovered that women with three or more children were less likely to utilize ANC services compared to first-time mothers. First-time mothers, despite being more likely to seek ANC, may still face barriers if they lack adequate support and knowledge.

In regards of the above, evidence available indicates that about 90% of women worldwide utilize antenatal care services at least once; however, only 60% of women utilize antenatal care services for at least four times, which is the WHO recommended minimum of antenatal care visit. The statistics are more staggering in SSA where only 49% of women utilize at least four times skilled antenatal care services. In Nigeria (a lower-middle income country), there is quite low antenatal care utilization rate of about 61% of pregnant women visited a skilled provider at least once during their pregnancy compared with the documented average of 79% for all lower-middle income countries Onyeajam *et al* (2018).

Previous studies have attempted to examine the antenatal care utilization in some countries. Dickson *et al* (2018) investigated on women's utilization of antenatal care services in Ghana which revealed that 88% of women utilized antenatal care. Their study showed that maternal education, wealth status, place of residence, parity and ethnicity determined the utilization of antenatal care. To the best of my knowledge, there are no studies within the Esan North in Edo State region that has investigated on awareness and utilization of antenatal care services thus, creating significant gap in the knowledge. Therefore, the need to carry out a study on assessment of focused antenatal awareness and utilization among pregnant women in Esan North East Local Government Area, Edo State

### **Importance of awareness and utilization of antenatal care (ANC)**

Antenatal care (ANC) is crucial for ensuring the health and well-being of both mother and child during pregnancy. This care encompasses a range of services aimed at monitoring and improving pregnancy outcomes. Understanding the importance of awareness and utilization of ANC highlights its numerous benefits and underscores the risks associated with inadequate care.

### **Early detection and management of complications**

Regular ANC visits enable the early detection and management of potential complications such as preeclampsia, gestational diabetes, and infections. Early intervention is key to preventing serious health issues, thus safeguarding the health of both mother and baby (World Health Organization (WHO), 2016).

### **Nutritional and health education**

ANC provides essential nutritional advice and health education. Proper nutrition during pregnancy is vital for fetal development and maternal health. ANC services include counselling on diet, supplements like folic acid and iron, and healthy lifestyle choices, which help women make informed decisions (Jesuyajolu *et al.*, 2022).

### **Immunization and preventive measures**

ANC includes immunizations, such as tetanus shots, that protect against potentially fatal diseases. Preventive measures, including malaria prophylaxis and HIV screening, are integral parts of ANC, contributing to overall maternal and child health Afaya *et al.*, (2020).

### **Preparation for birth and parenting**

ANC prepares expectant mothers for childbirth and parenting. Education on birth plans, pain management options, breastfeeding, and newborn care equips women with the knowledge and skills needed for a safe delivery and effective parenting, thereby reducing anxiety and improving maternal confidence (WHO, 2016).

### **Mental health support**

Pregnancy can be emotionally challenging, and ANC offers mental health screening and support. Addressing issues such as anxiety and depression during pregnancy is crucial for the well-being of both mother and baby. ANC provides access to counseling and support services to help manage these challenges (Adedokun & Yaya, 2020). In summary, the awareness and utilization of antenatal care are paramount for ensuring healthy pregnancies and positive outcomes for both mothers and babies. ANC provides comprehensive health monitoring, education, preventive measures, and support, significantly reducing the risks associated with pregnancy and childbirth. Enhancing awareness and accessibility of ANC services, particularly in underserved areas, is essential for improving maternal and child health globally. Addressing barriers to ANC utilization and promoting its benefits can lead to healthier pregnancies and stronger, healthier families.

### **Theoretical framework**

In science education research, theories and models provide valid platforms for explaining human behaviours and associated factors. Theory according to Cherry,(2022) is an abstraction or generalization from concrete phenomena that serves as a summarization or explanation of the phenomenon. The theories adopted for this study are Health Action Process Approach (HAPA)

and protection motivation theory (PMT).

### Health action process approach (HAPA)

The Health Action Process Approach (HAPA) is a psychological theory developed by Schwarzer (1992) that seeks to explain and predict health behaviours by identifying key psychological constructs and processes that influence behaviour change. HAPA posits that health behaviour change occurs in two distinct phases: the motivational phase and the volitional phase.

#### The motivational phase

The motivational phase is where intentions to change a behaviour are formed. This phase is influenced by three main factors:

- **Risk Perception:** The individual's awareness and understanding of the health risks associated with their current behaviour. For example, recognizing the risk of developing cardiovascular disease from a sedentary lifestyle.
- **Outcome Expectancies:** The belief that changing the behaviour will lead to beneficial outcomes. If individuals believe that regular exercise will improve their health and wellbeing, they are more likely to form the intention to engage in physical activity.
- **Self-Efficacy:** The confidence in one's ability to perform the desired behaviour. High self-efficacy increases the likelihood of forming strong intentions to change behaviour.

#### The volitional phase

Once the intention to change has been formed, the individual enters the volitional phase, which is focused on planning and executing the behaviour change. This phase includes:

- **Action Planning:** Developing specific plans regarding when, where, and how to perform the behaviour. For example, planning to go for a run every morning at 7 am.
- **Coping Planning:** Anticipating potential barriers and developing strategies to overcome them. For instance, preparing a gym bag the night before to avoid morning rush excuses.
- **Maintenance Self-Efficacy:** Confidence in one's ability to maintain the behaviour change over time, despite potential setbacks.

### Constructs and processes

According to Joy *et al* (2023) HAPA emphasizes the importance of both self-efficacy and planning in bridging the gap between intention and behaviour. It suggests that self-efficacy not only influences the formation of intentions but also plays a critical role in the volitional phase, aiding in the initiation and maintenance of health behaviours. Additionally, HAPA integrates both motivational and volitional constructs, acknowledging that forming an intention alone is not sufficient for behaviour change. Detailed action and coping plans are essential for translating intentions into actual behaviour.

### Application on ANC

In the context of antenatal care (ANC) awareness and utilization, the Health Action Process Approach (HAPA) can provide insights into the factors influencing pregnant women's uptake as regards to ANC. (HAPA) in motivational phase includes pregnant women having access to the risks associated with not attending ANC sessions, considering potential complications for themselves and their unborn child, understanding the positive outcomes of ANC, such as early detection of potential issues and improved maternal and fetal health, can motivate women to seek care and confidence in their ability to attend ANC sessions regularly and engage in recommended behaviours can influence women's decisions.

In volitional phase, awareness campaigns and education efforts can contribute to the formation of intentions to attend ANC sessions among pregnant women, providing information on the importance of ANC and helping women plan for their visits, including addressing potential barriers, can enhance the planning phase, supportive environments and accessible healthcare services can facilitate the actual attendance of ANC sessions and continuous education and reinforcement of the benefits of ANC may contribute to sustained utilization throughout the pregnancy. However, applying the HAPA model to assess focused ANC awareness and utilization involves examining how motivational factors and self-regulatory processes influence women's decisions to seek and maintain antenatal care. It can guide the development of interventions aimed at promoting awareness, addressing barriers, and fostering a positive attitude toward ANC, ultimately improving maternal and child health outcomes. This theory appears to support one of the aims of this study, that is, to assess the level of awareness, extent of utilization and determine the barriers to accessing the available health facilities among undergraduates in university of Nigeria. The undergraduates may or may not perceive the outcome of their behaviours on the barriers to accessing the available health facilities. Delays to seek

health care due to lack of antenatal care awareness and utilization among pregnant women in Esan Northeast LGA of Edo state.

### Protection Motivation Theory

Protection Motivation Theory (PMT), developed by R.W. Rogers in 1975, is a psychological framework used to understand the motivational processes behind health-related behaviours. According to Marikyan & Papagiannidis (2023) protection motivation theory explains how individuals are motivated to protect themselves from perceived threats through adaptive behaviour changes. This theory has been extensively applied in health psychology, public health campaigns, and behaviour change interventions. The protection motivation process begins with the evaluation of a threat (threat appraisal), followed by the evaluation of coping strategies (coping appraisal). When individuals perceive a threat to be severe and themselves to be vulnerable, and they believe that they can effectively perform the recommended behaviour (high response efficacy) and have the ability to do so (high self-efficacy) with manageable costs, they are more likely to adopt adaptive behaviours to protect themselves Marikyan & Papagiannidis (2023).

### Major components of protection motivation theory

Protection motivation theory posits that protection motivation is generated through two cognitive processes: threat appraisal and coping appraisal. Each of these processes involves specific cognitive assessments:

#### Threat appraisal

- **Perceived Severity:** The belief about the seriousness of the threat. For instance, believing that smoking can lead to severe diseases like lung cancer.
- **Perceived Vulnerability:** The belief about one's susceptibility to the threat. For example, considering oneself at high risk of developing lung cancer due to smoking.
- **Intrinsic and Extrinsic Rewards:** The perceived benefits of engaging in the risky behaviour, which can decrease the motivation to protect oneself. For instance, the pleasure derived from smoking or social acceptance.

#### Coping appraisal

- **Response Efficacy:** The belief that the recommended protective behavior will effectively

mitigate the threat. For example, believing that quitting smoking will significantly reduce the risk of lung cancer.

- **Self-Efficacy:** The confidence in one's ability to perform the protective behaviour. For instance, believing that one can successfully quit smoking.
- **Response Costs:** The perceived costs or barriers associated with adopting the protective behaviour. This might include withdrawal symptoms, stress, or social implications of quitting smoking.

### Applications of Protection Motivation Theory

Protection Motivation Theory has been widely applied to various health behaviours, including smoking cessation, exercise promotion, dietary changes, and disease prevention. The theory provides a robust framework for developing health interventions that aim to increase protective behaviours by addressing both threat and coping appraisals.

**Smoking Cessation:** A study by Norman *et al* (2018) applied protection motivation theory to smoking cessation programs. The researchers found that interventions designed to increase perceived severity, vulnerability, response efficacy, and self-efficacy were effective in motivating individuals to quit smoking.

**Exercise Promotion:** In promoting physical activity, protection motivation theory has been used to develop interventions that emphasize the health risks of a sedentary lifestyle (high severity and vulnerability) and the benefits of regular exercise (high response efficacy). Additionally, strategies to enhance self-efficacy, such as setting achievable goals and providing social support, have been shown to improve exercise adherence Sheeran, *et al* (2022).

**Disease Prevention:** protection motivation theory has also been instrumental in designing campaigns for disease prevention, such as HIV/AIDS awareness. Interventions that highlight the severe consequences of HIV, the individual's vulnerability to contracting the virus, the effectiveness of preventive measures (like condom use), and the individual's ability to use these measures effectively have proven successful Rogers *et al* (2017).

### Strengths and limitations

#### Strengths

- Protection Motivation Theory offers a comprehensive framework for understanding and influencing health behaviours.

- It integrates cognitive processes related to both threat and coping, making it versatile for various health interventions.
- The theory's focus on self-efficacy aligns with many contemporary health behaviour change strategies.

### Limitations

- Protection Motivation Theory primarily focuses on cognitive factors and may underemphasize the role of emotional and social influences on behaviour.
- The theory assumes that individuals engage in rational decision-making processes, which may not always reflect real-world scenarios where behaviours are influenced by habits and emotions.

Protection Motivation Theory provides valuable insights into the cognitive processes underlying health behaviour change. By addressing both threat and coping appraisals, protection motivation theory helps in designing effective interventions to promote protective behaviours. Its applicability across a range of health behaviours underscores its significance in health psychology and public health Sheeran *et al* (2022).

### Application of protection motivation theory to awareness and utilization of ANC in Uromi, Esan North East LGA, Edo State

The Protection Motivation Theory can be applied to antenatal care (ANC) awareness and utilization by examining the cognitive processes involved in individuals' decisions to protect themselves and their unborn child through ANC practices. However, they found its application in assessing the perceived severity of not receiving adequate antenatal care, highlight potential risks and complications associated with insufficient or delayed care during pregnancy, explore how pregnant women perceive their vulnerability to health risks for themselves and their unborn child, emphasize the susceptibility to complications without proper ANC, communicate the effectiveness of ANC in preventing or mitigating health risks. Provide information on how ANC contributes to positive maternal and fetal outcomes and examine pregnant women's confidence in their ability to access and adhere to ANC. Address barriers and empower women with the belief that they can successfully engage in recommended antenatal practices. However, applying protection motivation theory to ANC awareness and utilization involves understanding how individuals perceive the severity and vulnerability related to inadequate care, their belief in the effectiveness of ANC, and their confidence in undertaking the necessary actions. Interventions can be designed to

enhance these perceptions, promoting a positive attitude toward ANC and motivating pregnant women to seek and maintain appropriate care throughout pregnancy. For example, public health campaigns can focus on conveying the severity of potential complications, emphasizing the effectiveness of ANC in preventing such issues, and providing resources to boost self-efficacy in accessing and utilizing antenatal services. Conversely, poor focused antenatal care awareness and utilization would significantly and negatively affect the pregnant women in Esan Northeast LGA of Edo state.

## METHODOLOGY

### Study area

The research was carried out in selected healthcare facilities in Uromi, Esan North East Local Government Area, Edo State. Esan North-East is a Local Government Area located in Edo State of Nigeria. It has an estimated population of 119,346. Its headquarters are in Uromi/Uzea. Esan North-East is amongst the 18 Local Government Areas that make up Edo State. It shares boundaries with Etsako West, Esan South East, Esan Central and Igueben LGA to the east, west, north and south, respectively. Its towns in the jurisdiction are Uromi, Egbele, Unuwazi, Utako, Onewa, Awo, Uzea, Eror, Idumoza, Arue, Ubierumu-Oke, Ebue, Ewoyi, Odigwele, Eguare, Oyomon, Eko-Ibadin, Efandion, Atani, Ualor-Oke, Amedokhian, Ukoni, Ewoki, and Ebun. Their economic mainstays are commerce, cottage industry, agriculture and furniture making. Esan North East Local Government Area, Edo State was chosen for this study because of the consistent illness among pregnant women which leads to many health complications such as maternal death, still birth among others. Therefore, the researcher is particularly interested in the awareness and utilization of antenatal care service among pregnant women in Esan North East Local Government Area, Edo State.

### Target population

The conceptualized population for this study is all registered antenatal care pregnant women in Esan North East Local Government Area, Edo State for a period of four months. There are 14 antenatal care centres with a population of (1505) registered pregnant women between February and May 2024, in Uromi healthcare facilities (Table 1).

### Sample size

To determine the appropriate sample size for this study, the total number of pregnant women registered at each facility over a four-month period was averaged by dividing

**Table 1:** List of Healthcare Facilities in Uromi, Esan North East Local Government Area Uromi, Edo State.

S/N	Name of the Healthcare Facilities	Antenatal Registrations				Population Size	Average of each facility.
		Feb	March	April	May		
1.	Egbele Primary Health Care Centre	24	17	16	19	76	19
2.	Ewoyi Primary Health Care Centre	25	16	17	18	76	19
3.	Obiyon Primary Health Care Centre	33	21	22	23	100	25
4.	Uromi General Hospital	160	117	105	123	505	126
5.	Uzenema Primary Health Care Centre	19	16	18	20	73	18
6.	Asemota Clinic Uromi	10	17	20	19	66	17
7.	Ebehita Medical Centre	19	21	18	15	73	18
8.	Selaf Hospital Ltd	16	13	19	17	65	16
9.	St. Camillus Hospital	15	28	27	21	91	23
10.	Victory Hospital	24	10	11	16	61	15
11.	His Grace Hospital	17	20	24	18	79	20
12.	Shiloh Clinic and Maternity	21	18	15	24	78	20
13.	Maxwell Clinic and Maternity	19	14	18	27	78	20
14.	Uwalor Oke Primary Health Care Centre	15	23	20	11	69	17
Total						1505	373

the total by four for each facility. Based on this information, a sample size of 373 pregnant women was derived for the study. This sample size was considered sufficient to capture a representative portion of the target population while maintaining feasibility in terms of data collection.

**Sampling technique**

In this research, a convenience sampling method was employed to assess the awareness and utilization of antenatal care (ANC) among pregnant women in Uromi, Esan North East Local Government Area, Edo State. This approach was chosen due to its practicality and feasibility given the constraints of time, resources, and accessibility. Where (n) = Number of participants for this study.

**Selection Process:** Pregnant women who visit the listed clinics during the data collection period were invited to participate.

**Method of data collection**

The researcher obtained a letter of introduction from the Head of the Department of Nursing Sciences at the College of Health Sciences, Igbinedion University, Okada, to facilitate access to the respondents. The researcher dedicated four weeks to visit the selected healthcare centres to solicit participation. Questionnaire was distributed to the respondents each day, and the completed questionnaires were collected immediately.

**Method for data analysis**

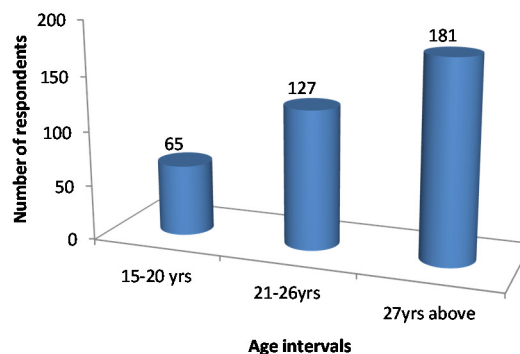
The data analysis was conducted using SPSS software, version 28.0, to ensure accurate and insightful results. The process began with coding and entering the raw data

into the system, where descriptive statistics, such as frequency distributions, percentages, and mean values, were used to clearly summarize the study's findings.

**RESULTS AND DISCUSSION**

**Demographic detail of the respondents**

Figure 1 presents the age distribution of our sample shows that 17% are between 15 and 20 years old, representing a younger segment likely consisting of students or individuals early in their careers.



**Figure 1:** Age respondents

In the 21-26 years age range, which comprises 34% of the sample, many are transitioning from education to full-time work, forming a significant portion of the workforce. Nearly half of the respondents (49%) are 27 years and older, indicating a more established group with considerable experience in both their careers and personal lives. Regarding marital status, (Figure 2) presents 4% of the sample is single, suggesting that most individuals are in long-term relationships or managing

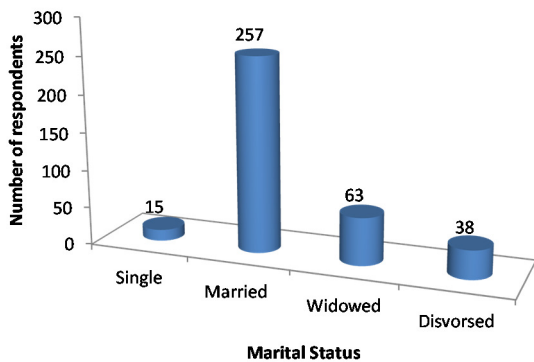


Figure 2: Bar Chart showing marital status.

family responsibilities. A substantial majority, 69%, are married, reflecting a stable family life that may influence their healthcare needs and priorities. The widowed group, comprising 17%, may have specific social and health support needs, while 10% are divorced, indicating a moderate level of relationship changes that could impact their current circumstances.

In terms of educational level, (Figure 3) presents 17% have only primary education, which may limit their access to information and technology. The largest segment, 60%, has completed secondary education, providing a solid foundation for many.

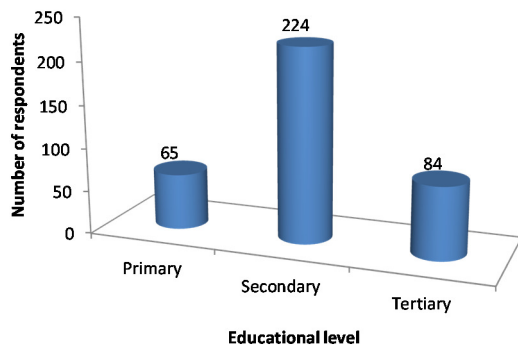


Figure 3: Bar Chart showing educational levels.

Additionally, 23% of respondents have tertiary education, suggesting they are likely more skilled and may have better access to resources and technology. Occupationally, (Figure 4) presents 23% of the sample are civil servants, benefiting from stable employment and potentially better access to resources. Traders make up 43% of the group, with varying access to resources depending on their business conditions. Farmers, comprising 31%, might face unique challenges with

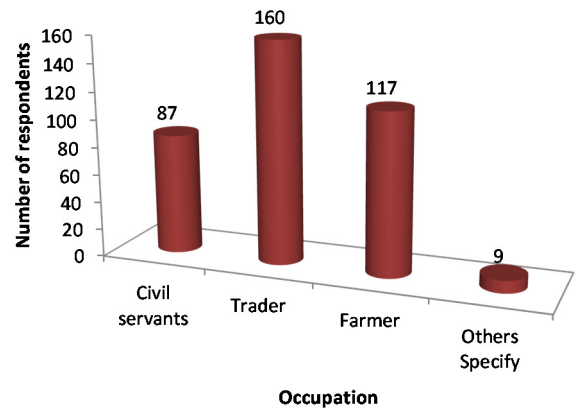
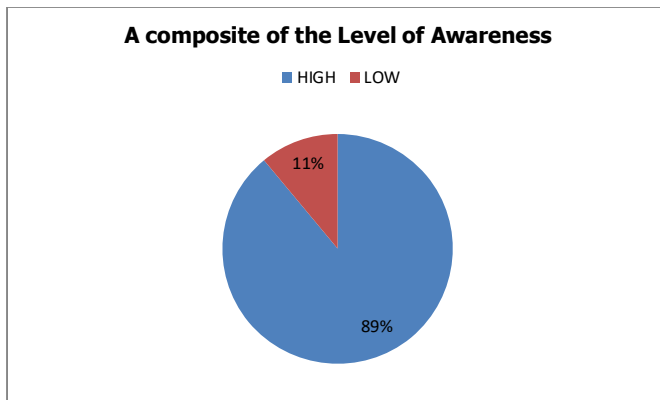


Figure 4: Bar Chart showing occupation

technology and healthcare compared to other occupations. Finally, 3% fall into other unspecified professions, highlighting the diverse range of occupations within the sample. The (Table 2) presents data on the level of awareness and knowledge about antenatal care (ANC) services among pregnant women in Esan North East Local Government Area. A high percentage (89%) of respondents indicated that they had heard about antenatal care services before their current pregnancy, with a mean score of 2.8. This suggests that most women are knowledgeable about ANC services even before becoming pregnant. Nearly all respondents (94%) are aware that antenatal care services are available in their local area, with a mean score of 2.9, indicating strong awareness of the availability of these services. While 73% of women understand the importance of antenatal care visits for monitoring baby growth, preventing complications, and receiving health education, 23% are unsure, and 3% are unaware. The mean score of 2.6 shows that although awareness is good, there is room for improvement in educating the unsure group. 78% of respondents are aware that ANC includes routine check-ups to monitor the health of both mother and baby, reflected by a mean score of 2.7, suggesting that most women understand the critical role of ANC in monitoring health. 84% know that ANC services provide information on proper nutrition and lifestyle during pregnancy, with a mean score of 2.7, showing strong awareness of the educational aspects of ANC. A significant 89% of women are aware that antenatal care can help identify and manage high-risk pregnancies and potential complications, with a mean score of 2.8, indicating high awareness of the preventive role of ANC. A notable portion (46%) have missed a scheduled antenatal care visit, while 40% reported they have never missed a visit. The mean score of 2.0 indicates a higher frequency of missed appointments than ideal, highlighting a potential gap in consistent utilization. Routine Investigations: 67%



**Figure 5:** A composite of the Level of Awareness

of women know that ANC includes important routine investigations (e.g., blood and urine tests, HIV/Syphilis screening), while 21% are unsure. This aligns with findings from other studies in similar contexts. For instance, a study by Onoh et al. (2021) in Southeast Nigeria found that women who were knowledgeable about ANC services were more likely to attend regular visits and receive proper maternal healthcare. Similarly, Oladapo et al. (2020) observed that pregnant women with a good understanding of ANC were more proactive in seeking timely care, leading to better health outcomes for both mother and child.

The mean score of 2.5 suggests moderate awareness of the diagnostic services provided during ANC. 81% are aware that signs and symptoms of complications during pregnancy require immediate attention, with a mean score of 2.7, indicating good awareness but with a need for further education for those unsure. 92% of respondents find the information provided during antenatal visits clear and easy to understand, with a mean score of 2.8, reflecting positive communication between healthcare providers and patients. 80% of women believe that antenatal care is necessary for all pregnant women and impacts pregnancy outcomes, with a mean score of 2.7, indicating strong belief in the importance of ANC. 71% are aware of recommended immunizations and drug therapies, with 26% unsure. The mean score of 2.6 indicates a good level of awareness, but additional education could benefit the unsure group.

Figure 5 highlights the levels of awareness across key aspects of antenatal care knowledge and services, including routine check-ups, managing pregnancy risks, and the clarity of information provided. A high level of awareness is observed at 89%, indicating that most pregnant women are informed about these essential services. However, a low level of awareness, accounting for about 11%, reveals moderate gaps in understanding the importance of attending all scheduled visits and a lack of knowledge regarding routine tests and

immunizations. This suggests areas where further education and support are needed to ensure comprehensive antenatal care.

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**Table 2:** Research Question One: The Level of awareness and Knowledge of antenatal care services among pregnant women in Esan North East Local Government Area are

<b>Item: The Level of awareness and Knowledge of antenatal care services among pregnant women in Esan North East Local Government Area are:</b>	<b>YES 3</b>	<b>NOT SURE 2</b>	<b>NO 1</b>	<b>Mean Scores</b>	<b>% Equivalent of the mean</b>
Have you heard about antenatal care (ANC) services before your current pregnancy?	333(89%)	29(8%)	11(3%)	2.8	93
Do you know that antenatal care services are available in your local area?	350(94%)	19(5%)	4(1%)	2.9	97
Do you understand the importance of attending antenatal care visits during pregnancy (monitoring baby’s growth, preventing complications, receiving health education)?	273(73%)	87 (23%)	13 (3%)	2.6	87
Are you aware that antenatal care includes routine check-ups to monitor the health of both the mother and the baby.?	290 (78%)	62 (17%)	21 (3%)	2.7	90
Do you know that antenatal care services provide information on proper nutrition and lifestyle during pregnancy?	314 (84%)	40 (11%)	19 (5%)	2.7	90
Are you aware that Antenatal care visits can help identify and manage high risk pregnancy and potential complications?	331 (89%)	30 (8%)	12 (3%)	2.8	93
Have you ever missed a scheduled antenatal care visit during your current pregnancy?	173 (46%)	50 (13%)	150 (40%)	2.0	67
Are you aware that Antenatal care includes routine checkup/Investigations (blood tests, urine tests, HIV/Syphilis screening helps to monitor the health of mother and baby)?	251 (67%)	80 (21%)	42 (11%)	2.5	85
Do you know that the signs and symptoms of complications during pregnancy requires immediate attention?	301 (81%)	39 (10%)	33 (9%)	2.7	90
Do you find the information provided during Antenatal visits to be clear and easy to understand?	342 (92%)	19 (5%)	12 (3%)	2.8	93
Do you feel that Antenatal clinic is necessary for all pregnant women and has impact on the outcome on the pregnancy?	298 (80%)	60 (16%)	15 (4%)	2.7	90
Are you aware of the recommended immunizations /routine drug therapy during immunizations?	265 (71%)	98 (26%)	10 (3%)	2.6	87
<b>Average Score</b>				<b>2.7</b>	<b>89</b>

Mean cut-off= 2.0 Equivalent % cut-off mark 66.7%

**Table 3:** Research Question Two, the extent do pregnant women in Uromi utilize antenatal care services in Esan North East Local Government Area

<b>Item: The extent do pregnant women in Uromi utilize antenatal care services in Esan North East Local Government Area are:</b>	<b>ALWAYS 4</b>	<b>SOMETIMES 3</b>	<b>BARELY 2</b>	<b>NEVER 1</b>	<b>Mean</b>	<b>Equivalent % of the mean</b>
How often do you visit/attend Antenatal clinic?	170 (46%)	123 (33%)	79 (21%)	1 (0%)	3.2	80
How frequently do you follow the advice and recommendations provided by the antenatal care provider?	300 (80%)	57 (15%)	16 (4%)	0 (0%)	3.7	93
How frequently do you feel supported by family or friends in attending antenatal care appointment?	120 (32%)	210 (56%)	39 (10%)	4 (1%)	2.9	73
How frequently do you discuss your birth plan and preferences with your antenatal care provider?	70 (19%)	91 (24%)	65 (17%)	150 (40%)	2.2	55
How consistently do you take the prescribed iron and folic acid supplements provided during your antenatal care visits?	311 (83%)	39 (10%)	22 (6%)	1 (0%)	3.7	93
How often do you feel that your questions and concerns are addressed during antenatal care visits?	367 (98%)	6 (2%)	0(0%)	0 (0%)	3.9	98
How often do you follow up on recommended routine tests (e.g., blood pressure, ultrasound, urine tests, and hemoglobin levels) during your antenatal care visits?	345 (92%)	20 (5%)	7 (2%)	1 (0%)	3.9	98
How often have you ever missed a scheduled antenatal care visit during your current pregnancy?	45 (12%)	83 (22%)	95 (25%)	150 (40%)	2.0	50
How frequently do you face barriers in accessing antenatal care services (e.g distance, cost time)?	167 (4%)	123 (33%)	12 (3%)	71 (19%)	3.0	75
Do you always participate in educational classes or sessions offered during your antenatal care visits(e.g nutrition on fruit and vegetables, breastfeeding, exercises) as advised by your health provider?	261 (70%)	92 (25)	12 (3)	8 (2)	3.6	90
Are you aware of the recommended immunizations /routine drug therapy during immunizations?	198 (53%)	109 (29%)	37 (10%)	32 (9%)	3.2	80
<b>Average</b>					<b>3.2</b>	<b>81</b>

Mean cut-off= 2.5. Equivalent % cut-off mark 62.5%

The mean score of 2.6 indicates a good level of awareness, but additional education could benefit the unsure group. The findings reveal that pregnant women in Uromi generally demonstrate a high level of engagement with antenatal care services, particularly in areas such as adhering to medical advice, taking prescribed supplements, and following through on routine tests. This aligns with existing empirical studies. For instance, a study by Fagbamigbe et al. (2021) in Nigeria found that women who were well-informed about antenatal care showed high levels of compliance with medical recommendations, which contributed to better maternal and fetal health outcomes. Similarly, Bloomfield et al. (2022) highlighted that consistent adherence to routine antenatal care improves maternal outcomes by addressing early risk factors and reducing complications during delivery. However, despite the positive findings, some gaps were identified in the utilization of specific services. For example, the low rate of discussions around birth plans suggests an area where healthcare providers need to improve communication with expectant mothers. These findings are consistent with the study by Mohammed et al. (2023), which found that while women generally trust and adhere to the advice of antenatal providers, there is often insufficient communication about personalized birth plans. The need for increased social support and addressing barriers such as cost, distance, and time was also noted, reflecting the findings of other studies that emphasize the impact of logistical barriers on consistent ANC attendance (Abimbola et al., 2021). Figure 5 highlights the levels of awareness across key aspects of antenatal care knowledge and services, including routine check-ups, managing pregnancy risks, and the clarity of information provided. A high level of awareness is observed at 89%, indicating that most pregnant women

are informed about these essential services. However, a low level of awareness, accounting for about 11 %, reveals moderate gaps in understanding the importance of attending all scheduled visits and a lack of knowledge regarding routine tests and immunizations. This suggests areas where further education and support are needed to ensure comprehensive antenatal care.

The (Table 3) shows the utilization of antenatal care services by pregnant women in Uromi, Esan North East Local Government Area, along with their mean scores for each category. A significant portion of women (46%) consistently attend antenatal clinic visits, with a mean score of 3.2, indicating a relatively high attendance rate. Compliance with medical advice is strong, as 80% of respondents always follow the advice of healthcare providers, reflected in a mean score of 3.7. However, social support is moderate, with only 32% always feeling supported by family and friends, resulting in a mean score of 2.9. Discussions of birth plans with care providers are notably low, as 40% never engage in such conversations, contributing to a low mean score of 2.2.

In contrast, 83% of women consistently take prescribed iron and folic acid supplements, with a mean score of 3.7, showing strong adherence. Nearly all respondents (98%) feel that their concerns are addressed during antenatal visits, resulting in a high mean score of 3.9, and 92% follow up on routine tests, yielding the same mean score of 3.9. Despite 40% of women never missing appointments, 25% barely manage to attend, with a low mean score of 2.0, indicating challenges with appointment adherence. Barriers to accessing antenatal services, such as distance and cost, sometimes affect 33% of respondents, giving a mean score of 3.0. Participation in educational sessions is high, with 70% of women always attending,

resulting in a mean score of 3.6, while awareness of immunizations is moderate, with 53% always aware, and a mean score of 3.2.

Figure 6 highlights the levels of utilization of antenatal care services. A high level of utilization of antenatal care services is observed at 81%, indicating that most pregnant women utilize antenatal care services. However, a low level utilize antenatal care services, accounting for about 19 %, reveals moderate gaps in utilization of antenatal care services. This suggests areas where further education and support are needed to ensure comprehensive utilization of antenatal care services.

#### **Key barriers that influence the utilization of antenatal care services**

Figure 7 illustrates the key barriers to healthcare access, with age-related factors and hesitation emerging as the most significant barrier, reflected by the highest mean score of around 3.4 and approximately 70% of respondents strongly agreeing. Financial constraints follow closely, with a mean score of 3.2 and about 50% strongly agreeing. Challenges due to parity (number of births) are also notable, though with slightly less agreement, showing a mean score just above 3.2 and around 45% strong agreement. Lastly, the distance to healthcare facilities is recognized as a moderate barrier, sharing a mean score of 3.2, with roughly 50% of respondents strongly agreeing. These findings highlight the importance of addressing various demographic and logistical factors to improve healthcare access.

Table 4 presents the several barriers that hinder pregnant women from accessing and utilizing antenatal care services. One of the most significant factors is age-related discomfort, with 73% of women strongly agreeing that their age makes them hesitant or uncomfortable about

**Table 4:** Research Question Three: The barriers/factors that hinder the pregnant women from accessing and utilizing antenatal care services.

Item: The barriers/factors that hinder the pregnant women from accessing and utilizing antenatal care services are:	SA	A	D	SD	Mean	Equivalent % of the mean
	4	3	2	1		
Does your age make you feel hesitant or uncomfortable about attending antenatal care services?	271 (73%)	43 (12%)	23 (6%)	36 (10%)	3.4	85
Does a financial constraint (economic status) prevent you from accessing antenatal care services?	212 (57%)	50 (13%)	31 (8%)	80 (21%)	3.0	75
Do you find it challenging to attend antenatal care appointments because you have other children or a first time mother (parity)?	193 (52%)	112 (30%)	50 (13%)	18 (5%)	3.2	80
Does being married (marital status) make it difficult for you to access antenatal care services?	120 (32%)	161 (43%)	80 (21%)	12 (3%)	3.0	75
Is the distance to the nearest antenatal care facility too far for you to travel due to financial limitations (economic status)?	202 (54%)	100 (27%)	37 (10%)	34 (9%)	3.2	80
Do you lack adequate support from your partner or family (marital status) in attending antenatal care visits?	143 (38%)	150 (40%)	45 (12%)	35 (9%)	3.0	75
Do you feel that healthcare providers do not take your concerns seriously because of your age?	102 (27%)	80 (21%)	91 (24%)	100 (27%)	2.4	60
Are there cultural or traditional beliefs in your community related to your marital status that prevent you from utilizing antenatal care services?	93 (25%)	87 (23%)	78 (21%)	115 (31%)	2.4	60
Do you face challenges in finding reliable transportation to antenatal care services due to your economic status?	167 (45%)	137 (37%)	37 (10%)	32 (9%)	3.1	77
Is it difficult for you to manage antenatal care visits along with taking care of your other children (parity)?	200 (54%)	80 (21%)	50 (13%)	43 (12%)	3.1	77
Average					3.0	74

Mean cut-off= 2.5. Cut-off mark 62.5%

attending antenatal care services. Only a small fraction (6%) disagrees, highlighting that for many women, age plays a crucial role in shaping their willingness to seek care. This is reflected in the high mean score of 3.4. Financial constraints also emerged as a considerable barrier, with 57% of women strongly agreeing that economic challenges prevent them from accessing antenatal services. While 21% strongly disagree, the mean score of 3.0 underscores that financial status is a moderately significant obstacle. Similarly, challenges related to parity, such as having other children or being a first-time mother, affect attendance, with over half (52%) of the women strongly agreeing, and a substantial mean score of 3.2 indicating its importance. Marital status is another notable factor, as 32% of respondents strongly agree that being married makes it difficult to access antenatal care, and 43% agree, resulting in a mean score of 3.0. Distance to healthcare facilities further complicates access, with 54% strongly agreeing that the distance,

compounded by financial limitations, poses a significant barrier, supported by a mean score of 3.2. A lack of support from partners or family also affects attendance, with 38% strongly agreeing and 40% agreeing. The mean score of 3.0 indicates this is a moderately important barrier. In contrast, the perception that healthcare providers do not take concerns seriously due to age was a less significant factor, with a mean score of 2.4, as the responses were more divided. Cultural or traditional beliefs appear to be a lesser hindrance, with only 25% strongly agreeing that these factors prevent access to care, while 31% strongly disagree. The mean score of 2.4 suggests this is not as prominent a barrier. However, transportation challenges were highlighted by 45% of women who strongly agreed that economic status limits their ability to find reliable transportation to attend antenatal care services, giving this factor a mean score of 3.1. Lastly, balancing antenatal visits with the care of other children was identified as a

significant challenge by 54% of women, with a mean score of 3.1, indicating that managing childcare alongside antenatal care is a considerable barrier. The findings reveal that multiple barriers hinder pregnant women from accessing and utilizing antenatal care services. Key barriers include age-related hesitance, financial constraints, parity-related challenges, and distance to healthcare facilities. Additionally, lack of partner or family support and transportation issues also significantly limit access to care. While cultural or traditional beliefs and healthcare providers' responsiveness are less prominent barriers, they still affect a portion of the population. Addressing these barriers, particularly financial and logistical challenges, is essential to improving access to maternal healthcare services in the area. Recent empirical studies further support these findings. Ganle et al. (2019) examined antenatal care barriers in sub-Saharan Africa and found that financial constraints, such as the costs of

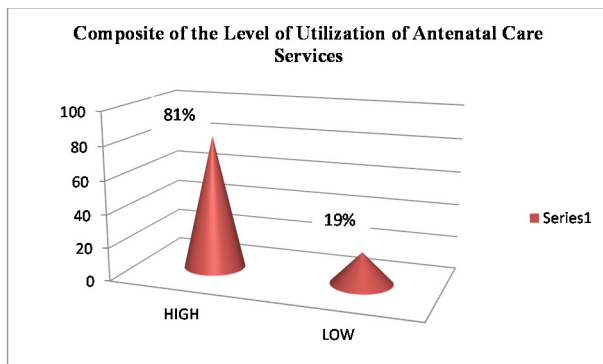


Figure 6: A composite of the level of utilization of antenatal care services

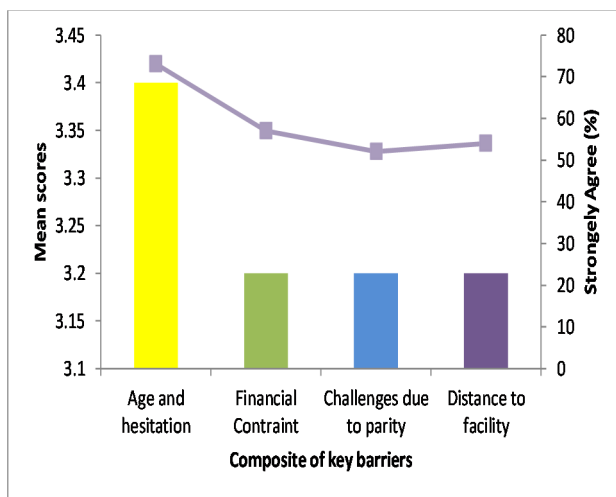


Figure 7: Composite of the bar chart of the key barriers that influence the utilization of antenatal care services.

healthcare and transportation, were major obstacles to regular antenatal care attendance. For many women, particularly those from low-income households, affording routine antenatal visits posed a significant challenge. Additionally, the study highlighted that long distances to healthcare facilities, coupled with inadequate transportation infrastructure, exacerbated these issues, making it difficult for pregnant women to access the necessary care. Moreover, a study by Ahmed et al. (2020) explored factors influencing antenatal care attendance in rural communities and identified age-related hesitation as a common barrier. This was particularly evident among older pregnant women who were less likely to utilize antenatal services due to societal or personal discomfort related to their age. The study also noted that women with other children or first-time mothers faced difficulties in balancing childcare responsibilities with antenatal care visits. Furthermore, a

lack of family or partner support contributed to this challenge, underlining the importance of social support in ensuring consistent antenatal care.

### Conclusion

The study conducted in Esan North East revealed that pregnant women exhibited a commendably high level of awareness regarding antenatal care (ANC) services, with 87.3% acknowledging their availability and 90.6% recognizing the importance of regular visits. Despite this awareness, the study highlighted substantial obstacles faced by these women, including financial constraints affecting 80.4% of respondents, transportation difficulties noted by 75.6%, and a high prevalence of age-related discomfort reported by 98.7%. These barriers emphasized the challenges pregnant women encounter in accessing and utilizing essential maternal health services in the region, indicating a critical need for interventions to alleviate these impediments and improve overall maternal healthcare outcomes.

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