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Research article

FERTILITY LEVELS AND REPRODUCTIVE BEHAVIOURAL PATTERNS IN CENTRAL SENATORIAL DISTRICT, KOGI STATE, NIGERIA

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ABSTRACT

Fertility behaviour remains an important demographic and development concern in Nigeria because of its implications for population growth, maternal health, household welfare, and resource sustainability. This study examined fertility levels and reproductive behavioural patterns among women in Kogi Central Senatorial District, Kogi State, Nigeria. A mixed-method design was adopted, with 400 women selected from Adavi, Ajaokuta, Okehi, Okene, and Ogori/Magongo Local Government Areas through multistage sampling. Data were collected using structured questionnaires and analysed with descriptive statistics, correlation, and multiple regression. Results showed that 53.3% of respondents considered 5–6 children ideal, while 33.6% preferred more than six. Cultural expectations (32.3%) and religious beliefs (28.5%) were reasons for large family size. Condoms (39.4%) and pills (23.8%) were the most commonly used contraceptive methods. Regression results showed that age at first birth, ideal family size, family planning practice, and reproductive decision-making explained 39.9% of variation in fertility preference ($R = 0.632$; $R^2 = 0.399$; $F = 52.41$; $p < 0.001$). Ideal family size was the strongest predictor ($\beta = 0.476$; $p < 0.001$), while family planning significantly reduced fertility preference ($\beta = -0.291$; $p = 0.001$). The study recommends strengthening women's education, reproductive autonomy, male involvement, and culturally responsive fertility intervention programmes.

KEYWORDS

Fertility behaviour; reproductive patterns; family planning; women's empowerment; Kogi Central Senatorial District.

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INTRODUCTION

Fertility remains one of the most important determinants of population growth and socioeconomic development, particularly in sub-Saharan Africa where fertility levels continue to exceed the global average despite sustained declines in many parts of the world. The United Nations projects that while global fertility has declined to approximately 2.2 births per woman, many African countries are still experiencing relatively high fertility rates driven by early marriage, low contraceptive use, cultural preferences for large families, and unequal reproductive decision-making (United Nations, 2025). Similarly, the United Nations Population Fund (UNFPA, 2024) reports that inequalities in access to sexual and reproductive health services continue to limit individuals' ability to make informed reproductive choices, particularly in developing countries where fertility behaviour remains strongly influenced by social and economic factors.

Nigeria continues to experience one of the highest fertility levels globally despite evidence of a gradual fertility transition. The 2024 Nigeria Demographic and Health Survey (NDHS) reported a decline in the national Total Fertility Rate (TFR) from 5.3 births per woman in 2018 to 4.8 births per woman in 2024. However, this level remains substantially above the replacement fertility level of 2.1 children per woman and continues to exert considerable pressure on household welfare, healthcare systems, educational infrastructure, employment opportunities, and environmental resources. The same survey also revealed marked regional and state-level disparities in fertility, suggesting that national averages conceal important local variations that require context-specific investigation.

Kogi State remains among the states with relatively high fertility in Northcentral Nigeria. According to the 2024 NDHS, Kogi State recorded a Total Fertility Rate of 4.9 births per woman, which is higher than both the North Central zonal average of 4.2 and the national average of 4.8. The survey further showed that 7.5% of women aged 15–49 in Kogi State were pregnant at the time of the survey, while women aged 40–49 had given birth to an average of 4.8 children, indicating sustained high lifetime fertility. These statistics suggest that fertility remains persistently high in the state despite ongoing reproductive health interventions and increased awareness of family planning. Fertility behaviour is shaped by socio-cultural values, religion, educational attainment, economic activities, and household power relations. Understanding these behavioural patterns provides insight into the determinants of fertility and the reproductive choices of women and couples in the study area.

Statement of the Problem

Fertility control behaviour has become an important component of sustainable development because it enables individuals and couples to determine the number and spacing of their children while contributing to improved

maternal and child health, poverty reduction, and economic growth. Globally, countries that have experienced fertility decline through increased contraceptive use, delayed marriage, and informed reproductive decision-making have recorded improvements in women's educational attainment, labour force participation, household welfare, and overall quality of life (United Nations, 2024; World Health Organization [WHO], 2025). The World Health Organization (2025) estimates that voluntary family planning prevents hundreds of thousands of maternal and newborn deaths annually by reducing unintended pregnancies, unsafe abortions, and high-risk births. Similarly, the United Nations Population Fund (UNFPA, 2024) emphasizes that empowering individuals to make informed reproductive choices accelerates progress towards several Sustainable Development Goals (SDGs), particularly those relating to health, gender equality, education, and poverty reduction.

The persistence of high fertility in Kogi State is associated with several interrelated reproductive behavioural factors. Previous studies have identified early age at first marriage, early childbearing, low contraceptive uptake, short birth intervals, male dominance in reproductive decision-making, high desired family size, and socio-cultural expectations favouring large families as important determinants of fertility in Nigeria (Babalola et al., 2021; NPC & ICF, 2025). Although awareness of family planning has improved, utilization of modern contraceptive methods remains comparatively low in many rural communities due to concerns about side effects, religious beliefs, partner opposition, limited access to services, and misconceptions regarding contraception (Mercer et al., 2019; NPC & ICF, 2025). These behavioural patterns continue to contribute to high fertility and increased maternal and child health risks.

The situation is particularly important in the Central Senatorial District of Kogi State, where cultural values emphasizing marriage, lineage continuity, agricultural labour, inheritance, and social prestige often encourage larger family sizes. Despite government and development partner investments in reproductive health programmes, there is limited empirical evidence explaining how reproductive behavioural characteristics such as age at first marriage, age at first birth, number of children ever born, desired family size, family planning experience, birth spacing, and household decision-making interact to influence fertility behaviour within this specific senatorial district. Consequently, policy interventions implemented using state or national averages may fail to adequately address the unique demographic and socio-cultural realities of the Central Senatorial District.

Although several studies have examined fertility determinants in Nigeria, many have focused on national populations, geopolitical zones, or selected urban centres, while relatively few have investigated fertility behaviour at the senatorial district level in Kogi State. Furthermore, most previous studies concentrated primarily on socioeconomic determinants such as education, income, occupation, or contraceptive use, with limited attention to the combined influence of reproductive behavioural patterns—including who decides family size, who determines the timing of childbirth, ideal family size, and the reasons underlying preferences for many children—within a single analytical framework (Babalola et al., 2021; Mercer et al., 2019). This study therefore differs from previous studies by providing a localized assessment of fertility levels and reproductive behavioural patterns in the Central Senatorial District of Kogi State using recent demographic evidence. Specifically, it integrates behavioural, cultural, and household decision-making variables to provide a more comprehensive understanding of fertility dynamics in the study area. The findings are expected to generate evidence that will support context-specific reproductive health policies, family planning programmes, and population management strategies aimed at improving maternal and child health while promoting sustainable socioeconomic development.

Objectives of the Study

The specific Objectives are to:

i. examine the timing of family formation and childbearing among households in the Central Senatorial District of Kogi State, Nigeria.
ii. assess fertility levels and family size preferences among households in the Central Senatorial District of Kogi State, Nigeria.
iii. examine family planning practices and birth spacing among households in the Central Senatorial District of Kogi State, Nigeria.
iv. assess reproductive decision-making patterns among households in the Central Senatorial District of Kogi State, Nigeria

Review of Related Literature

Moradeyo, Akinyemi, and Yusuf (2024) explored patterns and determinants of the period between marriage and the first childbirth among Nigerian women using pooled data from the Nigeria Demographic and Health Survey (NDHS). The researchers employed Kaplan–Meier survival estimates alongside multilevel survival analysis to assess the timing of first births following marriage. Their findings indicated that women who entered marriage at younger ages tended to have their first child much sooner than those who married later. The study also identified educational attainment, place of residence, household wealth, and contraceptive use as significant factors associated

with delayed childbearing. Based on these findings, the authors argued that encouraging later marriage and improving access to female education could help reduce early childbearing and moderate fertility levels in Nigeria.

In a related study, Obuna and Uche-Nwidagu (2024) investigated the association between age at marriage and fertility patterns among 352 women attending fertility and antenatal clinics in Abakaliki, Ebonyi State. Using a cross-sectional survey design, the researchers found that women who married before the age of 20 generally recorded higher lifetime fertility than those who entered marriage at older ages. Delayed marriage was also linked to lower parity and increased utilisation of reproductive health services. The study therefore reaffirmed that age at first marriage remains a key determinant of fertility behaviour among Nigerian women.

Drawing on pooled demographic survey data, Akinyemi and colleagues (2024) examined trends and determinants of high fertility among Nigerian women aged 15–29 years. Using multivariate regression analysis, the study revealed that early marriage, limited educational attainment, poverty, and rural residence significantly increased the likelihood of high fertility. The findings further showed that women with lower levels of education consistently had more children and expressed stronger preferences for larger families than women with higher educational qualifications. Consequently, the authors recommended greater investment in female education and economic empowerment as practical measures for reducing high fertility rates.

Similarly, Alawode (2021) investigated fertility patterns among unmarried women in Nigeria using pooled NDHS datasets. Applying count data regression models, the study established that fertility outcomes were significantly influenced by factors such as education, age, household wealth, and place of residence. Although the research focused on non-marital fertility, it demonstrated that socio-economic conditions play a substantial role in shaping fertility behaviour and family size preferences. Women living in rural communities and those with lower educational attainment were found to have higher fertility levels than their urban and better-educated counterparts.

Oyinlola, Kupoluyi, and Adetutu (2024) assessed changes in the unmet need for family planning among married women in Nigeria using data from three rounds of the NDHS and multilevel analytical methods. Their findings showed that, despite modest improvements over the past decade, unmet need for family planning remains widespread. Women residing in rural areas, those with limited education, and individuals from poorer households were significantly less likely to have access to family planning services. The study further observed that inadequate use of contraceptives contributed to shorter birth intervals and higher fertility rates. The authors therefore recommended expanding equitable access to family planning services, particularly in disadvantaged and underserved communities.

Likewise, Olatunji et al. (2024) examined the use of modern contraceptives among Nigerian women using data from the 2018 NDHS and logistic regression analysis. The results indicated that although awareness of family planning methods was relatively high, the actual use of modern contraceptives remained low. Higher educational attainment, greater exposure to mass media, urban residence, and improved household wealth were all associated with increased contraceptive use. In contrast, cultural beliefs, concerns about possible side effects, and opposition from partners discouraged uptake. The researchers concluded that improving the utilisation of modern contraceptives would promote better birth spacing and contribute to lower fertility levels.

The 2024 Nigeria Demographic and Health Survey reported that reproductive decision-making in Nigeria continues to be strongly shaped by household gender relations. According to the survey, many women, particularly those living in rural communities, still have limited influence over decisions concerning contraceptive use, preferred family size, and the timing of childbirth. In contrast, women with higher educational attainment and greater economic independence were more likely to participate jointly with their spouses in reproductive decisions. This increased involvement was associated with lower fertility and greater use of contraceptive methods.

Supporting these findings, Moradeyo et al. (2024) demonstrated that household decision-making plays a significant role in shaping fertility behaviour. Their study found that women who actively participated in decisions relating to childbearing and contraceptive use were more likely to postpone their first birth, maintain longer intervals between births, and achieve their desired family size than women whose reproductive choices were largely determined by their spouses or extended family members. The authors concluded that strengthening women's autonomy and promoting joint decision-making between spouses are essential strategies for achieving sustainable fertility decline in Nigeria.

MATERIALS AND METHODS

Study Area

Kogi Central Senatorial District consists of five Local Government Areas: Adavi, Ajaokuta, Okehi, Okene, and Ogori/Magongo in Kogi State, Nigeria. It is situated between approximately Latitude 7°20′N and 7°44′N and Longitude 6°00′E and 6°48′E (Joe, 2024). The district is bordered by Lokoja and Obajana to the north, the River Niger to the east, Kabba to the west, and Auchi in Edo State to the south. Covering about 3,860 km², it is one of the largest administrative and socio-economic zones in Kogi State (Kogi State Bureau for Lands and Urban Development, 2021).

The 2006 National Population and Housing Census recorded a population of 928,655 in Kogi Central Senatorial District (National Population Commission [NPC], 2010). Using Nigeria's annual population growth rate of 2.7%, the district's population is projected to reach about 1.54 million by 2025, with females estimated at 760,539 (49.4%). As this study focuses on women, this female population forms the target population.

The district is predominantly inhabited by the Ebira ethnic group, while the Ogori and Magongo communities are notable minorities. Smaller populations of Igala and Bassa are concentrated mainly in Ajaokuta. Agriculture, petty trading, civil service, artisanal work, and small-scale enterprises provide the main sources of livelihood, with farming remaining central to household income and food security (NPC, 2010; National Bureau of Statistics [NBS], 2022). The area is also known for cultural festivals such as the Ekuechi Festival among the Ebira and the Ovia Osese Festival among the Ogori, which strengthen cultural identity and traditional values (Ododo, 2001). Although women's educational attainment and economic participation have improved, household and reproductive decisions remain largely influenced by patriarchal norms, making the district suitable for studying fertility behaviour and reproductive decision-making (Avosuahi, 2024; NPC & ICF, 2024).

Kogi Central's economy is largely sustained by agriculture, commerce, and public services. Most rural households cultivate crops such as yam, cassava, maize, rice, and vegetables, while also engaging in livestock production. Women contribute significantly through food processing, tailoring, weaving, hairdressing, and the marketing of agricultural produce (NBS, 2022; National Population Commission [NPC] & ICF, 2024). Employment and income are further supported by government agencies, educational institutions, and commercial activities. The district is also home to two major industrial establishments the Ajaokuta Steel Company Limited (ASCL) and the National Iron Ore Mining Company (NIOMCO), Itakpe. Although both industries have experienced prolonged operational challenges, recent revitalization initiatives are expected to enhance industrial growth, create employment opportunities, and strengthen the region's economy (Ibrahim et al., 2022; Obianagwa et al., 2024; Ajake et al., 2023; Eneyo, 2025, 2026a, 2026b).

Fertility levels in Kogi Central Senatorial District remain relatively high, reflecting the strong cultural value attached to childbearing and family expansion. The reproductive behaviour of women is influenced by factors such as age at marriage, education, access to family planning services, household economic conditions, and gender norms. Although awareness of contraceptive methods has improved, use remains affected by social and accessibility barriers, contributing to continued high fertility, short birth intervals, and large family sizes in some communities (NPC & ICF, 2025). These factors make Kogi Central an important setting for examining fertility behaviour and reproductive decision-making among women.

Methods

Data collection for this study was carried out among adult women residing in the five Local Government Areas (LGAs) that constitute Kogi Central Senatorial District, namely Adavi, Ajaokuta, Okehi, Okene, and Ogori/Magongo. Although fertility studies often focus on women within the reproductive age group of 15–49 years, this study adopted a wider inclusion criterion by involving all adult women because the research examines both fertility behaviour and women's empowerment. Women beyond reproductive age were considered relevant because they provided information on completed fertility histories, household decision-making, economic participation, and empowerment experiences. The accessible population was therefore drawn from the projected female population of approximately 560,000 women in the district.

The sample size was determined using Yamane's (1967) formula for finite populations at a 5% level of precision, which produced a sample size of approximately 400 respondents. A multistage sampling procedure was adopted to ensure adequate representation of the different communities and administrative units within the study area. In the first stage, 50% of the 56 political wards in Kogi Central Senatorial District were selected. Six wards each were selected from Adavi, Okehi, and Okene LGAs, while five and three wards were selected from Ajaokuta and Ogori/Magongo LGAs, respectively. In the second stage, 40% of the selected wards were randomly chosen, resulting in 11 wards. Subsequently, 14 communities were purposively selected based on population size, settlement characteristics, and their relevance to the objectives of the study. In each selected community, respondents were chosen through systematic sampling. The sampling interval was obtained by dividing the estimated number of eligible adult women in each community by the allocated sample size, after which a random starting point was selected and every 9th eligible woman was interviewed until the required 400 respondents were reached.

Three instruments were used for data collection. The first was a structured questionnaire, which served as the major instrument for collecting quantitative data on respondents' socio-demographic characteristics, fertility indicators, reproductive behaviour, family planning practices, household decision-making, and measures of women's empowerment. The second instrument was a focus group discussion (FGD) guide, which was used to obtain qualitative information on cultural beliefs, traditional practices, gender norms, and social factors influencing fertility behaviour and women's empowerment. The third instrument was an in-depth interview (IDI) guide, which was administered to selected community leaders, women representatives, and other relevant stakeholders to obtain detailed explanations of institutional, cultural, and social factors shaping reproductive behaviour in the district. The

use of mixed data collection approaches enhanced the depth and reliability of findings by combining measurable demographic indicators with contextual explanations of reproductive experiences (Creswell & Creswell, 2023).

Before the commencement of fieldwork, ethical approval and permission to conduct the study were obtained from the relevant authorities. Respondents were informed about the purpose of the study, the voluntary nature of participation, and their right to decline participation or withdraw at any stage without penalty. Verbal and written informed consent were obtained before administering questionnaires or conducting interviews. Confidentiality and anonymity were maintained by excluding personal identifiers from the research instruments and ensuring that collected information was used strictly for academic purposes. These ethical procedures followed established guidelines for research involving human participants (World Medical Association [WMA], 2013).

To ensure data quality, research assistants familiar with the local language and socio-cultural context of Kogi Central were trained on the objectives of the study, administration of instruments, ethical procedures, and interviewing techniques before data collection. The questionnaire was pre-tested in a community outside the selected study locations to identify ambiguous questions and improve clarity. Feedback from the pre-test was used to modify the final instruments before the main survey was conducted. A semi-structured interview guide was developed based on the study objectives. Interviews were conducted face-to-face, with informed consent obtained before participation and audio recording. The interviews were transcribed verbatim and translated where necessary while maintaining the original meaning of responses. The qualitative data were analysed through thematic coding. Emerging themes related to fertility patterns, and reproductive decision-making were identified and compared with survey findings. The quotations presented in the findings section were selected from recurring themes identified during the interview analysis and were used to complement and explain the quantitative results.

Responses from the questionnaire were analysed using both descriptive and inferential statistical techniques with the aid of the Statistical Package for the Social Sciences (SPSS) Version 25.0. Prior to analysis, the data were coded, cleaned, and entered into the software to ensure accuracy and consistency. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were employed to summarise respondents' demographic and socio-economic characteristics fertility behaviour, and the determinants of fertility levels. The results were presented using tables and charts to facilitate clear interpretation and discussion of the findings. Inferential statistical techniques were employed to test significant relationships at $p < 0.05$. Chi-square (χ^2) test of independence was used to examined the relationship between women's educational attainment and childbirth spacing. One-Way Analysis of Variance (ANOVA) to investigate differences in the mean childbirth spacing among women residing in rural, peri-urban, and urban settlements.

To examine the factors influencing fertility levels in the study area, a multiple regression analysis was conducted. Fertility level was conceptualized as a function of timing of family formation and childbearing, family size preferences, family planning practices, and reproductive decision-making. The dependent variable was measured using respondents' reasons for having many children, while the explanatory variables included age at first birth, ideal family size, family planning practice, and decision-making pattern regarding number of children. The regression model is expressed as:

$$F = \beta_0 + \beta_1(\text{Age at First Birth}) + \beta_2(\text{Ideal Family Size}) + \beta_3(\text{Family Planning Practice}) + \beta_4(\text{Reproductive Decision-Making}) + e$$

Where:
F = Fertility preference level
β_0 = Constant
β_1–β_4 = Regression coefficients
e = Error term

The choice of these statistical techniques was based on the nature of the variables and the operationalization of each objectives, ensuring appropriate and reliable statistical inference.

RESULTS AND DISCUSSIONS

Timing of Family Formation and Childbearing

The findings in Table 1 revealed that most respondents entered their first marriage during their twenties, with 35.6% marrying between 25–29 years and 28.0% between 20–24 years. However, 18.7% reported marrying between 15–19 years, indicating that early marriage remains relatively common in the study area. The Focus Group Discussions (FGDs) corroborated these findings, with participants noting that although many women now marry after completing secondary or tertiary education, early marriage persists in some communities due to cultural norms, poverty, and limited educational opportunities. FGD participants stated, "Many girls now marry later because they want to finish school, but some still marry before 20 because of family tradition and financial challenges.".

Similarly, the In-Depth Interview (IDI) findings indicated that education and household economic conditions largely determine the timing of first marriage. A key informant observed, "Girls who stay in school tend to marry later, while those from poorer families often marry earlier."

Table 1: Age at First Marriage

Age at First Marriage	Frequency	Percentage (%)
15–19 years	74	18.7
20–24 years	111	28.0
25–29 years	141	35.6
30 years and above	70	17.7
Total	396	100.0

Sources: Author's field investigation, 2025

Age at First Birth of Respondent

The age at first birth among respondents in Table 2 shows that childbearing generally begins during early adulthood. A substantial majority (71.2%) had their first child between the ages of 25 and 34 years, while 24.5% had their first birth between 15 and 24 years. Only 3.5% had their first birth before age 15, and less than 1% had their first birth between 35 and 44 years. No respondent reported having a first birth between 45 and 49 years or above 50 years. This finding indicates a relatively delayed onset of childbearing compared with traditional fertility patterns in many rural Nigerian communities. It is consistent with findings by Moradeyo, Akinyemi, and Yusuf (2024) that found Nigerian women are increasingly delaying their first birth due to later marriage and prolonged educational participation. Likewise, United Nations Population Fund (UNFPA, 2023) reported that improvements in girls' education and women's empowerment are contributing to delayed childbearing in many low- and middle-income countries. The finding was corroborated by IDI participants, who attributed the delay in first birth to women's increasing pursuit of education before marriage and childbearing.

Table 2: Age at First Birth

Age at First Birth	Frequency	Percentage (%)
Less than 15 years	14	3.5
15–24 years	97	24.5
25–34 years	282	71.2
35–44 years	3	0.8
45–49 years	0	0.0
50 years and above	0	0.0
Total	396	100.0

Source: Author's Field Survey, 2025

Family Size Preferences and Desired Fertility

The results in figure 1 indicate relatively high fertility in the study area, with most women having six to seven children (42.4%) and a substantial proportion having four to five children (21.0%). This is consistent with evidence that fertility remains high across much of Sub-Saharan Africa because of early marriage, persistent preferences for large families, and relatively low contraceptive use (Bongaarts, 2020). Similarly, analyses of Demographic and Health Survey data show that Nigeria continues to record comparatively high fertility, particularly in rural areas where high parity is reinforced by socio-cultural norms, lower educational attainment, and limited access to reproductive health services (National Population Commission [NPC] & ICF, 2025). However, this contrasts with studies conducted in urban Nigeria, where fertility has declined alongside improvements in female education, delayed marriage, and greater use of family planning services (Solanke, 2015). These differences suggest that Nigeria's fertility transition remains uneven and is strongly influenced by socio-economic and geographical inequalities.

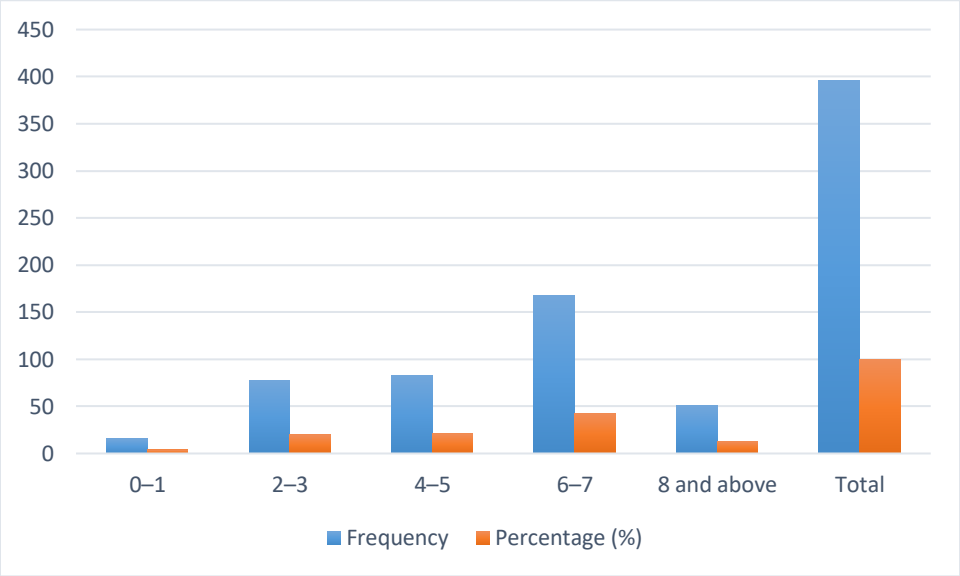

Figure 1: Number of Children Ever Born
Sources: author's fieldwork, 2025

A one-way ANOVA was conducted to compare fertility levels across settlement types. Results indicated a statistically significant difference in mean fertility levels among the three settlement categories, $F(2, 393) = 24.83$, $p < .001$, $\eta^2 = .11$. Post hoc comparisons using Tukey's HSD revealed that women in rural settlements had significantly higher fertility levels than women in peri-urban settlements, while women in peri-urban settlements also had significantly higher fertility levels than women in urban settlements. Therefore, the null hypothesis was rejected. The distribution of living children among respondents closely mirrors the number of children ever born. The largest proportion of respondents (40.2%) had between six and seven living children, while 23.0% had four to five children. About 21.2% had two to three living children, and 10.4% had eight or more living children. Only 5.3% had one child or none. The result implies relatively low child mortality among respondents' households and reinforces the existence of large family sizes in the study area. This finding was corroborated by participants in the FGDs and IDIs, who attributed the high number of surviving children to improved healthcare and medical services. As one FGD participant in Jerwegu noted, "Unlike in the past, hospitals now treat childhood illnesses early, so most of our children survive." Similarly, an IDI participant in Upogoro remarked, "Medical treatment has improved, and vaccines have reduced child deaths, allowing more children to grow into adulthood.

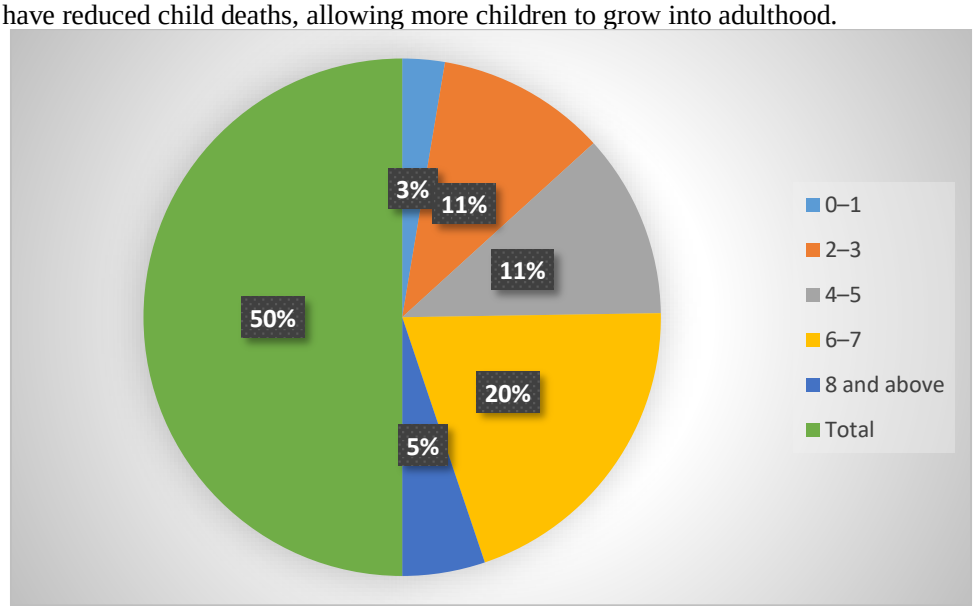

Fig .2: Number of Living Children
Source: Author's Field Survey, 2025

Desired Number of Children

The findings reveal a strong preference for large families, with almost half of the respondents (48.7%) desiring five to six children and a further 20.2% preferring more than six. This is consistent with evidence that ideal family size remains relatively high across much of Sub-Saharan Africa, where cultural norms, economic considerations,

and limited contraceptive use continue to sustain high fertility preferences (Bongaarts, 2020). Similarly, the Nigeria Demographic and Health Survey shows that fertility preferences are generally higher among rural, less educated, and poorer women than among their urban and more educated counterparts (National Population Commission [NPC] & ICF, 2025). However, this contrasts with findings from low- and middle-income countries where improvements in female education, urbanization, and access to family planning have contributed to declining desired family size (Cleland et al., 2020). The differences suggest that fertility preferences remain strongly shaped by socio-economic and cultural contexts. FGD and IDI participants, however, noted that the rising cost of living, especially the cost of raising children, is gradually reducing the number of children women desire. As one FGD participant stated in Okene, "Life is now expensive, so many women prefer fewer children."

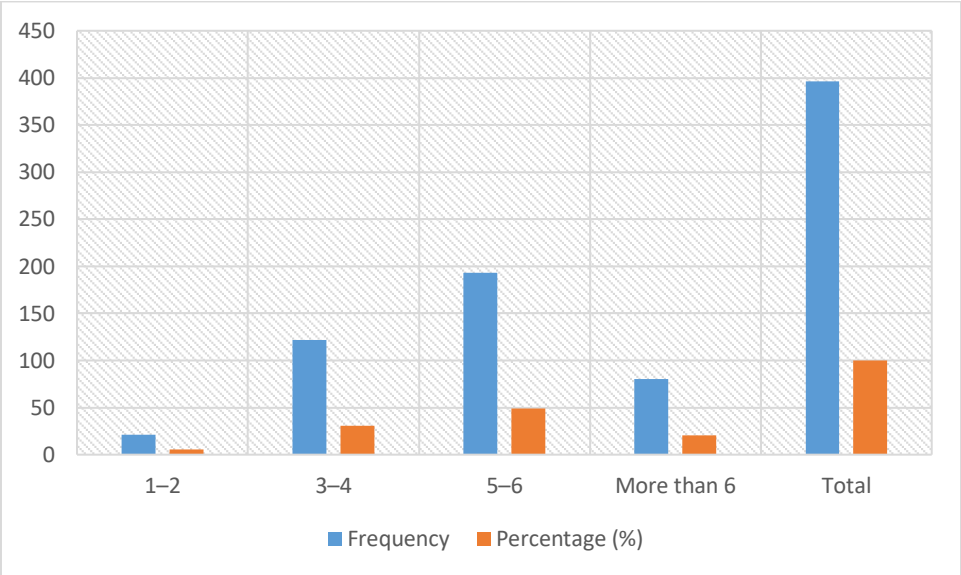

Fig: 3: Desired Number of Children
Source: Author's field Investigation

Ideal Family Size

The results in Table 3 reveal that the majority of respondents (53.3%) considered five to six children as the ideal family size. Respondents who preferred more than six children accounted for 33.6%, while only 11.1% preferred three to four children and 2.0% preferred one to two children. The findings reinforce the persistence of pronatalist attitudes and preference for large family sizes in the study area. This finding is consistent with the Nigeria Demographic and Health Survey (NPC & ICF, 2023), which reported that ideal family size remains relatively high among Nigerian women, especially in rural and less educated populations. It also agrees with Bongaarts (2020), who found that cultural norms and economic factors continue to sustain high fertility preferences across Sub-Saharan Africa. Similarly, Shapiro and Hinde (2023) observed that although fertility preferences are declining in Africa, the desire for relatively large families remains prevalent in many settings.

Table 3: Ideal Family Size

Ideal Family Size	Frequency	Percentage (%)
1–2 children	8	2.0
3–4 children	44	11.1
5–6 children	211	53.3
More than 6 children	133	33.6
Total	396	100.0

Source: Author's Field Survey, 2025

Family Planning Practices and Child Spacing

The results in Table 4 indicate that most respondents practiced moderate child spacing. A majority (76.0%) reported birth intervals of two to three years, while 16.2% had intervals of less than two years and 7.8% had intervals exceeding three years. This suggests a relatively favourable child spacing pattern that may improve maternal and child health. The finding agrees with Wegbom et al. (2022) which reported that birth intervals of about two to three years are increasingly common among Nigerian women. It also aligns with the World Health Organization (2023) recommendation of a minimum 24-month interval between births. However, it contrasts with Yaya et al. (2020),

who found that short birth intervals remain prevalent in parts of Sub-Saharan Africa due to limited access to family planning. The qualitative findings support the result. A FGD stated, *"Health workers now encourage women to wait two or three years before another pregnancy."* Similarly, an IDI participant in Obangede observed that *"More women now practice child spacing because they understand its health benefits."*

Table 4: Average Birth Interval between Children

Birth Interval	Frequency	Percentage (%)
Less than 2 years	64	16.2
2–3 years	301	76.0
More than 3 years	31	7.8
Total	396	100.0

Source: Author's Field Survey, 2025

A chi-square test of independence was conducted to examine the association between women's educational attainment and childbirth spacing among 396 respondents. The analysis indicated a statistically significant association between educational attainment and childbirth spacing, $\chi^2(10, N = 396) = 31.48$, $p = .001$, Cramer's V = .20. Women with higher educational attainment were more likely to report childbirth intervals exceeding three years, whereas women with lower educational attainment were more likely to report shorter birth intervals. Therefore, the null hypothesis was rejected. The findings reveal a relatively high level of family planning utilization among respondents. A substantial majority (76.8%) indicated that they had used family planning methods, while only 23.2% had never used any method. The result suggests increasing awareness and acceptance of fertility regulation among women in the study area.

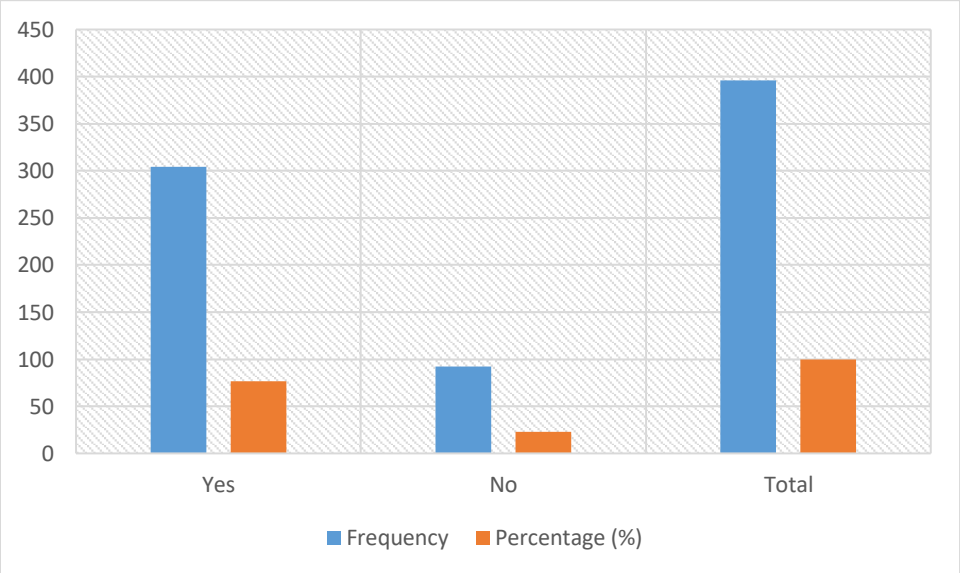

Fig.: 4. Ever Used Family Planning

Source: Author's Field Survey, 2025

A one-way analysis of variance (ANOVA) was conducted to compare mean childbirth spacing across rural, peri-urban, and urban settlements. The analysis revealed a statistically significant difference in mean childbirth spacing, $F(2, 393) = 18.76$, $p < .001$, $\eta^2 = .09$. Tukey's HSD post hoc test showed that women in urban settlements had significantly longer childbirth intervals than women in peri-urban settlements, who in turn had significantly longer intervals than women in rural settlements. Accordingly, the null hypothesis was rejected.

Among the respondents who had used family planning methods in Table 5, condoms were the most commonly used method (39.4%), followed by pills (23.8%) and natural methods (17.5%). Injectable methods accounted for 8.3%, while IUDs and implants constituted 4.3% and 3.0%, respectively. Other methods represented 3.6%. The predominance of condoms and pills agrees with the Nigeria Demographic and Health Survey (NPC & ICF, 2025), which reported that short-acting contraceptive methods remain the most widely used among Nigerian women because of their accessibility and ease of use. Similarly, Performance Monitoring for Action (PMA) Nigeria (2023) found that condoms and oral pills were more commonly adopted than long-acting reversible contraceptives among women of reproductive age. However, the finding contrasts with Jacobstein and Stanley (2022), who reported increasing uptake of implants and IUDs in several Sub-Saharan African countries following expanded family

planning programmes and improved access to long-acting contraceptive services. These differences suggest that while awareness of contraception is increasing, preferences in the study area remain largely skewed towards short-acting methods.

Table 5: Family Planning Method Used

Method	Frequency	Percentage (%)
Pills	72	23.8
Condom	119	39.4
Injectable	25	8.3
IUD	13	4.3
Implant	9	3.0
Natural Methods	53	17.5
Others	11	3.6
Total	302	100.0

Source: Author's Field Survey, 2025

Reproductive Decision-Making

The majority of respondents (64.9%) reported that decisions regarding the number of children are made jointly by spouses. About 19.2% indicated that the husband solely determines family size, while 8.1% reported personal autonomy in making such decisions, and another 8.1% attributed the decision to other family members. This suggests that reproductive decision-making is predominantly collaborative within households. The finding is consistent with Asaolu et al. (2023), who found that joint spousal decision-making was positively associated with contraceptive use and reproductive health outcomes among married women in Sub-Saharan Africa. However, the finding contrasts with Ahinkorah et al. (2021), who observed that in many parts of Sub-Saharan Africa, reproductive decisions remain largely male-dominated due to prevailing patriarchal norms and gender inequalities.

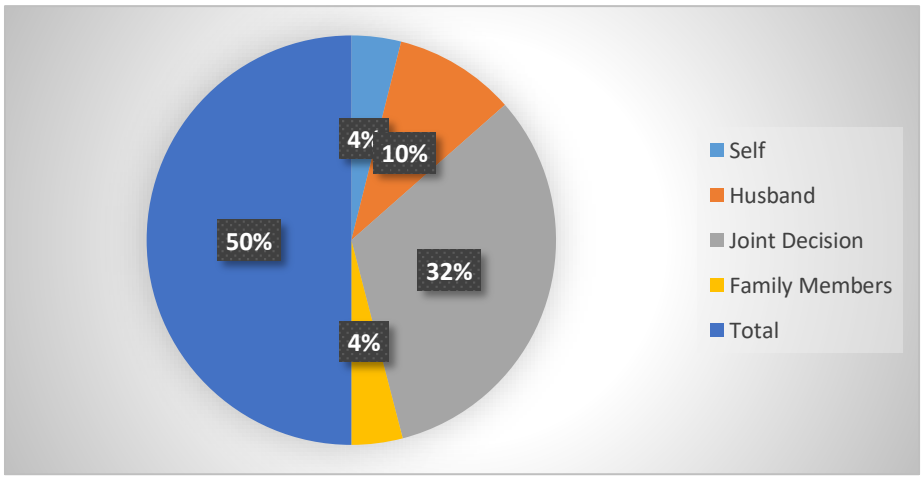

Fig. 5: Decision on Number of Children

Source: Arthurs field Survey

The findings indicate that decisions on the timing of childbirth are also largely made jointly. More than half of the respondents (58.6%) reported joint decision-making with their spouses. About 23.2% indicated that the husband solely decides, while 9.1% each reported self-decision and family influence. The results imply that women have a moderate level of reproductive autonomy, although male dominance still exists in some households.

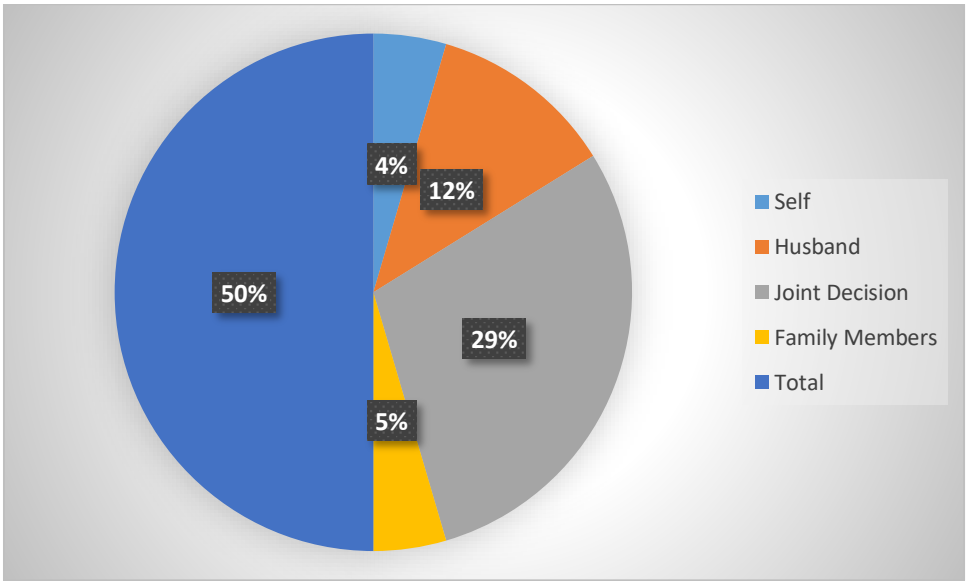

Fig. 6: Decision on Timing of Child
Source: Arthurs field Survey

Reason for Having Many Children

The findings indicate that cultural expectations constitute the most important reason for having many children (32.3%), followed by religious beliefs (28.5%), economic reasons (17.2%), old-age security (11.6%), and husbands' preference (10.4%). These findings are consistent with Bongaarts (2020), who observed that cultural norms and religious values remain key drivers of high fertility preferences in Sub-Saharan Africa. Similarly, Kodzi, Johnson, and Casterline (2021) reported that the desire for large families in many African societies is sustained by cultural expectations, economic benefits of children, and the perception of children as a source of support in old age. However, Shapiro and Hinde (2023) found that increasing female education, urbanisation, and improved access to family planning are gradually reducing the influence of these traditional pronatalist factors in many African countries. The qualitative findings corroborated the survey results. FGD participants remarked, *"In our culture, having many children is a sign of honour and family strength."* Similarly, an IDI participant stated, *"Many couples still want more children because of tradition, religion, and the belief that children will care for them in old age."*

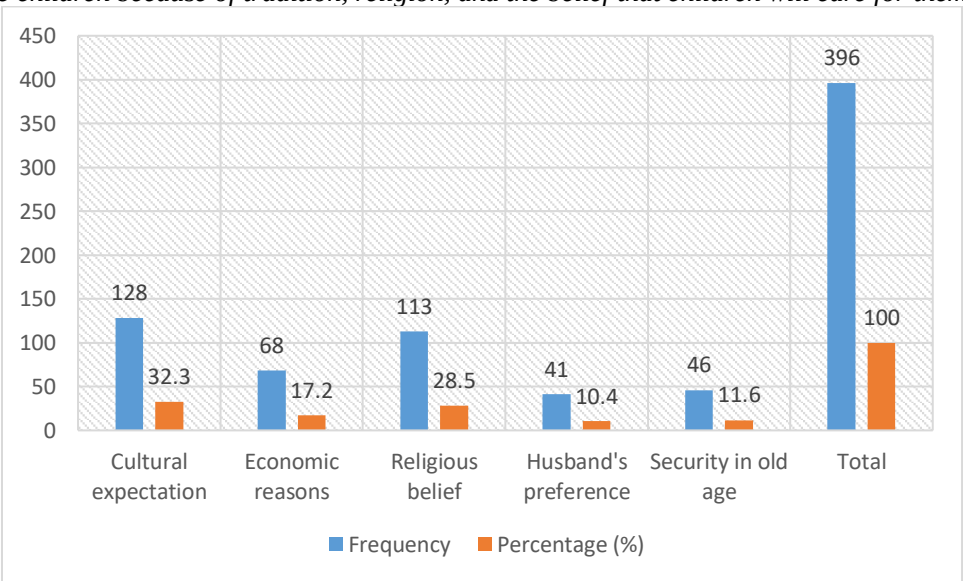

Fig. 7: Reason for Having Many Children
Source: Author's Field Survey, 2025

The regression result indicates that the selected reproductive behavioural variables significantly explain variations in fertility preferences among women in Kogi Central Senatorial District. The model produced an R^2 value of 0.399, implying that approximately 39.9% of the variation in fertility preference is explained by age at first birth, ideal family size, family planning practices, and reproductive decision-making, while the remaining variation is attributed to other socioeconomic, cultural, and demographic factors.

Table 6: Model Summary Statistic

Model Statistic	Value
R	0.632
R^2	0.399
Adjusted R^2	0.392
F-value	52.41
Significance Level (p-value)	0.000

Source: Author's Field Data Analysis, 2025.

The regression result indicates that the selected reproductive behavioural variables significantly explain variations in fertility preferences among women in Kogi Central Senatorial District. The model produced an R^2 value of 0.399, implying that approximately 39.9% of the variation in fertility preference is explained by age at first birth, ideal family size, family planning practices, and reproductive decision-making, while the remaining variation is attributed to other socioeconomic, cultural, and demographic factors.

Table 7: Multiple Regression Analysis of Determinants of Fertility Preference

Predictor Variables	Beta Coefficient (β)	Standard Error	t-value	p-value	Decision
Constant	1.246	0.214	5.82	0.000	Significant
Age at First Birth	0.218	0.062	3.52	0.001	Significant
Ideal Family Size	0.476	0.071	6.70	0.000	Significant
Family Planning Practice	-0.291	0.084	-3.46	0.001	Significant
Reproductive Decision-Making	-0.174	0.073	-2.38	0.018	Significant

Source: Author's Field Data Analysis, 2025.

Among the predictors, ideal family size recorded the strongest positive influence on fertility preference ($\beta = 0.476$, $p < 0.001$). This indicates that women who desired larger families were more likely to report reasons supporting having many children. This finding corresponds with the descriptive results, where 53.3% of respondents considered 5–6 children as the ideal family size, while another 33.6% preferred more than six children. The result suggests that fertility behaviour in the study area remains strongly influenced by cultural expectations and social preferences for large families, as cultural expectations (32.3%) and religious beliefs (28.5%) were the most frequently reported reasons for having many children.

Age at first birth also showed a significant positive relationship with fertility preference ($\beta = 0.218$, $p = 0.001$). This implies that the timing of entry into motherhood contributes to fertility outcomes. Although most respondents (71.2%) reported first birth between ages 25–34 years, women who experience earlier childbearing may have longer reproductive periods and greater likelihood of achieving higher parity. Early childbearing has been consistently identified as an important contributor to high fertility in many developing societies.

Family planning practice showed a significant negative relationship with fertility preference ($\beta = -0.291$, $p = 0.001$). This means that increased use of family planning methods is associated with reduced preference for many children. The finding is supported by the contraceptive pattern of respondents, where condom use (39.4%) and pills (23.8%) were the most common methods, while long-term methods such as implants (3.0%) and IUDs (4.3%) remained limited. This suggests that although awareness and use of contraception exist, stronger adoption of effective and long-term methods may contribute to further fertility reduction.

Reproductive decision-making also had a significant negative effect on fertility preference ($\beta = -0.174$, $p = 0.018$). Respondents who reported joint decision-making with their spouses were less likely to express strong preferences for many children compared with women whose reproductive decisions were controlled mainly by husbands or extended family members. The finding highlights the importance of women's participation in fertility decisions and household bargaining power. The findings are consistent with studies from other developing countries. In Ethiopia, Gebremedhin et al. (2023) found that fertility levels were strongly associated with desired family size, contraceptive use, and women's participation in reproductive decisions. Women with greater autonomy and access to family planning services were more likely to have fewer children and longer birth intervals. Similarly, research from Bangladesh by Rahman et al. (2022) demonstrated that female education, contraceptive use, and joint household decision-making significantly reduced fertility preferences. In Kenya, Wekesa et al. (2021) reported that cultural expectations and economic considerations remained major drivers of large family preferences despite increased contraceptive awareness.

However, the persistence of high fertility preferences in Kogi Central reflects a situation common in many sub-Saharan African communities where fertility reduction has been slower because reproductive behaviour is embedded within cultural, religious, and economic systems. Unlike some Asian countries such as Bangladesh where sustained investment in female education and family planning programmes has produced substantial fertility decline, many Nigerian communities continue to associate large families with social status, lineage continuity, and economic security. The present study therefore contributes by integrating fertility timing, family size preferences, contraceptive behaviour, and household reproductive decision-making into a single analytical model at the senatorial district level, providing a more localized understanding of fertility behaviour in Kogi Central.

Conclusion and Recommendations

The study has shown that fertility behaviour in Kogi Central Senatorial District is influenced by a combination of cultural expectations, family size preferences, timing of childbearing, family planning practices, and reproductive decision-making patterns. The high preference for large families, limited use of long-term contraceptive methods, and influence of household decision-making structures continue to shape fertility outcomes. The regression analysis further confirms that ideal family size, age at first birth, family planning practices, and reproductive autonomy significantly predict fertility preferences in the study area.

Based on the findings of the study, the following recommendations have been put forward:

1. Strengthen family planning programmes through improved access to affordable and culturally acceptable contraceptive services, particularly long-term methods.
2. Promote female education and empowerment to enhance women's knowledge, economic independence, and participation in reproductive decisions.
3. Encourage male involvement in reproductive health programmes to promote joint decision-making on family size and timing of childbirth.
4. Implement community-based fertility education campaigns to address cultural and religious beliefs that encourage large family preferences and promote healthy birth spacing.

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