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UNDERSTANDING THE EFFECTS OF CULTURE ON FERTILITY BEHAVIOUR IN SOKOTO STATE, NIGERIA: A CONCEPTUAL FRAMEWORK

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Abstract

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This paper examines the cultural foundations of persistent high fertility rates in Sokoto State, and develops a conceptual framework for understanding how cultural systems shape reproductive behaviour. Despite ongoing national efforts to promote family planning, fertility levels in the state remain among the highest in the country. Using a qualitative research design, the study draws on secondary data from scholarly publications, national demographic surveys, and international population reports. Through thematic analysis, the paper identifies religion, traditional marriage practices, gender roles, and kinship structures as key cultural forces that reinforce pronatalist values, encourage early marriage and large family size, and limit acceptance of modern contraceptive use. Economic and political conditions further perpetuate these norms by restricting educational opportunities and access to reproductive health services. Nonetheless, emerging social changes driven by modernization, urbanization, and increasing female education are gradually influencing fertility aspirations among younger populations. The study argues for culturally responsive reproductive health strategies that involve religious and traditional leaders, while also promoting female education and strengthening healthcare systems. The conceptual framework developed provides a foundation for future empirical research and policy formulation aimed at achieving demographic sustainability without undermining cultural continuity.

Keywords: Culture, Fertility, Religion, Family Size, Sokoto State and Family Planning.

Introduction

Fertility is a central component of population dynamics and is shaped not only by biological mechanisms but also by the complex interaction of cultural norms, values, and belief systems (Kodzi, Atake & 2022). Understanding how cultural forces influence reproductive decisions is essential for predicting population change, designing effective public health interventions, and addressing the diverse fertility needs of different communities (Lesthaeghe, 2020; Hayford & Agadjanian, 2019). Cultural influences on fertility manifest through expectations associated with social prestige, family security, and perceptions of virility, often promoting larger family size (Upadhyay *et al.*, 2021). Religious teachings can also play a powerful role, with some doctrines encouraging pronatalist orientations and discouraging contraceptive use (Pew Research Centre, 2021). Furthermore, cultural norms surrounding marriage, sexuality, and gender roles have long been recognized as major determinants of fertility behaviour (Basten & Verropoulou, 2015; Abbasi-Shavazi *et al.*, 2020). In many traditional societies, for instance, early marriage and polygamy remain common and contribute to elevated fertility levels (UNFPA, 2023). Conversely, female education, autonomy, and increased participation in the labour market more

typical of individualistic and modern contexts are associated with reduced fertility (Esping-Andersen & Billari, 2020).

Different societies, therefore, hold distinct expectations regarding ideal family size, gender preference, and the social value of reproduction, leading to global variations in fertility patterns (Bongaarts, 2020). Culture, defined as the shared system of meanings, beliefs, and practices within a community, strongly shapes fertility preferences and reproductive strategies (Adebowale, Fagbamigbe & Okareh, 2020). In many cultural contexts, large families are valued for labour support, social standing, and long-term security, whereas in societies emphasizing individual achievement and career advancement, smaller families are viewed as more desirable (Esping-Andersen & Billari, 2023). In sub-Saharan Africa, for example, cultural norms supporting early marriage, large families, and polygamous households remain prevalent, while Western societies increasingly favour delayed marriage, widespread contraceptive use, and smaller household sizes (Bongaarts, Mensch & Blanc, 2023).

Globally, fertility rates have experienced dramatic shifts over the past decades. Developed regions have seen sustained declines linked to economic development, improved education, healthcare advancements, and changing social values. Countries in Europe and East Asia, for instance, currently have fertility rates well below replacement level, contributing to ageing populations and workforce shortages (United Nations, 2024). In contrast, many developing regions, particularly in sub-Saharan Africa continue to experience high fertility due to persistent cultural expectations, limited access to family planning, and strong pronatalist norms. The total fertility rate in sub-Saharan Africa was estimated at 4.6 births per woman in 2022, compared to the global average of 2.4 (World Bank, 2023).

Nigeria, the most populous country in Africa, exemplifies these demographic challenges. Although the national fertility rate has declined from 6.0 births per woman in 2000 to 5.2 in 2022, significant regional disparities remain, reflecting diverse cultural, religious, and socio-economic conditions (NPC & ICFDH, 2023). Northern Nigeria, particularly Sokoto State, continues to record some of the highest fertility levels in the country, influenced by traditional marriage patterns, strong religious values, early marriage, polygamy, and community expectations that favour large families (Adebowale, Fagbamigbe & Okareh, 2020). While modernization, education, and urbanization are gradually shifting reproductive intentions among younger generations, resistance to family planning and fertility control persists, especially in rural communities (NPCN, 2023).

Although many studies have examined cultural determinants of fertility across global and Nigerian contexts (Lotfi *et al.*, 2017; Dribe *et al.*, 2017; Ekwati *et al.*, 2019; Rahim *et al.*, 2023; Ranjbar *et al.*, 2024; Yeama & Sennott, 2014; Mashara, 2016; Matovu *et al.*, 2017; Lambu & Dan, 2015; Abdullahi, 2016; Sani *et al.*, 2024; Tunau *et al.*, 2016; Sabo *et al.*, 2018; Tanau & Awosan, 2018; Abubakar *et al.*, 2021a & b), limited scholarly attention has been given to developing a conceptual model that systematically explains how cultural systems shape fertility behaviour in Sokoto State. This paper addresses that gap by proposing a conceptual framework that integrates key cultural variables to explain fertility patterns within the study area. The framework contributes to a deeper understanding of reproductive behaviour in culturally traditional contexts and provides a foundation for future empirical research and policy development aimed at balancing cultural continuity with demographic sustainability.

The Study Area

Sokoto State is located in the extreme north-western part of Nigeria, lying between Latitudes 12°00'N and 13°05'N and Longitudes 8°08'E and 9°54'E. The state shares an international boundary with the Republic of Niger to the north, while domestically it borders Kebbi State to the west and south-west and Zamfara State to the east. Sokoto covers an estimated land area of

32,000 km² and is administratively divided into twenty-three (23) Local Government Areas grouped into three senatorial districts: Sokoto East, Sokoto North, and Sokoto South (Sokoto, 2006; NPC, 2006, as cited in Sani, 2021).

According to the 2006 National Population Census, the state had a recorded population of 3,702,676. Using Newman's (2001) projection formula, $P_n = P_o \times (1 + R/100)^N$ (as cited in Barau *et al.*, 2022), and assuming an annual growth rate of 3%, the projected population for 2024 stands at 6,368,603. Of this, 3,203,407 (50.3%) are males and 3,165,196 (49.7%) are females. Population distribution is uneven across the 23 LGAs, with an average density of fewer than 150 persons per square kilometer; however, in more densely settled zones, population concentration can exceed 300 persons per square kilometer (MBEP, 2012, as cited in Sani, 2021).

The demographic profile of Sokoto State reflects a youthful population structure, with 45% of residents below the age of 15, 35% within the working-age group (15–64 years), and 20% aged 65 and above. The dominance of young dependents places considerable pressure on the active working population, contributing to a high dependency burden that has long-term implications for socio-economic development (NPC, 2010; NPC, 2019). Population distribution and settlement patterns in the state are influenced by three major factors identified in the literature: historical developments associated with the 1804 jihad, the availability of water resources, and the presence of fertile agricultural soils (NBS, 2018; NPC, 2019).

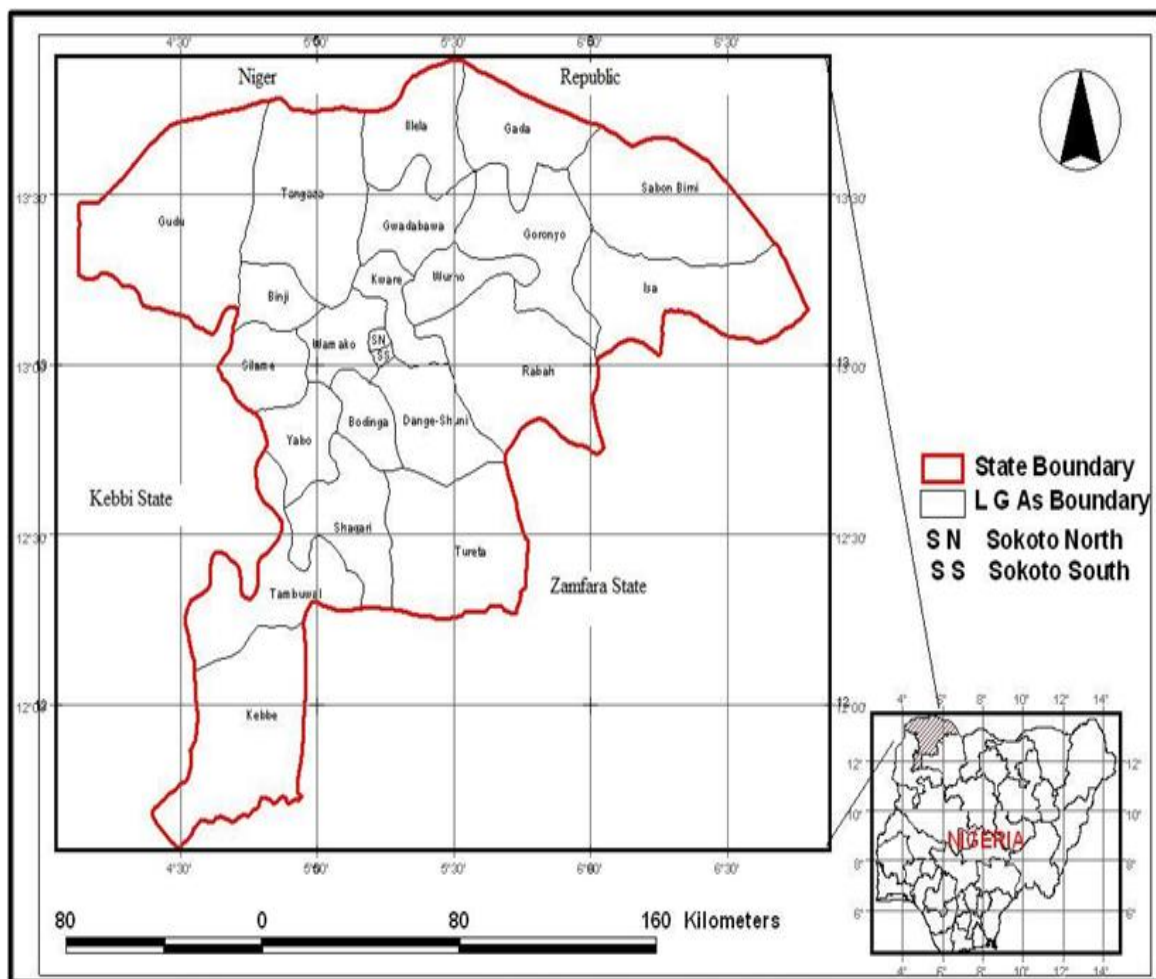


Figure 1: Study Area

Source: GIS Laboratory, Department of Geography, Sokoto State University, Sokoto (2025)

Moreover, Sokoto State is widely recognised for its rich cultural heritage and strong Islamic influence. The population is predominantly Muslim, and Islamic values and principles play a defining role in shaping social institutions, family structures, and everyday life. The dominant ethnic groups in the state are the Hausa and Fulani, alongside minority groups such as the Zabarmawa and Tuareg, particularly in border communities (Barau *et al.*, 2022). Within the Hausa population, several sub-groups exist, including the Gobirawa, Zamfarawa, Kabawa, Adarawa, and Arawa. Hausa is the most widely spoken language across the state. The Fulani population also speaks Fulfulde and is broadly categorized into settled Fulani (Fulanin Gida) and nomadic groups. The Torankawa clan, known historically as the ruling aristocratic family since the 1804 Sokoto Caliphate, is part of the settled Fulani population (Sani, Muhammad & Barau, 2025).

Following the British colonial conquest of 1903 and the subsequent formation of Nigeria in 1914, Sokoto State experienced increased migration from other parts of the country. Many individuals from southern and north-central Nigeria have since settled permanently in the state. Although the Igbo and Yoruba remain the most prominent southern migrant groups, nearly all of Nigeria's 250 ethnic groups are represented, with individuals engaged in trade, civil service, and formal employment in public and private sectors (Boyd, 1982, as cited in Barau *et al.*, 2022).

Economically, more than 80% of Sokoto's population is engaged in agriculture, while the remainder is involved in trade, commerce, and civil service. The region produces a wide range of subsistence crops including millet, guinea corn, maize, rice, potatoes, cassava, groundnuts, and beans and also cultivates commercial crops such as wheat, cotton, and vegetables (Sokoto, 2006). Traditional crafts, including blacksmithing, weaving, dyeing, wood carving, and leatherwork, remain important to the state's economy and cultural identity. Additionally, Sokoto is a major fishing hub, with many residents in river basin communities engaged in fishing activities that supply both local and neighbouring markets. The absence of tsetse flies in the open grasslands makes the region highly suitable for livestock rearing, contributing to its reputation as a key centre for animal production. These agricultural and natural resource endowments provide substantial opportunities for agro-allied industrial development, including flour milling, tomato processing, and sugar refining (Boyd, 1982; Davis, 1982, as cited in Sani, 2021).

Research Methodology

This study employs a qualitative research design to develop a conceptual framework explaining how cultural factors shape fertility behaviour in Sokoto State, Nigeria. Rather than collecting primary data, the study synthesises existing empirical evidence to construct an integrated model linking cultural systems to reproductive outcomes. This approach is suitable because the objective is interpretive in nature, focusing on the analysis of established knowledge within the socio-cultural realities of Sokoto State, particularly the intersections of religion, traditional norms, gender roles, and fertility decisions.

The study relies solely on secondary data obtained from peer-reviewed journal articles, demographic and policy reports, national population surveys, and publications from reputable international organizations such as UNFPA, WHO, and the National Population Commission of Nigeria. Thematic content analysis was employed to identify, categorize, and interpret key variables influencing fertility, broadly grouped into independent (cultural), intervening (behavioural), and dependent (fertility) variables.

Ethical considerations were rigorously observed by ensuring proper citation and acknowledgment of all data sources, maintaining intellectual integrity, and demonstrating sensitivity to the cultural and religious context surrounding reproductive issues in Sokoto State.

Results and Discussions

This segment presents the conceptual clarification and the developed conceptual framework as well as the implications of the framework, these are highlights as follows:

Culture

Culture refers to the learned and shared patterns of behaviour, values, beliefs, and material objects that characterize a particular group or society. It shapes identity, guides behaviour, and provides a framework through which individuals interpret and organize social life (Samovar, Porter & McDaniel, 2021). Essentially, culture represents the totality of a people's way of life encompassing their belief systems, norms, and values. As Lambu (2019) notes, virtually everything humans think, say, or do falls within the domain of culture. Importantly, culture is not a static phenomenon. It evolves continually in response to socio-economic, political, technological, and environmental forces (Inglehart & Welzel, 2021). Spencer-Oatey and Franklin (2020) further assert that cultural change emerges from both internal developments such as advancements in education and technology and external influences, including globalization, migration, and intercultural contact. These dynamics make culture a complex and adaptive system that shapes individual identities and broader social structures.

Across scholarly sources and institutional frameworks including Lambu (2019); Hamad (2020); Ferraro and Andreatta (2020); Mavhunga (2020); Ajayi and Okeke (2021); the Guttmacher Institute (2021); UNESCO (2022); and Schwartz (2022) key elements of culture are consistently identified. These include beliefs, values, norms, language, symbols, rituals and traditions, material culture (such as artefacts and technology), social institutions, arts and aesthetics, and diverse customary practices. However, Lambu (2019), identifies three foundational pillars of culture that underpin human interactions: religion, politics, and economy, which are interconnected with one another (Figure 1).

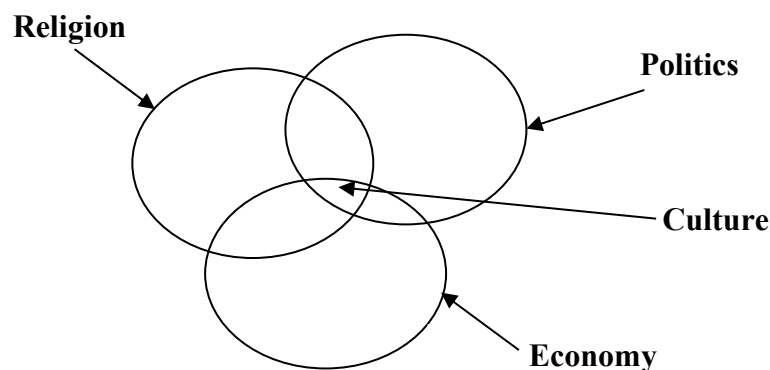


Figure 1: Components of Culture

Source: Lambu (2019)

Religion plays a significant role in shaping human behaviour by influencing values and social norms that guide people's daily actions and social interactions. It contributes to transforming people's ways of thinking and acting by promoting virtues such as compassion, humility, patience, and respect for others. Through its teachings, doctrines, and rituals, religion helps define what is considered acceptable or unacceptable within a community. In essence, it provides moral frameworks that shape attitudes toward issues such as honesty, marriage, sexuality, family life, and social responsibility (Okon, 2018).

According to Norris and Inglehart (2011), religious beliefs profoundly shape moral values, community ties, and cultural norms, influencing how individuals relate to authority, family, identity, and social order. Cultural dimensions such as power distance, uncertainty avoidance, and long-term orientation further shape governance, inequality, and institutional quality. In periods of economic stress or rapid social change, these cultural and religious orientations may intensify group identity, leading to rising inequality, political polarization, or ethnic tensions as communities retreat into in-group security (Figure 2). Similarly, campaign finance and economic power influence political behaviour, shaping identities and reinforcing divisions along ethnic, tribal, or religious lines. Religion often underpins voting patterns, party affiliation, and policy preferences in many societies (Adebowale, Ayeni & Fakolade, 2021).

These dynamics illustrate that religious, cultural, economic, and political forces are deeply interdependent. Religious identity informs political participation; economic structures reflect underlying cultural values; and political power shapes the operations of religious and economic institutions (Figure 2). Together, these dimensions form interconnected systems that influence a wide range of social outcomes including fertility behaviour. Religious doctrines shape beliefs about ideal family size; economic opportunities and constraints determine whether families choose to have more or fewer children; and political policies may either support family planning or indirectly pressure fertility decisions. Understanding the complex interactions between religion, economy, and political context is essential for developing ethical and effective approaches to demographic change in contemporary societies and beyond (Adebowale, Ayeni & Fakolade, 2021).

Fertility

Fertility, defined as the actual reproductive performance of an individual, couple, or population, is a fundamental demographic variable that shapes population growth and socio-economic development in any geographical area (UN, 2019). It reflects the ability of men and women to produce offspring and describes the occurrence of live births, which typically outpaces mortality and migration in most populations. As one of the core components of population dynamics, fertility significantly influences population size, structure, and distribution, yet remains complex and multifaceted in nature (Khalil, 2018).

Fertility is commonly measured using two broad categories: period measures and cohort measures. Period measures such as the crude birth rate, general fertility rate, and child-woman ratio capture fertility levels within a population at a specific point in time, usually over the course of one year. In contrast, cohort measures, including the age-specific fertility rate, gross reproductive rate, and total fertility rate, follow a group of individuals born in the same period over several decades. Both types of measures are widely used because they provide complementary perspectives on fertility patterns and long-term demographic behaviour.

Several factors influence fertility levels within any given geographical area. These determinants include biological factors (such as age, health, and fecundity), policy and legal frameworks (such as family planning policies and maternity laws), economic conditions (income, employment, and cost of living), social dynamics (education, marriage patterns, and gender norms), environmental influences, and cultural beliefs and practices. Understanding how these factors interact is essential for interpreting fertility trends and designing effective population and development policies (UN, 2019).

Cultural Determinants of Fertility

Cultural determinants play a profound and enduring role in shaping fertility patterns and reproductive behaviours, particularly in societies where traditional, religious, and communal norms remain influential, such as in Sokoto State, Nigeria. Fertility decisions in such contexts are

not merely individual or biological choices; rather, they are embedded in shared values, collective expectations, and long-established cultural frameworks that regulate social life. Religion, gender norms, kinship patterns, and community pressures collectively construct a cultural environment that both sustains high fertility rates and limits the acceptance of modern family planning methods.

Among these determinants, religion stands out as one of the most powerful influences on reproductive behaviour. In Sokoto State, where Islam predominates, religious teachings are closely interwoven with everyday social practices. These doctrines often promote early marriage, discourage contraceptive use, and emphasize procreation as a divine obligation (Isiugo-Abanihe, 2020; Izugbara & Ezech, 2010). Such beliefs are further reinforced by patriarchal gender roles that position women's social value largely in terms of motherhood and childbearing (Tessema, Mahmood & Gebremedhin, 2021). These deeply rooted gender expectations encourage large family preferences, limit women's reproductive autonomy, and sustain long-term pronatalist norms.

Traditional values and cultural beliefs further strengthen these orientations by framing children as essential social and economic assets. Within many African societies, including northern Nigeria, fertility is widely regarded as a moral responsibility and a marker of social prestige (Kamau, Omwoyo & Mugo, 2021; Isiugo-Abanihe, 2021). The association between children and family labour, old-age security, and lineage continuity reinforces strong pronatalist attitudes. Cultural marriage practices especially early marriage and polygyny extend women's reproductive lifespan and significantly elevate fertility levels (Naz & Ahmad, 2022; NPC & ICF, 2019). In Sokoto State, these practices remain intertwined with religious obligations and cultural expectations surrounding family formation.

Another major determinant is the perceived value of children, particularly sons, in agrarian and patriarchal societies. Children are often valued for their economic contributions, their role in sustaining lineage, and the sense of social status they confer (Lambu & Dan, 2015; Bongaarts, Mensch & Blanc, 2023). This "value-of-children" orientation explains why high fertility persists even under economic hardship, as families continue to seek security, labour, and social prestige through larger numbers of offspring. Ethnicity and kinship systems further reinforce these norms. For the Hausa-Fulani of northern Nigeria, expectations attached to lineage, inheritance, and extended family cohesion encourage higher fertility compared to some ethnic groups in the south (Akinyemi, Adedini & Odimegwu, 2015; Okunlola, Ibrahim & Olaniyan, 2022).

The influence of elders and extended family networks also plays a critical role. In many northern communities, decisions regarding childbearing are communal rather than personal. Elders often impose expectations that prioritize lineage continuity and family prestige, limiting couples' ability to make independent reproductive choices (Isiugo-Abanihe, 2021; Yusuf, Danjuma & Bello, 2022). Community norms, social approval, and peer pressure further sustain high fertility, as large families symbolize wealth, divine favour, and honour. These values are transmitted across generations through rituals, storytelling, and everyday interactions.

In addition, language and cultural identity serve as important channels through which fertility norms are communicated and preserved. In Sokoto State, the Hausa language and Islamic identity shape collective perceptions of reproduction, with proverbs such as "*yara albarka ne*" (children are blessings) reinforcing pronatalist beliefs, while infertility is viewed as a social misfortune (Ijadunola, Akinwumi & Bello, 2022). Moreover, language barriers can hinder access to reproductive health information when communication materials are not translated into local dialects (UNESCO, 2020; Guilfoyle, Baffour & Seth, 2023), thereby limiting awareness and uptake of modern contraceptives.

Collectively, cultural determinants including religion, gender norms, traditional practices, marriage systems, child-value orientations, ethnicity, kinship networks, community norms, and language form a mutually reinforcing system that sustains high fertility in Sokoto State. These interconnected forces create strong social expectations for early marriage, discourage contraceptive use, and elevate the social status associated with large families. Understanding these cultural dynamics is essential for formulating culturally sensitive reproductive health policies and interventions. Without addressing the deep cultural foundations of reproductive behaviour, efforts to moderate fertility rates are likely to face resistance, thereby slowing the pace of demographic transition in the region.

Developed Conceptual Framework

A simple diagrammatic conceptual framework is presented in Figure 3 to show the relationship between the foundational pillars of culture and variables (independent, intervening, and dependent variables), and the feedback mechanisms can alter the original cultural norms, or they may be rejected, and cultural norms remain the way they are, completing the cycle. These are highlighted below:

- (a) **Foundational pillars of culture:** In Sokoto state, the pillars of culture serve as foundational forces shaping fertility behaviours and family size preferences. The religions in the state are Islam and Christianity. The population is predominantly Muslim, with Islam deeply woven into daily life, governance, and social norms. Islamic teachings encourage early marriage, value large families, and habitually discourage the use of modern contraceptives. Concepts such as children being a blessing from Allah promote high fertility. Although Christians form a minority, Christian teachings in the state also influence family norms but tend to support greater openness to family planning and smaller family sizes, particularly among more educated or urban Christian populations. The Sokoto state economy is largely agrarian, and children are seen as economic assets who contribute to household labour, especially in rural areas. High fertility is economically advantageous in this context, reinforcing large family norms. However, economic constraints such as unemployment and poverty, particularly in urban settings, are beginning to challenge these norms, with some families choosing to have fewer children due to the cost of living and education. In terms, political structures and government policies, also shape fertility behaviour. Although Nigeria has national population policies that advocate for family planning and fertility reduction, implementation in Sokoto state is limited due to religious resistance and poor health infrastructure. Political leaders and traditional rulers mostly balance between promoting national population goals and respecting religious and cultural sentiments (Figure 3). This gap between policy and practice reinforces the persistence of high fertility in the state.
- (b) **Independent variables (cultural factors):** Figure 3, cultural factors in Sokoto state play a central role in influencing reproductive behaviour and family structures. Among the Hausa-Fulani majority, deep-rooted beliefs grounded in Islamic doctrine strongly support early marriage, high fertility, and polygamy. Large families are perceived as symbols of honour, wealth, and religious fulfilment. Gender roles are strictly defined, with men expected to provide and women to bear and raise children, while norms discourage the use of modern contraceptives, particularly among married women. In addition to the dominant Hausa-Fulani traditions, minority ethnic groups such as the Yoruba and Igbo, many of whom are Christians, also shape the cultural landscape of Sokoto state.

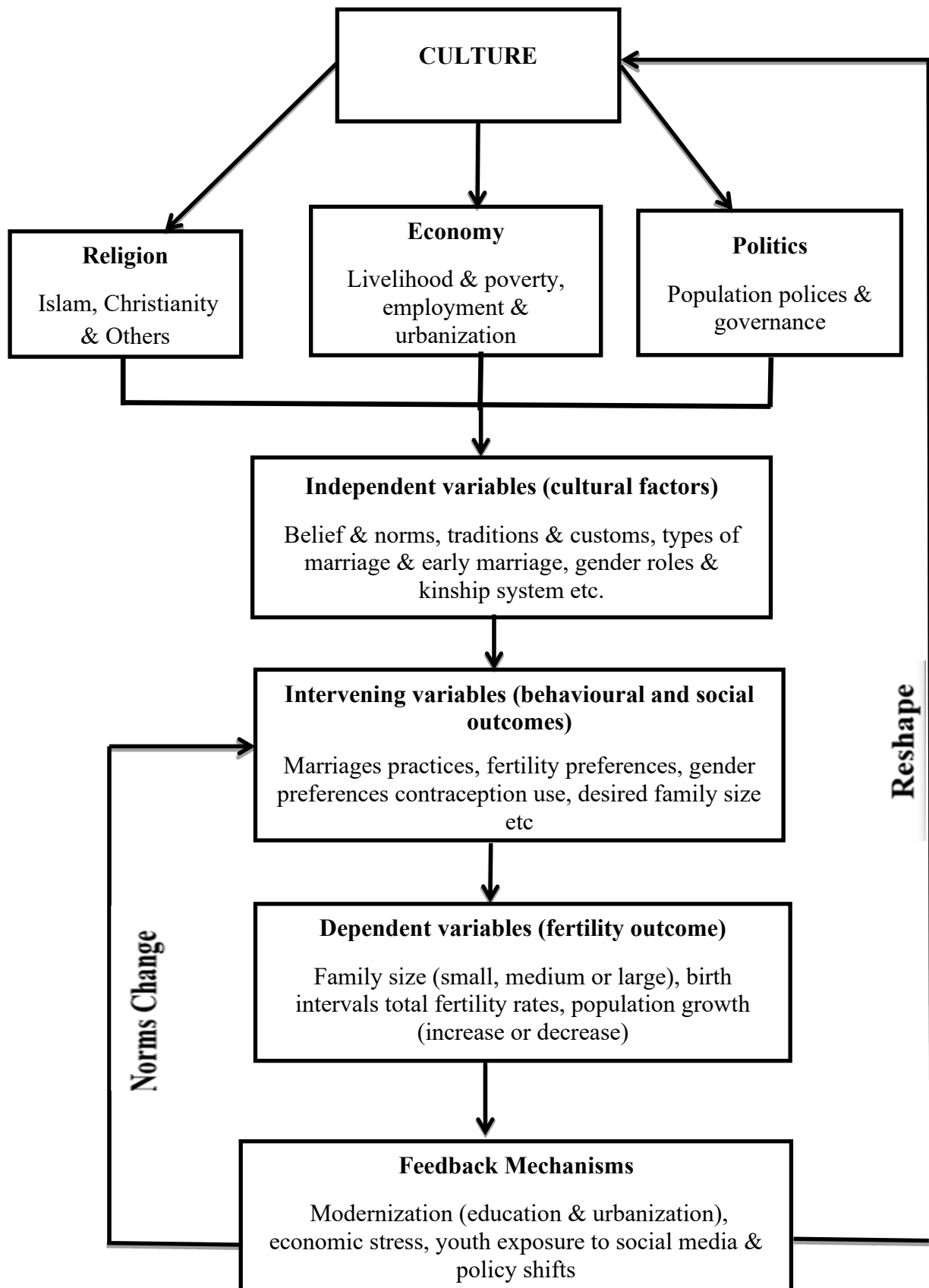


Figure 3: The Conceptual Framework on the Effects of Culture on Fertility
Source: Researchers Design (2025)

While Yoruba and Igbo communities may generally hold more moderate views on family size and be more open to modern contraceptive use, especially among educated and urban residents, traditional values within these groups still encourage marriage and childbearing as markers of social status and fulfilment. Religious affiliation plays a strong role: Islamic teachings among Hausa-Fulani communities tend to sustain higher fertility ideals, while Christian denominations common among Yoruba and Igbo may support smaller families but still value children highly as blessings. Collectively, these cultural influences form a diverse yet interconnected framework within which family size decisions are made.

- (c) **Intervening variables (behavioural and social outcomes):** The cultural foundations across ethnic and religious lines in Sokoto state shape behavioural patterns that influence fertility. Among Hausa-Fulani Muslims, desired fertility remains high due to entrenched pronatalist beliefs, and contraceptive use is low, hindered by religious objections, fear of side effects, and misinformation. Among Yoruba and Igbo Christians, contraceptive usage is somewhat higher, particularly in urban settings, but traditional values still uphold marriage and procreation as essential life goals. Marriage customs vary: Hausa-Fulani communities mostly favour early, arranged, and polygamous unions, while Yoruba and Igbo typically practice monogamy with slightly later marriage ages, yet both contexts see a preference for male children, motivating larger family sizes (Figure 3).
- (d) **Dependent variables (fertility outcomes):** In Figure 3, these behaviours and norms translate into measurable fertility outcomes. Sokoto state consistently records one of the highest fertility rates in Nigeria, driven largely by Hausa-Fulani traditions but moderated in urban centres by Yoruba and Igbo communities with lower fertility tendencies. The overall pattern remains one of large household sizes, short birth intervals, and sustained population growth. Rural areas maintain traditional high-fertility patterns, while urban areas, home to more Yoruba and Igbo populations, show gradual shifts.
- (e) **Feedback mechanisms:** Fertility outcomes in turn reshape cultural expectations and policy discourse. As education, urbanization, and exposure to mass media increase, particularly in homogenous populations with a few mixed ethnic groups, especially in urban areas, new norms emerge around ideal family size. Among Yoruba and Igbo Christians, economic pressures and modern lifestyles are already encouraging smaller families, while among Hausa-Fulani Muslims, such shifts are slower but noticeable in educated households. These shifts can reshape cultural beliefs and norms over time (Figure 3). This cyclical interaction highlights how culture, religion, and fertility continually influence and reshape one another in the context of Sokoto state.

Implications of the Conceptual Framework

The conceptual framework underscores the necessity of adopting culturally responsive reproductive health and population policies in Sokoto State. As illustrated in the framework, cultural values, religious beliefs, and economic realities are deeply intertwined determinants of fertility behaviour; therefore, interventions that overlook these dimensions often encounter resistance or fail to produce sustainable outcomes (Isiugo-Abanihe, 2020; Ajaero & Odimegwu, 2021). For this reason, policymakers must prioritize community-based strategies that actively engage religious and traditional leaders as central partners in promoting family planning, maternal health, and comprehensive reproductive education.

Religious leaders, particularly Islamic scholars hold considerable moral authority and sociocultural influence in Sokoto communities. Their support can significantly enhance acceptance and utilisation of family planning services among households that may otherwise be sceptical due to doctrinal or cultural concerns (Sedgh *et al.*, 2017; Akinyemi & Odimegwu,

2022). Mobilizing these leaders as advocates for maternal health, child spacing, and informed reproductive choices can improve the credibility and community ownership of reproductive health programmes.

Strengthening female education represents another critical pathway for reducing fertility levels and enhancing reproductive autonomy. Evidence from across northern Nigeria consistently shows that educated women tend to delay marriage, desire smaller families, and are more likely to adopt modern contraceptive methods compared to women with little or no education (NPC & ICF, 2023; Yahaya, 2022). Expanding equitable access to high-quality education, particularly for rural girls and even boys can gradually shift fertility norms by exposing younger generations to new opportunities, aspirations, and worldviews.

Similarly, improving household economic stability is essential for reshaping fertility preferences. Economic empowerment initiatives such as vocational training, women's cooperatives, and rural livelihood programmes can reduce dependence on children for farm labour and old-age security factors that historically sustain high fertility in Sokoto State. When families gain alternative sources of income and social support, the perceived necessity for large numbers of children diminishes.

Equally important is the enhancement of rural and urban health infrastructure. In Sokoto State, limited access to modern health facilities, especially in rural and hard-to-reach communities significantly restricts the uptake of contraceptives and limits exposure to reproductive health information. According to the 2023 Nigeria Demographic and Health Survey, the state maintains one of the lowest contraceptive prevalence rates nationally, largely due to inadequate service availability, entrenched misconceptions, and cultural resistance (NPC & ICF, 2023). Strengthening primary healthcare systems and integrating family planning with maternal and child health services can increase access, reduce stigma, and normalize family planning use (Akinyemi & Isiugo-Abanihe, 2021).

Moreover, aligning national population policies with local socio-cultural realities is crucial. Although Nigeria's population policy promotes voluntary fertility reduction and expanded access to family planning, its implementation in predominantly Muslim states like Sokoto has been hindered by religious opposition, limited community participation, and a lack of culturally tailored communication (Feyisetan & Bankole, 2020). Localizing policy implementation through culturally sensitive messaging, community dialogues, engagement of traditional rulers, and collaboration with religious institutions would strengthen compliance and enhance policy effectiveness.

It is also important to acknowledge that fertility norms and cultural systems are dynamic rather than static. As education, urbanization, digital communication, and media exposure expand, particularly among the youth emerging shifts in reproductive ideals are becoming increasingly visible (Bongaarts & Casterline, 2018; NPC & ICF, 2023). Policies should therefore address existing cultural barriers while also harnessing these social transitions to drive long-term demographic change.

By adopting a culturally grounded, community-sensitive, and participatory approach, policymakers can ensure that fertility regulation becomes both socially acceptable and developmentally effective. Such an approach not only respects local values but also enhances the likelihood of achieving sustainable demographic transition and improving family well-being in Sokoto State.

Conclusion and Recommendations

The study concludes that fertility behaviour in Sokoto State is firmly embedded within a complex cultural framework that shapes reproductive choices, family size ideals, and gender relations. The conceptual framework developed demonstrates that religion, traditional values, kinship systems, and the socio-economic importance attributed to children collectively reinforce pronatalist attitudes that sustain high fertility rates in the region. These cultural factors operate in interconnected ways through socialization processes, communal expectations, and moral obligations that position large families as symbols of prestige, social support, and divine blessing.

At the same time, the analysis identifies signs of gradual socio-cultural transformation driven by rising female education, increasing urbanization, and expanding access to modern media. These forces are slowly reshaping fertility aspirations, especially among younger and more educated groups who are beginning to question long-standing reproductive norms. The framework therefore provides a holistic theoretical lens for understanding how deeply rooted cultural systems interact with emerging modern influences to shape fertility outcomes in northern Nigeria.

From a policy standpoint, the findings highlight the urgent need for reproductive health and population interventions that are culturally grounded and contextually appropriate. Fertility decisions in Sokoto State are not merely personal choices; they are embedded within religious teachings, community values, and collective expectations. Thus, policymakers must work collaboratively with Islamic scholars, traditional leaders, women's groups, and community-based organizations to promote family planning and reproductive health education in ways that align with local beliefs and moral codes.

Strengthening female education remains one of the most powerful pathways for shaping fertility behaviour. Educated women tend to marry later, exercise greater reproductive autonomy, and show higher rates of contraceptive uptake. Expanding access to education particularly in rural areas should therefore be prioritized as part of a broader fertility reduction strategy. Complementary socio-economic empowerment programmes, especially those targeting rural women, are also essential to reduce reliance on children for labour and old-age support.

Overall, the study emphasizes that sustainable fertility decline in Sokoto State will require interventions that respect cultural realities while leveraging ongoing social change. By integrating community values with evidence-based reproductive health strategies, policymakers can foster fertility behaviours that enhance family well-being and support long-term demographic development in the state.

Based on the findings of this study, a multidimensional and culturally grounded strategy is recommended for addressing persistently high fertility levels in Sokoto State. These include:

- 1. Localized population policy implementation** is essential. National demographic objectives should be adapted to reflect the sociocultural context of the state. This includes developing targeted communication strategies in widely spoken local languages such as Hausa and Fulfulde to ensure clarity, acceptance, and community ownership of population initiatives. Messaging should be framed in culturally appropriate terms that resonate with religious values and traditional norms.
- 2. The state should strengthen community-based family planning programs** by fully integrating them into the existing primary health care system. Doing so will enhance accessibility, build trust, and ensure that service delivery is sensitive to cultural and religious concerns. Health workers should also receive specialized training in culturally responsive counselling to reduce misconceptions and resistance to contraception.

3. **Public enlightenment and behaviour-change communication campaigns** should be intensified. These campaigns must highlight the health, educational, and economic benefits of maintaining manageable family sizes, while addressing prevailing myths and fears associated with modern contraceptive methods. Engaging respected religious and traditional leaders as advocates will significantly improve message acceptance at the grassroots level.
4. **Future empirical research** should rigorously test the conceptual relationships proposed in the framework. Such studies will help determine the extent to which specific cultural, religious, and socio-economic variables influence fertility behaviour in Sokoto State. Evidence generated from these analyses will support the design of more effective, culturally appropriate, and sustainable population and reproductive health policies not only in Sokoto State but also in other regions with similar socio-cultural characteristics across the globe.

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