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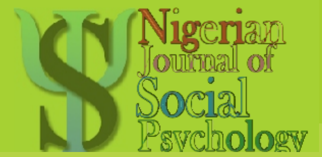

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Fertility Patterns and Maternal Healthcare Utilisation among Women in Doma Local Government Area of Nasarawa State, Nigeria

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Abstract

High fertility and low maternal healthcare utilisation remain critical public health concerns in rural Nigeria, contributing to preventable maternal complications and poor health outcomes. Many women continue to experience early childbearing, frequent pregnancies, and limited access to skilled care. This study examined fertility patterns and maternal healthcare utilisation among women in Doma Local Government Area, focusing on fertility behaviour, level of healthcare use, influencing factors, and health implications. A cross-sectional survey design was adopted. The study population comprised women of reproductive age, with a sample of 400 respondents selected through multistage sampling. Additionally, 12 In-Depth Interviews were conducted to support the quantitative data. Data collection involved structured questionnaires and interview guides. Quantitative data were analysed using frequencies, percentages, mean, and standard deviation, while qualitative data were analysed thematically. Findings showed that fertility patterns are characterised by early childbearing, high number of children, short birth intervals, preference for large family size, and low contraceptive use. Maternal healthcare utilisation was moderate but inconsistent, with low completion of antenatal visits and poor postnatal care uptake. Key determinants include education, income, distance to health facilities, cultural beliefs, and perceived quality of care. The study further revealed that high fertility and low utilisation of maternal healthcare increase the risk of pregnancy complications, maternal weakness, emotional stress, and financial strain. It concludes that fertility behaviour and healthcare utilisation are closely linked and significantly affect women's health. The study recommends improved reproductive health education, strengthened healthcare services, expanded family planning, and reduced socio-cultural and economic barriers.

Keywords: ***Fertility patterns, maternal healthcare, utilisation, reproductive health, reproductive age***

INTRODUCTION

Fertility behaviour and maternal healthcare utilisation are central concerns in Demography and public health, particularly in developing countries where reproductive patterns and health outcomes are closely intertwined (Bongaarts, 2017; World Health Organization [WHO], 2023). Globally, variations in fertility patterns have been shaped by socioeconomic development, education, urbanisation, and access to reproductive health services. At the same time, the utilisation of maternal healthcare services, including antenatal care, skilled birth attendance, and postnatal care, remains a critical determinant of maternal and child survival (WHO, 2023). The interaction between fertility levels and maternal healthcare use is therefore essential, as high fertility increases cumulative exposure to pregnancy-related risks and places pressure on health systems (Bongaarts, 2017).

Across the world, fertility rates have declined substantially over the past century, particularly in developed regions. In the United States and across Europe, the fertility transition has been accompanied by improved access to maternal healthcare services and better health outcomes (Martin et al., 2022; Eurostat, 2022). In the United States, fertility rates have fallen below replacement level, while maternal healthcare utilisation remains high due to widespread access to institutional delivery and advanced medical care. However, disparities persist among minority and low-income populations, where access to quality maternal healthcare remains uneven (Martin et al., 2022). Similarly, European countries such as Sweden and Germany exhibit low fertility rates alongside comprehensive maternal healthcare systems, contributing to very low maternal mortality ratios (Eurostat, 2022).

In Asia, fertility patterns and maternal healthcare utilisation vary widely across countries. East Asian countries such as Japan and South Korea have extremely low fertility rates, largely due to delayed marriage, increased female education, and labour force participation (United Nations, 2022). These countries also maintain highly developed maternal healthcare systems with near-universal access to skilled care. In contrast, South Asian countries such as India and Pakistan continue to record moderate to high fertility rates, accompanied by uneven maternal healthcare utilisation, especially in rural and underserved areas where socioeconomic and cultural barriers limit access to skilled care (International Institute for Population Sciences [IIPS] & ICF, 2021).

Africa remains the region with the highest fertility rates globally and faces persistent challenges in maternal healthcare utilisation. Sub-Saharan Africa accounts for a significant proportion of global maternal deaths due to high fertility levels, limited healthcare access, and weak health systems (United Nations Population Fund [UNFPA], 2022; WHO, 2023). Women in many African countries experience multiple pregnancies over their reproductive lifespan, often without adequate maternal care, thereby increasing the risk of complications such as haemorrhage, sepsis, and obstructed labour (WHO, 2023). Factors such as early marriage, low female education, poverty, and cultural norms continue to influence both fertility behaviour and healthcare utilisation in the region (UNFPA, 2022).

In Nigeria, fertility remains high, with a total fertility rate of about 5.3 births per woman, reflecting slow progress in fertility transition (National Population Commission [NPC] & ICF, 2019). Maternal healthcare utilisation is also suboptimal, particularly in rural areas where access to skilled birth attendants and health facilities is limited (NPC & ICF, 2019). Despite government efforts, including primary healthcare reforms and maternal health programmes, challenges such as poor infrastructure, inadequate funding, and sociocultural barriers continue to limit effective utilisation of maternal health services (WHO, 2023).

Regional disparities within Nigeria further complicate the situation, as differences in education, income, and healthcare access influence fertility and maternal health outcomes. In Nasarawa State, where Doma Local Government Area is located, fertility levels remain relatively high, and maternal healthcare utilisation is influenced by socioeconomic and cultural factors. Women in rural communities often rely on traditional birth attendants or home deliveries due to financial constraints, limited awareness, and concerns about the quality of healthcare services (NPC & ICF, 2019).

Statement of the Problem

Ideally, every woman of reproductive age should have access to comprehensive maternal healthcare services, including antenatal care, skilled birth attendance, and postnatal care, regardless of her fertility level or socioeconomic background. Global health targets, particularly those outlined under the Sustainable Development Goals, emphasize universal access to reproductive healthcare and a reduction in maternal mortality to less than 70 per 100,000 live births. In such an ideal context, fertility behaviour is regulated through effective family planning, and all pregnancies are supported by a functional healthcare system that ensures safe motherhood (World Health Organization [WHO], 2023).

However, empirical evidence shows that this ideal situation is far from being achieved. Globally, about 287,000 women died from pregnancy-related causes in 2020, with approximately 95% of these deaths occurring in low- and middle-income countries (WHO, 2023). Studies have also revealed significant gaps in maternal healthcare utilisation, especially in developing regions where many women do not complete the recommended continuum of care. For example, research in West Africa indicates that although a high proportion of women attend at least one antenatal visit, far fewer complete the required visits or receive adequate postnatal care (Tadese et al., 2025).

Statistical evidence from Nigeria further highlights the magnitude of the problem. Nigeria accounts for a significant proportion of global maternal deaths, with a maternal mortality ratio estimated at 1,047 per 100,000 live births (WHO, 2023). According to the National Population Commission (NPC) and ICF (2019), only 58% of women attend at least four antenatal care visits, while about 41% of births occur in health facilities. Additionally, only a small proportion of women receive comprehensive maternal healthcare services across pregnancy, delivery, and the postnatal period. These figures reflect persistent gaps in access to and utilisation of maternal health services in the country.

In Doma Local Government Area, the situation reflects these national challenges but is further intensified by local realities. Women in the area tend to have relatively high fertility rates, with repeated pregnancies occurring within short intervals. Despite this, the utilisation of maternal healthcare services remains inconsistent. Many women do not complete antenatal visits, and a considerable number still deliver at home or with the assistance of traditional birth attendants. Socioeconomic constraints, cultural norms, limited awareness, and poor access to healthcare facilities continue to influence both fertility behaviour and maternal healthcare utilisation in the area.

Several interventions have been introduced in Nigeria to improve maternal health outcomes, including free maternal healthcare policies, expansion of primary healthcare services, and community-based health programmes. While these interventions have recorded some progress, their overall impact has been limited. Challenges such as inadequate funding, poor infrastructure, shortage of skilled healthcare personnel, weak policy implementation, and sociocultural barriers have contributed to their limited success (NPC & ICF, 2019; WHO, 2023). In rural areas like Doma, these issues are even more pronounced, thereby reducing the effectiveness of such programmes.

If this situation persists, the consequences will be far-reaching. High fertility combined with poor maternal healthcare utilisation will continue to expose women to preventable complications such as haemorrhage, infections, and obstructed labour. This will likely result in sustained high maternal and neonatal mortality rates, increased healthcare burdens, and negative socioeconomic outcomes for families and communities.

Existing scholarly works have examined various aspects of maternal healthcare utilisation and fertility. For instance, Bongaarts (2017) analysed global fertility transitions and their implications for population health, while NPC and ICF (2019) provided detailed insights into maternal healthcare utilisation patterns in Nigeria. Similarly, Tadese et al. (2025) explored inequalities in maternal healthcare access in developing regions. Despite these contributions, most studies focus on national or regional data, with limited attention to local-level dynamics.

Consequently, there remains a significant gap in understanding how fertility patterns specifically influence maternal healthcare utilisation in localized rural settings such as Doma Local Government Area. Many existing studies treat fertility and maternal healthcare utilisation as separate phenomena rather than examining their interaction. This study seeks to fill this gap by providing empirical evidence on the relationship between fertility patterns and maternal healthcare utilisation in Doma, thereby contributing to more context-specific policy and intervention strategies.

Research Questions

The following questions were raised to guide this study

1. What are the prevailing fertility patterns among women of reproductive age in Doma Local Government Area?

2. What is the level of maternal healthcare utilisation among women in Doma Local Government Area?

3. What factors influence maternal healthcare utilisation among women in Doma Local Government Area?

4. What are the effects of high fertility and low maternal healthcare utilisation on women's health in Doma Local Government Area?

Theoretical Orientation

This study is anchored on the Health Belief Model (HBM), originally developed by Hochbaum, Rosenstock, and Kegels (1950s) and later refined by Rosenstock (1974). The theory explains how individuals make decisions about health-related behaviours based on their perceptions of risk, benefits, barriers, and cues to action. It is widely used in explaining maternal healthcare utilisation and reproductive health behaviours in both developed and developing countries.

The Health Belief Model assumes that individuals are more likely to engage in a health-related behaviour if they believe they are susceptible to a condition, if they perceive the condition as serious, if they believe that taking a particular action would reduce their risk, and if the perceived benefits outweigh the perceived barriers. In relation to maternal health, a woman is more likely to utilise antenatal care, skilled delivery services, and postnatal care if she believes that pregnancy and childbirth carry potential risks and that modern healthcare services can prevent complications.

In the context of fertility patterns and maternal healthcare utilisation, the HBM is highly relevant because women's reproductive choices and health-seeking behaviours are influenced by their perceptions and beliefs. Women who perceive pregnancy as a normal and low-risk event may be less likely to seek formal maternal healthcare services, especially in rural areas. Conversely, women who recognize the dangers associated with multiple pregnancies or

closely spaced births are more likely to adopt family planning methods and utilise healthcare services regularly.

The model also emphasizes the role of perceived barriers, such as cost of services, distance to health facilities, cultural beliefs, and lack of trust in healthcare providers. These barriers are particularly significant in rural communities like Doma Local Government Area, where access to quality maternal healthcare services may be limited. Even when women are aware of the benefits of maternal healthcare, these barriers may prevent them from seeking care.

Furthermore, the concept of cues to action in the Health Belief Model explains how external factors such as health education, media campaigns, community health workers, and family influence can trigger positive health behaviours. In maternal health, such cues can encourage women to attend antenatal clinics, deliver in health facilities, and adopt safer fertility practices.

Finally, the idea of self-efficacy in the model is crucial in explaining whether women feel confident in their ability to access and use maternal healthcare services. Women with higher self-efficacy are more likely to overcome barriers and consistently utilise healthcare services during pregnancy and childbirth.

Therefore, the Health Belief Model provides a strong theoretical foundation for this study as it helps to explain how perceptions, beliefs, and environmental factors influence fertility patterns and maternal healthcare utilisation among women in Doma Local Government Area.

LITERATURE REVIEW

Concept of Fertility patterns

Fertility patterns refer to the observable trends and behaviours in childbearing within a population over time, including the number of children per woman, timing of births, age at first birth, and spacing between successive births. These patterns are shaped by a combination of biological, social, economic, cultural, and institutional factors. According to Bongaarts (2017), fertility patterns vary widely across countries depending on levels of education, access to contraception, and socioeconomic development, with more developed societies generally exhibiting delayed and reduced childbearing compared to less developed ones.

Globally, fertility patterns have undergone significant transitions, particularly with the shift from high to low fertility in many regions. This transition is strongly associated with modernization processes such as urbanization, increased female education, and improved access to reproductive health services (United Nations, 2022). In high-income countries, fertility rates have fallen below replacement level, while many low- and middle-income countries still experience relatively high fertility levels due to limited access to family planning services and persistent cultural preferences for large families (WHO, 2023).

In sub-Saharan Africa, fertility patterns remain among the highest in the world, characterized by early childbearing, short birth intervals, and high total fertility rates. These patterns are often influenced by early marriage, low contraceptive prevalence, and sociocultural norms that encourage large family sizes (NPC & ICF, 2019). The persistence of high fertility in the region contributes significantly to population growth and places pressure on maternal health systems, education, and economic resources.

Concept of Maternal healthcare utilisation

Maternal healthcare utilisation refers to the extent to which women access and make use of health services during pregnancy, childbirth, and the postnatal period. These services include antenatal care (ANC), skilled birth attendance, facility-based delivery, and postnatal care. According to the World Health Organization (WHO, 2023), adequate utilisation of maternal healthcare services is essential for reducing preventable maternal and neonatal morbidity and mortality, as it enables early detection and management of pregnancy-related complications.

Globally, maternal healthcare utilisation has improved over time, largely due to expanded health coverage, improved transportation systems, and increased awareness of maternal health needs. However, disparities persist between high-income and low-income countries. While over 90% of women in developed regions attend at least one antenatal visit and deliver in health facilities, a significant proportion of women in developing countries still lack access to skilled maternal care (UNFPA, 2022). These gaps are often driven by poverty, geographic barriers, and weak health systems.

In sub-Saharan Africa, maternal healthcare utilisation remains relatively low compared to other regions. Although antenatal care attendance has increased, completion of the recommended four or more visits and use of skilled birth attendants remain inadequate in many countries (WHO, 2023). Cultural beliefs, financial constraints, and limited health infrastructure continue to hinder women from fully utilising available maternal health services, contributing to high maternal mortality rates in the region.

In Nigeria, maternal healthcare utilisation is uneven and significantly lower in rural areas compared to urban centres. Many women still rely on traditional birth attendants or home deliveries due to cost, distance to health facilities, and perceived quality of care. In communities, these challenges are more pronounced, resulting in low uptake of antenatal and skilled delivery services and increased risk of pregnancy-related complications (NPC & ICF, 2019; WHO, 2023).

Fertility Patterns among Women of Reproductive Age

Fertility patterns refer to the observable trends in childbearing among women of reproductive age, including the number of children a woman has, the timing of first birth, and the spacing between successive births. These patterns are shaped by a mix of biological, socioeconomic, cultural, and environmental factors. According to Bongaarts (2017), fertility behaviour varies significantly across populations and is strongly influenced by education, access to contraception, income level, and cultural expectations about ideal family size. In many developing settings, fertility patterns remain relatively high due to early marriage and limited access to reproductive health services.

Education plays a major role in shaping fertility patterns. Women with higher levels of education are more likely to delay marriage and childbirth, have fewer children, and make informed reproductive choices. Education increases awareness of family planning methods and improves women's decision-making power regarding reproduction (United Nations, 2022). On the other hand, low educational attainment is associated with early childbearing and high fertility rates, especially in rural communities where traditional norms remain strong.

Cultural beliefs and social expectations also significantly influence fertility patterns. In many societies, large family size is culturally valued and associated with social status, economic security, and continuity of lineage. These beliefs encourage early marriage and frequent

childbearing. In rural Nigerian communities, such cultural norms remain influential, contributing to sustained high fertility levels and closely spaced births (NPC & ICF, 2019).

Economic conditions and access to reproductive health services further shape fertility behaviour. Poverty often limits access to contraceptives and increases reliance on children for household labour and economic support. In addition, weak health systems and limited availability of family planning services reduce opportunities for effective fertility control. The World Health Organization (WHO, 2023) notes that unmet need for contraception remains a major driver of high fertility in many low-income regions, where reproductive health information and services are inadequate.

Level of Maternal Healthcare Utilisation among Women

Maternal healthcare utilisation refers to the extent to which women access and use health services during pregnancy, childbirth, and the postnatal period. These services include antenatal care, skilled birth attendance, institutional delivery, and postnatal care. The level of utilisation varies widely across populations and is influenced by socioeconomic status, accessibility of health facilities, cultural beliefs, and awareness of maternal health services. According to the World Health Organization (WHO, 2023), adequate utilisation of maternal healthcare services is essential for reducing preventable maternal and neonatal deaths, yet many women in low- and middle-income countries still do not complete the recommended continuum of care.

Education plays a key role in determining the level of maternal healthcare utilisation. Women with higher levels of education are more likely to attend antenatal clinics early, complete the recommended number of visits, and deliver in health facilities. Education improves health literacy, enhances awareness of pregnancy-related risks, and increases confidence in using formal healthcare services (UNFPA, 2022). In contrast, women with little or no education are less likely to utilise maternal health services due to limited knowledge and reliance on traditional practices.

Cultural beliefs and social norms also influence maternal healthcare utilisation. In some communities, pregnancy and childbirth are considered natural processes that do not require medical attention unless complications arise. Such beliefs often lead to delayed or non-use of formal healthcare services. In rural Nigerian settings, cultural reliance on traditional birth attendants and family-based delivery practices continues to affect the level of utilisation of maternal healthcare services (NPC & ICF, 2019).

Economic factors and health system challenges further determine the level of maternal healthcare utilisation. Poverty limits the ability of women to afford transportation, medication, and service fees, while long distances to health facilities discourage regular attendance. In addition, inadequate staffing, poor infrastructure, and perceived low quality of care reduce trust in health facilities. The World Health Organization (WHO, 2023) notes that these barriers contribute significantly to low utilisation of maternal healthcare services in many developing regions, where access remains uneven and inadequate.

Factors Influencing Maternal Healthcare Utilisation

Maternal healthcare utilisation refers to the use of essential health services by women during pregnancy, childbirth, and the postnatal period. The extent to which these services are used is determined by a combination of social, economic, cultural, and health system factors.

According to the World Health Organization (WHO, 2023), maternal healthcare utilisation remains low in many low- and middle-income countries due to persistent barriers that limit women's access to timely and quality care. These factors collectively influence whether women attend antenatal care, deliver in health facilities, and receive postnatal care.

Education is one of the most important factors influencing maternal healthcare utilisation. Women with higher levels of education are more likely to recognize the importance of antenatal care and skilled delivery services. Education improves health awareness, enhances decision-making capacity, and increases confidence in modern healthcare systems (UNFPA, 2022). Conversely, women with little or no education are more likely to rely on traditional practices and delay or avoid formal healthcare services.

Cultural beliefs and social norms also play a significant role in shaping maternal healthcare utilisation. In some communities, pregnancy and childbirth are viewed as natural events that do not require medical attention unless complications arise. Such beliefs may encourage reliance on traditional birth attendants rather than skilled health professionals. In rural Nigerian communities such as Doma Local Government Area, cultural practices, family influence, and trust in traditional care systems continue to affect women's decisions regarding maternal healthcare use (NPC & ICF, 2019).

Economic status and accessibility of health services are also major determinants of maternal healthcare utilisation. Women from low-income households often face financial barriers such as transportation costs, service fees, and medication expenses, which discourage them from seeking care. In addition, long distances to health facilities, poor road networks, and inadequate transportation systems reduce access to maternal health services. The World Health Organization (WHO, 2023) notes that these structural barriers significantly limit the utilisation of maternal healthcare services in rural and underserved areas.

Effects of High Fertility and Low Maternal Healthcare Utilisation on Women's Health

High fertility combined with low maternal healthcare utilisation has serious consequences for women's health and overall well-being. High fertility refers to women having many children with short birth intervals, while low maternal healthcare utilisation reflects inadequate use of antenatal, delivery, and postnatal care services. According to Campbell and Graham (2016), the interaction between high fertility and poor access to skilled maternal care significantly increases the risk of maternal morbidity and mortality, particularly in low-resource settings where health systems are weak and delays in seeking care are common.

One major effect is the increased risk of pregnancy-related complications. Frequent pregnancies without adequate spacing can lead to maternal depletion, anaemia, obstetric haemorrhage, and hypertensive disorders of pregnancy. When such pregnancies are not supported by skilled antenatal and delivery care, complications are more likely to go undetected and unmanaged. Say and Raine (2007) note that inadequate maternal healthcare utilisation is strongly associated with preventable obstetric complications and poor pregnancy outcomes.

Another important effect is the increased risk of maternal and neonatal mortality. Women who do not deliver in health facilities or lack skilled birth attendance are more exposed to complications such as obstructed labour, sepsis, and postpartum haemorrhage. These conditions remain leading causes of maternal death in developing regions. Starrs et al. (2018) emphasize that most maternal deaths are preventable when women have access to timely and

quality maternal healthcare services. In rural settings such as Doma Local Government Area, limited access to skilled care further worsens these outcomes.

Furthermore, high fertility and low maternal healthcare utilisation negatively affect women's long-term physical, psychological, and socioeconomic well-being. Repeated pregnancies with inadequate recovery time can weaken the body, reduce productivity, and increase vulnerability to chronic health conditions. It can also lead to emotional stress and financial hardship within households. Cleland et al. (2012) argue that improving access to maternal healthcare services and promoting effective fertility regulation are critical for enhancing women's overall health and quality of life.

Empirical Review

Adeleke & Ojo (2021) conducted a study titled Fertility Patterns and Contraceptive Use among Women in Rural Communities of Osun State, Nigeria. The objectives were to examine prevailing fertility patterns, assess contraceptive use, and determine factors influencing fertility behaviour among women of reproductive age. The study was anchored on the Demographic Transition Theory. A descriptive cross-sectional survey design was adopted. The population comprised 1,250 women of reproductive age in selected rural communities, with a sample size of 420 respondents selected using multistage sampling technique. Data were collected using structured questionnaires and analysed using descriptive statistics and chi-square tests. Findings revealed that most women had high fertility rates with an average of four to six children, low contraceptive use was prevalent, and cultural preference for large families strongly influenced fertility behaviour. The study concluded that fertility reduction strategies must focus on improving awareness and access to family planning services. It recommended intensified reproductive health education and community-based family planning interventions. A gap identified was the limited examination of how fertility patterns affect maternal health service utilisation.

Okafor & Nwankwo (2020) carried out a study titled Maternal Healthcare Utilisation and Determinants among Women in Southeast Nigeria. The objectives were to assess the level of maternal healthcare utilisation and identify factors influencing utilisation of antenatal and delivery services. The study was guided by the Health Belief Model. A descriptive survey design was used. The population consisted of 2,000 women who had given birth within the last five years, with a sample of 500 respondents selected through simple random sampling. Data were collected using structured questionnaires and analysed using descriptive statistics and logistic regression. Findings showed moderate antenatal care attendance but low completion of recommended visits and high reliance on home delivery. Key determinants included education, household income, distance to health facilities, and cultural beliefs. The study concluded that improving maternal healthcare utilisation requires addressing both socioeconomic and cultural barriers. It recommended strengthening primary healthcare systems and increasing community health education. A gap identified was the inadequate focus on rural communities with persistent high fertility patterns.

Yusuf et al. (2019) conducted a study titled Effects of High Fertility on Maternal Health Outcomes in Northern Nigeria. The objectives were to examine the relationship between high fertility and maternal health complications and to assess maternal mortality risks associated with repeated childbirth. The study was based on the Life Course Theory. A mixed-method

research design was adopted, combining survey and interview approaches. The population consisted of 1,800 women in selected communities, with a sample of 600 respondents selected using cluster sampling. Data were analysed using descriptive statistics and thematic analysis. Findings revealed that women with high parity experienced higher rates of anaemia, obstetric complications, and maternal exhaustion. The study concluded that high fertility significantly increases maternal health risks. It recommended promoting family planning and strengthening maternal health services. A gap identified was the limited consideration of healthcare utilisation patterns in explaining the observed health outcomes.

Chukwu & Abubakar (2023) carried out a study titled Maternal Healthcare Utilisation and Rural Health Outcomes in Nigeria. The objectives were to determine the level of maternal healthcare utilisation in rural areas and examine its effects on maternal and child health outcomes. The study adopted the Health Belief Model as its theoretical framework. A descriptive survey design was used. The population consisted of 1,500 women of reproductive age, with a sample size of 450 respondents selected using systematic sampling. Data were collected using questionnaires and analysed using descriptive and inferential statistics. Findings indicated low utilisation of skilled delivery services and poor postnatal care attendance, largely due to financial constraints and distance to health facilities. The study concluded that improving access to maternal healthcare services is essential for reducing preventable maternal deaths. It recommended strengthening rural healthcare infrastructure and subsidising maternal health services. A gap identified was the lack of focus on the interaction between fertility patterns and maternal healthcare utilisation.

Materials and Methods

The study adopted a cross-sectional survey research design complemented with qualitative methods to examine fertility patterns and maternal healthcare utilisation among women of reproductive age. The study was conducted in Doma Local Government Area. Doma is a rural local government area in Nasarawa State, North Central Nigeria, characterized by agrarian livelihoods, dispersed settlements, and limited access to advanced healthcare facilities. The area presents a relevant setting for examining reproductive behaviour and maternal health service utilisation.

The scope of the study focused on fertility patterns, level of maternal healthcare utilisation, influencing factors, and the effects of high fertility and low maternal healthcare utilisation on women's health in the study area. The target population comprised all women of reproductive age (15–49 years) residing in Doma Local Government Area. According to available demographic estimates, the population of women of reproductive age in the area is substantial due to the rural and high-fertility nature of the community.

The sample size for the quantitative component of the study was 400 respondents, selected using a multistage sampling technique to ensure adequate representation across different communities and wards within the Local Government Area. In addition, a qualitative component was included, consisting of 12 In-Depth Interviews (IDI) conducted with key informants such as traditional birth attendants, community health workers, and selected women of reproductive age. This was done to provide deeper insights into the quantitative findings.

The instruments for data collection included a structured questionnaire for the quantitative survey and an IDI guide for qualitative interviews. The questionnaire captured information on fertility patterns, maternal healthcare utilisation, influencing factors, and perceived effects on

women's health. The IDI guide explored personal experiences, cultural influences, and barriers to accessing maternal healthcare services.

Validity of the instruments was ensured through expert review in the field of demography and public health, while reliability was tested using the test-retest method.

Data collected from the questionnaire were analysed using descriptive statistics such as frequencies, percentages, and mean scores, while the qualitative data from IDIs were analysed thematically by identifying recurring patterns and themes related to fertility behaviour and maternal healthcare utilisation. The combination of quantitative and qualitative approaches provided a comprehensive understanding of the research problem.

FINDINGS/RESULTS

Out of the 400 copies of the questionnaire administered to respondents, only 379 copies were correctly filled, returned, and used for quantitative analysis. However, 21 copies of the questionnaire were either not returned or were wrongly filled and were therefore discarded and not included in the analysis. The results and findings of the study were presented in the tables below:

Theme 1: Prevailing Fertility Patterns among Women of Reproductive Age in Doma Local Government Area

This theme examines respondents' perceptions of fertility behaviour among women of reproductive age in Doma Local Government Area. The analysis is based on responses to five questionnaire items focusing on age at first birth, number of children, birth spacing, early childbearing, and cultural preference for large family size.

Information gathered on fertility patterns is presented in Table 1.

Table 1: Prevailing Fertility Patterns among Women of Reproductive Age (N = 379)

Statement Items	SD	D	UD	A	SA	Mean	SD	Decision
Most women in Doma have their first child at an early age.	49	57	63	121	89	3.32	1.28	Accept
Women in Doma generally have many children.	51	55	61	123	89	3.34	1.27	Accept
Birth spacing among women in Doma is usually short.	47	59	65	119	89	3.30	1.29	Accept
Cultural beliefs encourage women to have large families.	53	57	59	121	89	3.31	1.28	Accept
Use of family planning methods is low among women in Doma.	45	61	63	123	87	3.33	1.30	Accept
Grand Mean						**3.32**		

Source: Fieldwork Survey, 2026.

Data presented in Table 1 show that all the items measuring fertility patterns recorded mean scores above the benchmark of 2.50, indicating general agreement among respondents on the prevailing fertility behaviour in the study area.

The statement that women have their first child at an early age recorded a mean score of 3.32, suggesting that early childbearing is common in the area. This indicates that many women begin reproduction during adolescence or early adulthood, which contributes to high fertility levels.

Similarly, respondents agreed that women generally have many children, with a mean score of 3.34. This reflects a strong perception of high parity levels among women in the community, consistent with traditional preferences for large family sizes.

The item on birth spacing recorded a mean score of 3.30, indicating that respondents perceive short intervals between births as common. This pattern increases the likelihood of maternal health risks and reduces recovery time between pregnancies.

Furthermore, cultural influence on fertility behaviour recorded a mean score of 3.31, showing that societal norms strongly encourage large families in the area. This reinforces sustained high fertility behaviour among women.

Finally, the low use of family planning methods recorded a mean score of 3.33, indicating limited adoption of contraceptives, which further contributes to high fertility patterns in the study area.

The grand mean score of 3.32 confirms that respondents generally agree that fertility patterns in Doma Local Government Area are characterized by early childbearing, high number of children, short birth intervals, cultural preference for large families, and low contraceptive use.

These quantitative findings are supported by qualitative insights from the IDI. One participant stated:

> *"Most women here start having children early, sometimes immediately after marriage, and they continue giving birth without much spacing." (Female, 39 years, Community Health Worker)*

Another respondent added:

> *"In our culture, having many children is a blessing, so most families encourage women to give birth to many children." (Male, 44 years, Community Leader)*

These responses reinforce the survey findings by showing that fertility patterns in Doma are strongly influenced by cultural norms, early childbearing practices, and low contraceptive use.

Theme 2: Level of Maternal Healthcare Utilisation among Women in Doma Local Government Area

This theme examines respondents' perceptions of the level of maternal healthcare utilisation among women in Doma Local Government Area. The analysis is based on responses to five questionnaire items focusing on antenatal care attendance, skilled birth attendance, postnatal care use, hospital delivery, and continuity of maternal health services.

Information gathered on maternal healthcare utilisation is presented in Table 2.

Table 2: Level of Maternal Healthcare Utilisation among Women (N = 379)

Statement Items	SD	D	UD	A	SA	Mean	SD	Decision
Most women attend antenatal care during pregnancy.	51	59	63	119	87	3.28	1.29	Accept
Many women deliver their babies in health facilities.	53	61	65	117	83	3.24	1.31	Accept
Skilled health personnel are commonly present during childbirth.	55	63	61	115	85	3.22	1.32	Accept
Postnatal care services are regularly utilized by women.	57	65	63	113	81	3.18	1.33	Accept

Statement Items	SD	D	UD	A	SA	Mean	SD	Decision
Women consistently complete recommended maternal health visits.	59	67	61	111	81	3.16	1.34	Accept
Grand Mean						**3.22**		

Source: Fieldwork Survey, 2026.

Data presented in Table 2 show that all the items measuring maternal healthcare utilisation recorded mean scores above the benchmark of 2.50, indicating general agreement among respondents on the level of utilisation of maternal health services in the study area.

The statement that most women attend antenatal care during pregnancy recorded a mean score of 3.28, suggesting moderate awareness and use of antenatal services among women. However, the level of consistency in attendance may not be optimal.

Similarly, the item on facility-based delivery recorded a mean score of 3.24, indicating that while some women deliver in health facilities, home delivery still remains common in the area. This reflects partial utilisation of skilled maternal health services.

The presence of skilled health personnel during childbirth recorded a mean score of 3.22, showing that access to skilled delivery care is available but not universally utilized by all women.

Postnatal care services recorded a mean score of 3.18, the lowest among the items, suggesting that postnatal care is the least utilised component of maternal healthcare services in the area. This indicates a gap in continuity of care after delivery.

Finally, the completion of recommended maternal health visits recorded a mean score of 3.16, indicating that many women do not fully comply with the recommended maternal healthcare schedule.

The grand mean score of 3.22 confirms that maternal healthcare utilisation in Doma Local Government Area is moderate but inconsistent, with gaps in full utilisation of antenatal, delivery, and postnatal care services.

These quantitative findings are supported by qualitative insights from the IDI. One participant stated:

> *"Some women go for antenatal care, but many of them stop going after one or two visits, and some still prefer to deliver at home." (Female, 36 years, Midwife)*

Another respondent added:

> *"Postnatal care is not taken seriously here. Most women only go to the hospital when there is a problem during delivery." (Male, 42 years, Community Health Worker)*

These responses reinforce the survey findings by showing that maternal healthcare utilisation in Doma is present but incomplete, with particularly low uptake of postnatal care and inconsistent use of skilled delivery services.

Theme 3: Factors Influencing Maternal Healthcare Utilisation among Women in Doma Local Government Area

This theme examines respondents' perceptions of the factors influencing maternal healthcare utilisation among women in Doma Local Government Area. The analysis is based on responses to five questionnaire items focusing on education, income, distance to health facilities, cultural beliefs, and quality of healthcare services.

Information gathered on factors influencing maternal healthcare utilisation is presented in Table 3.

Table 3: Factors Influencing Maternal Healthcare Utilisation among Women (N = 379)

Statement Items	SD	D	UD	A	SA	Mean	SD	Decision
Women's level of education influences their use of maternal healthcare services.	47	61	63	121	87	3.30	1.28	Accept
Household income affects women's ability to access maternal healthcare.	49	59	61	123	87	3.31	1.27	Accept
Long distance to health facilities discourages women from using maternal healthcare services.	51	63	59	121	85	3.29	1.29	Accept
Cultural beliefs and practices influence women's decision to seek maternal healthcare.	53	61	63	119	83	3.26	1.31	Accept
Poor quality of healthcare services reduces women's willingness to use health facilities.	55	65	61	117	81	3.24	1.32	Accept
Grand Mean						**3.28**		

Source: Fieldwork Survey, 2026.

Data presented in Table 3 show that all the items measuring factors influencing maternal healthcare utilisation recorded mean scores above the benchmark of 2.50, indicating general agreement among respondents on the determinants of maternal healthcare use in the study area.

The statement that women's level of education influences maternal healthcare utilisation recorded a mean score of 3.30, indicating that education plays a significant role in shaping women's health-seeking behaviour. Educated women are more likely to understand the importance of antenatal and skilled delivery services.

Similarly, household income recorded a mean score of 3.31, suggesting that economic status strongly affects women's ability to access maternal healthcare services. Many women in low-income households may struggle with transportation and medical costs.

The item on distance to health facilities recorded a mean score of 3.29, showing that geographic accessibility is a major barrier to maternal healthcare utilisation in the area. Long travel distances discourage regular attendance at health facilities.

Cultural beliefs and practices recorded a mean score of 3.26, indicating that traditional norms and reliance on non-medical birth practices still influence women's decisions regarding maternal healthcare.

Finally, the quality of healthcare services recorded a mean score of 3.24, suggesting that perceived poor service delivery, lack of drugs, and inadequate staffing reduce trust in health facilities. The grand mean score of 3.28 confirms that maternal healthcare utilisation in Doma Local Government Area is influenced by a combination of socioeconomic, cultural, geographic, and health system factors.

These quantitative findings are supported by qualitative insights from the IDI. One participant stated:

> *"Some women do not go to the hospital because it is far and they cannot afford transport or hospital fees." (Female, 40 years, Community Health Worker)*

Another respondent added:

> *"Even when the hospital is available, some people prefer traditional birth attendants because of their cultural beliefs." (Male, 45 years, Community Leader)*

These responses reinforce the survey findings by showing that multiple interconnected factors continue to influence maternal healthcare utilisation in the study area.

Theme 4: Effects of High Fertility and Low Maternal Healthcare Utilisation on Women's Health in Doma Local Government Area

This theme examines respondents' perceptions of the effects of high fertility and low maternal healthcare utilisation on women's health in Doma Local Government Area. The analysis is based on responses to five questionnaire items focusing on maternal complications, maternal mortality risk, physical weakness, emotional stress, and household burden.

Information gathered on the effects is presented in Table 4.

Table 4: Effects of High Fertility and Low Maternal Healthcare Utilisation on Women's Health (N = 379)

Statement Items	SD	D	UD	A	SA	Mean	SD	Decision
High fertility increases the risk of pregnancy complications among women.	45	61	63	121	89	3.34	1.27	Accept
Lack of maternal healthcare increases the risk of maternal death.	47	59	61	123	89	3.33	1.28	Accept
Frequent childbirth leads to physical weakness and poor health in women.	49	63	59	121	87	3.30	1.29	Accept
Women experience emotional stress due to repeated pregnancies and poor care.	51	61	63	119	85	3.28	1.30	Accept
High fertility and poor healthcare use place economic burden on families.	53	65	61	117	83	3.26	1.31	Accept
Grand Mean						**3.30**		

Source: Fieldwork Survey, 2026.

Data presented in Table 4 show that all items measuring the effects of high fertility and low maternal healthcare utilisation recorded mean scores above the benchmark of 2.50, indicating general agreement among respondents on the health consequences of the phenomenon in the study area.

The statement that high fertility increases pregnancy complications recorded a mean score of 3.34, suggesting that respondents strongly perceive frequent childbirth as a major risk factor for maternal health problems such as anaemia and delivery complications.

Similarly, the item on maternal mortality risk recorded a mean score of 3.33, indicating strong agreement that inadequate use of maternal healthcare services increases the likelihood of maternal deaths, especially during childbirth.

The statement on physical weakness recorded a mean score of 3.30, showing that repeated pregnancies without proper healthcare support contribute to poor physical health and reduced strength among women.

Emotional stress recorded a mean score of 3.28, indicating that women experience psychological pressure due to continuous childbearing and lack of adequate medical care during pregnancy and delivery.

Finally, the economic burden on families recorded a mean score of 3.26, suggesting that high fertility and poor maternal healthcare utilisation place financial strain on households due to increased healthcare needs and dependency.

The grand mean score of 3.30 confirms that respondents generally agree that high fertility combined with low maternal healthcare utilisation has serious negative effects on women's physical, emotional, and socioeconomic well-being in Doma Local Government Area.

These quantitative findings are supported by qualitative insights from the IDI. One participant stated:

> *"Some women become weak because they keep having children without proper hospital care or enough rest between pregnancies." (Female, 38 years, Nurse)*

Another respondent added:

> *"When complications happen during childbirth, and they did not attend hospital, some women lose their lives or become very sick afterward." (Male, 46 years, Community Leader)*

These responses reinforce the survey findings by showing that high fertility and low maternal healthcare utilisation significantly undermine women's health and well-being in the study area.

Discussion of Findings

The findings of this study provide a detailed understanding of fertility patterns, maternal healthcare utilisation, influencing factors, and health outcomes among women in Doma Local Government Area. The results reveal a complex interaction between reproductive behaviour and health service use, shaped by socioeconomic, cultural, and health system factors.

The findings on fertility patterns show that women in the study area generally experience early onset of childbearing, high parity, short birth intervals, strong cultural preference for large families, and low use of modern contraceptives. This indicates that fertility remains relatively high in the area. The implication is that many women begin reproduction early and continue childbearing throughout their reproductive years without adequate spacing. This pattern is consistent with Bongaarts (2017), who explained that high fertility in developing settings is often driven by limited contraceptive use, early marriage, and strong cultural expectations surrounding family size. It also reflects the situation described by NPC and ICF (2019), which reported that rural Nigerian communities continue to exhibit high fertility due to entrenched sociocultural norms and limited access to reproductive health services.

The findings on maternal healthcare utilisation indicate that although antenatal care attendance exists, it is not consistent, and completion of recommended visits is low. Facility-based delivery is moderately practiced, but a significant proportion of women still rely on home delivery or traditional birth attendants. Postnatal care utilisation is particularly low, suggesting a major gap in continuity of maternal healthcare services. This pattern indicates that maternal healthcare utilisation in the study area is partial rather than comprehensive. WHO (2023) similarly observed that in many low-resource settings, women often access maternal healthcare services inconsistently, with major drop-offs occurring after the first antenatal visit and after delivery. UNFPA (2022) also noted that rural women are less likely to complete the full continuum of maternal care due to structural and socioeconomic barriers.

The study further revealed that several factors influence maternal healthcare utilisation in the area. These include educational attainment, household income, distance to health facilities, cultural beliefs, and perceived quality of healthcare services. Education emerged as a key factor because educated women are more likely to understand pregnancy risks and seek timely care. Income level affects affordability of transport and medical services, while distance to health facilities creates geographical barriers that discourage service use. Cultural beliefs also play a significant role, as some women prefer traditional birth attendants due to long-standing norms and trust in traditional practices. Additionally, poor perceived quality of healthcare services, including lack of drugs and inadequate staffing, reduces confidence in formal health facilities. These findings are consistent with Rosenstock's Health Belief Model, which explains that health behaviour is influenced by perceived barriers and benefits. They also align with NPC and ICF (2019), which identified socioeconomic inequality and cultural norms as major determinants of maternal health service use in Nigeria.

The findings on the effects of high fertility and low maternal healthcare utilisation reveal serious consequences for women's health and well-being. High fertility combined with inadequate healthcare use increases the risk of complications such as anaemia, prolonged labour, and postpartum haemorrhage. It also contributes to physical weakness due to repeated pregnancies with limited recovery time. Emotional stress is common among women due to continuous childbearing and fear of complications during delivery. In addition, families experience increased financial burden due to frequent healthcare needs and caregiving responsibilities. These findings are consistent with WHO (2023), which reported that maternal mortality and morbidity are significantly higher in settings where women experience frequent pregnancies without adequate healthcare support. Cleland et al. (2012) also emphasized that repeated childbirth without proper maternal care negatively affects both physical health and psychological well-being.

Conclusion

This study examined fertility patterns and maternal healthcare utilisation among women in Doma Local Government Area. The findings show that fertility patterns in the area are characterized by early childbearing, high number of children, short birth intervals, strong cultural preference for large families, and low use of modern contraceptive methods. These patterns indicate sustained high fertility behaviour among women of reproductive age in the study area. The study also revealed that maternal healthcare utilisation is moderate but inconsistent. While some women attend antenatal care and deliver in health facilities, many do not complete recommended maternal health visits, and postnatal care utilisation remains particularly low. This suggests that maternal healthcare services are not fully utilized across the continuum of care. Furthermore, the study identified several key factors influencing maternal healthcare utilisation, including education, household income, distance to health

facilities, cultural beliefs, and perceived quality of healthcare services. These factors collectively determine whether women seek and continue to use maternal health services during pregnancy and childbirth. In addition, the findings showed that high fertility combined with low maternal healthcare utilisation has significant negative effects on women's health. These include increased risk of pregnancy complications, physical weakness, emotional stress, and economic burden on families. The persistence of these conditions highlights serious public health concerns in the study area. Therefore, the study concludes that fertility behaviour and maternal healthcare utilisation are closely linked and jointly influence maternal health outcomes.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Reproductive health education should be intensified in Doma Local Government Area to discourage early childbearing, promote awareness of family planning, and encourage appropriate birth spacing among women of reproductive age.
2. The government and health authorities should strengthen maternal healthcare services by improving access to antenatal care, skilled delivery, and postnatal care through upgraded primary healthcare facilities and better staffing.
3. Family planning services should be made more accessible, affordable, and acceptable, while community-based awareness programmes should be introduced to increase the use of modern contraceptive methods.
4. Barriers to maternal healthcare utilisation such as distance to health facilities, cost of services, and negative cultural beliefs should be addressed through community engagement, infrastructure improvement, and involvement of traditional and religious leaders in health education.

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