EXPLORATION OF THE HEALTH AND SOCIO-ECONOMIC IMPACTS OF LARGE FAMILY SIZE AND POPULATION GROWTH IN SELECTED STATES OF NORTHERN NIGERIA

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A thesis submitted in partial fulfilment of the requirements of Nottingham Trent University for the degree of Doctor of Philosophy

September 2025.

Copyright Statement

Dated this day, 15-09-2025.

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ABSTRACT

Family size and population growth have been shown to impact the global disease burden and contribute to underdevelopment. The increase in Nigeria's population rate, particularly in the northern region, informed this research, which explored the health and socio-economic impacts of large family size and population growth in Northern Nigeria.

Using the Socio-ecological Model (SEM) and Silences Framework (SF) theoretical underpinnings, this study adopted an exploratory qualitative design. A total of 80 participants, including community members, traditional and religious stakeholders, healthcare professionals, and policymakers, were interviewed. The inductive thematic method, guided by the third stage of the SF, was used for data analysis.

Emerged findings indicated that cultural, traditional, and religious beliefs are the primary drivers of large family sizes and population growth in Northern Nigeria. From the participants' perspectives, other determinants included poverty, lack of education and empowerment, large family size for political negotiation, and having many children as cheap labour for farming. The increased levels of insecurity, banditry, criminality, malnutrition, food insecurity, illiteracy, economic hardship, poverty, street begging, underdevelopment, and environmental effects (pollution, overcrowding and migration) were the reported impacts of large family size and population growth. There were views that large family size and population growth could increase the workforce and enhance the nation's productivity if there was adequate investment in human capital development. Meanwhile, there was a general negative attitude towards the use of contraceptives and family planning services.

This study contributes to existing knowledge on the impacts of large family size and population growth in Northern Nigeria from the SEM and SF theoretical underpinnings. Findings suggested the need to engage available social structures in the co-production of family planning interventions and population control activities. It also provided a framework to guide

interventions toward addressing and managing the impact of population growth in Nigeria and other African countries.

Word Count: 300

Keywords: Family size, Impact, Northern Nigeria, Population Growth, Socio-economic Well-being.

DEDICATION

This thesis is dedicated to the memory of my late mother, Deaconess (Princess) Elizabeth Jolaade Dada, whose impact on my academic pursuit is unquantifiable. Maami, I wish you were here to see me bag a PhD. I am sure you are proud of me in the life beyond. I love you so much, Mum.

ACKNOWLEDGEMENT

I sincerely express my gratitude to everyone who has contributed tremendously and provided their unwavering support in helping me complete my doctoral research and PhD degree.

I thank the Almighty God for His Divine providence, grace, leadership, guidance, and speed in starting this programme and ending successfully in record time. I am eternally grateful and return all Glory to Him.

My sincere appreciation goes to my indefatigable supervisory team: Dr Mathew Nyashanu (Director of Studies), Dr Dung Jidong, and Prof. Linda Gibson, who have shown exceptional support, guidance, mentorship, advice, and encouragement throughout the experience of this research from the point of project approval to submission of this thesis. I am highly grateful to you and proud to pass through your supportive supervision. Your wealth of experience and knowledge was incredibly useful to me. May the Almighty God reward you accordingly and bless you. Many thanks to my independent assessor, Dr Adam Barnard, for his insightful contributions, comments, and feedback on my research during project approval and annual reviews.

I appreciate my father, Elder Joseph Olaniyi Dada, for his financial, spiritual, moral, and fatherly support throughout my studies. Thank you for your unconditional love. I also appreciate the memory of my late mum, whose guiding principles keep me going. I wish you were here. Sincere thanks to my siblings: Temitope Oyedeji Dada, Oluwatosin Akinyemi Dada, David Olumide Dada, Oluwabukunmi Osundina Dada, Oluwaseun Oyedeji, Ilesanmi Osundina, Tejumade Dada, Moyosoluwa Dada and Oluwatofunmi Tayo. Thank you for your encouragement and financial, moral, and emotional support throughout my studies. I acknowledge the incredible support of Prof. Ademola Stephen Tayo, the Vice Chancellor of Babcock University and Prof. (Mrs) Oluwatoyin Grace Tayo, the Director of Research at

Babcock University, for their fatherly and motherly support and prayers all through my studies. I appreciate the initial facilitation of financial support, which made a great difference in my application and enrolment. May heaven reward you.

I specially appreciate Oluwatoni Adediwura Tayo, who has been a very strong pillar of support for me since December 2020. Thank you for your emotional, mental, spiritual, and financial support throughout my research. I appreciate your love.

I thank my other friends, Hussain Oluwatobi James, Temitope Jagun, Sunday Jagun, Elyon Jagun, Elizabeth Jagun, Abiodun Olarotimi, and Joshua Isah, who provided different levels of support, too numerous to mention, during my research. I thank my research participants and all key stakeholders in Northern Nigeria for their full participation in my study. To all my colleagues at the Institute of Health and Allied Professions, your support and camaraderie were helpful during this journey. Thank you for all the lessons that we learned together. I am grateful to the Doctoral School and School of Social Sciences staff and personnel for their administrative and professional support and for the organisation of training and development programmes that have enhanced my knowledge and skills in research.

Finally, I acknowledge the School of Social Science Research Degree Committee for their kind approval of my request for early write-up and all administrative support provided for my success. I am very grateful. Thank you!

All I could say is that through it all, the Almighty God has been faithful, and to Him alone, be all the glory!

TABLE OF CONTENTS

EXPLORATION OF THE HEALTH AND SOCIO-ECONOMIC IMPACTS OF LARGE FAMILY SIZE AND POPULATION GROWTH IN SELECTED STATES OF NORTHERN NIGERIA

LIST OF FIGURES

LIST OF TABLES

APPENDIXES

LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ARDL	Autoregressive Distributed Lag
ASSIA	Applied Social Science Index and Abstracts
BUHREC	Babcock University Health Research Ethics Committee
CDC	Centre for Disease Control
CINAHL	Cumulative Index to Nursing and Allied Health Literature
DFID	Department for International Development
FAO	Food and Agriculture Organisation
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GPS	Global Positioning System
HIV	Human Immune Virus
IARC	International Agency for Research on Cancer
IDI	In-depth Interview
IPCC	Intergovernmental Panel on Climate Change
KII	Key Informant Interview
MDGs	Millennium Development Goals
NDHS	National Demographic Health Survey
NESG	Nigeria Economic Summit Group

NPC	National Population Commission
NSCDC	Nigeria Security and Civil Defence Corps
NTU	Nottingham Trent University
SDGs	Sustainable Development Goals
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Child Emergency Fund
USA	United States of America
USAID	United States Agency for International Development
WB	World Bank
WHO	World Health Organisation

CHAPTER ONE

1.0 INTRODUCTION AND RESEARCH OVERVIEW

In this chapter, the background to the context of this research is presented first, followed by the implications of family size and population growth on health and socio-economic well-being in Northern Nigeria and the entire Nigerian State, before articulating the statement of research problems and gaps in the literature, which formed the basis of this research. This chapter also presents the aim of the research and specific objectives, the significance of the study, the scope of research and the significant contribution of the study to the body of knowledge. The concluding part presents the structure of this thesis and the chapter's summary.

1.1 Background to the study

Population growth is the rise in the number of people in a particular geographical location over a period of time. The rise in population has significant implications for health and well-being, especially in the developing world, with issues such as malnutrition, food insecurity, infectious diseases, access to clean water, and access to quality health services and housing, which could result in poor health outcomes. Population growth has been shown to impact the global burden of disease from 2.63 billion in 2010 to 2.88 billion in 2021 (Ward & Goldie, 2024), contributing to the apparent health inequality in resource distribution and environmental impacts such as the effects of climate change (Tan et al., 2022; United Nations, 2022; World Bank, 2022; Singh et al., 2021).

According to the United Nations report (2022), Nigeria's Population is projected to be almost 400 million by 2050, exceeding the population of the United States of America, a developed country, making it the largest country in the world after India and China. Populations in any community are made up of individuals and families, and their interactions affect each other. In essence, the size of a family affects the population size of any community, region, or country.

This means a small family size can result in a small population and vice versa. Population and health have been shown to have important relationships (Baba et al., 2018), and a holistic understanding of family size and population is essential for public health planning, implementation, and evaluation. This is why this study focused on the health and socio-economic impacts of large family size and population growth in Northern Nigeria.

In most parts of Africa, especially Nigeria, which currently has the largest population on the continent, population size has consistently and significantly been on the increase in the past decades, with strong potential of the growth to further increase in the coming years if adequate measures and interventions are not immediately put in place to address the increase. Considering Nigeria's present economic realities, the current population growth rate of 2.5% is unsustainable. This fact has been argued and supported by reports from the World Bank (2022), the National Population Commission (NPC), and the ICF Macro in the National Demographic and Health Survey of 2018 (NPC & ICF, 2019).

While people live together within a geographical area at a particular point in time (Tarsi & Tuff, 2012), their interactions and relationships often make them rely on the same facilities and resources- leading to competition, especially when resources are not evenly distributed (Wohlin et al., 2021; Sinai et al., 2020). The case in most parts of Nigeria, especially the Northern region, is that many large families exist without means for sustenance. With the current population growth rate of 6.7% in Northern Nigeria alone (NPC & ICF, 2019) where large family sizes contributed to the high population size of the region without any clear identifiable advantage in the areas of health, education, economic growth, and prosperity, investigating the impacts of population growth and family size for public health planning and social policy become very crucial. This is because the population should be an asset with a demographic dividend, but it could also become burdensome when its growth and means of sustenance do not coincide (World Bank, 2020). Some previous studies in different population

settings have established a significant negative relationship between large population size, health, economic growth, and well-being (Wohlin et al., 2021; Alimi et al., 2021), with the adverse effects being a result of a high number of younger dependents in the population who are not economically productive within the family.

In a population, an increasing growth rate without adequate plans and education provisions can lead to increased illiteracy and crime rates, which could result in insecurity and unhealthy choices. This fact has been supported by the study of Alimi et al. (2021) using Nigerian economic data from 1981 to 2018. In Northern Nigeria, in particular, insecurity and illiteracy are very high, with about five million children out of school (UNICEF, 2022). Previous research has shown that family size is essential to maintaining good health, increasing school enrolment, and preventing disease (Barnes et al., 2020).

In China, it has been reported that having a large family size is significantly associated with children developing specific health problems such as asthma, low levels of physical activity, higher prevalence of obesity and overweight, and inability to meet the children's daily needs (Chen, 2014; Michaelson et al., 2021). On the other hand, smaller family sizes have been associated with higher children's academic achievement, focused care, quality education, and health care (Michaelson et al., 2021). The study by Barnes (2010) in Britain revealed a strong positive association between family size and persistent risk of poverty, which further showed that poverty increases due to family size could be as high as 12.0% for families with only one child to up to 18.0% and 22.0% for families with three children and four or more children, respectively. This invariably implies that managing a small family could be easier than managing a large one where there are many children and mouths to feed.

With the increased population growth in Nigeria, the use of modern contraceptives has been sub-optimal- less than 20% (NPC & ICF, 2019) and significantly lower in most parts of the Northern States (less than 10%) because of cultural and religious beliefs. Also, in most parts

of Northern Nigeria States, for women to use contraceptives, the express permission of their husbands is required, or else they are beaten up (Apanga & Adam, 2015). This has reduced the level of intake of contraceptives. The non-use of contraceptives has significantly contributed to the large family size and population growth in Northern Nigeria. Generally, there has also been variation in the prevalence of contraceptive use across the Nigerian States, and the use of modern methods of contraceptives among women of reproductive age is low despite its significance in birth and population control (Mercer et al., 2019).

Based on available research, the main focus of any population control study is to lower the burden on the already overstretched resources such as land, water, money, education, and the healthcare system. In an actual sense, population control and family planning could give individuals (parents) more time and resources to dedicate to their children (two or a maximum of three). In this case, society will benefit, and infant mortality will be reduced due to adequate resources that can meet the needs of the size of the population. In a country like Nigeria, where poverty is on the increase due to many systemic problems, including the rise in population and the existence of large families, the already available resources are overburdened.

Poverty- the lack or insufficient access to fundamental human needs such as shelter, food, clothing, and medical care, which is also referred to as long-term deprivation of basic human needs to which an individual, household, community, or nation is subjected, and a situation considered inadequate for a decent living is one of the major consequences of poor population control measures (Savadogo et al, 2015). In Northern Nigeria, income inequality is very pronounced, and assets and earnings are largely not evenly distributed (World Bank, 2020). There are some very rich people who have adequate means to essentials of life such as balanced three-square meals, access to healthcare services, and comfortable housing with basic infrastructure, and there are those who are very poor with a low standard of living and who daily struggle for survival (Okoli et al., 2020). The reality is that poor people who lack the

essentials of life contribute more significantly to the increase in population through indiscriminate reproduction and poor access to and uptake of family planning services (Obiyan & Kumar, 2015). According to the World Health Organization (2013), the poorest of the poor worldwide have the worst health, where studies have shown that the lower an individual's socioeconomic position, the worse their health. The income differential between the rich and the poor in Nigeria continues to grow without any feasible solution in sight. Despite the increase in poverty, population growth is still high, and the increased fertility rate is predominantly among the poorest of the population (NPC & ICF, 2019). This situation calls for urgent action to implement population control measures for sustainable development and prosperity in Nigeria.

Issues and challenges arising from population growth and the impact that family size (large or small) has on health and socio-economic well-being in Nigeria have received very little attention. Particularly in the Northern part of the country, where the large family size is predominantly high, there has been a dearth of empirical studies focusing on the impact of large family size and population growth. The literature review also shows that it is a silent area of discussion in most social science and public health research conducted in Northern Nigeria. Issues around family size are not discussed because of cultural and religious sentiments and beliefs. Due to the paucity of evidence in this study area, this thesis explored the impact of large family size and population growth on health and socioeconomic well-being in selected states of Northern Nigeria. The explorative study adopted a qualitative research design using the focus group discussion, key informant interview, and in-depth interview methods. The research involved investigations into specific factors contributing to the large family size and determining how community-directed efforts could be used to change the trend in the region. This study is crucial because research has yet to focus on this area or use similar methods and designs. For example, no study has explored the local perspectives on the impact of family size

and population growth in Northern Nigeria. Therefore, this study aims to bridge this research gap, and the anticipated findings would be transferable to similar population groups and settings for effective health planning and management in family and population health.

1.2 Statement of Problem

Nigeria's population policy was developed in 2004. It was implemented in 2005 and provided the framework for population growth and control in Nigeria, with the recommendation of a maximum of four children per woman. However, as of 2015 and now, the policy could be said to have been unable to achieve its intended goal of reducing the fertility rate, evidenced by the current fertility and population growth rates, which are more than 5.0% and 2.5%, respectively (National Population Commission and Health Policy Project, 2015; NPC & ICF, 2019). The rate of fertility intention remains very high in Nigeria, especially in the Northern part, where contraceptive use remains sub-optimal. As reported in many research articles, a major contributor to high fertility, which contributes to the increased population growth rate, is early marriage and low levels of education. Many women, especially in Northern Nigeria, marry early, some below the ages of 18 and 20 years, which, of course, makes them start childbearing early in life and, as a result, give birth to more than the number of children they could cater for (Avogo & Somefun, 2019; Yaya et al., 2019). Also, based on the National Demographic Health Survey of 2018 (NPC & ICF, 2018), religion is another factor that contributes to high fertility, a significant factor predominantly in Northern Nigeria. Northern Nigeria's population mostly practices Islam, whose religious leaders' influence on the uptake of contraceptives is mainly negative. Because of the religious leaders' apathy and discouragement of contraceptive use among their members, the consistent likelihood of Northern Muslims giving birth to more than five children is significantly high (Adedini et al., 2018; Adebowale et al., 2019).

Literature has also shown from contemporary studies that family size and the family's economic well-being have a significant relationship. While an increase in the number of children can increase the size of the family, thereby reducing the family standard of living, especially among many rural-poor families, a small number of children/ small family size could improve the standard of living of the family because of the possibility of enough resources to meet the need of the small size. In a family with many children, consumption tends to increase with lower productivity; this can further decline the family's income per capita. Also, more family income is devoted to necessities and expenses such as clothing, food, and groceries, with fewer resources available for saving and investment. Housing tends to become overcrowded for a large family, which could encourage the easy transmission of infections through close bodily contact.

A study by Olaseinde et al. (2022) showed that in Nigeria, especially in the Northern part, fertility intention is very high, predicted mainly by education level, the current age of women, the desire of the husband to have more children and religion. These predictors indicated where the necessary research focus should be. Despite dwindling economic growth and prosperity, the Northern part of Nigeria has been consistently identified as a region with a high fertility intention and population growth rate. Among young people, evidence from the literature revealed that the desire to have a large family size is higher among young men (71.0%) and 53.0% among women (Akinyemi & Odimegwu, 2021). This desire was also primarily associated with the Islamic religion and the negative attitude toward family planning. This indicates that the young people who would be potential fathers and heads of homes currently have intentions for large family sizes despite the current economic and social realities. While many young men who showed this intention are of a particular religion, efforts at addressing the negative attitude toward family planning services must be taken seriously, which may require multiple interventions from the individual level to the policy level guided by the socio-

ecological framework theoretical underpinnings. Also, it is imperative to state that the increase in the community, state, and national population results from the actions and inactions of family units in reproduction. Many researchers have identified the role of male involvement in modern contraceptive use and family planning (Aung et al., 2020). However, some of the unmet needs for the usage of modern contraceptives have been linked to poor knowledge, bad attitudes, poor perception of men towards contraceptives, and poor access to family planning services, especially in rural and densely populated areas (Sedgh et al., 2020). A study by Bishwajit and Yaya (2018) has established a significant link between the non-use of contraceptives and the high prevalence of domestic violence in many homes. The study showed that the current prevalence of domestic violence (including physical and sexual violence) experienced by women of reproductive age in Nigeria is up to 31% (NPC & ICF, 2019). With up to 55% of abused women not seeking help to stop the violence, efforts to encourage contraceptive use among couples may become complicated and nearly impossible (Sedgh et al., 2020; NPC & ICF, 2019). Most previous research on family size, family planning and reproductive and family health has primarily been focused on the female population with little focus on men. This suggests why it becomes essential to investigate the health and socio-economic impacts of large family size and population growth in Northern Nigeria from both the male and female populations to have a robust empirical baseline to guide evidence-based interventions and pragmatic ways to address the growing Northern population and its health and socio-economic impacts.

1.3 Justification for the Study

With Nigeria's current high fertility rate (NPC & ICF, 2019), increased poverty level, and decline in GDP per capita growth (World Bank, 2022), efforts to reduce the fertility rate and increase productivity become more important. By the years 2050 and 2100, the world

population is expected to be about 9.7 billion and 11.2 billion, respectively, which is over 50% increase in the world population figure by 2100 with projections that the least developed and developing countries of the world, such as Nigeria will have a significantly increased population growth, close to 100% (IPCC Climate, United Nations Report, 2015). For a country like Nigeria, which has been declared the poverty capital of the world with a poverty rate of 50.1% (World Bank Report, 2020), this astronomical growth rate cannot be beneficial at all for the economy, health, and livelihood of the people. The current increase in the poverty rate shows insignificant improvement in the income of the poorest 50% of the population over the past decades (World Bank Report, 2020). It is, therefore, essential to stress the fact that the poorest of the population, especially those living in rural areas with low access to quality education, modern contraceptives, and healthcare, contribute significantly to the fertility rate as well as Nigeria's population growth (NPC & ICF, 2019). Meanwhile, it has also been estimated that Nigeria's population alone will increase to about 400 million by 2050 if serious interventions are not carried out (United Nations Report, 2015).

This projected increase calls for serious conversations, interventions, research, and policy to reverse this seemingly unproductive population growth rate in light of poor government planning and investment in the health of the growing population. Many studies in the past, especially the investigation by Schaeffer et al. (2012), have stressed and revealed that lowering birth rates through any means possible can increase the per capita incomes, wealth, and economic prosperity of any nation, as well as health outcomes. This has been exemplified by East Asian countries, including Taiwan, South Korea, and China, where the decline in birth rates has contributed to national growth, prosperity, and development. Therefore, research efforts toward addressing Nigeria's population growth become imperative.

While many studies have examined the association between child well-being and family size, limited studies have focused on the impact of large family size on population growth in Nigeria,

particularly in the densely populated northern region. Previous studies have instead focused on barriers to contraceptive use, adoption of family planning services, and knowledge of birth control.

In a recent study in China, Chen (2020) elucidated the impact of family size on parental investment and expenditure per capita. Using a longitudinal design, the findings showed that family size affects the per capita expenditure of the household. In terms of investment, the findings showed that having siblings significantly reduces parental investment in the firstborn child. This is because resources are shared with the younger siblings. The findings justified the two-child policy in China, where a family is only allowed by law to give birth to a maximum of two children as part of efforts to reduce population growth. The findings also in context, can be said to have more implications beyond the study location but are also applicable, especially in most developing countries where the rise in population has posed a social, economic, medical, and infrastructural challenge. The result of the China study by Chen (2020) supported the resource dilution hypothesis, which states that more children in a family have the potential to dilute parental inputs by dividing them among more children (Anastasi, 1956; Blake 1981, 1989). The dilution hypothesis posits a negative association between a child's well-being and having siblings. Conversely, the hypothesis submissions further emphasised that the number of siblings only becomes a problem in society and developing countries where parents are solely responsible for providing their children with resources. On the other hand, in the developed world or society where there are available social supports for children from the government, states, communities, and other extended family members, increased numbers of siblings and large family size may not minimise or significantly affect available resources to a child and thereby may have a less significant impact on child wellbeing.

Further research on factors affecting low contraceptive use in Northern Nigeria is the lack of access to information on contraceptive use, as well as poor access to contraceptives. A study

by Oluwasanu et al. (2019) on the use of contraceptives (modern) among Igbo women in Nigeria using data from the National Demographic Health Survey (NDHS) revealed that access to information on modern contraceptive use is poor, with most women having zero scores for contraceptive use. The findings indicated in a strong way that information access to contraceptive use can encourage optimum usage. This justified the findings by Sina et al. (2020) in Kaduna State, Nigeria, where just about one-fifth of women of reproductive age were reportedly using any modern contraceptives, which was primarily caused by many barriers, including the need for a husband's permission, financial, social, and normative factors. The Kaduna study revealed that women's empowerment would facilitate and largely encourage the use of modern contraceptives and help in bridging the unmet need for contraception.

A quantitative study among more than three thousand young men and women revealed that unmet needs for contraceptives are due to a lack of access to and availability of modern contraceptives and poor quality of care, with the low level of contraceptive use being associated with the significant prevalence of unwanted pregnancies in most States in Nigeria (Sinai et al., 2018). This suggests the need for a pragmatic approach toward access and availability of modern contraceptives is carefully implemented, as well as efforts to address socio-cultural and economic biases and barriers around contraceptive use. A study by Lopez et al. (2016) in a systematic review reported that a critical approach to encouraging contraceptive use might include using integrated and enhanced services where family planning services are integrated into other healthcare services. The study showed that the utilisation of modern contraceptives increased when the services were integrated into other healthcare services, especially maternal care and HIV services. In another study in three African countries, Nigeria, Kenya, and Senegal, by Gueye et al. (2015), it was revealed that there is a need for a more serious approach toward community education and correcting the myths surrounding contraceptive use in many African communities. The study further posited that negative misconceptions and myths

surrounding contraceptives constitute a significant barrier to the use of modern contraceptives in Africa. There are beliefs and misconceptions that "using contraception is a sign of promiscuity", "contraception can harm the womb", "contraceptives can make someone not to be pregnant again", "people who use contraceptives end up with health problems", "contraceptive is dangerous and can negatively affect women's health" (Gueye et al., 2015. p. 15). These myths, which are not based on empirical and scientific evidence, made it imperative that further studies on the extent of effects of non-use of contraceptives as well as interventions focusing on public education on misconceptions surrounding contraceptive use should be taken more seriously to encourage increasing modern contraceptive use to address the growing fertility rate and manage the population growth rate.

Meanwhile, some studies have revealed that education is a vital intervention approach toward increasing contraceptive use because of the positive relationship between contraceptive use and the level of education. A study by Ononokpono et al. (2020) using the Nigeria NDHS data among a sample of 12186 married women across various socio-ethnic and socio-geographical locations revealed that significant usage of contraceptives was more among women who are educated at least at a secondary level. Those who have tertiary education qualifications were significantly reported to have a higher level of contraceptive usage. Essentially, this shows that education is a meaningful way that can help to encourage contraceptive use among women of reproductive age. However, despite some of the recommendations in previous studies, there needs to be more research evidence on the health and socio-economic impacts of large family sizes and population growth in Northern Nigeria to provide a solid basis for community-directed interventions and policy formulation and/or necessary amendments. Perhaps most studies have focused only on women.

Documenting local community perspectives on the impacts of population growth can provide quality insights into people's perceptions. Also, allowing people to suggest a way to address

large family sizes and the growing population can be significant in the interventions' adoption. This study, therefore, explored the impact of large family size and population growth on health and socioeconomic well-being in Northern Nigeria from the perspective of both male and female community members (those with large and small families), community stakeholders, healthcare professionals, and policymakers to have robust evidence for informed interventions and policy change.

1.4 Aim of the Study

This study aims to explore the impact of large family size and population growth on health and socio-economic well-being in selected States of Northern Nigeria.

The nature and impact of family size and population growth are unique to each community and can only be understood through a comprehensive investigation of the community in question. Understanding the impact of large family size and population growth in selected states of Northern Nigeria provides an opportunity and empirical evidence for the health systems and the other sectors that contribute to the health and well-being of the people to make effective planning against the negative impact of massive population growth as well as develop a culturally appropriate, sensitive, and accepted intervention to address population growth and large family size. Nigeria is facing a challenge of population growth, and Northern Nigeria has been selected for this study because the region contributes to over 65% of the Nigerian population (Nigeria National Bureau of Statistics and National Population Commission, 2022). Determining the impacts of large family size and population growth on health and socioeconomic well-being from the perspectives of the community members themselves as well as various stakeholders can present an opportunity to revise and revamp the current family planning services and policies at the community, local, state, and national levels. It can also help guide essential policy formulation around population control, health, and the well-being of the people.

1.5 Research Objectives

To achieve the aim of this study, the specific objectives include the following;

i. Explore the determinants of large family sizes and document their perceived effects on health and the socio-economic well-being among community members in selected states of Northern Nigeria

ii. Document the stakeholders' perception (traditional leaders, religious leaders, policymakers/ political leaders, and healthcare professionals) of the population size and its influence on health and well-being in the selected states of Northern Nigeria

iii. Examine the attitude towards birth control among community members and stakeholders in selected states of Northern Nigeria

iv. Identify ways to encourage family planning services and address the growing population from the perspectives of community members and stakeholders in selected states of Northern Nigeria

1.6 Significance of the study

The significance of this study is that it will enhance thinking, knowledge, and understanding about how large family sizes and population growth impact the health and socio-economic well-being of Northern Nigeria, with the broader aim of improving the quality of life. The diligence and rigour employed in this research's methodology strengthen its innovative contribution to research and practice, and the study's originality.

In Northern Nigeria, the high population growth rate poses significant public health and social challenges. However, a large population could provide a demographic dividend if adequately harnessed. Understanding the impacts of large family size and population growth is essential to guide public health and social interventions to address the increase in population and the socio-economic and health implications. When family size and population growth are not

adequately managed and controlled, the impact may be devastating, ranging from health to socio-economic development, environmental degradation, mortality, and climate change, which are the main challenges of the 21st century (UNDP, 2023; Stephenson et al., 2013).

Besides, to enhance the quality of life of people and bridge the inequality gap, there is a need for effective planning based on demographics. Therefore, community-based perspectives on the issues around family size decisions and population growth can increase knowledge and help establish a culturally sensitive framework for a community-directed approach in addressing some of the community challenges arising from large family size and population growth. It can also clarify how to control the increase in population and the desire for large family sizes.

Many studies have explored the importance of family planning services and the barriers to using them among different population groups. More research is needed to increase the adoption of family planning services to improve health outcomes and address population growth.

Moreover, research examining the health and socio-economic impacts of large family size and population growth in Northern Nigeria using an exploratory approach is limited. In essence, none is reported in the literature. Adopting the socio-ecological model and the Silences Framework to understand the community dynamics and perspective around family size and population growth in a patriarchal society such as Northern Nigeria can help understand the multi-facet determinants of large family size and population growth and provide more precise insights into its health and socio-economic impacts, and on how community-directed efforts can be used to address the population growth. The qualitative research informed by the interpretative inquiry provides evidence for planning holistic and effective community-directed culturally and religiously sensitive interventions to address the desire for large family size and population growth.

The original contribution to the existing knowledge of this study is that it offers rich qualitative data to better understand the determinants and impacts of large family sizes and populations in Northern Nigeria. It provides a dynamic, holistic perspective on the cultural and religious influences in the everyday life of an average African, Nigerian and Northerner. It establishes the importance of the religious and culturally sensitive community-directed approach in public health intervention for family planning programmes and population control interventions. This knowledge will provide clearer insight into community mobilisation, participation, and engagement in public health programmes. It will also provide social scientists, public health promoters, and educators with an understanding of cultural and religious beliefs and how they affect the adoption of social and public health interventions.

Ultimately, the issues underlying the aim of this research are reducing health inequalities and improving the quality of life. This study identified how to address the socio-economic and health impacts of large family size and population growth. It provided a deep insight into the social norms and beliefs that could help to approach and guide behavioural change intervention and improve overall health and wellbeing.

1.7 Scope of the study

As part of efforts toward population control and management, this research focuses on the Northern Nigeria population, with participants sampled across two selected States of Kano and Nasarawa. The two States represented the core Northern and north-central populations where large family sizes and high population growth rates are most prevalent. According to the Nigeria National Bureau of Statistics (2020), the highest fertility rate in Nigeria is recorded in Kano State, which has maintained the highest population of approximately 15 million people. Northern Nigeria accounted for 68.8% of the total live births in 2019, with projections that it will increase in the coming years (National Population Commission, 2020).

The growing population figures in this region portend some health and socio-economic impacts, including the risk of families and communities being unable to consistently meet basic needs such as food, clothing, housing, healthcare, transportation, security, and utilities. Hence, understanding this population group is crucial for public health planning, interventions, and community development.

Table 1.0: Nigeria's total live births per zone

Nigeria geo-political zones		**2017**	**2018**	**2019**
North East	***Core North***	19.28	24.5	29.1
North West		23.18	29.7	22.3
North Central	***Middle belt***	21.12	15.3	17.4
South East	***South***	8.74	6.5	6.6
South South		4.07	2.7	3.5
South West		23.61	21.3	21.1

Source: National Population Commission, 2020.

1.8 Operational Definition of Terms

Impact: This is the measurable outcomes or effects of population size on the health and well-being of an individual, community, and nation (Alla et al., 2017)

Health: Is a complete state of physical, social, emotional and mental well-being and not just the mere absence of infirmity or disease (WHO, 2022).

Population: This is defined as the total number of people inhabiting a home, community, territory, or geographical location at a specific period (WHO, 2022)

Wellbeing: This is the state in which an individual and family are in a state of functioning well and can realise abilities and cope with life's stresses, and contribute meaningfully to society (Ruggeri et al., 2020)

Socio-economic well-being: "Is the ability of an individual, families, and communities to develop, share and sustain cordial relationships and be able to consistently meet their basic needs (including food, housing, utilities, health care, transportation, education, childcare, clothing, and pay taxes), and have control over their day-to-day finances" (Finkelstein et al., 2022, p. 1701; Council on Social Work Education, 2016; Cicognani, 2014).

Small family size: This is a family size of a father, mother, and a maximum of two children

Moderate family size: This is a family size of a father, mother, and a maximum of three or four children

Large family size: This is a family size of a father, a mother, and more than four children.

1.9 Thesis Structure

This thesis has seven chapters that discuss the different aspects of the study. Each chapter also has sub-sections where different concepts are clarified in detail to help readers understand this research.

Chapter One of this thesis presents the empirical background to the study with a detailed analysis of the study rationale, the problem statement, the research scope, aims, objectives, and the operational definition of terms. Chapter Two presents the literature review, Chapter Three discusses the theoretical framework and research model, Chapter Four presents the research methodology, Chapter Five presents the results of emerging findings, Chapter Six presents the discussion of findings, and Chapter Seven presents the conclusion of the research findings and recommendations from the study.

1.10 Gantt Chart

The stages of this research are presented in a Gantt Chart, which represents all activities and milestones of this project against timelines. During the planning stage, the Gantt Chart helped to set priorities, and during the implementation of the research, it helped to guide and track progress, as well as assist in project time management.

Activities/ Timeline	**Year 1**				**Year 2**				**Year 3**			**Year 4**
	April-June	*July-Sept*	*Oct-Dec*	*Jan - March*	*April-June*	*July-Sept.*	*Oct-Dec*	*Jan., - March*	*April-June*	*July-Sept.*	*Sept-April*	
Proposal												
First draft of literature review												
Project approval												
Draft of the Methodology chapter												
Ethical Approval												
Pilot test												
Data collection												
Data transcription and preparation for data analysis												
Data analysis												
Chapter One draft												
Chapter Two draft												
Chapter Three draft												
Chapter Four draft												
Chapter Five draft												
Chapter Six and Seven draft												
Submission of full thesis draft/feedback												
Participation in training, workshops, seminars, symposiums and conferences												
Work on research publication												
Submission of final draft/ feedback												
Final write-up												
Submission												
Examination												
Post-Examination												

1.11 Chapter Summary

This chapter presents a detailed background and rationale for this study while articulating the research aim and objectives. The interest in carrying out this research was driven by the high

rate of poor children roaming around the streets begging for alms without clothing, access to quality healthcare and shelter in many parts of Northern Nigeria, and yet seeing parents of these children still giving birth to more children despite not being able to cater for the ones they already had. The chapter discussed the significance and the scope of the study for exploring the underpinnings of large family size and population growth, as well as the impacts of large family size and growing population on health and socioeconomic well-being in Northern Nigeria, to use findings to deliver interventions based on empirical evidence to improve livelihood, health, and well-being and the overall quality of life. The chapter also discussed the structure of the entire thesis and the activities and milestones of this project against timelines in a Gantt Chart, which helped to set priorities and track the project's progress.

The next chapter (Chapter 2) presents a review of relevant literature on the health and socio-economic impacts of large family size and population growth in Northern Nigeria, guided and structured by the socio-ecological model and framework.

CHAPTER TWO

LITERATURE REVIEW ON EXPLORATION OF THE HEALTH AND SOCIO-ECONOMIC IMPACTS OF LARGE FAMILY SIZE AND POPULATION GROWTH IN NORTHERN NIGERIA

2.1 Introduction

This chapter presents a review of the relevant literature for this study. The review of the literature was conducted to explore the current and contemporary research related to this study, mainly looking at the effects and impact of family size and population growth on health and socio-economic well-being and the factors that contribute to large and small family sizes and population growth globally, Nigeria and mainly the Northern region of Nigeria. Family size and population growth are important health determinants that can impact the health of the household, the community, and the nation. Understanding the factors contributing to family size, population growth, contraceptive use, and the utilisation of family planning services can be instrumental in planning and driving public health interventions to improve people's health and social and economic well-being. According to the Nigeria National Demographic and Health Survey (NDHS) data (2019) and the study by Wohlin et al. (2021), family size and population size potentially influence and impact socioeconomic well-being either positively or negatively, depending on national healthcare planning, financial planning, available resources, and public policy.

There have been several empirical findings that have revealed a low level of utilisation and adoption of family planning services and contraceptive use, especially among the low-income strata of society. The low use of family planning services has also been reported to be significantly higher in this study location- Northern Nigeria. It is now vital to explore the factors contributing to family size, the effects of family size and population growth on the

health and socio-economic well-being of the people, as well as determining the perception and attitudes towards birth control and contraceptive use among community members and key stakeholders of influence, in Northern Nigeria.

This chapter, therefore, presents existing knowledge about this study. It also articulates the literature synthesis on the different factors and barriers to utilising family planning services and family size decisions. The socio-ecological framework guided the review, and the model subheading was used to organise the themes from the sourced literature. The concluding part highlights some empirical review while also presenting the gap in the literature from the reviewed studies used as the basis for this study.

2.2 Search Strategies for the Literature Review

A focused literature search was carried out for this chapter, which was done through a thorough, comprehensive, broad-based exploration of published books and research articles using important academic databases such as PubMed/ Medline, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Applied Social Science Index and Abstracts (ASSIA), Web of Science, Embase, Cochrane Library, Sage Journals Database, and Google Scholar. Other grey literature, reports, monographs, and policy statements were searched across the World Wide Web and textbooks. References from the searched papers were also further selectively searched for more relevant research papers. Only published research articles were considered for review. An extensive literature search was done using databases to identify and download articles on family size, family planning, population growth, and cultural and religious practices' influences on the use of contraceptives and the adoption of family planning services. Also, studies on population and family planning policies and history in Northern Nigeria and the entire Nigerian State were reviewed. Studies from 2005 to date were primarily used for the review. The time frame for the literature search was to help capture a full range of

recent relevant articles on the research topic and objectives to provide a succinct thematic synopsis of current knowledge and lay an excellent foundation for the knowledge gap.

Meanwhile, more than 75% of the articles used for this review were from within the last five years. Specific terms such as Nigeria, Northern Nigeria, and sub-Saharan African populations were used for the literature search because of the limited literature available on family size and health and the impact of population growth in Nigeria. Articles that did not refer to the impact of family size and population growth on health and well-being, contraceptive use, family planning and population control were excluded from the literature search because they were irrelevant to the research objectives.

These terms were used during the initial literature search based on the research title: Impact OR Effect AND “Family Size” OR “Household Size” OR “Home Size” AND “Population Growth” OR “Population Increase” OR “Population Rise” AND Health AND “Socio-economic” AND Wellbeing OR Welfare OR Prosperity OR Fortune AND “Northern Nigeria” OR Nigeria OR “Sub-Saharan Africa” OR Africa.

It is crucial to state that the literature review presented in this chapter includes all available relevant publications related to this study. The literature review document was updated based on emerging publications and publications pertinent to this study until the thesis was submitted. This review is presented under the following headings.

i. Overview of Population Growth and Health
ii. Trends in Nigeria's Population Growth Rate
iii. Socio-ecological framework guiding the review themes
    - Individual Factors
    - Interpersonal Factors
    - Organisational Factors

- Community Factors
- Societal/ Policy Factors

iv. Empirical Review

v. The observed knowledge gaps in the reviewed studies.

2.3 Overview of Population Growth and Health

According to the United Nations Development Programme (UNDP) human development report (UNDP, 2023), up to 485 million people live in severe poverty across 110 countries of the world, with most of the people living in sub-Saharan African countries. Further to this report, five in every six poor people live in sub-Saharan Africa or South Asia, with 47.9% of the total poor people in sub-Saharan Africa.

Nigeria, the largest country in Africa and sub-Saharan Africa, has a large share of the poverty index (UNDP, 2023). The increase in the poverty rate and level of underdevelopment, coupled with a deteriorating healthcare system, is a major concern because poverty has been associated with a lack of housing, sanitation, deprived nutrition, quality education, child and maternal mortality, and lack of basic social amenities, as well as access to quality healthcare (UNDP, 2023). These negative realities have been associated and connected with rapid population growth, poor governance systems, low investment in health and education, and the increasing debt profiles of many African countries (Adeyeye et al., 2021).

In Nigeria, the effects of poor economic policies, as well as inadequate and poor planning for the increasing human population, have been the drivers of the current high poverty level and the poor health situation. Population growth has rapidly increased with no explicit implementable sustainable policy action at the national, regional, and local levels (McCartney et al., 2021; Tan et al., 2022). The Nigeria National Population Policy (2021), which sets out the provisions for national actions for population control, has also not shown sufficient time-

bound action plans to successfully manage or control the growing population. The Policy has presented only a mere descriptive analysis of the Nigerian population situation with limited and unclear action statements. With the current population growth rate of 5.3%, if practical efforts toward population control are not taken seriously, it could impede and constraint government activities and efforts toward fulfilling its constitutional provision of improving the quality of life of the people through sustainable healthcare provision and protection of lives and properties which is the primary responsibilities of government (NPC and ICF, 2019, Nigeria National Population Commission [NPC], 2021).

In the past two decades, evidence from National Demographic Health Surveys (NDHS) and the World Bank reports on Nigeria has shown that the population increase has significantly hindered the health systems, as well as the economic and social development, most especially in the Northern region of the country (NPC & ICF, 2019; World Bank, 2022). Currently, based on available data, about 70% of Nigerians live below the poverty line, with efforts to address this trajectory unclear (NPC, 2021). This implies the need for the government to be more concerned about addressing the growing poverty and underdevelopment.

Meanwhile, the large population of young people, especially in the Northern region of Nigeria, can be said to be contributing to a higher fertility level and an increasing population growth rate. An important indicator of population growth, which is family size, has also been found to have a significant adverse effect on child and maternal health, nutrition, and the required essential social support and amenities (Adeyeye et al., 2021; NPC, 2021; NPC & ICF, 2019). Large family sizes, in particular, could result in overcrowding and increase family expenses, affecting productivity and development.

Many socio-cultural phenomena, such as apathy to the use of modern and traditional contraceptives among men/husbands, preferences for a male child, religious beliefs, family

heritage, and child marriage, could be said to have contributed to the current reported population growth rate in Nigeria, which thus requires serious attention and community-directed actions. Meanwhile, despite these known issues, the National Population Policy (NPC, 2021), currently in operation, which should guide efforts toward population control, has no framework for a community-directed population control agenda. This necessitates the need for specific and clear community-directed efforts, such as provisions that empower community leaders (religious and traditional) and other key stakeholders to participate in population control activities.

It is also worth noting that while Nigeria's Population growth is predominantly working age population, which should ideally result in a high-level economic advantage and demographic dividend, the reality appears to be on the contrary because of the growing unemployment rate and lack of investment in education and health (Reed & Mberu, 2014; World Bank, 2022). Aside from Nigeria, which is experiencing serious population growth, Ethiopia, the second most populous African country after Nigeria, has been unable to achieve its development goal of ending poverty and extreme hunger because of continuous and rapid population growth (Alene & Worku, 2009). However, many citizens of Ethiopia were of the view that the government needs to legislate on the maximum number that a couple/ family could have. As is the case in countries like China, the citizens of Ethiopia feel that family size should be legislated. From the Ethiopian study, people's perception was aimed at addressing the issue of the growing population in the country. Meanwhile, despite these suggestions, no significant modest improvement has been reported on the growing population of Ethiopia, an African country like Nigeria (Befikadu & Tafa, 2022).

2.3.1 Population growth and climate change

Further research has shown that population growth has enormous good and bad consequences. A relationship was established between population growth and its impact on climate change, especially regarding carbon emissions, which contribute largely to the greenhouse effect and changes in climatic conditions. Lower population growth was associated with lower carbon emissions, with a reduced effect on climate change. A study by Casey and Galor (2017) on the role of population reduction in diminishing/ reducing carbon emissions revealed that reducing the population growth rate can lower the yearly carbon emissions by 35.0% and increase the income per capita by about 20.0%. Meanwhile, increased fertility was also documented to reduce economic outcomes because of large dependent populations. This makes it very important to state that population affects many facets of human life, including its effects on climate change because of carbon emissions, which are detrimental to human and animal health because they increase temperature and alter labour and economic activities. Climate change has also been reported to impact food security and the distribution of infectious diseases worldwide. In some previous studies, carbon emissions have been severally reported to cause human cancer (Di Napoli et al., 2022; Tan et al., 2022).

A study in Pakistan documented a relationship between carbon use/ emissions, population growth and negative economic outcomes (Mansor & Sultana, 2018). Also, a similar study by Sulaiman and Abdul-Rahim (2018) revealed an association between carbon dioxide emissions and population growth in Nigeria using the Autoregressive Distributed Lag (ARDL) approach. The ARDL approach showed that population growth contributes to the emission of greenhouse gases, especially carbon dioxide, because of human activities. Meanwhile, economic growth, which is impacted by

population growth, was also reported to significantly contribute to carbon emissions in both the short and long run. In essence, the impact of carbon emissions has significant adverse effects on health, especially respiratory health, the increased risk of cardiovascular disease, and death. Carbon emissions have also been documented to affect plant yield in agriculture, thereby affecting food production and leading to food insecurity and malnutrition (Sulaiman & Abdul-Rahim, 2018; World Bank, 2022; Tan et al., 2022).

Other research has shown a strong association between population growth and environmental degradation (Dimnwobi et al., 2021). This was reported to be largely a result of more carbon emissions by the large number of people living within a geographical location at a particular point in time. A study by Aiyetan and Olomola (2017) on the relationship between energy use and the rise in population established a very strong positive nexus. The findings revealed in an unambiguous way that population control efforts must become imperative to improve environmental quality and address issues relating to carbon emissions. This is because, as shown by literature, massive population rise and human activities pose a significant danger to environmental sustainability and human health, which is why action toward reducing fertility may be helpful.

2.3.2 Population growth and Malthusian theory

According to the Malthusian predictions (Agarwal, 2022), population growth was equated with poverty and pressure on resources. However, in recent years, many experts, especially those from the Western World, Europe, and America, have equated population growth with economic development and strength (Singh, 2021; Peterson, 2017). When there is a demographic dividend, population growth can become very

advantageous to developed and high-income countries because there are resources to support the growing population. In contrast, it could become very challenging in developing countries because of a lack of resources and planning to meet the increasing demand for a rise in population. In fact, in such cases, high population growth slows down development (Peterson, 2017). The population in Northern Nigeria is growing at an alarming rate, with a high rate of rural-to-urban migration because of the desire to seek economic power and greener pastures. However, this migration has also been associated with security threats, health and socio-economic risks, and other negative consequences such as accidents, kidnapping, and overcrowded urban centres (NPC & ICF, 2019).

Meanwhile, based on Becker's (1960) economic theory of family, it has been argued that fertility can be seen from the framework of economic capacity, with a positive relationship between fertility and income. In his analysis, income class could equal birth control knowledge, which has remained controversial. Similar previous studies have shown mixed results on the association between fertility and economic power and income, without consistent results. According to Willis's (1973) theory of fertility behaviour, a family's economic ability was reported to have significant implications for child quality, which is essential for fertility intentions to be based on economic ability and the wherewithal to take care of the new offspring. These positions support the neo-Malthusian proposition, which believes that an increase in income is accompanied by a decline in fertility (Mellos, 1988). Further argument by Becker and Barro (1988) on the economic theory of fertility posited that fertility positively depends on the probability of child survival, growth and the degree of altruism.

Moreover, from history, since the 1960s, after Nigeria’s independence from the British Colony, evidence from demographic data has shown a consistent increase in the fertility rate of Nigeria

with large dependent populations that are not economically productive. This reality has affected Nigeria's overall economic performance and output from agricultural and other sectors. Evidence from the United Nations Population Fund also revealed that Nigeria's fast-growing population rate contributes largely to the fast-growing demands on land, infrastructure, healthcare, the environment, and the ecosystem (United Nations, 2017). As such, an increase in population tends to keep incomes low, and, in many cases, it makes income stagnant due to the high demand for goods and services. In some cases, though not general, it could suggest the lack of or inadequate government deliberate planning, investment, and actions toward addressing and meeting the demands of the increased population growth.

According to the NDHS data, the high population growth rate in Nigeria can be associated with the unwillingness of many government officials to support population control activities such as the promotion of contraceptive use and family planning because of the perceived political advantages arising from the large population size (NPC & ICF, 2019). In many quarters, particularly in the Northern region, a large population is believed to have a political advantage during elections to gain political power because many could vote against an opponent from the other region. However, despite the perceived political advantage of the large population size, in many of Nigeria's Northern States, because of the high demand for basic infrastructure and amenities by the growing population, the capacity of the States to manage the growing population size is lacking and, in some cases, becoming burdensome. Many state governments do nothing to control or manage the growing population because of the perceived electoral advantage.

2.4 Trends in Nigeria's Population Growth Rate

While it is unclear to state the specific number of Nigeria's population size due to the quality of demographic data and because the last National Census was about two decades ago,

Nigeria's population size remains very large and growing rapidly, which has been projected by the UNDP (UN, 2022) to be about 400 million by 2050. According to the UN Report (2022), many countries are already forming policies to reduce the fertility rate. The most important policy actions are to lower fertility as much as possible as a critical effort toward curbing population growth. Most of these policies have promoted smaller families and facilitated access to reproductive and sexual health services. The UN report also indicated that the data from the world population policies showed that most developed countries currently have programmes and policies aimed at declining fertility levels; it also revealed that government policies on fertility vary across different regions of the world, and many population policies feature government-sponsored family planning programmes while countries with low fertility levels promote childrearing, childbearing, and fertility.

In Nigeria, based on the National Population Commission report of 2021 containing the national population policy, Nigeria's population was estimated at 206 million, which is projected to double if the annual growth rate is not checked. Nigeria currently has an estimated population of 233 million (Worldometers, 2024). In 2006, the population of Nigeria was 140,431,790 persons based on the national housing census, and it was projected to grow by 3.2% annually. However, in fewer than 20 years, the population has grown by over 70 million persons. Using the mortality and fertility trend, Nigeria's population is 70% young people, with most under the age of 30 years. While 42% of Nigerians are under the age of 15 years, 3.1% are 65 years old and above, making the dependency ratio 82 to 100 per person.

Nigeria's annual population growth rate has been increasing since 1950 (see figure 2.2). With most Nigerians being of a young age, it is an important potential for harnessing the demographic dividend, which could only be achieved based on appropriate actions and programmes, which could be said to be currently lacking in Nigeria- evident from the low investment in human capital development, particularly in the areas of education and health.

The national budget for education and health is currently less than 10% of the total budget for the past ten years (Federal Ministry of Finance, Budget, and National Planning, 2023).

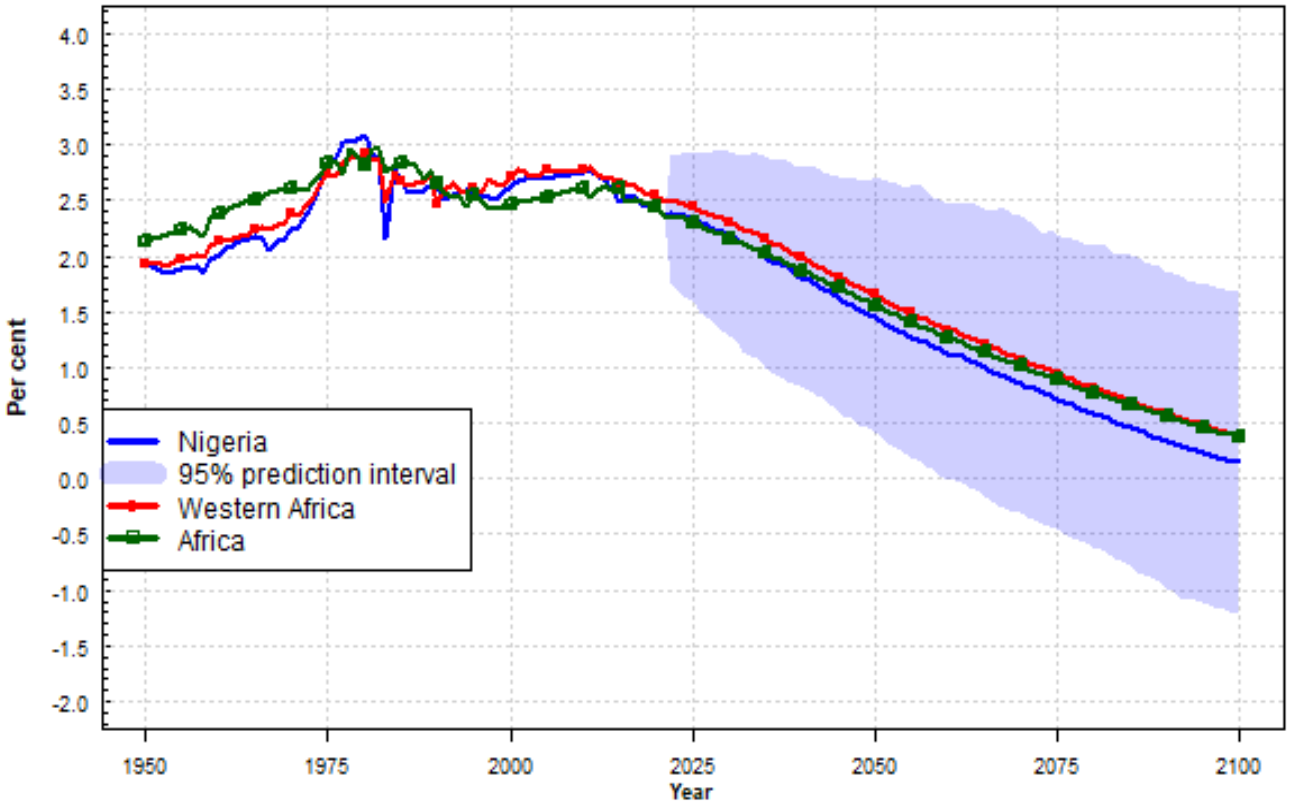

Figure 2. 1: Nigeria's annual rate of population change (United Nations, Population Division, 2022)

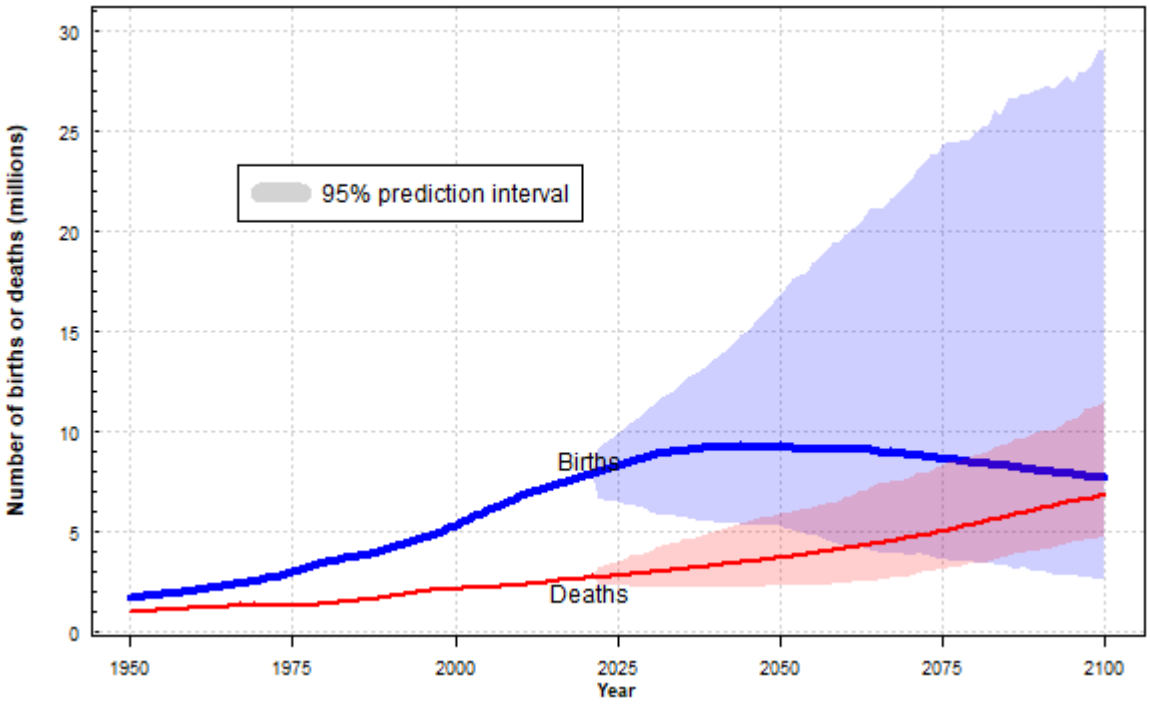

Figure 2. 2: Nigeria's annual number of births and deaths (United Nations, Population Division, 2022).

Figure 2. 3: Map of Nigeria showing the different states and regions.

Source: *World Atlas.*

Meanwhile, the continuous rise in population in Nigeria has been reported to be due to the low female education, low use of modern contraceptives and early childbearing, with a current total fertility rate of 5.3 live births per woman (NPC & ICF, 2019). Because of the poverty and poor healthcare system arising from the low investment and budgetary allocation in health, the morbidity and mortality rates in Nigeria are high. Maternal, infant, neonatal and child mortality is higher compared to many developed countries. For example, the current maternal mortality ratio is 512 deaths per 100,000 live births, child mortality is 67 per 1000 live births, and under-5 mortality is 132 per 1000 live births.

Furthermore, the nation's population is unevenly distributed, with more than half of the population living in the urban centre (National Bureau of Statistics, 2019). Due to the desire and search for social amenities, employment and other opportunities, which are lacking in many rural areas in Nigeria, rural-to-urban migration is the most significant type of migration. The migration of people from rural to urban areas has resulted in a sudden surge in the cities' population, creating serious problems of sanitation, food shortage, housing, unemployment, and increased crime rate. This has also impacted the health and socioeconomic livelihood of many urban dwellers. The growing population also exerts pressure on families' finances. With large family sizes and poor families, it can become challenging and burdensome to provide adequate healthcare, nutrition, care, housing, shelter, and support for all the family members.

At a 3.2% annual population growth rate, Nigeria's population would potentially double if the rate persists, and this would require doubling the entire national infrastructure, education facilities, food production, water supply, housing, and healthcare for the people to live a decent life. Therefore, effective population management programmes must be seriously pursued and implemented in Nigeria's population growth. Also, efforts to improve the productivity of the youthful population need to be taken more seriously to enhance the harnessing of demographic dividends.

Nigeria is divided into six (6) geopolitical zones: Northwest, Northeast, North Central, Southwest, Southeast, and South-South. Northern Nigeria, with three zones like the southern part, accounts for over 65% of the total Nigerian population. The northern region has a higher population growth rate (8.74%), with many large families existing without means of sustenance (NBS and NPC, 2022).

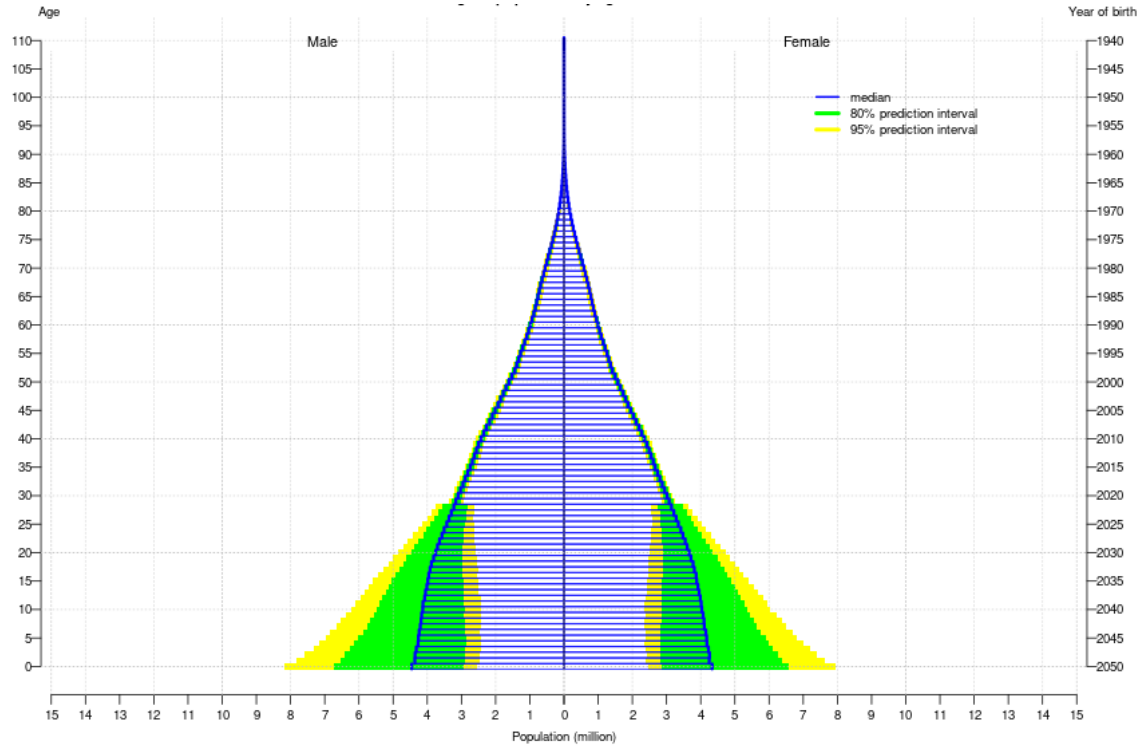

Figure 2. 4: Nigeria's population by age and sex (United Nations, Population Division, 2022)

2.5 Socio-ecological framework guiding the review of literature

The presentation of themes in this review was guided by the Socio-ecological model, which considers the interactions of intrapersonal (individual), interpersonal, organisational, community and societal/ Policy factors that influence human behaviour and health outcomes. This model, an important theoretical framework for behavioural sciences, has been discussed extensively in Chapter 3 of this thesis.

2.5.1 Individual factors

An increase in large family sizes has been documented to result from many factors. Studies have revealed some of these factors, which are both intrinsic and extrinsic. A major determinant of fertility decline has been established to be the individual's level of education, which is a personal factor. Women who complete at least a secondary school education have been reported to have significantly lower fertility. A study in Uganda by Ariho and Nzabona (2019) revealed that completion of secondary education by rural women was a key driver of low fertility. The decline in fertility also has the potential to reduce the possibility of having a large family size because a major driver of large family size is the rise in fertility level. When a woman gives birth to more than three to four children, the household population significantly increases and can become burdensome when resources are inadequate to meet the family's needs, especially for multiple children. A previous study by Ahmed (2007) in India revealed that the parental level of education primarily impacts family size. The results from the primary research showed that families where both the husband and wife were educated have a more significant preference for a small family size compared to families where there is a single, educated parent or both are uneducated.

Another determinant reported in the literature to be responsible for family size is the age of couples at the point of marriage, which is also an intrapersonal factor. Early marriage was reported to contribute to large family size, aided by high fertility levels and a long period of productivity for women (Aiworiaboakuelu et al., 2016). The possibility of high fertility is a strong determining factor for population increase. This is because the aggregate of the large family size, which is the smallest unit of society, contributes to the overall population of such societies. This suggests that the holistic education of girl children is paramount, as well as efforts toward improved access to education in rural areas and interventions to change the negative perception and attitudes toward contraceptive use and family planning services.

Meanwhile, to achieve excellent results, the use of the local language may be encouraged for the education and enlightenment programme. However, while it is good that the girl child and rural women are educated, the boy child and the rural men should not be left out. The findings by Aiworiaboakuelu et al. (2016) firmly emphasised that all efforts at educating both males and females on the importance of having a moderate family size and using contraceptives and family planning services are essential to achieve a considerable impact.

A similar study in Kuwait by Hamadeh et al. (2008) on the determinants of family size in Gulf Arab countries found that the low usage of contraceptives is associated with a lower level of education of both the husband and wife. The study revealed a significant association between the level of education and family size, which further indicates that families whose husbands and wives are well-educated have smaller family sizes than couples with lower education levels. Education was seen as an important individual factor to guide informed decisions on healthy life choices, contraceptive use, and the utilisation of family planning services.

Furthermore, the desire to have many children to care for the parents in old age has been reported as a determinant of large family size preference, thereby contributing to the growth in population. In a study in Taiwan by You and Henneberg (2022) using the World Health Organisation's data and some countries' data where dementia was prevalent, a correlation and regression analysis of these data showed that having a large family size/ household protects against dementia mortality. The findings show that a large family size can create more joy and happiness than a small family household. The study proved that a lower/smaller household/ family size could be a risk factor for dementia and, hence, the need to increase/ encourage positive interaction between families to prevent mortality due to dementia, which could easily be exacerbated by loneliness. The fear of loneliness in old age and individual desire for joy and happiness have encouraged many parents to have more children (You and Henneberg, 2022).

Personal parental preference for a male child was also a major determinant of family size. A woman keeps reproducing until she gives birth to a male child. This, however, is driven by many traditional and cultural sentiments for male children (Ahmed, 2007).

Moreover, the use of contraceptives and family planning services has also been shown to be driven by individual factors. The long-acting reversible contraceptives, such as implants and intrauterine device methods, which have been established to be more convenient, highly effective, and cost-effective with little or no maintenance need, have been reported to have low usage in Nigeria- 14.8% (Branum & Jones, 2015; Bradley, 2011; Bolarinwa & Olagunju, 2020). The low level of utilisation of long-acting reversible contraceptives has been associated with a low level of awareness and knowledge of the importance of their use, which are individual personal factors. Predictors of the uptake of long-acting contraceptives have been shown to include age, wealth index, social media exposure, and level of education (Adedini et al., 2019), while the significant barriers to the use of long-acting contraceptives were being poor, living in a rural area and having no education.

Similar cross-sectional research in Urban Nigeria has shown a significant relationship between modern contraceptive use and media exposure, such as radio, television, and mobile phones (Bajoga et al., 2015). According to the study, individuals who were exposed to family planning messages on the media at least three months before the survey used modern contraceptives when engaging in sexual activities compared to those who had no media exposure to information on family planning services. The study suggests the need to make family planning information and services available for young people. This is because modern contraceptive use interventions have, over time, been focused only on married people. Young people are neglected, whereas many young people mostly engage in unprotected sex, resulting in unwanted pregnancies, even at a point when they have no economic capacity to adequately nurse a child, not to mention children (Ajayi & Okeke, 2019; Biggs & Foster, 2013).

A study on traditional contraceptive methods used by many Nigerians showed that up to 50% of the people preferred traditional contraceptives to modern contraceptives. This revealed individual personal preferences, perception and attitude. The study showed that the preferred traditional contraceptives were prolonged and exclusive breastfeeding, abstinence, and the use of herbs (Ajayi et al., 2012). The high fertility rate and low utilisation of effective contraceptives in Nigeria are predominant in Northern Nigeria (Hutchinson et al., 2021). In most parts of Northern Nigeria, the decision to use contraceptives was largely influenced by the personal knowledge of users, the social support received from husbands, as well as prior personal experience of the effectiveness of the use of the type of contraceptives. Meanwhile, a cross-sectional design study at Nasarawa State in Northern Nigeria, Tanzania, and Ethiopia revealed a high percentage of unmet needs for modern contraceptives. In this study, the prevalence of modern contraceptives was significantly lower in Northern Nigeria (8.7%) (Atchison et al., 2019). The low-level utilisation of modern contraceptives in many rural communities of Nigeria was associated with personal misconceptions and myths, which include that the peak of sexual satisfaction cannot be attained with contraception (Akinwale et al., 2020). Therefore, because of these misconceptions, there has been a decline in the level of utilisation of modern contraceptives in most rural communities in Nigeria, thereby contributing to the high fertility rate and the large family size.

To ensure that many people, especially women, utilise modern contraceptives, a study by Sheahan et al. (2021) advocated for the integration of family planning programs/ services into routine child immunisation services for postpartum women during visits for child immunisation. This was projected to significantly affect the efforts to educate women within the reproductive age in child spacing and family planning. To prevent unwanted pregnancy in the most significant way as well as to ensure contraceptive use is optima, a longitudinal study carried out in Kaduna State (Northern Nigeria) and Lagos State (Southern Nigeria) by Dwyer

et al. (2022) posited that women's high motivation to avoid pregnancy is a significantly vital factor to encourage the continued use of contraceptives at the individual level. Women must be highly motivated to prevent pregnancy before they can utilise contraceptives consistently and correctly.

However, a study from southeast Nigeria showed that many people feel that the use of contraceptives for family planning purposes is interfering with God's plan for family fruitfulness and procreation, and this is largely rooted in personal beliefs and perception. (Akamike et al., 2020). From the above, it is clear from the literature that many personal and individual factors, such as level of education, age, knowledge, attitude, perception and beliefs influence family size decision, contraceptive use and adoption of family planning services, which impact population growth and health and wellbeing.

2.5.2 Interpersonal Factors

Interpersonal factors are important determinants of health, and they mostly influence health choices. The interpersonal relationships between husbands and wives, in-laws and peers have been shown to impact family size decisions. Many interpersonal impediments and barriers have been identified to the use of contraceptives or the uptake of family planning services in many African settings, and this has largely impacted the fertility rate and growth in population.

A study in Ghana by Apanga and Adam (2015) revealed that despite the considerable level of awareness about the utilisation of family planning services, the utilisation level is low due to some husbands' opposition to use, which was significantly common among most traditional African men. A similar study carried out in Bauchi State in Northern Nigeria revealed that up to 80% of utilisation of family planning services was dependent on the acceptance of the husbands of the choice of the methods of contraceptives. Cultural acceptance, as well as prior experience with the effectiveness of a method, were also contributory factors to usage

(Epenyong et al., 2015). The study emphasised the need for male (husband) involvement in contraceptive use as well as the need for cultural reorientation. Furthermore, the following interpersonal factors contribute to the family size decisions and population growth.

i. Cultural belief: Different regions have unique beliefs, cultures, and practices. In Northern Nigeria, for example, cultural beliefs support patriarchalism, giving men family leadership (Olaseinde et al., 2022). A significant barrier to the use of modern contraceptives, even in civilised communities of southern Nigeria, was partner disapproval, which is premised on the cultural beliefs that contraceptive use must be based on the approval of the husband, the significant other. This is because husbands are seen as the head of the home and must give orders and approvals on such an important family decision (Maitanmi & Olowolabi, 2020). Without husbands' approval, contraceptive use in many families becomes impossible. Socio-cultural barriers around the patriarchal system and myths surrounding modern contraceptive use have affected the efforts toward the use of family planning methods in many African communities. Also, according to the study by Akinyemi et al. p. 5 (2020), 'the deep-rooted cultural belief that children are a divine blessing and that procreation is the will of God, therefore, should not be regulated' constitutes a significant obstacle to the uptake of modern contraceptives in many patriarchal societies, especially Northern Nigeria.

ii. Fear of side effects: The lack of husband support and fear of side effects of contraceptives is also another major impediment to contraceptive utilisation, which has contributed to a high fertility rate and a surge in population in Nigeria. Ajayi et al. (2018) used a mixed method to examine the barriers to contraceptive use in parts of Nigeria, and the findings showed that the fear of the side effects of contraceptives and the lack of husband support were major barriers to contraceptive use. The fear

has driven many reproductive-aged women to rely on using traditional contraceptive methods such as withdrawal, periodic abstinence, and rhythm methods, which have been adjudged to be ineffective, and often lead to unwanted pregnancies and contribute to large family sizes. Changing the misconception surrounding contraceptives can help reduce the fear of side effects and harness husband support.

iii. The desire for more children by both partners: In southwest Nigeria, Durowade et al. (2017) showed that the desire to have more children was a significant barrier to contraceptive usage. The educational level of both parents was, therefore, key in predicting the desire for more children, thereby influencing the high level of use of contraceptives. A desire for a large family, which explains the prevailing mindset of most people in Africa, especially those who are not privileged with a Western education, was conspicuously revealed as a barrier to the uptake of modern contraceptive and family planning services. This was also documented by Olaolorun et al. (2016) in a study at Ibadan, southwest Nigeria. This means the fertility desire of the husband and wife can influence their contraceptive behaviour.

iv. Religious belief: Sedgh and Hussein (2014) reported religion as a barrier to contraceptive use and other family planning methods. The Islamic religion was found to have more apathy toward the high use of modern contraceptives. Also, according to Durowade et al. (2017), the level of utilisation of contraceptives among Christians was significantly higher compared to those who practice the Islamic and African traditional religions. A similar study revealed in clear terms that Christians have a higher level of contraceptive use than Muslims, with condoms and injectables mostly used among some Christians (Adebowale et al., 2016).

v. Contraceptive Access: Access to contraceptives has been reported as a barrier to the utilisation of contraceptives, especially in rural areas. People who live in urban areas reported a significant improvement in access to contraceptive use than people who live in rural areas. Therefore, improving efforts at reducing contraception's financial and psychosocial costs may significantly increase the level of contraception uptake among males and females across different locations (Olaolorun et al., 2016; Ajayi et al., 2018).

vi. Illiteracy and unemployment: Illiteracy and lack of education were other significant barriers to contraceptive use across different populations. Women who were empowered and had jobs were 36.9% more likely to use modern contraceptives than those who were poorly empowered or in the lower socio-economic class (Ajayi et al., 2018; Durowade et al., 2017). Women's empowerment has been adjudged to be one of the critical strategies to encourage the use of modern contraceptives.

Moreover, the influence of male involvement is critical in family planning interventions. Male involvement can enhance interpersonal relationships and decisions. Many studies have supported the need for male involvement in family planning services. In African settings where men are mostly seen as significant decision-makers in the home, efforts to involve them in utilising family planning services must be carefully considered. A study by Tao et al. (2015) on family planning and male involvement emphasised that family planning decisions and the choice of the number of children any family wishes to need to be collaboratively decided. The qualitative study highlighted the importance of male involvement in family planning decisions, which include a reduction in relationship conflicts, increased partner cohesion, and improvement in the rate of use and continuation of contraceptives.

A study in some selected slums in Nigeria that examined the perception of the involvement of male partners in family planning choices revealed that, though the women perceived family

planning to be good and required for child spacing and family financial planning, they perceived that the male partner support in the utilisation of family planning services to be very low. Identified factors contributing to this perception include misconceptions about contraception as well as the traditional and patriarchal belief systems and tendencies (Aransiola et al., 2014). This evidence stressed the significance of male involvement in any activities, programs, or interventions to encourage the adoption of family planning services. This need is also supported by the findings of Adongo et al. (2013) in Ghana, where it was reported that with the high fertility rate in most developing countries, concerted efforts must be made to ensure a holistic approach to family planning, which must involve the male partners. Interpersonal relationships need to be harnessed. The study further stressed that to attain reproductive health targets, involving male partners in reproductive health actions and decisions, such as family planning decisions, is very critical.

An exploratory quantitative research design by Silumbwe et al. (2020) in Zambia revealed that, as part of efforts to encourage community members to buy into contraceptive uptake and family planning services, there is a need to address the feminisation of family planning and contraceptive use. It suggests that focus should not be only on the female population but also on the male population, ensuring a cordial interpersonal relationship.

With the current high level of rural and urban poverty in Nigeria (Singh et al., 2021), a study on family planning outcomes in Plateau State, Northern Nigeria, revealed that women in the rural community who were involved in financial decisions in the home were significantly likely to utilise modern contraceptive methods (Singh et al., 2021). This is because they would prefer to use the money for something other than to get contraceptives. The study revealed that wealth was a significant factor in having children and using family planning services and outcomes in Plateau State. This indicated that the higher the financial resources available for a family, the more the likelihood of making a favourable health decision.

Furthermore, intimate partner violence has been shown to have a negative association with contraceptive use. A study in sub-Saharan Africa by Adjiwanou and N'Bouke (2015) revealed that women who are autonomous and who are not experiencing intimate partner violence are more likely to use modern contraceptives compared to those who are experiencing violence, particularly physical violence. Contraceptive use was found to be low among women who are experiencing any form of gender-based violence. A previous study by Adjiwanou and LeGrand (2014) revealed that women who are affected by gender norms and experience any level of violence are less likely to use maternal healthcare services, including family planning services and any form of contraceptives. Gender inequality was also identified as a major contributor to the use of maternal services in rural communities where there is less exposure to civilisation and education. This emphasised the significance of interpersonal relationships and their influence on fertility, family size decisions and population growth.

2.5.3 Organisational Level Influences on Large Family Size and Population Growth

Family size has been shown to influence household chaos within the home organisational structure. This resultant chaos has been associated with various specific adverse childhood outcomes (Marsh et al., 2020). In this instance, large family size with household chaos has the likelihood of different adverse health and social outcomes on the children, including poor cognitive development, poor social and emotional functioning, poor academic achievements, and other behavioural problems (Boles et al., 2016; Martin et al., 2012; Deater-Deckard, 2009). A systematic review by Marsh et al. (2020) on the relationship between family outcomes and childhood household chaos revealed a significant correlation between adverse health outcomes and household chaos. This was also related to the effect of low socioeconomic status on a child's all-around development. With the current high rate of out-of-school children in Northern Nigeria, it has been shown that coming from a large family is a significant predictor of

children's poor growth, underdevelopment and dropping out of school (UNICEF, 2022). The child's poor growth may probably result from possible competition for food within the household, especially when resources and food are not readily available. In such homes, scarce resources are competed for among many family members, which could make food inadequate and insecure (Olaseinde et al., 2022).

From the socio-economic standpoint, in many African societies, having a large family size is perceived as a sign of wealth and evidence of being a man. This is because Africa is predominantly a patriarchal society. In Northern Nigeria, where the number of wives and children a man has is a show of strength and manhood capacity, having a large family size has become the usual practice, which studies have shown to result in several significant socio-economic consequences ranging from austerity to poverty, poor health, and inadequacies in meeting daily needs. Interesting research by You et al. (2018) in a global study reported an important and significant association between large family size and lower cancer risk among males and females. This was a positive impact of coming from a large family. The study, which adopted an ecological analysis of data obtained from United Nations agencies, the World Bank (WB), the World Health Organization (WHO), and the International Agency for Research on Cancer (IARC), revealed that the total fertility rate and household size were negatively correlated with all cancer incidence variables. The analysis showed that the total fertility rate remains significantly stronger for the male cancer incidence rate than the cancer incidence rate among females. Using multivariate regression analysis, evidence from the research indicated that household size and total fertility rate were consistently statistically significant predictors for the variables for all cancer incidences across all countries. While this study has suggested further examination using other research designs and methods to predict and establish correlations between male and female cancer risks and household/ family size, it is incumbent to state that family size impacts health and well-being, which could be positive or negative.

A study by Wolde et al. (2015) in parts of Ethiopia revealed a significant association between large family size and children having stunted and wasted growth. Stunted and wasted children have been associated with different health challenges, such as the high risk of anaemia, impaired mental and physical development, as well as the risk of other morbidity and mortality (Khadija et al., 2022), thereby affecting household wellbeing. In Nigeria, with the current high fertility rates, many families, especially those who already have more than four children, still intend to have additional children despite all efforts and interventions to encourage the acceptance of family planning services, particularly by non-governmental organisations. With the current population growth rate and increase in family size, Nigeria is bedevilled with infrastructural decay, congestion of schools and healthcare facilities, food insecurity, increased crime rate, unemployment, human insecurity, an increasing number of vulnerable persons, especially children, and high child and maternal morbidity and mortality rate (Dimelu et al., 2017).

An East African study revealed the relationship between family size, family organisation and the child's well-being. It was reported that children in a household of four to six members have a greater possibility of inadequate immunisation, which could have a devastating effect on the child's overall health and well-being compared to households of a smaller number of children (Radcliffe & Raccine, 2012). This reality sometimes poses more danger to an African child who is already disadvantaged and at a higher risk of health challenges due to a poor healthcare system compared to other children in other parts of the world. Many vulnerable children or wards who live in a large family or household under a guardian who is not their biological parent are at greater risk of being neglected because, in many cases, the attention and focus of the guardian are on their biological children who are already in large numbers (for a family with a household of four and more). This situation caused divided attention and impeded the provision of adequate care.

While many studies have documented the adverse effects of large family size on a child's nutritional health, from an organisational standpoint, a study in the United States of America by Costa et al. (2018) revealed that family size has no significant effects on compromising child nutrition. There was no statistically significant relationship between family size and the haemoglobin, stunting, anaemia, and weight-for-height status of the 638 children under investigation in the study. The lack of association in that study may be due to the improvement in general healthcare services, systems, and facilities at the study location. The USA is a developed country with an improved economy and robust investment in healthcare. This, therefore, explains why an improved healthcare system could advance the overall health of children and mothers. The poor healthcare system in most African countries, especially Nigeria, made it difficult for all to achieve good health. Many localities, especially in Northern Nigeria, have poorly equipped and inadequate primary, secondary, and tertiary healthcare facilities (NPC & ICF, 2019). Despite the inadequate healthcare facilities to meet the health needs of the people, fertility is on the rise, and the population keeps growing.

Ponczek & Souza's (2012) study has shown that family size is an important indicator of child quality. This is because, in a large family, for example, there is an increased possibility that the mother will spend more time parenting than on other economic and productive activities. This may affect family income, finances, and children's quality of life. Also, the need for mothers with many children to provide adequate care for children, which is time-demanding, has reduced time to work, thereby reducing the labour workforce and declining the nation's overall economic output. Tax/ income generation by the government may also decrease because fewer people work.

The study by Baranowska-Ratay and Abramowska-Kmon (2019) revealed that having many siblings and children may offer opportunities for providing social and emotional support in old age. Nevertheless, when considering actual cross-level interaction between the number of

children and other indicators, it was revealed that "at old age, the adults with children are more likely to have frequent social interaction than adults without children, but the numbers of children they have are statistically insignificant in affecting social contact, intimacy or frequencies of social interaction" (Baranowska-Ratay and Abramowska-kmon, 2019, p. 99) This fact could also justify why having many children does not guarantee social support for parents in the future. It reveals that while it is good to have a good number of children who could provide some form of support in the future that can enhance physical, social, emotional, and mental well-being in old age, the number of children is insignificant in determining the extent, cordiality, and frequency of social contacts, interaction or support that could be received at old age.

Other similar studies on the organisational influences for family size have documented a significant impact on children's educational outcomes. Large families were associated with lower favourable educational outcomes. Children from large family sizes and those from divorced or single-parent families have been reported to have lower educational outcomes and attainment than those from smaller families and whose parents live together (Fakhrunnisak & Patria, 2022). Parent level of education and care environment has also been significantly associated with a favourable educational outcome for the children (Apedaile et al., 2022). Related research documented an association between parenting and the development of mental health issues, especially depression among mothers (Ertan et al., 2021), because there are many children to cater for.

Meanwhile, issues of food insecurity have been shown and reported to result in several adverse health and well-being risks to families, especially to children who are still in their growing stage. Food insecurity was linked to the development of mental disorders/ illnesses, behavioural problems, poor health in neonates, toddlers, and infants, and negative psychological, social, and academic outcomes in growing children and teenagers, especially

adolescents (Jyoti et al., 2005; Rose-Jacobs et al., 2008). A study by Muller et al. (2014) reported that food insecurity is significantly higher in children whose parents cohabitate or who live with a single mother than those who live with their two parents. Children living with two parents may have a food-secured household because of the two parents' financial contribution and investment in food purchases. However, other important socio-economic factors, such as the household's income level, education level, and family size, contribute more to child food insecurity. A similar report by Coleman-Jensen et al. (2012) showed that households where single parents, especially single mothers, head have a significantly higher rate of child food insecurity than households where married couples live together and make joint decisions on family nutrition, health, finance, and wellbeing. Therefore, these facts from the literature further indicate that family size, family structure and organisation, household finance/income level, education, and family togetherness significantly influence the child's nutrition, health and well-being. This further suggests that family size is an essential socioeconomic factor in child health and maternal and paternal health.

2.5.4 Community Factors

The place of African Feminism in most African societies, as well as gender influence on family size, cannot be overemphasised. Due to the prevailing gender inequality in Africa and most parts of Nigeria, women's liberation, emancipation and empowerment are still low because of male dominance and the patriarchal nature of the African communities. Efforts toward allowing women to take full control of their health and choices, especially as it relates to their reproductive health, are gaining momentum. However, the rate is still protracted in most parts of Africa, especially the Northern part of Nigeria, where patriarchy is very pronounced even in the 21st century (Olasehinde et al., 2022; Amaefula, 2021; Akinyemi, 2020).

An important community factor in family size and population can be interrogated from the perspective of African feminism, which, as an emerging discourse, has often been perceived and interpreted as being anti-male, anti-religion or anti-culture in its theoretical framework (Amaefula, 2021; Lewis, 2001). African feminism focuses on women's liberation, rights, freedom and autonomy. It addresses the objective conditions of global systemic inequality against women's rights, freedom and liberation (Mama, 2019).

In the context of population control and family planning, feminists play important roles in mobilisation toward family planning as a component of population control and national planning. Meanwhile, violating the reproductive autonomy and the rights of women through any family planning initiative is antithetical to the feminist movement in any community (Sreenivas, 2021). It is, therefore, essential to state that gender-related barriers to reproductive freedom, rights and autonomy can severely hinder or undermine reproductive and sexual health successes, impact family size and population health. To harness the potential of all genders in family size decisions and in addressing population growth, there might be a need to lessen gender hierarchy, which gives too much power and authority to men in the communities.

Moreover, based on information from the available literature, there is no longer any doubt that Northern Nigeria communities face a situation of poor utilisation level of contraceptives and a high fertility rate, which have been mainly associated with gender inequality, cultural norms, religious beliefs, and misconceptions about various contraceptive methods. A study in Sokoto, Kebbi, and Zamfara States in North-western Nigeria revealed that to achieve significant family planning outcomes, behavioural change intervention must be community-directed with a specific focus on the husbands as much as it focuses on the wives within the community. As much as necessary, there should be no gender discrimination in family planning intervention programmes within the communal context (Hutchison et al., 2021).

A socio-behavioural change programme or intervention focusing on improving knowledge and motivating spousal communication within the community can also help achieve more significant family planning outcomes. A study by Okigbo et al. (2018) showed that promoting gender equality in the communities has the potential to encourage the use of modern contraceptives. The study carried out in the urban communities of Kaduna, Ilorin, Abuja, Benin, Zaria, and Ibadan revealed that building women's self-efficacy in the community can promote and influence their decision to use modern contraceptives. It can also give them a voice to encourage their partner to use it. This finding appreciates the importance of women's empowerment within the community in achieving improved health outcomes, which means that the more women are empowered, the more likely they are to make informed decisions about their health and be able to encourage their husbands to do the same. It can also potentially reduce fertility intention and the overall national fertility rate.

Based on the theory of gender power by Robert and Connell (1987), the lower-status gender, which is mostly female/ women gender, has been mostly suppressed in the community. This suppression has significantly impacted and influenced the choices they make. At times, gender inequality has also resulted in economic inequality, affecting health decisions and outcomes negatively. Therefore, building the self-efficacy of women can provide them with the economic power to afford contraceptives when economically empowered (Okigbo et al., 2018). This consequently has overarching effects on the population growth of the community, state, and nation.

The influence of community solidarity through altruistic contributions is also important (Onwujekwe et al., 2012) to address population growth and fertility intention using family planning services. Community solidarity has been explained through the contribution of money by the middle and rich/ upper classes so that the very poor could be provided with modern contraceptives. According to Onwujekwe et al. (2012), this contribution could help bridge

gender and economic inequality in the community. In their study, those who were more willing to provide altruistic support by paying for other people's modern contraceptives were mostly those who were educated up to tertiary education and were employed by the government or had a big business. Meanwhile, a significant challenge for altruistic willingness could be how to distribute and deliver contraceptives to the poor within the context of community financing. Also, another challenge that could arise from the altruistic contribution may be the non-utilisation of these contraceptives, especially when given for free to the poor. It may be less valued because it was not paid for. In this instance, serious education and public enlightenment become very imperative. Efforts at harnessing stakeholders' involvement, especially the traditional and religious institutions, in supporting contraceptive use have become very pertinent and imperative.

Abdul-hadi et al. (2013), in their findings in Gombe State in Northern Nigeria, show that community-directed or community-based distribution of contraceptives can effectively improve access to contraceptive use, especially injectables in Northern Nigeria. To address the unmet need for contraceptive use, efforts using community participation and engagement can produce a more effective result. Community actions and efforts can help significantly address socio-cultural bias around the adoption of contraceptives among community members (Bolarinwa & Olagunju, 2020).

Relying on the evidence from the literature, family size, especially large family size, has been associated with economic hardship for women when divorced. This hardship has been reported across all world regions in developed and developing countries. A comparative study in the United Kingdom, the United States of America, and Germany has shown that the household income of divorced women with three or more children decreased drastically compared to those with fewer children (van Winkle & Leopold, 2021). The observed hardship for women was documented to be irrespective of the reason for the divorce. The study further revealed in very

clear terms that divorce widens the economic gaps between child-rich households and those with few children or none. Divorce poses a severe economic burden because of the loss of contributions from the partners' income to the family earnings.

In many cases, during divorces within the community, women are affected more. After a divorce, income nosedives because earnings now come from only one person; women are disadvantaged and become solely responsible for taking care of the children. This is particularly more of a reality in many African communities (Blum, 2018). Unfortunately, the hardship becomes more challenging because of suppression, patriarchal practices, and the lower earning capacity and opportunity for women in Africa. This fact is also in relation to previous studies, which have shown that women with many children, especially children who are below the teen age, have more significant difficulties in gaining employment- this usually affects their earnings and brings about severe economic hardship, which impacts their health from seeking healthcare to being able to afford adequate nutrition and good shelter (Bayarz-ozturk et al., 2018).

Within the community, it is therefore worth noting that there are more economic consequences for divorcing women who have a large family size and with more children than those who are childless or from a small family size. This is because the economic impacts also later have a negative, debilitating effect on the health and well-being of both the mother and the children, especially in a situation where there is no form of economic and financial support from any of their significant others (spouse, families, or friends) or even from a national or local government (van Winkle & Leopold, 2021).

Other studies on the reasons behind large family sizes across different countries, regions, and communities, especially in rural areas and developing economies, reported that large family sizes persist among couples, especially in rural areas, because of the fear of relying on wage

labour. Many large families exist to increase labour specialisation for major agricultural productivity, marketing, and trade (Carson, 2021; Komlos & Carson, 2017). This reason is also particularly noticeable in Northern Nigeria communities, where children are born for farming and animal husbandry, especially for rearing cattle and household wealth. A study by Carson (2021) has thus also established a relationship between household size and agricultural productivity using a fertility model. The model posited that increased agricultural productivity significantly increases the desire to have a large family size to meet the demand for labour. Meanwhile, with the increase and advancement in technology for agricultural production, it would have been expected that the desire for large family sizes in some agriculturally dominant areas like Northern Nigeria should have declined. However, large family sizes/households still exist to a very large degree, evidenced by the current fertility rate of more than 7.0% in different regions of the North (NPC & ICF, 2019).

A study in Pakistan revealed that large family size is driven by precarity and violence in communities. This is because many families choose to have several children in response to precarity resulting from persistent conflicts, economic insecurity, social insecurity, and terrorism. Child mortality was also a driving factor. Many have several children with the belief that if one or two should die, some will remain, whereas in some cases, none of the children end up dying, hence large families result (Ataullahjan et al., 2022). This determinant is a pointer to the need to stress the point that, to address population growth and increased family size desire, there is a need to address issues of insecurity, banditry, conflicts, and child health, as these have been identified as significant drivers for the increasing prevalence of large family sizes in many regions of the world.

In a report presented to the UK parliament in 2014, family size was reported to be strongly associated with child poverty at the community level, especially for those with larger family sizes. The report explained that the high risk of poverty in large families is due to the higher

income levels required to maintain a considerable standard of living in a large family home. This is because parents have more caring responsibilities, especially when the children are younger (dependent). This report supported the evidence of Bradshaw et al. (2006), who showed a significant positive relationship between large family size and poverty.

2.5.5. Societal/ Policy influences and factors

The careful review of the Nigerian population policy document, from the preamble to the conclusion, revealed that consultation with community members, leaders, and various stakeholders was not done in developing the policy. The policy was designed mainly for political correctness. This may be why the policy has failed to achieve its objectives. Therefore, efforts at engaging community members and leaders on population control, especially at the family level and to engage all stakeholders for policy implementation, could be considered vital. To encourage the use of family planning services, as articulated in the policy, as well as the use of traditional and modern contraceptives for population control measures, community participation, and involvement from the design of policy to the implementation and evaluation stage, remains a major point of consideration.

Family planning services are more than the mere use of contraceptives to prevent unwanted pregnancies. It is a preventive service that provides quality and readily available reproductive healthcare to women and men in their reproductive years (Epenyong et al., 2015). Family planning services ensure that partners can have the desired number of children that they wish at a considerable interval. While the population growth rate continues to rise, Epenyong et al. (2015) in their study argued that effective utilisation of family planning services by partners can effectively reduce the surge in population growth rate. Their study has argued that the high fertility and population growth are due to a lack of a supportive policy and governance framework

According to Sinaga et al. (2015), family planning is a major policy strategy for balancing the increase in population growth rate with socioeconomic development and sustainable natural resource use within a society. Family planning policy is an effective approach to balancing family size. High population growth would naturally increase resource demand and exploitation.

While many studies in the field of demography, economics, and social sciences have argued over time, the existing relationship between change in demography and economic outcomes and policies, a review study by Sinding (2009) on population, poverty, and economic development submitted that in sub-Saharan Africa, there is a significant relationship between population growth and economic development. The study posited that demographic change affects societal economic outcomes negatively. The negative impact of population growth on economic development should make policymakers feel the urgency of implementing effective family planning policies, which could mean that there is a need to reduce the increasing fertility rate to reduce poverty and health inequality among sub-Saharan Africans and achieve sustainable economic development. This is because, specifically in Nigeria, support for family planning to reduce the high fertility rate has been low, and this has contributed to the sluggish economic and social performance in many parts of the country, especially in the Northern region.

According to Piketty (2015), if the Gross Domestic Product (GDP) per capita and population growth are independent, an increase in the population growth rate should automatically lead to an increase in economic growth rates. However, it has been reported that only growth in GDP per capita can lead to an increase and improvement in the economic well-being of the people. Therefore, since the population growth rate could affect GDP per capita growth, increased population growth rates could contribute to lower or higher overall economic growth of the

society (Peterson, 2017). In clearer terms, population growth significantly impacts the GDP per capita of any country, region, or society.

Meanwhile, according to the National Population Council, Ghana (2014), a small household with a small family size is likely to have a higher per-capita income than families with large households because of limited resource distribution. Considering this, population growth and family size could impact the family finances, quality of life, and the general welfare of individuals in the family. A study carried out in Ghana on fertility preferences using the Demographic Health Survey data revealed that a higher fertility rate in most households results from child mortality and a woman's bargaining power (Novignon et al., 2019).

A study in Singapore also showed the relationship between societal risk attitudes and family size (Ho et al., 2022). Adopting a longitudinal design, the study, consisting of about 8000 citizens across different demographics, shows that mothers with larger family sizes are more willing to take any form of risks, whether health-related, financial, or general, than mothers with smaller family sizes. Those with more children have a higher risk-taking tolerance than those with fewer children. The findings from the research were not like those of men. The observed difference in risk tolerance between males and females may be because, based on the transformative theories and the Gendered Social Norms (Trevors et al., 2012), women usually carry the significant burden of childcare. Their tendencies to internalise parenthood influence are greater to a large degree than men. More so, as women give birth to more children, their willingness to take any risk for the children's survival may increase (Ho, 2019; Myong, 2021). This may also be because women from a large family setting or who have given birth to more children may have made sacrifices in their early lives and therefore developed strong minds to become more willing to take some economic risk now that they are parents, to get opportunities to take care of the children. However, a major limitation of the study is the self-reporting of willingness to take risks, which may not have fully captured or truly reflected the participants'

risk behaviour. Risk attitude is important for women's health as well as for the health of their children. The ability of a mother to take investment risks can impact the wealth position and potential of her family, thereby affecting family finances, especially in the areas of education and health. This may also affect investment in housing (shelter) and family well-being.

Population growth, especially in most sub-Saharan African countries, is characterised by low economic growth, where the gross domestic product (GDP) per person is lower than the GDP growth at the National or Country level. In many instances, the GDP growth reflects and suggests that the country is getting richer while individual citizens/ inhabitants are getting poorer (Braeckel et al., 2012) and according to the United Nations reports (2012), one of the reasons for the inability to achieve all the Millennium Development Goals (MDGs) was the rise in population which made resources to be unevenly distributed. Evidence from the reports suggested that slower growth in population drives faster achievement of the MDG targets. Therefore, for developing countries like Nigeria to achieve the current global targets of the Sustainable Development Goals (SDGS) by 2030, addressing population growth and family size must be taken very seriously.

An investigation by Alimi et al. (2021) on whether the population is an asset or liability to Nigeria using the Nigerian economy data revealed the link between income per capita growth, output growth, and population growth. The study shows that the current adverse effect of the population on economic growth is due to large numbers of dependents. However, in the long run, the population is meant to be a benefit with a chance of demographic dividends when the younger ones become productive in adulthood. It also implies that population growth is not bad. However, optimum population growth could be encouraged based on resource availability to cater to living needs. The finding, however, emphasised that as much as it is practicable, the younger population needs to be made productive to get a demographic dividend in both the short and long run.

Poverty, which has been defined as a state of being poor and the inability to afford or meet the minimum daily needs required by any individual, family, community, or nation, has been associated with and reported to be caused by massive population growth due to lack of planning for the unprecedented surge in population size whether within the family or a nation (Danaan, 2018; Okpala et al., 2021). Food security, social security, and the safety of lives and property can easily be achieved when the population is optimum and under control. An investigation by Okpala et al. (2021) established that some of the drivers of poverty and food insecurity, especially in Nigeria, are the rise in population size at the level of the individual family and nation and the decline in agricultural activities/ production due to insecurity of lives and property and banditry ravaging Northern Nigeria. Other drivers of poverty and food insecurity may also include poor food wastage/ loss due to poor storage facilities/ systems, lack of access to credit, low income due to inadequate opportunity for economic activities, the effects of rural-urban migration, and environmental degradation because of human activities. The study by Joshua et al. (2020) showed that a rise in population is a significant inhibitor to economic prosperity, in addition to other government policies, especially in trade openness and globalisation of the nation's economy. This economic inhibition that the rise in population portrays could affect investment in healthcare and family finances, thereby affecting the ability to afford good nutrition, sustainable housing, a good school for the children, and the provision of basic needs for family well-being within a society.

2.6. Empirical Review

In addressing population growth, family planning intervention programming is crucial. An increased perception and positive attitude toward using family planning services is currently being reported across different population groups. However, different factors have also contributed to the general perception and attitude. A qualitative study by Cannon et al. (2022)

using a focus group discussion method among married and unmarried women to understand the social norms surrounding the acceptability and use of modern contraceptives for family planning in Nigeria revealed that unfavourable social norm prevents many people, particularly adolescent girls, from using modern contraceptives. This situation was documented to result in many unintended pregnancies, contributing to the increase in the size of the nation's population. While married women are more accepting of family planning methods, the support of religious leaders was particularly mentioned to contribute positively to the level of use.

A similar study by Mejia-Guevara et al. (2020) in nine sub-Saharan African countries revealed a significant positive association between attitudes of adolescent girls and married women toward the demand for and use of modern contraceptives. Domestic violence against women, particularly wife-beating, was negatively associated with contraceptive use. This explains why gender norms significantly influence family planning decisions among women. Knowledge about family planning has also been shown to influence attitudes and perceptions toward the use of modern contraception. About 70% of participants in a study in Southern Nigeria reported a positive attitude toward family planning. This reported attitude was associated significantly with knowledge, educational qualifications, and parity (Owolabi et al., 2017). The research findings showed the need for more intervention around an increase in knowledge of contraception.

Tijani et al. (2013), in a study on vasectomy- a type of contraceptive method, revealed that there is a variation in acceptance of vasectomy in both rural and urban centres in Nigeria. The study showed that even though Nigeria accounts for over two-thirds of the West African population, knowledge about vasectomy was less than 50%. In comparison, acceptance of the vasectomy method was less than 30%. This emphasised the need for knowledge-based intervention, among many others. Contraceptive use to meet the family planning needs of women living with HIV/AIDS has also been documented by Lopez et al. (2016). The study,

which was a systematic review, showed that in Nigeria, women who participated in integrated family planning and HIV services were more likely to use modern contraceptives. The study strongly indicated the need for an improved counselling method, particularly counselling focusing on people living with HIV using contraceptives.

Meanwhile, with the documented lowest percentage of adolescent family planning uptake in sub-Saharan Africa, Nigeria's population continues to grow because of increasing adolescent unintended pregnancies. This situation, among many other factors, has been related to some moral concerns, religious apathy, and opposition, as well as negative attitudes and perceptions toward contraceptive use among adolescents (Onipede, 2020). A qualitative study in Lagos, Nigeria, revealed that the negative attitude toward contraceptive use has consequently resulted in sexually active adolescents adopting local herbs, local alcoholic drinks, and the combination of different concoctions and medicines to abort or prevent unwanted pregnancies. This has resulted in different complications and even death (Ram et al., 2014). This evidence made it imperative for serious community and public health action to focus on promoting perception change about family planning services and adolescent contraception access. This is because whether adolescents are allowed access to contraceptives or not, their possibility of having unprotected sex, resulting in unwanted pregnancies and unsafe abortion, cannot be ignored. This may also make it necessary that lowering the age of consent for accessing family planning services in Nigeria is considered and given serious policy concerns.

A study by Guilkey and Speizer (2022) using secondary data showed direct and indirect effects of community attitudes and beliefs on youth and adolescent post-partum contraceptive method choice. Norms such as people who use family planning methods end up with health problems, use of contraceptives injection can make a woman permanently infertile, contraceptives can harm the womb, contraceptives can make one to have deformed babies were some of the beliefs that prevent the full adoption of contraceptive use. Addressing the beliefs and attitudes around

reproductive health behaviour, especially contraceptive use among young people, can lead to improvement in contraceptive behaviour. The social milieu in which women live can also determine or influence the knowledge and perception of contraceptive use in Nigeria. These social milieus, which include the level of education and living in moderate and highly ethnically diverse communities, significantly influence contraceptive use (Ononokpono et al., 2020).

With the rise in child neglect, abandonment, and street and homeless children, particularly in many States in Northern Nigeria, many societal social vices have increased. However, as part of measures aimed at ensuring child neglect is addressed together with its many social consequences, the study by Amuka et al. (2021) using an Ordinary Least Square Regression analysis method on the Nigeria Demographic Health Surveys of both 2013 and 2018 revealed that many unwanted pregnancies could be prevented only through availability, accessibility, and utilisation of family planning methods. The study clarified the importance of mass literacy campaigns, particularly in Northern Nigeria, where the bulk of the population is domiciled, and illiteracy and poverty are at the highest levels (Khan & Cheri, 2016). This is because the more people are aware and knowledgeable about the family planning method, the more likely they are to use it for birth control. A similar study in Cross River State, Nigeria, showed that ensuring contraception use, availability and access is essential, as well as activities towards addressing gender norms and couple dynamics to ensure collaborative actions by couples on family planning method choice (Morgan et al., 2020).

Furthermore, despite the many investigations on ways to curtail the growing population in sub-Saharan Africa, many research studies have shown that a lot still needs to be done to meet the contraceptive needs of women of reproductive age. For example, an investigation into the knowledge of emergency contraceptives among users in Nigeria and Kenya revealed that urban dwellers have better knowledge and utilise contraception more than those living in rural

communities (Morgan et al., 2014). This may be because of a lack of access to contraceptives and the low awareness and education activities being carried out in rural areas. The study found a clear distinction in the level of knowledge and use between those educated and those not educated. A study on male perceptions about the adoption of modern contraceptives in southern Nigeria States revealed a poor perception of men about adopting modern contraceptives. Even though their knowledge of condoms and vasectomy was moderate, the level of use was low, and the perception toward vasectomy adoption was negative. With the more significant burden of family planning responsibilities being taken up by women due to men's poor perception and attitudes toward the family planning method for which has led mainly to the reported high fertility and adverse reproductive health outcomes, it becomes very instructive the need for multi-dimensional intervention focusing on men at changing their attitudes and perception.

As research evidence keeps reiterating how rapid population growth continues to hamper the country's development and achievement of national prosperity, especially in Africa, different suggestions are being made by scholars and people who are directly affected by the impact of rapid population growth. A mixed-method study in Ethiopia revealed the desperation of the people, encouraging the government to pass legislation regulating the maximum number of children a family or couple should have (Alene & Worku, 2009). The desperation addressed the impact of large family size and population increase on the resources. While it may be good to regulate the number of children a couple should have, caution may also need to be taken, considering the cultural disposition of many Africans. However, any efforts that can help address rapid population growth are necessary and critical to growth and development.

A related study in Mexico in 2016 showed that chronic poverty is significantly associated with having a large family size, among other essential factors such as living in rural areas and having a high percentage of children and older adults in a household who are not economically productive (Fernandez-Ramos et al., 2016). The study, which adopted a Spells Approach to

chronic poverty using logistic regression analysis models, indicated that to be able to design and implement an effective policy against poverty and its consequences, such as poor healthcare and services, addressing the growing rate in population, especially large family size among other factors is the right way to go. A similar study in Vietnam by Vu and Phung (2021) also reported that many children in a home can affect parents' physical and mental health and well-being. Notably, a parent who has a small family size and who can provide children with a quality education has significant life satisfaction in old age compared to those who have a large family size and many numbers of children and are unable to provide or meet their basic needs such as being able to provide the children with quality and holistic education. This is because investment in children's education can have a lasting impact on the health and well-being of older people.

A previous study in the United States of America by Caceres-Delpiano and Simonsen (2010) established an association between growing fertility and increasing poverty, poor health, and well-being. Using the National Health Interview Survey, the study showed that large family sizes increase marital breakdown risk due to a negative correlation between fertility impact and family stability. The household and family size have been reported in many studies as an important parameter when measuring the health status of children and women, especially pregnant women, and this parameter contributes to the overall health indices. Due to limited resources, it is mainly assumed that bigger family sizes and households are less comfortable because of competition arising from the meagre resources available to cater to a large number of the family.

Issues of large family size have been reported to contribute significantly to the increasing child and maternal mortality and morbidity rates in most parts of Northern Nigeria. A study in the Southern parts of Nigeria, specifically in Delta State by Ogbe (2010), showed that household and family size did not predict or contribute to maternal morbidity. This may, therefore, mean

that other factors may have been responsible for the child and maternal mortality in the study area because the mortality rate in that area is high based on the NDHS data (NPC & ICF, 2019)

A study by Ahmad and Haie (2018) has documented the impact of population growth on water use performance in Kano State, Nigeria- one of the large, densely populated States in Northern Nigeria. The impact of population growth on the water use system was found to be more significant than climate change's impact when using the sustainable efficiency framework. The study showed that if population growth in Kano is not addressed, the demand for water use will exceed the available supply by the year 2050. A similar study in Ethiopia revealed a positive, strong association between rapid population growth, quality of water use, hygiene, and sanitation, which also revealed a significant relationship between family size and household drinking water sources (Gebremichael et al., 2021). This indicated very significantly that population growth pressures available resources, especially on water use (Tampo et al., 2022). This also means that when there is no plan to optimise or increase the capacity of the available resources, and for the current inhabitants not to suffer, efforts toward controlling population growth may be critical.

Early marriage, which is child marriage that is carried out below the age of 18 years, has been posited as one of the main drivers of population growth and determinants of the highest rate of poverty in many parts of sub-Saharan African countries (Walker, 2012). Aside from the possibility of early marriage contributing to population growth, poverty, child and maternal mortality, and morbidity contribute to the rise in population size. Early marriage, which also has other very harmful effects on the rights of the girl child, including their psychological development and their socio-economic survival, has been found to contribute to the high level of illiteracy and domestic violence and has significantly impacted population growth.

In line with the literature and previously established, a significant threat to well-being, especially in most developing countries, is the rapid population growth, which has consistently

exceeded 2.0% and is characterised by poverty, socio-economic hardship, and pressure on the environment. Stressing the fact that increased population growth puts pressure on public infrastructure and services such as healthcare services, water supply, sanitation, education, and roads, amongst others, cannot be overemphasised. Also, in a situation with a high rate of young dependence, economic growth is reduced, reducing income per capita and resulting in low savings for investment.

Income and rapid population growth have also been shown to be associated with climate change because of emissions and pressure on environmental resources. There has also been an association and negative effect of population growth on carbon dioxide emissions, which suggests that the more people in a population, the more carbon dioxide they emit, which impacts the climate. Considering this, reducing population growth becomes vital in efforts to mitigate climate action (Scovronick et al., 2017).

Pressure on public housing and city resilience has also been reported as one of the impacts of population growth in Nigeria. A cross-sectional survey among residents of Northern Nigeria (Abuja Municipal) revealed that one major impact of population growth is the pressure on sustainable housing. It was also reported that the increasing population growth in Abuja since 1999 has contributed significantly to the current high crime rate, anti-social activities, and noise level, affecting ear health, concentration/ attention, and other consequences of noise pollution. The findings also showed that residents who participated in this study perceived that population growth has negatively impacted them economically and increased their cost of living (Equere et al., 2021). These findings have some indications, including the need for more investment in housing schemes and sustainable city amenities to meet the needs and demands of the growing human population.

While fertility is decreasing in many developed countries, including the United States of America, with its significant positive impacts on economic and social development, in the

developing world, such as Nigeria and most sub-Saharan African countries, the fertility rate kept increasing, which has been characterised by socio-economic impacts, especially in the areas of access to road, school, healthcare facilities, recreation centres, and suitable housing (Guzzo & Hayford, 2020). However, a reason for the lack of positive impact of population growth in developing countries, especially Nigeria, may be due to poor or lack of effective planning and implementation at the family, communal, and governmental levels. This could suggest the need for deliberate and concerted efforts from various stakeholders, such as the family unit (husband and wife), the community, and the policymakers, to address or devise means of population control. To reverse or address population growth, implementation actions toward family planning must be entrenched and encouraged.

Another study by Aiyedogbon et al. (2022) suggested that a major impact of population growth in Nigeria is the increased rise in food insecurity in many parts of the country. Although, in some cases, the current insecurity has been reported to contribute to the decline in food production and agricultural practices in most states of Northern Nigeria, population growth has negatively affected the equitable distribution of food. While it is important to stress that the government needs to boost investment in agriculture, addressing the increasing number of unemployed and dependent populations is also imperative (Iwu, 2020). Many of these young dependents are faced with malnutrition and other health challenges. Meanwhile, many other factors have been perceived as drivers of the current food insecurity in Nigeria, especially in the Northern parts. These drivers range from the abandonment of the agricultural sector to the rural poor to a lack of interest by the youths in engaging in agriculture due to low government investment. This affects the rise in population and food supply because the demand for food is greater than the supply, which also contributes to the high rate of inflation (Olasunkanmi & Oladipo, 2020).

A study by Okpala et al. (2021) posited that food insecurity in most developing nations is influenced by family/ household size and family earnings, as well as the effects of agricultural activities and unfavourable weather and climatic conditions. The study suggested that to address food insecurity in Nigeria, efforts to address the effects of population growth, improve infrastructure, and invest in education are essential. This is because, at the local, regional, and global levels, a crucial factor in the consumption of resources is population growth. The increased population growth has resulted in the exploitation of land and sea, thereby destroying biodiversity (United Nations Report, 2012).

2.7 Observed Knowledge Gaps in the reviewed studies.

While it is imperative to state from the reviewed studies that much qualitative research has identified levels and extent of contraceptive utilisation and factors influencing contraceptive use, little research has focused on the multi-dimensional reasons behind the adoption of family planning services from the perspective of socio-economic determinants of health. Studies have also attempted to explore the impact of family size (small or large) on children's health and socio-economic well-being within the household and its overall effects on the community and the nation’s health and economic well-being. Some previous studies have identified a lack of education, cultural and religious factors, and other barriers to contraceptive use and family planning services utilisation in Nigeria. However, limited research has explored the impact and effects of family size and population growth on health and socio-economic well-being in Northern Nigeria, the most populated region in Nigeria. No study has explicitly focused on the factors influencing family size from the perspective of those with a large family size and a small family size. This is probably because, from a cultural standpoint, issues around family size are seen as personal and an area that should not be researched.

Moreover, research, reports, and some similar studies that have been carried out were generalised on Nigeria as a nation and not focused explicitly on Northern Nigeria, where there is a larger family size and where the population is growing at a geometric rate based on current empirical data (NPC, 2021; NPC & ICF, 2019). There have also been fewer studies focusing on important stakeholders' (religious and traditional leaders, healthcare workers working on family planning programmes, and legislators who are involved in making policies and laws) influence on family size. This showed limited qualitative research on the important influencers of family size decisions within the community and society. Also, other studies have mainly focused on the unmet needs for contraception use as well as individual personal barriers to contraceptive use. Community and stakeholders' perspectives on the effect of family size and population growth have not been well documented. Therefore, this study explores community members' perspectives on factors contributing to family size and the perceived impacts/ effects of family size and population growth on Northern Nigeria's health and socio-economic well-being. It also aimed to examine the community members' attitudes and perceptions toward birth control and the use of traditional and modern contraceptives to control population growth.

2.8 Chapter Summary

This chapter provides a detailed overview of the literature that is currently available on the research objectives. It documents current available evidence presented in line with the tenets of the socio-ecological model theoretical underpinning, which guided the literature review and the research. The chapter provides reviews of what has been previously researched in this area and the current challenges of large family size and population in Nigeria, particularly the Northern region. A discussion of some empirical findings and the observed gap in knowledge, which provided the basis for this study, was documented in the concluding part of this chapter. The next chapter discusses in detail the theoretical frameworks that underpin this study.

CHAPTER THREE

3.0 THEORY AND RESEARCH FRAMEWORK

3.1 Introduction

This chapter discusses the theoretical underpinnings of this research. It also provides a careful explanation of the application of the two research theories that are applied in this study. The socio-ecological model (Bronfenbrenner, 1974; Kilanowski, 2017) was adopted to underpin the research context and explain the key variables in this study. It also helped guide the development of the research objectives and design the instrument for data collection (the Focus Group Discussion Guide and Interview Guide). Meanwhile, the Silences framework developed by Serrant-Green (2011) was adopted to underpin the research methodology. In particular, the Silences framework's four stages of data analysis were utilised in this study.

A theory is essential in every research because it provides a structure, foundation, and guidance for conceptualisation, planning, and implementation. It lays out the lens through which research is conducted and helps inform how the researcher thinks in line with the study under investigation (Collins & Stockton, 2018; Lynch et al., 2018). This made theory essential in knowledge production, and it is further necessary because it provides the rationale for the study, helps define the research objectives, guides the research methodology, and provides a structure for data analysis, interpretation of results, and discussion of findings. Theory enhances research findings' quality, relevance, robustness, and significant impact (Stewart & Klein, 2016; Bradbury-Jones, 2014). It also helps guide and develop arguments and establish how findings from any research impact practice or can be translated into intervention or policy documents. In this chapter, a careful discussion of the theories used for this study was discussed and articulated in the context of the research objectives.

3.2 The Socio-ecological model

According to the socio-ecological model designed by Bronfenbrenner (1974) and as further discussed by Kilanowski (2017), health and decisions around health are affected by social interaction between the individual characteristics, the community, and the environmental characteristics, which include the social and physical, and the political component. This research model considers the complex social and environmental dimensions influencing individuals' perspectives, actions, and behaviour (CDC, 2022). It is a health promotion model that addresses the multiple factors influencing health conditions, concerns, or situations (Balcazar et al., 2012). As a theory-based research framework for understanding the multiple levels of interactions and the individual and environmental factors that influence health and healthy choices, the model can guide the explanation of the wide breadth of elements and factors that contribute to and influence the decision for family size and population growth. This framework recognised the different levels of influence on health behaviours and actions. These multiple levels include the individual/intrapersonal, interpersonal/relationship, institutional, community, and societal/policy.

The socio-ecological model has been used in previous research to address and develop interactions to prevent child abuse and neglect (Dahlberg & Krug, 2002; CDC, 2022). The model has also been used to address interventions for children's protection against agricultural disease and injury (Barbara et al., 2017) and to articulate the importance of multi-stage levels of diagnosis of a problem, the causes of a health event, and how to plan effective health interventions (Glanz et al., 2002). It is an essential model for designing interventions and preventive practices.

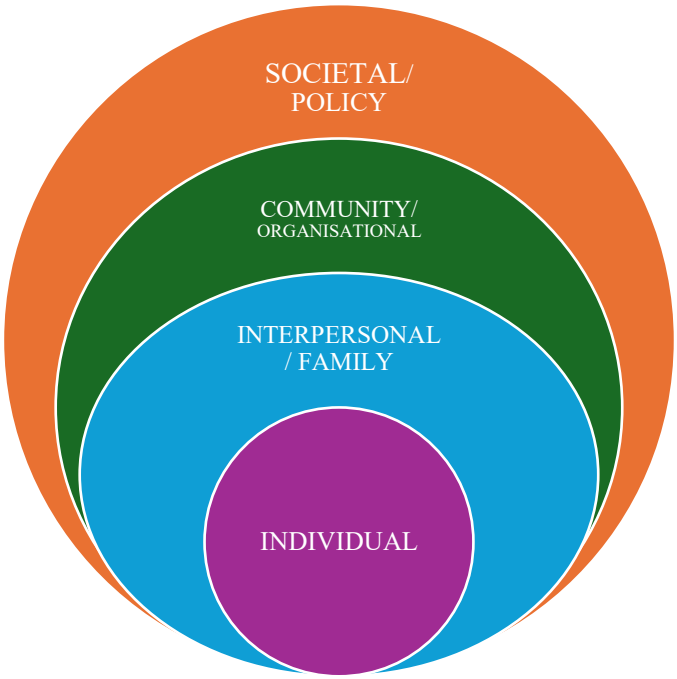

Figure 3. 1: Socio-ecological framework (Bronfenbrenner,1974; McLeroy et al., 1988)

For this study, the socio-ecological model guided the literature review in line with the research objectives. It was used to explain the factors that could foster population growth and family size and the perceived socio-economic impacts and consequences within the study population. The model helped identify the social determinants for family size and population growth in Northern Nigeria. This model has the potential to further guide the design of necessary intervention programmes based on findings from this research. This model was selected for use because of its ability to provide robust dimensions and perspectives on the factors contributing to population growth in Nigeria. Considering the multiple levels of influence on health outcomes is vital for any intervention. The multi-level influences in line with this study are explained. The model also provided the organisation with underpinnings for selecting the study participants in this research. It guided the different levels of participants selected for this study and informed the data collection process.

3.2.1 Individual/ Intrapersonal Level

This is the first level of personal factors that influence health. These intrinsic factors influence decisions around family size and contraceptive use, thereby contributing to population size (small or large). These personal factors include the level of education, age of the individual, income, beliefs, knowledge, perception, personality traits, attitude towards procreation and fertility, occupation, and skill level. Level of education has been shown in the literature to be an essential factor influencing family size decisions and contraceptive use (Bolarinwa & Olagunju, 2020). Studies by Adedini et al. (2019) and Ajayi and Okeke (2019) showed that age at first pregnancy and level of education, and income could influence the individual decision on contraceptive use. It is believed that the level of education can influence the individual's attitude, perception, and belief concerning contraceptive use, which could also affect the size of the family as well as the economic, social, and mental well-being of the family. It has been shown from the literature that those who are well educated and gainfully employed are more likely to opt for a small to moderate family size.

From the individual perspective, inadequate personal knowledge or a poor attitude toward the use of modern contraceptives and family planning services may also be a factor contributing to a desire for a large family size and contribute to the population growth rate because of low or adoption of family planning services. Therefore, intervention at this level may include increasing awareness and knowledge about contraceptive use and health education on the health and socio-economic benefits of having a small or moderate family size. This may also involve correcting misconceptions surrounding contraceptive use as well as addressing the side effects of contraceptive use because a major barrier to the use of contraceptives is perceived fear of the side effects of contraceptives (Ajayi et al., 2018; Adefalu et al., 2019; Hackett et al., 2021).

3.2.2 Interpersonal/ Relationship Level

This level examines the influence and contribution of the individual close relationship that may influence decisions on family size and the number of children a couple can bear. It includes the influence of interactions with other people, especially at the family level. Considering this study, these factors may include the influences of the disposition of the spouse (husband or wife) as well as the influence of in-laws (father or mother-in-law) and peers toward family size (large or small). Some studies have shown the influence of individual social environments and relationships on contraceptive use and reproductive/ fertility behaviours. A recent study in a sub-Saharan African country revealed that men and women who perceived their peers use family planning services and contraceptives are more likely to use them compared to those who have no peer influence (Calhoun et al., 2022).

On the other hand, those whose peers have large or small family sizes can be influenced to have the same. This means peers' influence can encourage or discourage contraceptive use as well as the decision on family size. Peer influence may also increase fertility. For example, an individual may copy a friend of a large or small family size, depending on what appeases him. Pressure from friends may also contribute to polygamy, therefore contributing to large family size and increasing the population. Those from a large family may also likely desire a large family size like their parents, depending on their personal experience, which is the same as those from a small family size. This means that whatever the choice of the family size may be, it has an overall effect on the family and individual socio-economic health and well-being.

In many African societies, in-laws influence family decisions and how many children their daughter or son-in-law could have (Nganase et al., 2019; Nganase & Basson, 2017). The in-law can also encourage or discourage the use of contraceptives depending on their level of acceptance of it. Therefore, efforts to promote a healthy and informed family decision, mainly focusing on relationship influences and in-laws, are suggested based on the tenets of this

theory. The support and involvement of the spouse in contraceptive use, especially male involvement, are key at this level.

3.2.3 Community Level

These informal or formal social beliefs and norms contribute to family size and population growth. The patriarchal African system, where men are respected based on the number of wives and children they have, can encourage and contribute to larger family sizes. Considering this level of the model, the influence of the workplace and neighbourhood also could impact the family size because of interactions and influence of colleagues at work and neighbours within a community. Also, at this level, the influences of the formal and informal sectors, such as religion, culture, and the education system, have a significant impact. For example, the Islamic religion, which encourages polygamy, can contribute to large family sizes, thereby increasing the population growth rate (Olivier & Wodon, 2015). Religion has been established to significantly affect the behaviours and actions of many people in Nigeria (Somefun, 2019). Studies have also shown that the Islamic religion has strong apathy for the use of modern contraceptives (Adebowale et al., 2016). According to Durowade et al. (2017), the level of utilisation of contraceptives among Christians was significantly higher compared to those who practice the Islamic and African traditional religions. A similar study revealed in clear terms that Christians have a higher level of contraceptive use than Muslims, with condoms and injectables mostly used (Adebowale et al., 2016). This shows how religion, which is informed by beliefs, can influence fertility decisions, family planning service adoption, and family size decisions.

3.2.4 Societal/Policy Level

Policy and guidelines play a significant role in healthcare. The influence of Socio-cultural norms, guidelines, and policies (health, economic, social, and educational policies) can affect

family size decisions and contraceptive use. For example, a supportive policy on contraceptive use may encourage more people to adopt family planning services. Policy frameworks on child protection and safeguarding can also encourage families to use available family planning services.

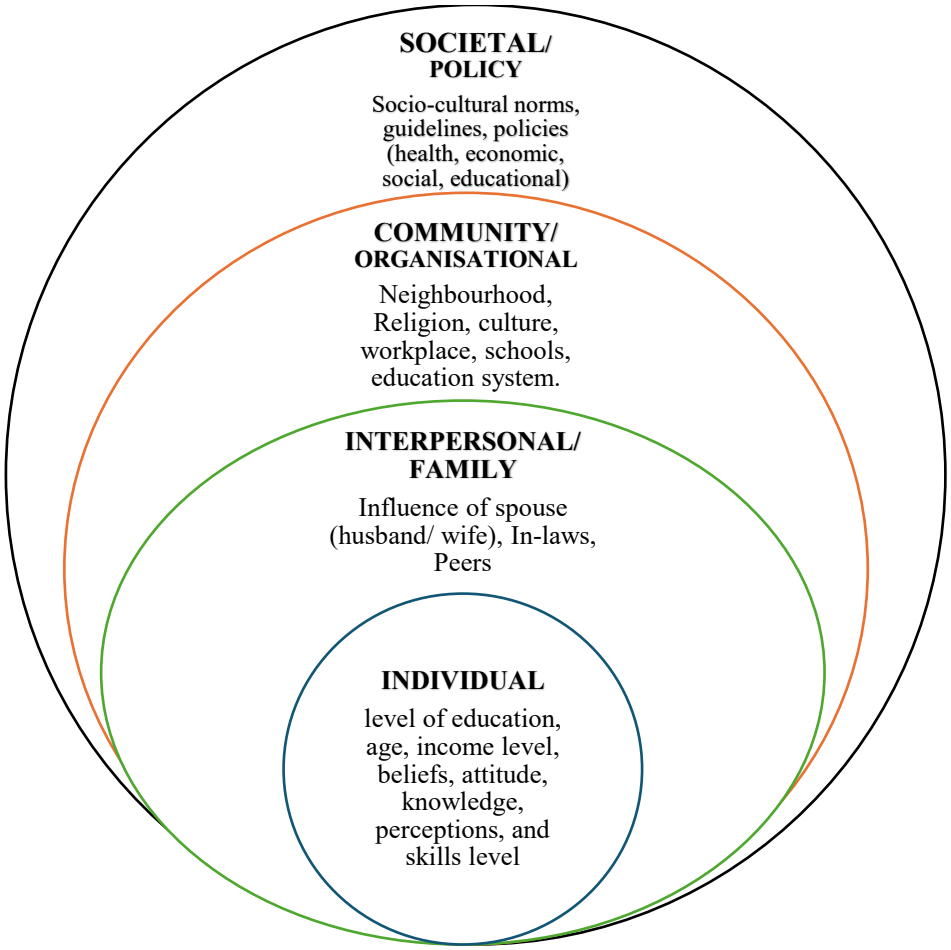

Figure 3. 2: Conceptual framework for this research on factors contributing to family size decisions and population growth in Northern Nigeria.

3.3 The Silences Framework

The Silences framework was initially developed by Serrant-Green (2011) to study the silences and decisions of Black Caribbean men in England and the United Kingdom regarding their sexual health. The silences were studied because of the importance of ethnic and gender differences in the context of sexual and reproductive health. Since this study, the framework

has guided researchers on culturally sensitive issues that are under-represented and understudied (Rossetto et al., 2017). It is a theory that can be applied to studies focusing on sexual health and ethnicity so that it can support the researcher in revealing silences in a subject under investigation to determine how values, beliefs, and experiences of a group of people influence their decisions, health, health-seeking behaviours, and wellbeing. The theory helps investigate sensitive issues such as family size and other marginalised issues that no one wants to discuss because it might go against the cultural practices and norms of some communities or individual beliefs. Also, the theory is essential when discussing different social groups and power dynamics between men and women. For example, contraceptive use and family planning decisions would involve husband and wife, and in an actual sense, the marginalised group would be the women's group. This makes the framework helpful in investigating a population's healthcare needs and ignored issues.

In Africa, especially most parts of Northern Nigeria, which is mainly patriarchal (Oguntunde et al., 2019), issues relating to the number of children and family size should be researched and investigated. They are mostly 'silenced'; hence, this framework is chosen to guide the research investigation. The four stages of the Silences framework, which include 'working in silences', 'hearing silences', 'voicing silences', and 'working with silences', underpin and guide this research methodology. Stage three, which contains four phases of the data analysis process, was utilised in this study. The Silences framework analysis phases helped to provide credibility to the thematic analysis methods for analysing the qualitative data. It also gave credibility to the study findings (Serrant-Green, 2011; Nyashanu et al., 2023).

Since the focus of this study is on family size and population growth, to be able to explore and reflect adequately on the unshared and shared aspects of the impact of family sizes on the health and well-being of households, communities, regions, and the nation at large, the Silences framework was found adequate to underpin the research methodology. It is a theory argued by

Janes et al. (2019) and Serrant-Green (2011) that is adequate for study in the least-researched areas. This theory has also been tested to investigate the fragility of hip fractures among people under 60 years (Janes et al., 2019). This framework has been applied to study the reasons why Acquired Immuno-Deficiency Syndrome (AIDS) and Tuberculosis continue to affect Brazilians (Rosetto et al., 2018). It has also been extensively used in exploring the experiences of health provision for newly released prison offenders (Eshareturi et al., 2015) and the exploration of Human Immune Virus (HIV) stigma among black sub-Saharan African communities living in the UK (Nyashanu & Serrant, 2016). This justifies why this theoretical framework helps investigate under-represented or under-discussed topics. The framework allows research participants and public opinions to be at the core of any research (Serrant-Green, 2011) without any form of ambiguity.

The Silences Framework have some basic assumptions, which include.

i. Research and experiences by individuals are contextual.
ii. Inequality and socially assigned power impact people's experiences in society.
iii. The researcher or investigator plays a vital role at all stages of research, from determining what is researched to affecting what or how research evidence is produced.
iv. Marginalised views and personal experiences are also seen as “expert” opinions which cannot and should not be discarded.

In essence, the assumptions of the Silences Framework and its guiding principles enable researchers to connect what is “known” (evidenced by the literature) to what is “unknown” (the silences) to bring about a greater understanding of the concept being researched, expand the frontiers of knowledge, and ultimately inform change through public and private actions for the good of society.

The Silences framework has four stages for its use in underpinning research. These stages include;

i. First stage: ‘Working in silences’
ii. Second stage: ‘Hearing silences’
iii. Third stage: ‘Voicing silences’
iv. Fourth stage: ‘Working with silences’

3.3.1 **Stage One** (Working in Silences)

This stage sets the context for the research process. It involves an adequate and critical review of relevant literature and identifying the extent of existing knowledge in the areas of research interest. This stage also includes systematically examining the study's social, political, cultural, religious, and moral dimensions. This stage guides the identification of research gaps based on literature and indicates this research's possible benefits and gains.

3.3.2 **Stage Two** (Hearing in silence)

This stage involved identifying silences in research. Here, the research participants, subjects, and the researcher are seen as interdependent. This stage informs the study design, data collection and analysis process, and the recommendations the study would provide. The silences inherent in the researcher's identity, research participants, and research subjects were identified at this stage.

The stage involved carefully identifying the researcher and his relationship to the study, as well as the reasons and professional drivers for studying the issue under investigation. The researcher is identified as the primary listener in the study. This stage also guided the writing of the positionality sub-section in the methodology chapter of this thesis, where the researcher's interests, biases, and objectivity were declared.

For this study, the researcher's interest was driven by his identity as a Nigerian and his awareness of the negative effect that large family sizes and an increase in population size have caused the Nigerian nation in the areas of health, education, economic prosperity, and insecurity. The researcher's interest is also geared toward finding a policy, cultural, religious, and political intervention to address the issues of large family size currently rising, particularly in the Northern region of Nigeria.

The research subject in this study is exploring the health and socio-economic impact of family size and population growth. This research subject is perceived to be primarily seen as a taboo or an area that does not require investigation because the family size and the number of children a family has are seen as blessings from the Almighty God (Akinyemi et al., 2020). This is so because, based on most African traditions, counting the number of children in any family is untraditional and irreligious because children are gifts and rewards from a supreme being (Akamike et al., 2020). Counting the number of children is also seen as unethical. Still, this study attempts to investigate family size in Northern Nigeria- an area of research mostly ignored for religious and socio-cultural reasons.

Therefore, stage two of the Silences framework guided the discussion and identification of research participants and informed the participation of individuals with large and small family sizes and key community stakeholders (religious, traditional, and health) in the study. These groups of people could best provide informed answers to achieve the research objectives.

3.3.3 **Stage Three** (Voicing Silences)

This stage is the actual data collection and analysis phase of the research. The stage aims to explore the identified silences in the context of the perspectives of the research participants. It describes the research method (design) and participants. The stage encompasses the methods for the study, which is based on the study design that is selected to be in line with the

research objectives. This study used an explorative qualitative research design using interviews and focus group discussion methods for the data collection process. This involved proper and adequate planning for participant recruitment. Information and evidence to achieve the research objectives were generated at this stage.

The research objects who could provide personal experiences, opinions, and perceptions on the issues under discussion were carefully selected. Here, the ‘silenced’ voices were heard (Serrant-Green, 2011; Musoke and Nyashanu et al., 2022; Nyashanu et al., 2020) with the involvement and participation of the women's group in the study. The expression of the experiences of the research participants ensures the original contribution to the evidence-based. The participants were able to provide evidence from their perspectives, experiences, and thoughts on the issue under study. This study also explored the perspectives of other critical stakeholders (political, religious, traditional) outside the primary research participants who may not be directly affected by the health and socio-economic impact of large family size but whose political, cultural, clinical, and leadership roles and viewpoints may impact the study participants' experiences.

Furthermore, the analysis process was driven by the need to address the research-specific objectives. Based on the tenets of the Silences framework, the analysis stage involves four cyclic phases, including;

a. Research review
b. Participants review/ silence dialogue.
c. User voices/ collective voices
d. Researcher reflection

Figure 3. 3: Silences framework analysis stages (Serrant-Green, 2011)

At the analysis stage (voicing silences), the first phase includes re-stating and acknowledging any inherent biases during the data collection. The limitations, as well as the challenges encountered, were clearly stated/ highlighted. In this phase, the researcher was required to thoroughly review the data obtained from the field to ensure that it was in line with the objectives of the study. Here, the researcher was immersed in the data to get the first draft of the research findings.

The second level of the analysis involved the review of the initial findings by the research participants. This was aimed at ensuring active participation of respondents' perspectives in the process and output of the study, and to reflect the wish of the researcher not to silence the voices of the study group further. The involvement of participants at this stage is vital to provide additional checks and opportunities for dialogue about the findings. The 'silence dialogue' at this stage helped to refute, ratify, challenge, or contextualise further the findings from the research so far to provide insights into the significance and the potential realities for

study participants arising out of the study. This stage is planned earlier in the study design. In this study, the key stakeholders were engaged during feedback sessions to check out the study's initial analysis. During this engagement/ dialogue, the researcher revisited the initial analysis to incorporate a more detailed analysis using any comments or feedback from the 'silence dialogue' of the initial findings. At the end of this review of the initial analysis, the next draft of the finding is produced and taken to the next analysis phase.

At stage three of the analysis, the perspectives of the participants' social networks or the influence of other stakeholders who may influence the impact of the research objectives were included. Their perceptions and ideas about issues under discussion were further considered, which formed the basis for the second draft of the findings in line with the framework (Serrant-Green, 2011).

At the last stage of analysis (phase four), the researcher critically reflects on the findings from the beginning of the analysis and uses the reflections to present the final study output.

3.3.4 **Stage Four** (Working with Silences)

This is the final discussion stage of the study. It involves a detailed reflection on the theoretical contribution and pragmatic benefits of the study's output. Here, the researcher acknowledges the potential and possible risks arising from acting on the findings.

It is essential to state that the process and action of continuously reviewing and revisiting the emerging study findings while considering and integrating the perspectives of users and the public are the crucial components of the 'Silences framework'. This process was carefully embedded in this study.

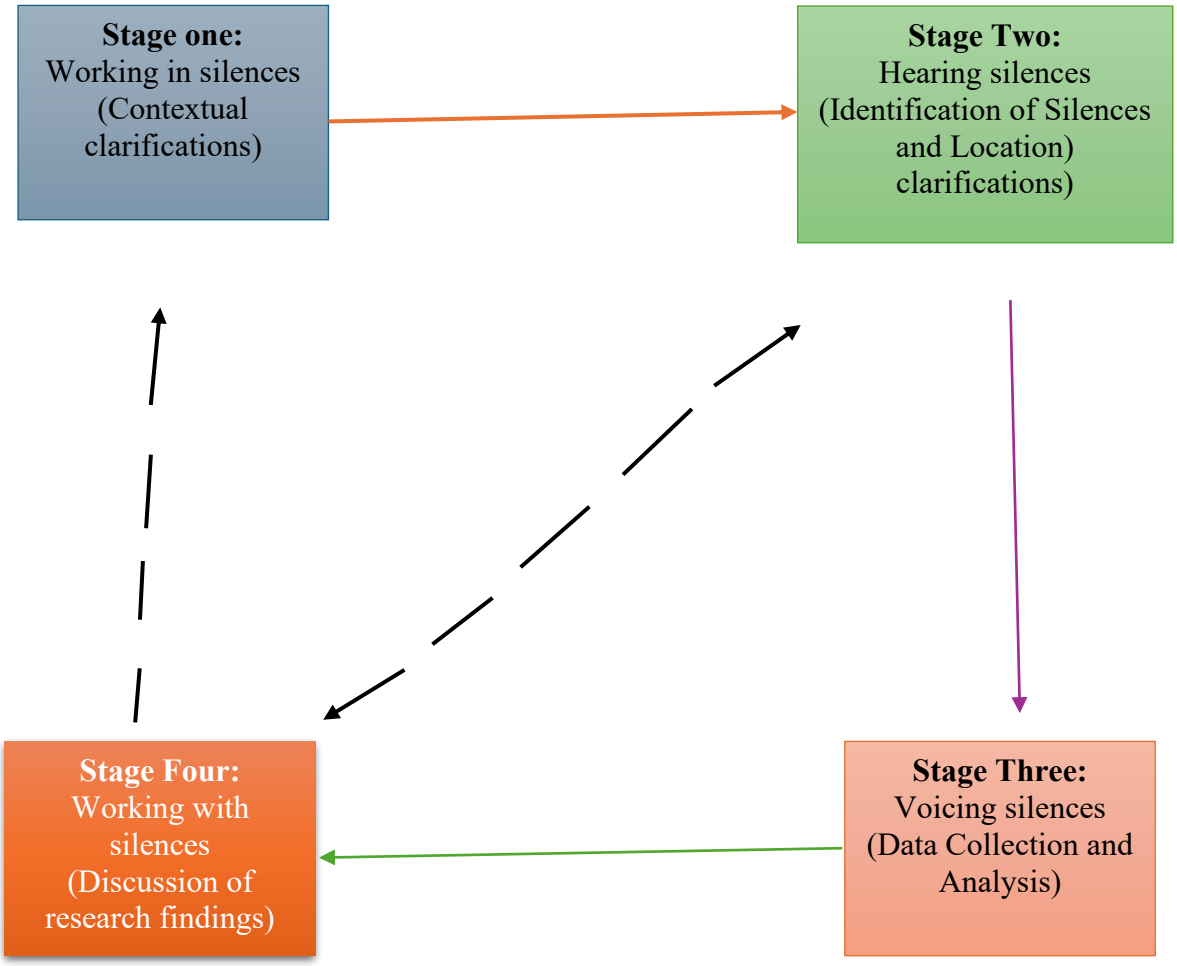

Figure 3. 4: The Silences Framework for this research

3.5 Chapter Summary

Theory and models are crucial in guiding research as they provide the lens through which the investigator situates and carries out scientific and scholarly research. This chapter discussed the theoretical underpinnings of this research and articulated how the theories were applied in producing this thesis. The Silences Framework and the Socio-ecological model were explained in this chapter, and how they were applied to the literature review, methodology, analysis, results and the discussion of research findings. The next chapter discussed the research methodology as underpinned by the theoretical frameworks.

CHAPTER FOUR

4.0 METHODOLOGY AND STUDY DESIGN

4.1 Introduction

The critical and careful review of literature relevant to this study provided the theoretical background and foundation for the understanding of the focus of this research as well as identifying the gap in knowledge about the need to explore the impact of family size and population growth in Northern Nigeria and how community efforts can best be used to encourage/ motivate the desire for small to moderate family size as well as address issues around the impact of large family size and population growth on the health and socio-economic wellbeing of the people. Therefore, this methodology chapter presents how an appropriate research design was developed in line with the specific objectives of this study and the rationale for the choice of methodology and methods for this study. The chapter also described the premise on which the empirical data for this thesis was produced and analysed to achieve the set research objectives. It also identified and documented the researcher's assumptions and biases.

This explorative qualitative study investigated the impact of family size and population growth on the health and socioeconomic well-being of people in Northern Nigeria. This research was done through focus group discussions with community members, particularly those with small and large family sizes and through face-to-face interviews with key community stakeholders, leaders, and policymakers. The rationale for the exploratory qualitative research design was described in this chapter, and the epistemological and ontological framework for the study and how the framework influences the research paradigm that underpins this research were discussed. The study data collection procedures, sampling, and recruitment process were also expounded. The instruments for data collection, data analysis process, and management were described and articulated. Ethical considerations, study limitations, reliability, and the validity

of research findings were described. The concluding part of the chapter presents the barriers and challenges that were encountered during the research conduct.

4.2 Research design

This study adopted an exploratory qualitative design from the socio-ecological model and the theoretical lens of the Silences Framework. The third stage (Voicing Silences) of the Silences framework guided the data analysis process while using the six steps of the thematic approach by Braun and Clarke (2006). The Socio-ecological model, which recognised the different levels (intrapersonal, interpersonal, organisational/ community and policy) of influences on health behaviour, guided the selection of different groups of study participants during data collection. These theoretical underpinnings guided the entire methodology of this study.

A research design presents the step-by-step process involved in achieving the objectives of any research study. It provides scientific guidance for the conduct of research from the stage of study conceptualisation to the point of data collection, analysis of data, and presentation of research findings in line with the already predetermined study objectives (Salkind, 2010). Research design describes the strategy and structure of any research investigation. Meanwhile, determining which design to use for a study depends on several factors. In most cases, these factors include the research questions/ objectives and the resources available for the conduct of the research. While the research objectives must be such that they are specific, measurable, realistic, attainable, time-bound, ethically sound, and relevant to the people or the needs of the society, the resource considerations could include time, budget, feasibility, and the level of research expertise of the investigator (Mellis, 2020).

There are different research designs for investigating a research idea to obtain quality findings. Determining which research design to use is usually guided by the research approach, which could be qualitative or quantitative. Different quantitative designs, such as descriptive,

correlational, experimental, and quasi-experimental, could be adopted based on the research aim and the data collection type. Meanwhile, for a qualitative design, methods such as ethnography, exploratory, grounded theory, phenomenology, and narrative approaches are mostly used. In most intensive research, using any qualitative design method is usually appropriate for investigating research questions that have yet to be previously researched in-depth (Creswell, 2014; Patton, 2015; Hennink et al., 2020).

4.2.1 Qualitative research

The qualitative research design is appropriate and primarily used to explore people's experiences as individuals or as a group. Most qualitative studies aim to develop research models, frameworks, typologies, and theories to describe or further explain a social issue (Aspers & Corte, 2019). In this type of research design, concepts are developed and refined. An explorative qualitative design often uses the interpretative paradigm because of its subjectivity, flexibility, and open-minded approach. This method is mainly used for primary research to study concepts and ideas or to understand a particular topic of interest in detail. In many cases, the data collection process in exploratory qualitative research involves focus group discussions as well as interviews of research participants to obtain very rich and diverse views which may not be generalisable but could be transferable to other similar populations and settings (Tenny et al., 2022; Creswell, 2014). Any exploratory research, mostly qualitative and inductive, does not lend itself to prior theory or knowledge (Reiter, 2013). It is a method that is sufficient to generate its models and theories.

Most qualitative researchers see the world as "complex, dynamic, interdependent, textured, unpredictable and understood through stories and are most comfortable immersed in the detail of a specific place and time" (Patton, 2015, p.13). A qualitative design is an approach which uses words, texts, and talks to develop ideas and concepts that facilitate the comprehension and

understanding of any social phenomenon (Gephart, 2004). According to Patton (2015), the qualitative method studies, documents, analyses and interprets how human beings construct and attach meanings to their experiences. It is an approach with a humanistic focus and is sensitive to the details of the research setting (Bryman & Bell, 2015). In most cases, the qualitative research design ensures that the voice of those being researched (the participants) is valued and occupies the central position of the research process.

Qualitative research is naturalistic, which means the researcher attempts to make sense of phenomena and interpret them based on the meaning people bring to them. Many researchers have argued that if appropriately conducted, qualitative research leads to more accurate results than quantitative research. According to Gilbert (2009), the data obtained from qualitative research is fundamental in understanding the reasons for opinions and the underlying factors for such opinions and views. The qualitative study does not only focus on the objective nature of the behaviour, but it also focuses on the subjective meanings of the individual's own experiences and account of situations (Creswell, 2009; Asper & Corte, 2019), which helps to promote deeper insights into the real-world problems (Tenny et al., 2022). Many researchers favour this research approach because it can sufficiently answer the question of ‘hows and whys’ rather than how much or how many, as is the case in quantitative research.

A significant strength of qualitative research is that it can explain patterns and processes of human behaviour, experiences, attitudes, and perceptions, which can be difficult to adequately quantify (Tenny et al., 2022; Creswell, 2014; Gilbert, 2009).

Qualitative research design has different methods. These include ethnography, grounded theory, phenomenology, and narrative research (Creswell, 2014; Hammarberg et al., 2016; Asper & Corte, 2019). The ethnographic approach originates in cultural and social anthropology and involves the researcher being directly immersed and engaged in the

environment of the research participants. The approach involves the direct involvement of the researcher with the target population to produce a comprehensive account of the social phenomenon under investigation for the specific research period. On the other hand, the grounded theory approach involves the generation of a theoretical model through the experience of observing a study population and developing a comparative analysis of their speech and behaviour. It explains how and why an event or behaviour occurs or how people act in a certain way. The grounded theory approach mostly leads to developing a theory to explain a phenomenon of interest.

On the other hand, the phenomenology approach involves the study of the meaning of phenomena. This approach investigates people's experiences from their perspectives. It considers people's lived experiences to examine how and why people behave in a certain way from their perspectives. Unlike grounded theory, where theory is developed for a social phenomenon through examining various data sources, phenomenology describes and explains a phenomenon or an event from the angle and perspective of those who have experienced it.

Meanwhile, the narrative approach mainly involves telling a story from the perspective of those directly involved in the research interest. This research approach provides a rich descriptive narration of an event from one or two people to help shape a narrative.

Therefore, a qualitative study helps investigate attitudes, beliefs, and normative behaviour. The different methods in gathering qualitative data, the focus group, key informant interview, observations, and in-depth interview, are effective in obtaining focused information on any topic, investigating views and perspectives. In using the key informant interview method, for example, an institutional perspective or background information regarding a phenomenon is obtained from stakeholders. In contrast, an in-depth interview helps one understand an experience, event, or condition. As many 21st-century social scientists argue, qualitative research is the best-suited research method for getting diverse perspectives or opinions

regarding any concept (Wyverkens et al., 2014; Hammarberg et al., 2016). This is largely because qualitative research collects rich, small-sample data. The data (verbal or textual) are organised and interpreted in the research context (Young et al., 2014). However, because of the contention of reliability and validity of qualitative data, research robustness and integrity are essential aspects of a qualitative study (Lincoln & Guba, 1985; Hammarberg et al., 2016). While many researchers, especially quantitative researchers, have argued for the objectivity of qualitative studies, the integrity of qualitative studies is measured by their trustworthiness, applicability, consistency, and credibility (Lincoln & Guba, 1985; Leininger, 1994).

4.2.2 Quantitative Research

This research design focuses on collecting quantifiable data and analysing the data based on an objective and logical stance. The research approach is formed from deductive thinking, emphasising testing theories and hypotheses based on positivist and empiricist philosophies. This research design is mainly used to answer research questions or when probability or general information is sought on attitudes, opinions, views, or preferences and when the variables of interests can be clearly defined and linked or connected to form research hypotheses (Hammarberg et al., 2016). A quantitative design is often used in population studies to determine a particular variable of interest's percentage, distribution, and frequencies. It is an approach suitable for determining the association, relationship, and level of significance of any research. Unlike qualitative research, in which people's lived experiences and perspectives are carefully documented, quantitative study helps gather data that can be counted and measured. Data are systematically collected using standardised measures and statistical analysis with little or no researcher bias because the data obtained under the same or similar conditions are expected to be replicable (Hammarberg et al., 2016).

Therefore, based on the careful consideration of the two research designs (qualitative and quantitative), this study adopted an explorative qualitative design (Hennink et al., 2020) using the Key Informant Interview (KII), In-depth Interview (IDI) and Focus Group Discussion (FGD) methods. The qualitative research design was selected because it could provide robust and rich research evidence from the target study population (Renjith et al., 2021). It is an important research design because it is person-centred, where thoughts and actions are discovered during the investigation. An explorative qualitative design is suitable to further understand the topic under investigation instead of offering a final solution to the researched matter (Gorynia et al., 2007). It is also a research approach that has the potential to identify possible areas for further investigation (Lockett et al., 2005).

Qualitative research is generally utilised to understand health behaviour patterns through exploration (Sorrell, 2013) because the evidence from qualitative studies is vital in designing interventions, policies, and behavioural theories. The design can produce descriptive, adequate, and sufficient data to understand and explore experiences, actions, and behaviours. It is an adequate research design to understand the variables under study, which is an exploratory exercise that investigates the impact of population growth and family size on health and socio-economic well-being in selected states of Northern Nigeria.

4.3 Research paradigm

Research Paradigm is the diverse ways of viewing the world or the belief system in which research is conducted. It forms the basis for undertaking any research (Davies & Fisher, 2018). Paradigm involves assumptions about reality, the process of knowledge creation, and what is valuable to be learned. It helps in forming a good foundation for research so that findings can be translated into practice. In practice, the different paradigms consist of the nature of truth

(ontology), the research strategy (which is the methodology), and the epistemology, which is the nature of knowledge (Creswell, 2014).

The literature identifies four major paradigms used in scientific inquiries: positivism, post-positivism, pragmaticism, and the interpretative paradigm (Denzin & Lincoln, 2018; Denzin, 2016).

4.3.1 Positivism

This paradigm emphasises reasoning and knowledge. It challenged traditional religious views of knowledge generation. The paradigm assumes that there is only a single reality; to know this reality, research must be undertaken objectively (Scotland, 2012; Davies & Fisher, 2018). Therefore, an experiment is designed based on positivist theory, and predetermined hypotheses are tested to determine this reality. The positivist methodology usually uses a large sample size and a quantitative research method (Oliver, 2010). The researcher is separated from the study participants to eliminate any form of bias. Positivism aims to generate generalisable and predictable data for a situation or population. It primarily uses deductive reasoning, a thought process involving predetermined hypotheses. When data is being reported, positivist research is presented numerically. However, despite positivist theory's objectivity, many researchers have challenged and criticised positivist research. Notably is the assumption that positivism does not consider or account for individual differences or the nature of subjectivity of the experiences of humans (Schneider et al., 2013; Collis & Hussey, 2014). Therefore, because individual differences and opinions are essential for this study in exploring the impact of large family size and population growth on health and socio-economic well-being among community members and stakeholders in Northern Nigeria, the positivism paradigm was not adopted for this research; instead, the interpretative paradigm was adopted.

4.3.2 Interpretative paradigm

This research paradigm is anti-positivism. It is often called the constructivist or naturalistic paradigm, in which views are subjective and can differ from person to person (Davies & Fisher, 2018). Unlike the positivist approach, the interpretive paradigm does not agree with the idea that there is a single reality. The paradigm guides research aimed at understanding and exploring the research context from a naturalistic perspective. It gives room for individual views, opinions, perspectives, and beliefs. There are no predetermined set hypotheses to be tested using this paradigm. Theories and concepts are developed from specific observations from the study. The paradigm employs inductive reasoning (Schneider et al., 2013). It also mainly uses qualitative research methods. The sample size is small, which helps to collect in-depth, rich, and comprehensive data that could adequately describe the experiences of individuals under investigation.

Interpretative research involves dialogue and interactions between the researcher and the research participants; therefore, research biases are likely (Schreirer, 2018). However, the research process involves serious, deep self-reflection by the researcher. This research paradigm relies on interviews, observations, or focus group discussions for the data collection process. It helps in exploring local knowledge in any area of research. An interview is key for exploring how people experience and understand their world, and it provides a unique opportunity for research participants to describe their activities, reasons, experiences, and opinions (Svend & Kvale, 2018). Using interviews is vital in managing human behaviour because of their potential to help understand the human situation in perspective and context.

However, many researchers have criticised its usefulness for a large-scale study because of the small sampling frame and the unlikelihood of generalisable data obtained from the interpretative paradigm (Scotland, 2012). Meanwhile, to get rich, in-depth, and quality data on any phenomenon of interest, the approach is best suited for use. Also, because the interpretative

research paradigm adopts the qualitative research method, which helps answer the ‘why’ and ‘how’ of a phenomenon and deepens the understanding of research interest, it is mostly adopted for an explorative study (Tenny et al., 2022). Therefore, for this study, the interpretative paradigm has been carefully selected to underpin the research. This is because to adequately explore the impact of family size and population growth among community members and key stakeholders in Northern Nigeria, attempting to collect in-depth and rich data that best describes individual experiences becomes imperative.

Table 4.1: Summary of the significant differences between interpretative and positivist paradigms

	Interpretivism	Positivism
Researcher	A part of what is being investigated	Not a part of the study. The researcher is independent
Method	Qualitative data is produced	Quantitative data is produced
Description of data	It increases and provides a general understanding of the situation under study, mostly subjective.	Data are objective, precise, and specific.
Research process	Inductive reasoning of ideas from gathered data	This leads to hypothesis testing and deduction
Research concept	Stakeholder views, perceptions, and opinions are incorporated	Data are operationalised to be measured
Analysis of data	The complexity of the whole situation is included	The analysis is done to ensure that data is reduced to the simplest term
Generalisation	Theoretical abstraction-Theory is generated	Statistical probability
Sampling	Small sizes are usually purposively selected for a specific reason	Large size is selected randomly
Accuracy	Validity is high, while reliability is low	Reliability is high, while validity is little

Source: Collis and Hussey, 2014.

4.4 Research Approach

This study adopted an inductive approach, in which emerging findings were presented as data-driven. The deductive approach guided the discussion of the research findings obtained from the field with existing literature.

In any qualitative research, two basic approaches exist to investigate a particular topic of interest. This thinking may be inductive, deductive, or both. While the two approaches for basic research could be complementary, some differences exist, especially concerning generating new knowledge and theory.

4.4.1 Inductive research approach

The inductive research method in social sciences originates in cultural anthropology, where facts are obtained from the individual. This approach begins with researching and establishing a theory. It involves investigating and observing a generalised theory (Kim, 2021). This approach involves the researcher collecting relevant data for the research topic and then using the data collected to develop empirical generalisation. Patterns and regularities in the data obtained are carefully looked at to develop a tentative theory that could explain those regularities and patterns. Inductive research usually moves from the collection of data to theory development. This research approach usually guides most qualitative research, where a data-driven framework can be designed using thematic analysis (Bonner et al., 2021). Inductive research is data-driven, and generalisation and theory development are based solely on data collected. Thomas (2006) states that this research approach helps condense raw textual data into a meaningful, brief, and summary format. Inductive research reasoning is instrumental in establishing clear links between the research objectives and the summary obtained from the raw data. It is an approach that helps develop the framework of underlying experiences and perspectives in the collected raw data.

Data analysis in a qualitative inductive study is guided by evaluating the research objectives and the topics under investigation. This usually requires thorough multiple readings and interpretation of raw primary data obtained from the field, which is the inductive component. In inductive research, even though the researcher's outlined objectives influence research

findings, actual findings and reports are generated directly from the analysis of the raw data and not from a priori or predetermined expectations, theories, or models (Thomas, 2006). For inductive research, categories are developed from the data into a model or framework, usually developed during coding. The researcher uses inductive reasoning to decide what is more important about the raw data. Unlike grounded theory, where a theory that includes themes or categories is generated, inductive research ensures that categories and themes that are most relevant to the research objectives are identified (Young et al., 2020; Hayes et al., 2010)

In this study, the inductive approach was used to get the reasoning of the research participants, which enables inferences from what we know to what we do not know, as posited by Hayes and Heit (2018). This is also reflected in Figure 4.1, which depicts a pictorial illustration from what we know (something limited) to what we don't know (more information revealed in this study). The inductive approach, which is mainly anchored on the interpretative paradigm, allowed varying and diverse perspectives and opinions from the research participants on what is being investigated without limiting their discussions of experiences and views based on any pre-determined knowledge or the instrument used for data collection. Unlike the deductive approach, which allows arguments or reasoning to be logically valid according to set rules, the inductive approach allows for a diversity of views and opinions about any phenomenon of interest (Hayes & Heit, 2018) and as such, the inductive approach was selected over the deductive approach for the presentation of emerging findings in this study in investigating the impact of family size and population growth on health and socio-economic wellbeing among community members and critical stakeholders. This is because the approach enables an in-depth exploration of diverse views, perspectives, and opinions to arrive at a reasonable conclusion on what must be done to inform practice and workable recommendations after the end of the research.

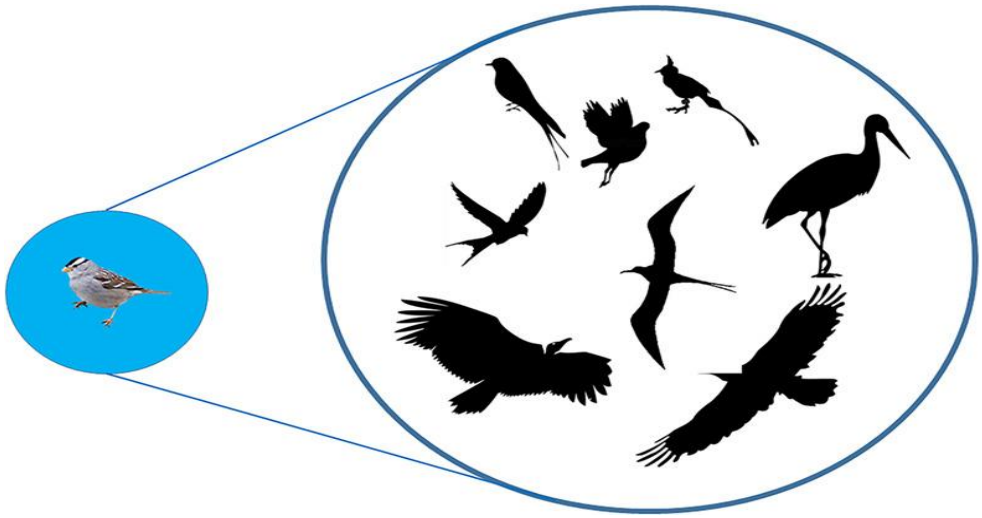

Figure 4. 1: Pictorial representation of inductive reasoning from what we know to what we do not know (Source: Hayes and Heit, 2018)

Furthermore, because of the peculiarity of this research and the adoption of the Silences framework, which mandates that the silenced voices must be heard (Serrant-Green, 2011), getting diverse views on the topic of investigation becomes very pertinent. Exploring the impact of population growth and family size on health and socio-economic well-being in Northern Nigeria from the perspectives of the Northerners, which include the community members, leaders, stakeholders, health practitioners and policymakers, the inductive approach was best suited for this investigation because the factors contributing to large family sizes and the perceived effects of population growth and family size on health and the socio-economic wellbeing can be best documented by listening to diverse views and opinions from the study population. This approach was also used because it was adequate for documenting the stakeholders' perceptions, as applied in a similar study by Young et al. (2020) and Campbell et al. (2021). It was also applied to this research because it was adequate in examining the attitudes and perceptions toward birth control among community members and stakeholders and in identifying effective ways to encourage the use of traditional and modern contraceptives among community members and stakeholders. The data-driven inductive approach was used

to identify the most relevant categories to the research objectives and helped describe the important themes and make empirical generalisations. Applying inductive reasoning in qualitative research makes the investigator act as a blank slate (a tabula rasa), making meaning and sense of variables and phenomena of interest without biasing the interpretation. It is a reasoning and research approach that allows meaning to be made from data.

4.4.3 Deductive research approach

This approach, like the inductive, is useful in guiding research investigation. However, unlike the inductive research approach, the deductive approach is typically associated with scientific investigations where hypotheses are tested. Here, the researcher starts with a theory and then tests its implications with the data collected. This approach investigates what is known and then tests based on emerging findings (Kim, 2021). Deductive research is often employed in quantitative studies and often follows methodological rigour. It is an approach that helps in testing theory, hypothesis, and current knowledge (Casula et al., 2021). The approach can explain a causal relationship between variables and concepts and helps to measure concepts quantitatively.

The deductive approach's focus is on testing an already established theory or knowledge. In many cases, the approach leads to “testing of significance which can result in the rejection of, or the failure to reject a null hypothesis”, which will indicate that the findings of particular research were due to chance (Young et al, 2020, p. 1122). The positivist paradigm guides this approach, which is the principle for scientific discovery when using quantitative data. This approach ensures that the a priori hypothesis is verified and tested to inform and advance science. It provides an explanatory association or possible causal relationships using quantitative data with a large sample size, where generalisable inferences can be made (Park et al., 2020). This approach has ontological assumptions that a single tangible reality only exists

and can be identified, measured, and understood, unlike the inductive interpretative approach, where it is assumed that many realities exist.

The epistemological nature of deductive reasoning contends that knowledge must be developed objectively without bias or any influence or values of the participants or the researcher in its development. The assumption holds that when knowledge is appropriately developed, it is certain, specific, true, accurate and congruent with reality (Hansen, 2004). The above argument, therefore, made this approach valuable in this research in testing and discussing the primary data obtained from the field using the inductive approach. The emerging findings obtained via the inductive approach were then further discussed using the deductive approach by comparing the obtained findings with evidence and facts from the literature and existing theories.

4.5 Positionality

In most qualitative research, discussing the researcher's positionality is crucial to contextualise the research environment and the researcher. It helps to identify any bias and define the boundaries within which a research output was produced. Positionality enables the critical assessment of how various perceptions, views, and opinions in a study are influenced by the diversity of other influences and familiarities (Abdulrahman et al., 2016; Jafar, 2018). Researcher reflexivity helps in understanding the researcher's identity during the research process. The positionality statement is also essential to shape and understand the participants-researcher relationships and the understanding of sociocultural and religious practices of the studied region and communities.

The researcher as a Nigerian who has lived with the reality of underdevelopment and poverty, my initial understanding of some of the perceived problems and impact of family size, particularly having a large family size and the increased population growth rate, could make

me neglect assessing views, experiences, practices, and behaviours that were naturally noticeable to me. While the culture, practices and behaviours of Northern Nigerian may be familiar to me, it would be naïve to assume that I am aware of all the challenges in the North and that the people in the North who participated in the research will see me fully as their own or an insider because geographically, I am from the Southern part. This made me completely immerse myself and fully become absorbed by the research participants' experiences to make sense of their lived experiences, positions, and views, irrespective of my opinion and views as the researcher, as argued by Serrant-Green (2002; 2011). As one who understands Nigeria's cultural practices, especially gender roles and sensitivity, I ensured male and female interviews were done separately during focus groups and individual interviews. I was also aware that my identity as a Southerner from the southwest geopolitical zone of Nigeria could simultaneously support or challenge my positions and views within the research. I was aware that participants might ask questions that may query my positions as a non-Northerner and a non-Hausa/ Fulani, the predominant ethnic group in Northern Nigeria.

This positionality, therefore, helped me understand the complexity of the choices and decision-making among the study participants regarding the matter under investigation. It also helped me reflect on the importance of collective knowledge among families and the significance of considering this within the scope of the research objectives and before the stage of data collection to manage and interpret the collected data effectively.

Very importantly, my ability to identify and notice the indigenous cultural gestures, attitudes, and speeches, such as inaudible signals and body language of my study participants, was a distinctive contribution to this study. For example, in African communities, particularly in Northern Nigeria, direct eye contact with an elderly person is considered disrespectful and uncultured. Also, inaudible gestures such as shrugging the shoulders or shaking the head can communicate either a negative or positive response or a submission to a compromise.

Understanding these non-verbal cues was essential for succinctly and accurately determining the acceptance and open-mindedness of the study participants. This understanding helped the researcher know when to change the line of thought or the subject of discussion to a more relaxed topic. It also helped me to know when to rephrase a question or statement.

Despite this, I ensured all discussions were within the research scope and objectives. Recognising the non-verbal communication of the participants made it possible for me to assess the participants' perceived impact of family size and population growth in the densely populated location in Northern Nigeria. It helped to understand how the perceived population growth could be controlled holistically. Creating a calm, relaxing, and natural environment for the participants by communicating with them in non-professional, non-academic language or tone and avoiding academic jargon was beneficial for the study. Also, using and mixing local dialects such as Hausa, Yoruba, and pidgin during the interviews allowed for a robust understanding of questions, which aided in good, truthful, factual, and sufficient responses. Using some of the local languages to greet participants, even though I do not understand Hausa very well, allowed for much reception from the participants. My understanding of the impact of family size and population growth in Northern Nigeria from the participants' perspectives was based on my active listening to their experiences, personal stories and opinions shared during the interviews. Building relationships and rapport with the participants also allowed study participants to stay focused on the discussion, believing that the negative impact of family size would be ameliorated.

Therefore, as an outsider within the context of this research, interviews and focus groups were completely relied upon as the vital source of information for this research. Data were obtained through informal interviews and focus groups with community members (those with small and large family sizes), healthcare professionals, community leaders/ stakeholders and policymakers.

4.6 Sampling and Recruitment

The study was conducted in Northern Nigeria with participants sampled from two selected Northern States (one State from the core North and another State from the middle belt of the North Central). Nigeria is the largest African country in terms of Population size. The country is divided into six (6) geo-political zones: Northwest, Northeast, North Central, Southwest, Southeast and South-south. The core Northern State, where this study was conducted, was Kano State, and the North Central State, which was selected for this study, was Nasarawa State. Kano State is Northern Nigeria's largest state, categorised within the Northwest geopolitical zone. The state has about five million people (NPC & ICF, 2019). Kano State comprises 44 local government areas and three Senatorial Districts (Kano South, Kano North, and Kano Central Senatorial District).

Nasarawa State is in Nigeria's North Central geopolitical zone, close to the federal capital territory of Abuja. Its population is about 3 million. It has 13 local governments and 3 Senatorial Districts (Nasarawa West, Nasarawa South, and Nasarawa North Senatorial District) (NPC, 2023).

Participants were purposively sampled across the senatorial districts to adequately represent participants across the selected states. A local government was selected across each of the Senatorial Districts in each of the selected states. For Kano State, Tundun Wada Local Government was selected for the Kano South Senatorial District, Kano Municipal Local Government was selected for the Kano Central Senatorial District, and Bichi Local Government was selected for the Kano North Senatorial District. For Nasarawa State, Keffi local government was selected for Nasarawa West Senatorial District, Lafia Local government was selected for Nasarawa South Senatorial District and Wamba local government was selected for Nasarawa North Senatorial District. The selection was purposive to represent each of the

senatorial districts in the selected states. Then, one community was selected from all the selected local governments.

Actual participants from the selected local government were purposively selected using community informants and stakeholders based on those who met the set inclusion criteria. A total sample size of Eighty (80) individuals participated in this study. The recruitment of participants, which resulted in this sample size, stopped at the point of data saturation. Using a community mobilisation approach for recruitment, participants in this study include.

i. Community members- involving those with small and large family sizes: Nine (9) Focus group discussions were done among this group, with a minimum of six (6) participants per group. To prevent the inhibition of disclosure by some participants and to ensure the full participation of all, each focus group was homogeneous, and participants with very similar characteristics were grouped in terms of family size, level of education, and gender. The focus group enabled participants to build on each other's comments, and it also further stimulated the thinking and discussion, thereby generating new ideas and breadth of discussion (Wong, 2008)

ii. Community and religious leaders (traditional, Christianity, and Islam): Ten (10) key informant interviews were conducted among community and religious leaders. These participants included District heads, Kings, Chiefs, Community stakeholders, Pastors, and Imams. The interviews helped to obtain perspectives from these leaders on family sizes and Northern Nigeria's population growth and its impact on health and socio-economic well-being.

iii. Health Professionals: In-depth interviews (IDIs) were conducted among healthcare professionals, particularly those working within the primary healthcare facility where many community members go for family planning services. Up to eight (8) IDIs were conducted among this group to explore their perception of the impact of

family sizes and Northern Nigeria's population growth on health and well-being based on their knowledge of professional practices. The participating healthcare professionals included Doctors, Nurses, and Public Health specialists in family and reproductive health.

iv. Policymakers and Legislators: In-depth interviews were also conducted among policymakers and legislators within the selected states. Perspectives around policy actions to address population growth and family sizes were obtained. Seven (7) IDIs were conducted among this group of participants.

4.6.1 Study Location and Setting

This was a community-based study. This study was done in two selected states of Northern Nigeria, specifically Kano State (the most populous state in the core North) and Nasarawa State in the north-central part of Nigeria. Kano State has GPS coordinates of latitude 12.002179 and longitude 8.591956 with GPS coordinates of 12° 0' 7.8444" N and 8° 35' 31.0416" E. The GPS coordinates of Nasarawa State are latitude 8.570515 and longitude 8.308844, with the GPS coordinates of 8° 34' 13.854" N and 8° 18' 31.8384" E. The people in these States are predominantly farmers and traders, while some are civil servants, politicians and artisans.

4.6.2 Inclusion and Exclusion Criteria

To participate in the study, whether for the focus group, in-depth interview or key informant interview, the following inclusion criteria were set to get rich perspectives, opinions and views from participants based on the research objectives.

i. Participants must be married to ensure they have family life experience and can provide lived experience about the impact of family size and choices.
ii. Must be able to communicate in English or their local language to facilitate effective communication during the interview sessions.

iii. Can provide informed consent to participate in the study after reading through the participants' information sheet and informed consent form.

iv. Currently living within the selected study location and in a family setting.

The exclusion criteria for this study include;

i. Single and unmarried persons were excluded from this study, focusing primarily on family size and population growth. Family experience and marriage can help generate more informed and experiential perspectives from participants regarding the impact of family size on health and socio-economic well-being.

ii. Not being able to communicate in English or local language.

iii. Decline to sign the informed consent form.

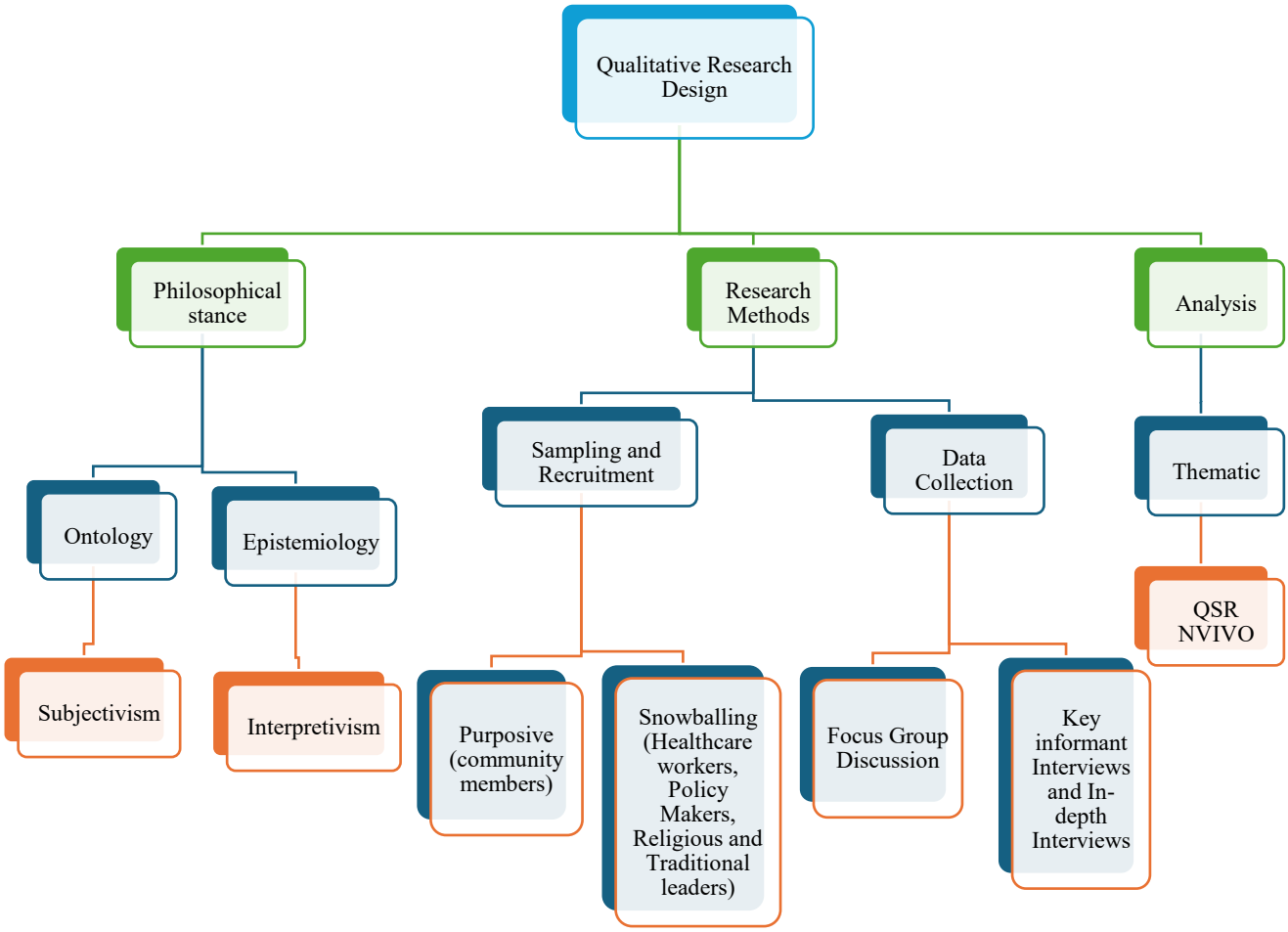

Figure 4. 2: The Organogram of the Research Process

4.7 Data Collection Process

4.7.1 Piloting

The interview guides were piloted using five people with characteristics similar to the research participants, and one focus group was conducted in which participants were representative of the study population sample. This was done before data collection to determine the guide's adequacy. The piloting of the instrument was very helpful in determining if the time allotted for each interview would be adequate, checking for ambiguity in the questions, and ensuring

that most participants could understand the questions. It provided pre-knowledge about the possible responses expected from the interview and pointed to some of the challenges that may arise from the data collection (van Teijlingen, 2002; Leon et al., 2011). The piloting was done in a local community within the federal capital territory of Nigeria. It helped examine the study approach's feasibility and the instrument's adequacy. An important lesson learned during the piloting process for this study was the need to restructure some of the questions in the interview guide to ensure an easy flow of understanding for the actual research participants, who may not be so educationally sophisticated. It also helped to inform the time to be allotted for each interview.

4.7.2 Research Instrument

Validated semi-structured interview guides (see Appendix E & F) were used to conduct the interviews and focus group discussions. The questions in the guide were developed by reviewing relevant literature that was in line with the research objectives.

4.7.2.1 Focus Group Discussions (FGDs)

A focus group is a qualitative research method where people from similar backgrounds and experiences discuss a specific topic of interest (Zacharia et al., 2021). This method allows for group dynamics in collecting primary data during qualitative research. It helps to bring together carefully selected people and research participants to discuss a topic or area of research interest. Group dynamics play a significant role in understanding broader topics and generating new ideas. While it is very pertinent that participants in a focus group should have similarities in their regional, educational, cultural, language, and socio-economic status to avoid too many disparities in opinion regarding the same issues, a focus group makes discussion around a particular issue very simple because of the possible interaction expected among the participants.

For this study, a total of 9 different focus groups were carried out involving a minimum of six (6) participants in each group; two focus groups were carried out among women with small family sizes, two focus groups among women with large family sizes, and another two focus groups were carried out among men with large family size and the last three focus groups were carried out among men with small family size. All the focus groups were conducted among rural community members within their locality. The FGDs were used to investigate the factors contributing to family size decisions and the perceived impacts of large family size and population growth on health and socioeconomic well-being. The views and perspectives of community members who participated in the focus groups were carefully explored up to the point of data saturation.

4.7.2.2 Key Informant Interviews (KIIs)

This qualitative research data collection method is used to get institutional and background perspectives from important stakeholders regarding a topic under investigation (Hammarberg et al., 2016). In this study, up to Ten (10) different KIIs were done among community leaders, particularly traditional district heads and religious leaders (Christianity and Islam). This method helped to explore the perspectives and views of key community stakeholders on the impact of large family size and population growth. It helped in examining their perception and attitudinal dispositions towards birth control and contraceptive use.

4.7.2.3 In-depth Interviews (IDIs)

This qualitative data collection method was used to understand the views of healthcare professionals working on family and reproductive health and among policymakers and political leaders, especially legislators at the state and national assemblies. A total of 8 in-depth interviews were carried out among healthcare professionals, and another seven in-depth interviews were carried out among legislators and a director each at the Ministry of Health and

the National Population Commission of Nigeria. This method was selected among these stakeholders to explore their professional perspectives on the impact of population growth and family size. It was also helpful to understand from the policy perspective some of the efforts already being made towards addressing the impact of population growth and large family size. These stakeholders also expressed their opinions on addressing the impact of population growth in Northern Nigeria.

4.7.3 Interview Procedure

Research participants were contacted for appointments through phone calls, formal letters, e-mail messages, and one-on-one meetings. Each interview was planned to last about 60 minutes, and the focus group discussion was planned to last for about 90 minutes. The average interview time was 46 minutes, while the FGDs were 68 minutes. All 9 FGDs among the community members were done physically in a conducive, unanimously agreed location by the participants. Most of the FGDs were done inside the village or town hall, while two focus groups were held at a round table under a tree in two different communities in the Northwestern part of Nigeria. All the participants agreed on each FGD location for the focus groups.

The interviews with key stakeholders, community leaders, religious leaders and policymakers were also done physically, as all the participants preferred face-to-face interviews to any online interview. Before each interview, participants were provided with the information sheet and informed consent form to read and understand to provide informed consent to participate in the study. Each interview session was recorded using a digital audio recorder and was named and saved with a unique code for easy transcription and analysis. Permission for audio recording was taken from each of the study participants. When participants refused audio recording, especially during the in-depth and key informant interviews, notes were taken to record the

responses from such interviews. Meanwhile, a digital audio recording was done for all the focus groups, as all the FGDs' participants consented to the audio recording.

During the interviews, a research assistant was engaged to support the researcher in facilitating the arrangement of the venue for the interview, taking notes during interviews and arranging for refreshments for the research participants. The FGDs among the community members were done first, followed by key informant interviews with traditional rulers, community stakeholders, religious leaders, and in-depth interviews with healthcare professionals and policymakers. The interview sequence was designed so that participants' responses could influence the questions from the following study population group. This ensures the collection of rich, holistic, and informed data.

4.7.4 Access issue

Before approaching the community members that were to participate in the study, the first thing that was done was proper community entry, which involves meeting the community heads and the law enforcement agencies, particularly the Nigerian Divisional Police offices in the selected communities and the Office of the Nigeria Security and Civil Defence Corps (NSCDC). The research's aim and participants' expectations were clearly explained with necessary approval and commitments obtained from these traditional heads and the security agencies. The major access challenges during data collection were language barriers, location access due to bad roads, and insecurity.

Many of the communities where this study was conducted were rural, and most people feel comfortable speaking the local language (Gbagyi, Agatu, Kanuri, Hausa, Basa and Fulani), which the researcher did not know. However, the research assistant employed for the study understood the Hausa language, which many participants could also speak aside from their native language. This helped in communicating with the potential participants before they made

it known they also could communicate in English, which was eventually used for the interview. The language barrier was then broken as many of the participants were comfortable speaking the English language.

Most of the locations for this study were communities that have had some episodes of violence and insecurity. With the assistance of the security agencies that were pre-informed during the community entry process, necessary security and intelligence updates were provided to the researcher, and this helped to prevent any form of security risks during data collection. The community and research participants also provided security guidance after building rapport. This enabled easy access and a seamless data collection process even in communities with reports of communal crises or violence.

4.7.5 Reflection from Fieldwork

This study was entirely community-based. This is because most of the interviews, particularly those done among community members and leaders, were conducted within the community environment, homes, churches, mosques, and health facilities (primary healthcare facilities). Only the interviews conducted among the policymakers, especially the legislators and directors at the National Population Commission, were conducted in government offices as requested by those participants for privacy. This was also based on the preference of this set of participants.

Participants in this study felt uniquely privileged to be selected to take part in the study. They were happy to have a voice to share their thoughts and perspectives about the impacts of family size and population growth in Northern Nigeria and to contribute to efforts that could help address the challenges and adverse effects of population growth in the region. Some participants also viewed their participation in the study as allowing them to reflect on their family size choices and how it has impacted their health and socio-economic well-being. It also

raises their consciousness of the need for and importance of the adoption of family planning services.

Furthermore, many stakeholders who participated in the study expressed satisfaction that a study of this nature is being carried out in Northern Nigeria, which they believe could help inform efforts to address some of the challenges of family and population growth in the region. My research interest and the participant's reflection on the interview process have helped address my role as this study's researcher. This research has affected the participants positively by giving them a voice and hearing their 'silences' about the existing perceived impact of large family size and population growth on health and socio-economic well-being in Northern Nigeria.

4.7 Data Management

4.8.1 Transcription of interview data

Data transcription is crucial in any qualitative research, especially when using the interview method (Flick, 2014). It is a process that may appear easy but is very practical, as argued by Bailey (2008), who posited that qualitative data transcription requires data interpretation, representation, and reduction to produce meaningful, readable, and important transcripts. This made the process of data transcription not an easy task because it involves full attention and concentration as well as enough time to fully grasp and understand the conversation and reflect on the non-verbal responses and context. After returning from the fieldwork, the researcher transcribed (see Appendix G) all the recorded audio interviews, which were compared with each other, and the reflective diary note kept during the data collection to ensure the accurate reflection of the responses. To ensure confidentiality in handling the collected data, as explained earlier to the research participants during the data collection process, anonymity was

ensured to protect participants' identities. All the transcripts were given unique numbers and codes for easy identification during data analysis and presentation of the findings.

4.8.2 Data analysis

The process of analysing qualitative data involves different stages. The researcher moves from the data collection stage to making meaning of a vast amount of information and then explaining and interpreting participants' views and situations under study (Creswell, 2014).

The thematic method was used for the data analysis and was underpinned by the Silences framework. The obtained data were transcribed verbatim, cleaned, and coded before thematic analysis. The thematic analysis is a theoretically flexible approach to analysing qualitative data (Braun & Clarke, 2013; 2006). It helps identify, analyse, and report themes or patterns in a qualitative data set.

The thematic analysis is commonly used to identify patterns across language-based data and is an approach used to note "patterns across qualitative datasets (Braun & Clarke, 2006; Braun et al., 2019). Because of this analysis method's flexibility and broad nature, it has been used in different disciplines, especially in social sciences, medicine, sociology, public health, psychology, health services, tourism, education, human resource development and humanities (Norris et al., 2017; Perkins, 2018; and Cassol et al., 2018). Unlike many other analytic methods, which are methodologies by themselves, for example, grounded theory and content analysis, the thematic approach of qualitative data analysis can be seen as just an analytic method rather than a methodology because of its theoretical flexibility (Lester et al., 2020).

For this study's analysis, the six steps of the thematic analysis were employed as recommended by Braun & Clarke (2006), Byrne (2022), and Braun & Clarke (2021). These steps were further guided by the tenets of the analysis phases of the Silences Framework (Voicing the Silences).

The six steps of the thematic analysis employed in this study are discussed below. Data were organised and managed using the QSR NVIVO software.

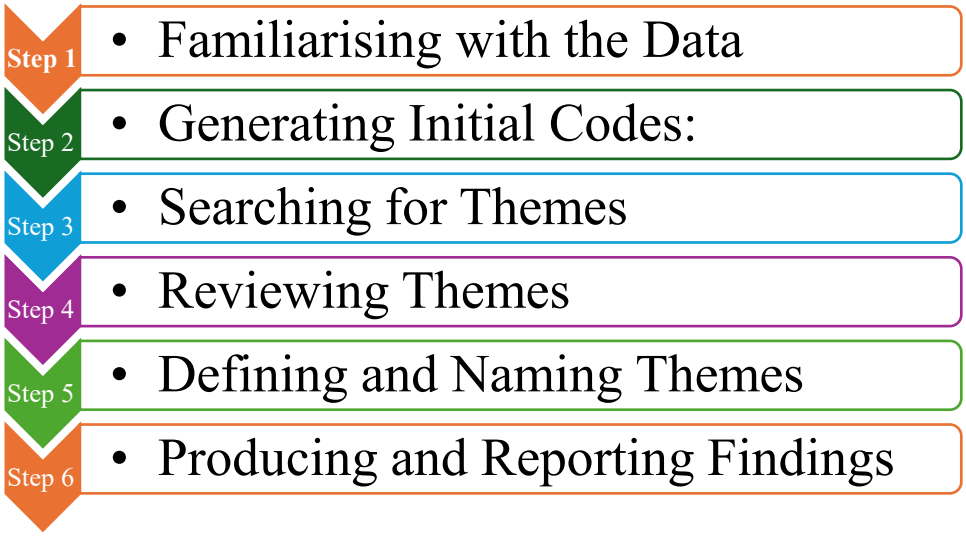

Figure 4. 3: Thematic analysis steps

i. Familiarising with the data: This involved the process of data transcription, which, for this study, was done manually. This allowed the researcher to fully immerse in the data even as the transcriptions were being done. However, after the data transcription, the verbatim transcripts were cleaned for grammatical and spelling errors, and each of the transcripts was read twice before coding. This helped to shape ideas and the possible identification of patterns and categories. As part of the process of familiarisation with the data, it was read and re-read to get more familiar. Meanwhile, the process of data familiarisation was easy because the researcher collected the data himself and the process of focus group and interview gave the researcher some insider knowledge of the data right from the field. This phase provided the basis for the other parts of the analysis.

ii. Generating Initial Codes: At the second step of the analysis process, the exciting features from the data were coded systematically across the dataset. A codebook

was first used before the data were organised using the NVIVO software. After this data was organised, relevant data from the transcripts were collated into each generated code.

iii. Searching for Themes: At this stage, codes are collated, analysed, and checked to see how each may combine into potential themes. All data relevant to each potential theme were gathered to form a theme. A table was developed to generate theme piles. Different levels of thinking were used to understand the association between codes, categories, themes, and sub-themes. The collation of themes and sub-themes from all the extracts from the data from which they have been coded was achieved at this stage.

iv. Reviewing themes: The initial themes generated from the initial ideas in the first step are compared with the code generated in step two to form a thematic map of the data analysis. Themes refinement was achieved at this stage. The collated extracts for each theme were revised to ascertain coherency in patterns. Where there was incoherency, new themes and sub-themes were created.

v. Defining and naming themes: At this level, clear definitions and names for each theme were generated to give the data more explicit meaning. The themes were further refined in preparation for the final analysis and write-up.

vi. Producing and reporting findings: This was the final step of Braun and Clarke's thematic analysis process (2006; 2013; 2021), which involved compiling extracts and reports of the findings in a presentable manner. Here, the findings were presented in line with the literature and research objectives.

4.8.3 Silences Framework (Voicing the Silences) underpinning the analysis.

The silences framework provides that the data analysis process must incorporate four phases: research review, participants review/ silence dialogue, user voices/ collective voices and the researcher's reflection. This was important to give credibility to the thematic analysis and results of the findings (Serrant-Green, 2011; Nyashanu et al., 2023). Therefore, the four phases of the analysis stage of the silences framework, as applied during the thematic analysis, are presented and discussed.

e. Research review:

f. Participants review/ silence dialogue.

g. User voices/ collective voices

h. Researcher reflection

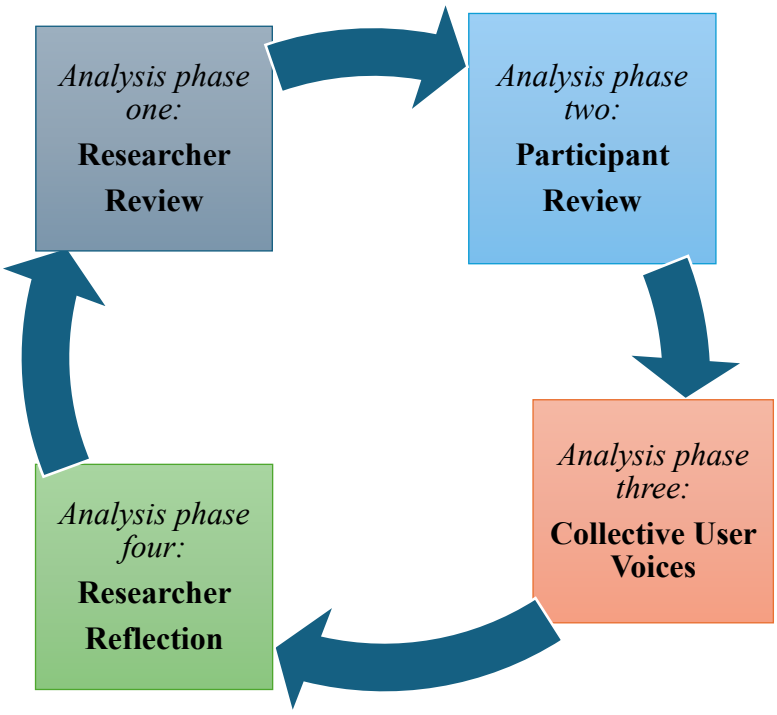

Figure 4. 4: Phases of analysis in Silences Framework

i. Researcher Review: At this phase, the researcher thoroughly reviewed the data obtained from the field in accordance with the study's objectives. The researcher was immersed in the data to create the first draft of the research findings. This was the phase where the first five stages of thematic analysis were performed, as propounded by Braun and Clarke (2006; 2021) and explained above.

ii. Participants Review: The research participants in this study were invited to confirm the initial draft of the analysed data done in the first stage to ensure that what has been analysed and presented was an actual record of the information they provided during the interviews. This participant review process ensured the credibility of the collected data. At this phase, some key stakeholders who participated were invited purposefully to review the analysis draft for comments and validation. This enhances the active participation of the research subjects in the study process and output. After the review, to further give voice to the research participants, the additional comments and suggestions they provided helped to improve the output and to contextualise the research findings better.

iii. Collective user voices: At this phase, the output from the second phase was subjected to collective user voice review. This phase involved cultural and religious stakeholders within the communities where the study was conducted, but who did not initially participate in the study during the data collection, to provide additional insights about the data. This phase gives the potential generalisability of the findings from this research. It also helped to provide the findings with a critical associative eye, as recommended by Serrant-Green (2011).

iv. Researcher's Reflection: The draft from phase three of the contribution of the collective user voices to the data was critically reflected upon. The critical reflection from this data

provides the basis for the final output of the research presented as the emerging findings in chapter five of this thesis. This also aligned with the sixth stage of the theoretical analysis process by Braun and Clarke (2006; 2021).

4.8.4 Use of QSR NVIVO Software

Using software has become increasingly relevant in facilitating the process of data analysis in qualitative studies in recent times. Studies have shown that more qualitative researchers now use computer software to manage and analyse qualitative data (Cypress, 2019), unlike in previous times when qualitative data analysis was completely manual. The reasons why qualitative data analysis software is gaining momentum have been argued to include its advantage of saving time and allowing researchers to deal with large amounts of data (St John & Johnson, 2000). While there are some concerns with using qualitative data analysis software, which includes its rigid process of coding and rectifying data, this software has been shown to improve study validity and flexibility and help while auditing qualitative research.

Some important qualitative analysis software packages used in social sciences and public health research include ATLAS.ti, QSR NVIVO, MAXQDA 12, and Hyper RESEARCH. A study by Creswell (2014) has recommended the continuous use of software for qualitative data analysis.

Therefore, upon careful examination of the different qualitative analysis software available, the QSR NVIVO software was selected for data management of this research, particularly because of its user-friendliness and ready availability. The QSR NVIVO software (see Appendix H) was used to code the raw data and help derive patterns, categories, and themes for this research. Data storage was also done with this software. The software was used to track the research process, especially regarding data management, ensuring transparency, a key validity criterion in a qualitative study (Lincoln & Guba, 1985). Using the software, the collected data were

organised into themes to show emerging patterns from the transcript generated from the interviews (Patton, 2015; Saunders et al., 2015). This also helped to improve the validity and reliability of the research findings.

4.8.5 Validity

Instrument validation is essential for ensuring study quality. It is the process of determining how far the study instrument can measure what it is designed for (Zeaatkar et al., 2017). The research instruments were subjected to validation. Internal and external validity were ensured at every stage of the research. The validity of this research is explained based on the criteria posited by Leininger (1994) and Lincoln and Guba (1985). These criteria, which include trustworthiness, applicability, credibility, and consistency, are explained below.

4.8.5.1 Trustworthiness

For this study, adequate qualitative procedures were extensively followed, from the study design process to the discussion of findings. The introductory chapter under the justification sub-section made the research purpose explicit. How the study was conducted, and the procedural decisions were explained without ambiguity. The data collection and management process was transparent and detailed, with consistent supervisory team follow-up to ensure transparency and research integrity, which is already inherent in the researcher. The choice of the methodology and methods was also clearly defined in line with the recommendations by Forero et al. (2018) and Kitto et al. (2008). The process of project approval through a review by an independent assessor was also followed to ensure the study was in line with the standard university procedure and practice.

4.8.5.2 Credibility

This is a process for evaluating and establishing the internal validity of qualitative research. To ensure the true value of this research, I presented my reflexivity and positionality in 4.5, where my influence as a researcher and my sentiments were declared. Also, to further ensure the credibility of this research, participants were carefully selected using purposive sampling with well-defined criteria to ensure that only those with personal family experience and children were selected. This ensures that lived experiences and perspectives were obtained from the research participants. Background information about the research was also provided for the research participants using the participant information sheet. All clarity needed by the research participants was provided before they were enrolled to participate in the research. All the participants signed an informed consent form to validate their willingness to participate in the research. Rapport was also created with the research participants to familiarise them with the project and ensure the interview questions were answered freely.

To further ensure the credibility of the research, the interviewing process was flexible. It included several prompts that allowed participants to answer questions freely without being judged. It also allowed the researcher and the interviewee to seek clarification when necessary. Also, as the researcher, I have more than five years of experience collecting qualitative data, particularly individual interviews, either as an organisation's consultant or for individual research. I also have the theoretical knowledge and skills in contextualising and conceptualising datasets (both small and large). In line with Guba and Lincoln's (1985) recommendation for research credibility and to guide the process of reflexivity, I kept a researcher diary to take field notes, which helped to provide additional information about the research context, findings, and result interpretation. The researcher's diary was also helpful during the various levels of data analysis and was kept securely for future reference as part of confidential material (Guba, 1981).

4.8.5.3 Dependability

This research was conceptualised from the initial stages through a systematic and careful search and review of relevant literature about family size, family health, contraceptive use, population growth, and family planning. A detailed draft of the research protocol was submitted for review during the project approval process, with corrections and expert suggestions provided by the three members of my supervisory team and the independent assessor appointed by the Doctoral School. Consequently, approval was obtained by the independent assessor and the chair of the School of Social Sciences Research and Development Committee.

To ensure quality data were obtained from the field, the interview was conducted per the approved protocol by the School of Business, Law, and Social Sciences Research Ethics Committee, NTU. Data were securely transferred from the audio recorder into a computer system and were transcribed verbatim. Data analyses were systematically done after a careful review of transcripts against the audio recordings to ensure the consistency and accuracy of transcripts. The supervisory team reviewed and monitored data coding, which consisted of more experienced qualitative researchers. Qualitative data files were secure in NVIVO software and backed up using external storage devices for future access when required. Data were also uploaded to the NTU data store per the extant University regulations and rules.

4.8.5.4 Transferability

This process involves measuring the external validity of the research. It is also called the applicability criterion. Although in this research, only a total of 80 participants, which cut across members of different communities in the selected Northern States, community leaders (religious and traditional), health care professionals, and policymakers (legislators at the State and National Assembly and Directors at the Federal Ministry of Health and the National Population Commission) participated in the data collection process, data saturation was

ensured before stopping to recruit new participants into the study. At the point of data saturation, data has ceased to offer new directions or new themes or ideas as responses being gotten were a repetition of what had been previously said by other participants. While the sampling process was purposive, maximum variation was used to seek the representation of various stakeholders to get diverse perspectives on the research. Issues around family size and population growth are best investigated among those who are married and with family. As such, participants were purposively selected among those with small or large families and among key stakeholders working on family and reproductive health. This is to get informed perspectives as well as quality data.

4.8.6 Reliability

Reliability commonly measures the consistency or constancy of a measuring instrument in any qualitative research. “It is the degree of consistency or dependability with which an instrument measures what it is designed to measure” (Hammersley, 1992; Long & Johnson, 2000). The commonly used method of understanding reliability usually focuses on standardising data collection instruments (questionnaires and interview guides).

However, standardisation of qualitative data collection instruments is nearly impossible in a qualitative study because interviews usually flow based on the participant's responses to previous questions, even though there is a guide. In most cases, to ensure some level of reliability, the interviewer probes to dig deeper into any discussion areas (McGrath et al., 2019; Laksov et al., 2017). While it is expected that the research process in a qualitative study should be replicable and reliable, because of the diverse paradigms of qualitative research, the exact replicability of the process and results may be practically impossible, challenging and epistemologically counter-intuitive (Leung, 2015). This is why the essence of reliability for

qualitative research largely lies in consistency and credibility (Grossoehme, 2014; Carcary, 2015), and this has been articulated and discussed in detail in 4.8.5.2 above.

Furthermore, to enhance the reliability of this study, findings obtained across the various groups of participants (community members, stakeholders, healthcare professionals, and policymakers) were constantly compared. Data were continuously verified as soon as they were collected to ensure accuracy in terms of context and forms.

4.9 Ethical Consideration

To ensure that the study meets the principles of research ethics in studies involving human participants, before data collection, an information sheet (see Appendix D) was provided for the participants, which detailed what taking part in the research entails for the intending research participants, it also highlighted the possible benefits and any risks that participating in the study may involve. In the participants' information sheet made available to all the participants for this study, details about confidentiality and the right to withdraw at any stage of the research were provided to the participants. As such, understanding the information sheet informed the signing of the informed consent form (see Appendix C) provided to all the participants willing to participate in the study.

After signing the consent form, participants were allowed to withdraw from the study at any research stage. The principles of research ethics, which include respect for the person, autonomy, beneficence, non-maleficence, and justice, were strictly adhered to (Barrow et al., 2022; Bitter et al., 2020; Artal & Rubenfeld, 2017). Also, the study protocol was submitted for ethical review and clearance to Nottingham Trent University's Schools of Business, Law, and Social Sciences Research Ethics Committee, from which a favourable opinion was given at the initial research stage (see Appendix B). Also, the protocol was submitted, and ethical clearance was obtained by the Babcock University Health Research Ethics Committee (BUHREC) to

ensure the research meets all the local and national ethics guidelines in Nigeria (see Appendix B).

Participants' information was treated with high confidentiality throughout the research process by transferring all audio recordings to a secure, password-protected computer. Transcriptions were uploaded to the NTU DataStore after identifying information was removed. To ensure confidentiality, all interview notes were shredded as soon as appropriate and once written in an MS Word document on a secure password-protected computer. Pseudonyms were used for transcripts, and a key was retained in a separate file and saved in a folder. All folders were organised carefully and stored on the NTU DataStore.

4.10 Limitations of Research Design

The qualitative design for this research helped explore the impact of large family size and population growth on Northern Nigeria's health and socio-economic well-being from the Northerners' perspectives. This study design helped to explore the subject of interest in great depth. However, the design limited the sample and the number of participants that could be explored to ensure more depth. Out of the total three regions (Northwest, Northeast, and Northcentral) in Northern Nigeria, two regions (Northwest and Northcentral) were represented in this study because of the prevailing insecurity situation in the third region (Northeast). Nonetheless, since most of the regions were represented using this research design, the findings from this research can be transferrable to the other regions of Northern Nigeria. Hence, findings can reflect the situation in Northern Nigeria.

Meanwhile, since the total number of participants in this study was 80 out of over 120 million Northerners, validly inferring the findings of this study to the larger Northern population may take time and effort. However, critical societal actors participated in this study using qualitative

methods (Key Informant Interview, Focus Group, and In-depth Interview). This also, therefore, positively attested to the rigour involved in this study.

Findings from this study can thus enhance awareness, knowledge, thinking and understanding concerning how the impact of large family size and population growth on health and socio-economic well-being are perceived by community members and all stakeholders. The rigour of the methodology employed in this study, from the Silences Framework and Socio-ecological Model theoretical underpinning, strengthens the credibility, originality, and innovative contribution to practice and research.

4.11 Chapter Summary

This chapter describes the processes, procedures, and practices followed in planning, collecting, and analysing the primary qualitative data for this study. It also discusses the study's philosophical and epistemological perspectives.

The methodological process, sampling procedure for the study population, data collection process, and semi-structured interview procedure are discussed in this chapter. The chapter further discussed the process of the thematic analysis as underpinned by the Silences framework- the theoretical underpinning that guided the data analysis and how the QSR NVIVO software was used to organise the data. The positionality, reliability, validity, and ethical considerations, as well as the limitations of the research design, were discussed to provide a robust context for the processes of conducting the research.

The next chapter (Chapter Five) presents the emerging findings from the qualitative data analysis. It details the socio-demographic characteristics, views, opinions, and perspectives of the research participants about the study's objectives. The participants' quotes and perspectives that were presented were to give voice to the silenced voices, and also to give evidence for the themes and the interpretation made from the raw data.

CHAPTER FIVE

EMERGING FINDINGS FROM DATA ANALYSIS

5.0 Introduction

This chapter presents the overall findings from this research, which investigated the impacts of large family size and population growth on health and socio-economic well-being in selected states in Northern Nigeria. The findings were obtained from semi-structured interviews with community members, religious/ community leaders/ stakeholders, healthcare professionals, and policymakers. The chapter documents the responses to culturally viable interventions to address the growing population in Northern Nigeria, the participants' perceived effects of large family size, as well as the ways to encourage the use of modern contraceptives for fertility and population control. The use of themes and sub-themes guided the presentation of the findings. In many cases, most themes overlapped and cross-cuttered due to the multifaceted, sensitive, and complex nature of issues and discussions around family size and population growth. The factors contributing to population growth, family size decisions in Northern Nigeria, and some socio-economic and health impacts based on participants' experiences and views as reported during the interviews were presented. During the qualitative data analysis, an overarching theme emerged on the impact of family size and population growth in an African cultural setting, particularly Northern Nigeria. Unique codes and identifiers were used to identify each study participant, as presented in Table 5.1.1, 5.1.2, 5.1.3, 5.1.4, and 5.1.5.

5.2 Presentation of Participants' Results

This study presents findings drawn from focus group discussions among community members to investigate the impact of family size and population growth, and different interviews with community leaders, health professionals, and policymakers. The pseudonyms, unique codes, and numbers used for participants' references are presented.

Table 5. 1: Special identification code for Focus Group Discussion (FGD) Participants (Men group)

Participant (codes)	Employment status	Age	Family type	Household number	Religion	Education level
FGD1M#1	Self-employed	41	Nuclear	06	Islamic	Primary
FGD1M#2	Self-employed	44	Extended	10	Islamic	Secondary
FGD1M#3	Self-employed	51	Nuclear	12	Islamic	Secondary
FGD1M#4	Employed by government	46	Nuclear	08	Christianity	Tertiary
FGD1M#5	Self-employed	40	Extended	09	Christianity	Tertiary
FGD1M#6	Employed by government	55	Nuclear	06	Islamic	Primary
FGD2M#1	Employed by government	52	Extended	12	Islamic	Tertiary
FGD2M#2	Employed by government	39	Nuclear	04	Christianity	Tertiary
FGD2M#3	Employed by government	43	Nuclear	07	Christianity	Tertiary
FGD2M#4	Employed by government	51	Nuclear	11	Christianity	Tertiary
FGD2M#5	Employed by government	37	Extended	14	Christianity	Tertiary
FGD2M#6	Employed by government	49	Nuclear	08	Islamic	Tertiary
FGD3M#1	Self-employed	75	Extended	17	Islamic	Primary
FGD3M#2	Employed by government	49	Nuclear	05	Christianity	Tertiary
FGD3M#3	Employed by government	57	Nuclear	08	Christianity	Tertiary
FGD3M#4	Employed by government	50	Extended	11	Islamic	Primary
FGD3M#5	Self-employed	47	Extended	14	Islamic	Primary
FGD3M#6	Unemployed	40	Nuclear	09	Christianity	Tertiary
FGD4M#1	Employed by government	23	Nuclear	08	Christianity	Tertiary
FGD4M#2	Employed by government	57	Nuclear	07	Christianity	Tertiary
FGD4M#3	Employed by government	33	Nuclear	04	Christianity	Tertiary
FGD4M#4	Employed by government	37	Extended	05	Islamic	Secondary
FGD4M#5	Self-employed	38	Nuclear	04	Christianity	Secondary
FGD4M#6	Self-employed	40	Nuclear	06	Christianity	Secondary
FGD5M#1	Self-employed	45	Nuclear	03	Christianity	Primary
FGD5M#2	Employed by government	54	Nuclear	05	Christianity	Tertiary
FGD5M#3	Self-employed	58	Extended	12	Islamic	No formal
FGD5M#4	Self-employed	36	Nuclear	10	Christianity	Secondary
FGD5M#5	Employed by government	31	Nuclear	04	Christianity	Tertiary
FGD5M#6	Employed by government	43	Nuclear	03	Christianity	Tertiary
FGD5M#7	Employed by government	33	Nuclear	05	Christianity	Tertiary

Table 5. 2: Special identification code for Focus Group Discussion (FGD) Participants (Women group)

Participant (codes)	Employment status	Age	Family type	Household number	Religion	Education level
FGD1W#1	Employed by government	42	Nuclear	07	Islamic	Tertiary
FGD1W#2	Employed by government	56	Nuclear	07	Christianity	Tertiary
FGD1W#3	Employed by government	32	Nuclear	08	Islamic	Primary
FGD1W#4	Self-employed	29	Nuclear	06	Islamic	Secondary
FGD1W#5	Employed by government	28	Nuclear	04	Christianity	Tertiary
FGD1W#6	Employed by government	39	Nuclear	05	Christianity	Secondary
FGD2W#1	Self-employed	29	Nuclear	04	Christianity	Secondary
FGD2W#2	Self-employed	41	Nuclear	05	Christianity	Tertiary
FGD2W#3	Self-employed	24	Nuclear	04	Christianity	Secondary
FGD2W#4	Self-employed	25	Nuclear	07	Christianity	Secondary
FGD2W#5	Employed by government	31	Nuclear	06	Christianity	Tertiary
FGD2W#6	Employed by government	33	Nuclear	04	Christianity	Tertiary
FGD3W#1	Employed by government	40	Extended	11	Islamic	Tertiary
FGD3W#2	Employed by government	39	Extended	09	Islamic	Tertiary
FGD3W#3	Employed by government	36	Extended	14	Islamic	Tertiary
FGD3W#4	Employed by government	42	Extended	21	Islamic	Tertiary
FGD3W#5	Employed by government	49	Extended	08	Christianity	Tertiary
FGD3W#6	Employed by government	50	Extended	15	Islamic	Secondary
FGD4W#1	Employed by government	59	Extended	14	Christianity	Tertiary
FGD4W#2	Self-employed	55	Extended	07	Islamic	Tertiary
FGD4W#3	Employed by government	25	Extended	12	Islamic	Tertiary
FGD4W#4	Employed by government	36	Extended	06	Islamic	Tertiary
FGD4W#5	Employed by government	45	Extended	18	Islamic	Tertiary
FGD4W#6	Self-employed	41	Extended	27	Islamic	Tertiary

Table 5. 3: Special identification code for the In-depth Interview (IDI) participants - Community Stakeholders/ Leaders

Participant (codes)	Role	Gender	Household number	Religion
COMS#1	Traditional leader/ District head	Male	8	Christianity
COMS#2	Community leader	Male	11	Christianity
COMS#3	Women leader	Female	06	Christianity
COMS#4	Religious leader/ Imam	Male	09	Islamic
COMS#5	Islamic Scholar/ teacher	Male	12	Islamic
COMS#6	Religious leader/ Pastor	Male	11	Christianity
COMS#7	Community leader	Male	14	Islamic
COMS#8	Community leader	Female	18	Islamic
COMS#9	Women leader group	Female	08	Christianity
COMS#10	Community leader	Male	15	Islamic

Table 5. 4: Special Identification Code for Healthcare Professionals (Key Informant Interview- KII) Participants

Participant (codes)	Role	Gender	Tiers of facility
HCP1Ph	Public Health Professional	Male	Non-governmental organisation
HCP2Dr	Medical Officer	Male	Primary Healthcare
HCP3Nr	Nurse	Female	Primary Healthcare
HCP4Nr	Nurse	Female	Primary Healthcare
HCP5Dr	Medical Doctor	Female	Secondary Healthcare
HCP6Dr	Medical Officer	Female	Primary Healthcare
HCP7Dr	Medical Doctor	Male	Tertiary Healthcare
HCP8Nr	Nurse	Female	Primary Healthcare

Table 5. 5: Special Identification Code for Policy Makers (IDI Participants)

Participant (codes)	Role	Religion	Gender
POLM#1	Legislator	Christianity	Male
POLM#2	Policy expert (State Ministry)	Christianity	Male
POLM#3	Legislator	Islam	Male
POLM#4	Legislator	Islam	Male
POLM#5	Population Commission Director	Christianity	Female
POLM#6	Family Health Director	Christianity	Female
POLM#7	Legislator	Islam	Female

The key emerging findings from the analysis of data from the semi-structured interview of fifty-five (55) community members (male and female) who participated in the FGDs, ten (10) community/ religious stakeholder/ leaders, eight (8) healthcare professionals and seven (7) policymakers who participated in the various interviews were presented in this chapter. As articulated in the methodology chapter, the data collection procedure was in the order of FGD with community members, followed by IDI with the religious/ community stakeholders, KII with healthcare professionals and IDI with the policymakers. This was done to have multiple data sources for achieving the research objectives and to ensure the information obtained at one level influences the questions to be dwelled upon and asked of the participants at the next interview phase. The transcripts of each interview were analysed using the thematic method described in the methodology (4.8.2). The emerging themes and categories during the data analyses obtained from the study participants' interviews are presented in Table 5.6.

Theme One	**Determinants of large family size and population growth in Northern Nigeria** ○ Cultural and traditional beliefs as influencers of large family size ○ Influence of religious orientations on family size decision ○ Description of a large family for political advantage during elections ○ Belief about large families as cheap labour for farming purposes ○ Influence of level of access and use of contraceptives and family planning services ○ Poverty, lack of education and empowerment
Theme Two	**Perceived existing impacts and effects of family size on health and socio-economic well-being in Northern Nigeria** ○ Increased poverty and underdevelopment ○ Criminality, banditry, and insecurity situation ○ Economic hardship for parents of large families ○ Neglect, abuse, and malnutrition of children in large families. ○ Poor education and increased level of illiteracy of large families' children ○ Poor health outcomes for children and parents ○ Environmental impacts of large family size and population growth ○ Positive impact/ advantages of a large family and population growth
Theme Three	**Stakeholders' attitude toward family size and population growth** ○ Community leaders' perception of population growth ○ Motivations for family size preferences
Theme Four	**The use of birth control and family planning service** ○ Attitude toward contraceptive use and family planning services ○ Fears of side effects ○ Influence of beliefs ○ Description of traditional methods of birth control
Theme Five	**Addressing the population growth in Northern Nigeria** ○ Compulsory formal education and women empowerment ○ Access and use of modern contraceptives and other family planning services ○ Use of public policy to drive population control efforts. ○ Male involvement in intervention activities ○ Public enlightenment, awareness creation, and health education ○ Advocacy to religious and traditional leaders

Table 5. 6: Summary of emerged findings

Participants for the Study

A total sample of eighty (80) participants was interviewed for this study. The socio-demographic profile of the research participants in this study is presented in Tables 5.1 to 5.5. Participants were selected across different communities, as indicated in the sample and sampling procedure (4.6). The participation of different groups of people (community members, traditional and religious leaders, healthcare professionals and policymakers) speaks to the robustness and quality of the research findings.

The excerpts chosen and used from the data collected were significant in this study because of their relevance to the research objectives, the depth and richness they provided, and their coherence and clarity. Meanwhile, some of the excerpts were also chosen because they represent similar patterns across the dataset, and some were also selected because of their uniqueness in achieving the study objectives.

5.3 Description of family Size from participants' Perspective

During the interviews, research participants could describe large family sizes based on their opinions and views in line with societal beliefs and current economic realities. Some participants also know the challenges facing their communities, which they opined could be related to the size of families and population growth. They also provided an opinion on how family size and population growth contribute to most of the identified community's challenges.

5.3.1 Large family size

To provide background for the interviews, participants were asked to describe large family sizes in the context of today's Nigeria. A large family size in the context of this study, as provided in the operational definition of terms in Chapter One of this thesis, is a family size that consists of a father, a mother and more than four children, as recommended by the current

Nigeria National Population Policy. However, many participants have different opinions about what a large family size should be. While many opined that a large family size should comprise a family of at least five children, others viewed a large family size should ideally consist of more than a wife and at least ten children and above. Some participants shared their perspectives on the description of a large family size.

> *"A household where the father and the mother are not capable of taking care of the children. That will be my description of a large family size* (FGD3M#4)."

> *"A large family should start with ten children and above because if I have four wives, each of the wives will give birth to two children. At the end of the day, I will be having eight children if each wife gives me only two children* (COMS#7)."

The above transcript revealed that participants see large family sizes from the perspective of polygamy, which is the majority practice in many African communities, especially among the non-elites who still hold dear the African values and tradition of polygamy. This is further echoed by another male participant in one of the focus groups. He said;

> *"A large family size is a family that has many wives and many children; from, say, two or three wives and those wives having many children, maybe 7 or 10 children per wife. That family could be said to be large. An example is my uncle's family* (FGD3M#3)"

> *"A large family will consist of a husband with three wives, and the children can be up to 30 or more* (FGD1W#1)."

> *"Since the recommended number of children for a family according to the Nigeria National Demographic Health Survey (NDHS) report and other policies is about four, I will say a family of more than four children is a large family. Five or more children in a family can be described as a large family for me* (HCP3Nr)."

The above extract describes a large family size based on individuals' perceptions of the number they deem acceptable. Thus, there were divergent opinions based on individual values and beliefs. However, the first extract describes large family sizes from the perspective of the ability to take care of the family, not necessarily in terms of numbers.

When asked about some of the challenges facing their communities, the participants identified many health and socio-economic challenges.

> *"We have issues of potable water and food crises. There is no hospital in this community. We must go to a neighbouring community to get healthcare. Taking care of family is a lot of problems* (FGD1M#2)"

> *"Our community has so much suffering, feeding, and clothing problems. To raise a child in this environment is very difficult. To give a child a good education is difficult. We do not have good schools. The schools will have, take a look at the environment, and you will know that is not standard at all* (FGD3W#4)."

First, it appears that many communities in Northern Nigeria face challenges related to social amenities. From the above extracts, participants identified challenges that affected their well-being.

> *"Most of the general problem that affects people in the North are poverty, poor education, and early and forced marriage. Also, the education of the girl child is very poor you know. So, those are the things. Those are some general problems that affect families here. Education of the girl child is almost zero; then there is high fertility* (POLM#5)."

> *"There is a lot of poverty and food crises, and there are no jobs for people who want to work. We have many children who are not schooling because of parental poverty.*

Businesses are not striving at all, and many of our children here are joining bad gangs (COMS#1)."

The participants spoke their minds and voiced out their silences about the socio-economic challenges that the communities are facing. The extracts above made it apparent that the lack of basic amenities such as access to good schools, potable water, and unemployment opportunities has made parenting difficult for many families, impacting health and well-being.

5.4 Determinants of large family size and population growth in Northern Nigeria

Overall, many participants were aware of the different factors contributing to having a large family size in Northern Nigeria. Even though there were varying opinions across the different groups of participants interviewed for this study, there was no doubt that the identified determinants of large family size in Northern Nigeria were similar across the different population groups. From the categorisation of the codes from the interview transcripts, the identified determinants of large family size in Northern Nigeria include cultural practice, traditional beliefs, religious beliefs, large number/ population as a means for political advantage/ gains, particularly during elections, cheap labour for farming purposes, access to contraceptive and family planning services, and lack of education and empowerment. Many interviewed participants admitted that some of these identified determinants influenced their family size decisions.

5.4.1 Cultural and traditional beliefs as influencers of large family size

One of the major themes developed to explain the determinants contributing to large family size in Northern Nigeria was cultural and traditional beliefs around family institutions. Even though many participants strongly believed that culture and tradition contributed to large family size, some believed that the current economic realities should influence culture in

deciding the number of children and the family size. Some participants averred that culture and traditions were determinants of the olden days and not in present-day Northern Nigeria. It has now become more challenging to care for many children. Some participants' perspectives on how culture and tradition influence family size are presented. These cultural influences include a preference for male children, competition among wives in a polygamous family setting, the influence of mother-in-law, and the need to retain family name and lineage through a male child.

> *"In my culture, we regard male children a lot. So, having a male child is a serious issue for some families, especially for instance, if you are the only boy, you are not equally expected to have only one male child. Since a male child is a symbol of continuity, and I know there is no way you can separate that from anybody who wants to preserve posterity and the continuity of family lineage, having more male children is important. One can keep on giving birth till one has enough male children. For instance, I have three kids now, and two are girls; if the two were to be boys, I might have concluded not to have any child again, but as long as my son is only one, I must keep giving birth till I have another son* (COMS#2)."

As shown in the above extract, the desire for a particular gender of a child, in many cases, and the preference for a male child to continue bearing the family name made many families give birth to more children, primarily when the male child is not delivered on time. This exemplified the views relating to many patrilocal and patrilineal family systems where having male children is the fixed point in the social order with investment in daughters, and a girl child is considered an investment for another family where the girl child is taken as a daughter-in-law. This view is common in Asia and Africa, where economic incentives have been produced for having male children (sons) (Koolwal, 2007).

Some of the participants also view large family size as a means of recognition and defence within the neighbourhood;

> *"You know, in Africa, we like to have many wives and children to be honoured and recognised within the communities and neighbourhoods. We believe, if you have a large family, it will be very hard for someone to attack you because you have many foot soldiers* (FGD3M#4)."

> *"The culture of early marriage also contributes to large family size. Most adolescent girls in the North marry very early. So, they have a long reproduction lifespan. For example, if a girl married at the age of ten or eleven and started having children at fifteen, you know that reproductive age is from fifteen to forty-nine years. So, she started giving birth early. She has a long lifespan to give birth to children because she marries very early, coupled with the issue of polygamy and competition. The women want to outdo each other when giving birth. If the husband has four of them as a wife, when this one delivers a child, the other wants to give birth because they feel that will make their husband love them more. Many of the husbands also sometimes feel that the larger the family they have the more power, and the more acceptable they are in their society* (POLM#5)."

In the above extract, early marriage was reported to contribute to large family sizes, which are culturally rooted in most of the Northwestern region. This means that many of the girl children who marry at an early age have long reproductive lifespans, giving birth to many children and contributing to large family sizes and the growing population in Northern Nigeria.

> *"Many people just feel it's nice to have a lot of children because of their background. They came from a large family size, and they think that is normal, so they are pushing the status quo of having large families* (FGD3M#6)."

"Like me now, one important thing I will tell you that makes my family large is that we want to have a name and be famous for having plenty of children. People should know when they call my family name. I want to be popular (FGD3M#1)."

As indicated in the above extracts, the socio-cultural support for interpersonal and family relationships and the supporting system for polygamy in most African societies were drivers of large family size, especially in situations where each of the wives in the polygamous family desired to have a competitive number of children. Also, at the second level of the socio-ecological model, the influence of social interaction, such as the spouse and co-wives, was an important phenomenon in health decisions, such as fertility preferences and family size decisions.

When some women participants across the sampled group were interviewed, they identified that the cultural drivers of large family size are the influence of their mother-in-law, the need to have a particular child gender and the need to compete with their fellow wives.

"Like me now, my mother-in-law said there is nothing like family planning, so I just continued giving birth. In this circumstance, a woman can give birth to like 20 children in my own family (FGD2W#4)."

"My husband married two of us, and I want to compete with the second wife. If she has ten children, I also want to have ten children. Wives competing to satisfy their husbands also make them have many children, resulting in a large family (FGD3W#6)."

Social influence was a significant determinant of the desire for a large family size. The above abstract revealed how participants compete on the number of children in a polygamous family. There was no concern about how to take care of the children, yet husband satisfaction and the influence of the mother-in-law were central to the fertility decision.

"When a man marries three or four wives, the wives want to compete on the number of children. If the first wife has seven children, the other wants seven so she will not be cheated while sharing assets or inheritance. The wives believe that if they share family properties after the husband's demise, other wives will not receive more than them since they gave birth to an equal number of children. So that is why many of us in the North have so many children (COMS#3)*."*

"I have four girls; my husband said he wants a baby boy and that if I do not give birth to a boy, he will marry another wife. Now, imagine I do not have a boy on time; I will keep giving birth until I have a boy. That is the reason why I have six children, and that is the reason that makes some women give birth to a lot of children (FGD3W#5)."

The above extracts further explain the socio-cultural influences on family size. Mother-in-law, desire for a particular child's gender, and competition among wives in a polygamous setting cause most people to have many children, resulting in large family sizes and an increase in population size.

5.4.2 Influence of religious orientations on family size decision

Many of the participants in this study also strongly believed that religious beliefs primarily drive the decision to have a large family size. Even though the religious beliefs identified were both Christianity and Islam, more voices emphasised that the Islamic religion contributed more to population growth through the encouragement of large family size because of the religious permission that allowed a man to marry up to four wives. Many also firmly believe that it is God who gives children, and he who gives will provide the required resources to take care of them. Some Christian participants explained that their religion forbids contraception or any birth control, which makes them naturally have a large family size. Some of the participants shared their views.

"Well, the bible says we should go into the world and multiply. So, as a Christian, the Bible does not have a specific number of children that men are supposed to have, but it did say we should go and multiply. I prefer a large family size because my coast will be enlarged. Moreover, I am also fulfilling the instruction of God to go and procreate and multiply. If you look at some of our, patriarchs, they are people of large families. For example, Jacob had 12 children. Why should I not be like them? (FGD5M#3)"

"In the opposite religion, that is, Islam, they believe that a man can marry as many wives as he desires, so long as he can take care of them. However, some do not see the reasons behind this. They only hear that a man can marry more than one wife, so they jump into it without thinking of how to care for them (FGD4M#5)."

"Some do not believe in family planning based on religious reasons. They believe a woman must give birth to all that is in her womb. They believe God provides and that the mouth that God gives will never stay without food. They believe in God making provision for caring for the children irrespective of the number (FGD4M#1)."

The extract above explains that aversion and apathy to family planning services based on religious reasons have resulted in many unplanned pregnancies, thereby increasing the family size and the overall population growth of Northern Nigeria.

Based on their professional experience, some of the healthcare professionals who participated in the study gave perspectives into why many people have large family sizes.

"There is a religious group that believes that the number of eggs you have must all be given birth to as children. You cannot stop giving birth until God says you should stop. You are supposed to procreate as it is the will of God. They believe controlling the population is trying to stop the course of nature and the principle of procreation. This is what they tell us during ante-natal (HCP2Dr)."

"The Jehovah's Witness group, for example, do not believe in family planning- they do not even allow blood transfusion, same as the Roman Catholic Church. They do not believe in family planning. They believe that once you do that, you are killing a life that should be born to make the world a better place. They believe that as much as God has given you children, God will also give you the resources to take good care of them. They believe in the mentality that God said, 'Go ye into the world, be fruitful and multiply, replenish the world and subdue it'. So, they want to subdue it by having many children (HCP6Dr)."

The traditional and religious leaders who participated in the study also had similar and some contrary views on the influence of religion on family size and population growth. Some of the participants view that religion does not dictate the size of a family because family size should be dependent on one's capacity and ability to take care of the family. Some also thought that religion advised against polygamy, particularly Christianity, which sometimes encourages small to moderate family size.

"As a Christian, religion does not affect my decision to have children. So, as a Christian, I do not know about other religions; my religion has never taught me to have more children or have less. I am yet to know the Bible quotation that will encourage me to have fewer or more Kids (COMS#2)."

"The Muslims believe in marrying four wives, forgetting that even the Quran itself states that if you cannot cater for them, you should not. Moreover, if you cannot share the same love, equal love, with the four women, you should not marry more than one wife. So, many are ignorant of the truth, and that is why large family size is common among those who practice Islam here in the North. They are the majority (COMS#3)"

One of the community women leaders who participated in the study also believed that Christianity supports small to moderate family size. However, the Islamic religion allows for large families because of support for a man to marry many wives.

> *"Religion is a major driver of large family size. Like the Muslims, they believe in having many wives of which each of the wives will give birth, but Christians believe in one man, one woman* (COMS#9)*."*

Some policymaker participants also shared their views about how religion influences the desire for large family size.

> *"Religious fanatism causes the large family size to be prevalent here in the North. Many of our Muslim brothers will say my mallam has told me I must marry four wives. They will insist on marrying four wives even when they do not have the resources or capacity to take care of only one wife, and each of those wives will still give birth to at least three children; then the family will become so large in poverty because someone who cannot even afford to take care of one wife is married to four because of religious teachings. Just because his Mallam has said so* (POLM#1)."

As depicted in the above extract, the Islamic penetration in Africa, which is also a predominant factor in Northern Nigeria, where this study was carried out, is characterised by property concentration, women's seclusion and polygamous marriages, which make women's security and status in their husband's house to be critically dependent on their ability to have male children (sons). Perhaps the Islamic religion, its beliefs, and practices also encourage large family sizes to a greater degree. This is because of the religious encouragement of polygamy, as revealed in this study.

5.4.3 Influence of level of access and use of contraceptives and family planning services

Low and poor access to contraceptive and family planning services in some rural communities of Northern Nigeria, where this study was conducted, was also one of the factors that contributed to large family size and population growth. Many of the participants were ignorant of family planning services, and some reported that the contraceptives they used failed them. Some of the healthcare professionals who participated in the study expressed their opinions that the fact that people must pay to access family planning services in some health facilities discourages many from using the service.

> *"I know of a woman who has tried family planning severally, but the different methods she used failed her. She currently has 11 children, and even her last pregnancy, which made her children eleven, she wanted to abort it before someone advised her against it. So, this family planning thing fails. Even family planning has failed me. Ten years after I had settled my mind that I was not going to have a child again and consistently using contraceptives and family planning, I got pregnant, and that made my seventh child. So, family planning use is not 100%, and its failure contributes to large family sizes* (FGD1W#5)."

> *"Family planning sometimes fails and leads to large family sizes. Complications from the uptake of family planning services make people not want to repeat it- this also leads to large family sizes* (HCP6Dr)."

> *"Commodities for family planning services are not readily available. The people pay for some essential commodities like gloves, which discourages some of them from coming to the facility. The government needs to do more in commodities supply* (HCP8Nr)*."*

The above extracts revealed the silences of contraceptive failures and poor access to modern contraceptives, which was shown to have led to many unplanned pregnancies, leading to large family sizes and an increased population. Even for those who were willing to use contraceptives as a means of birth control, it is not readily available and affordable for them.

5.4.4 Description of a large family for political advantage/ gains during elections

Many participants believed that large family sizes in the North were driven by the perception that many people needed to `win an election'. They believe the larger the family, the bigger the community population, which comes with many political gains during voting. Some participants believed that population is power and that to have a large population, the family size has to be large.

> *"I am political by nature, and to be honest with you, I believe the more children I have, the more votes I will get from my household alone to negotiate for political gains when I am looking for something. That is why I believe a large family size has more advantages* (FGD1M#5)."

> *"We have a case in Niger State one man married 84 wives, and his reason was that he is rich and wanted to control even a public primary school; he currently controls a market and hopes that when he dies, a street will be named after him. It is all about power and control. So, the politics in the Northern part of Nigeria make people have large families for political negotiation and gains* (FGD4M#2)."

The above extract shows the salient manifestation of the influence of a large population in politics and political negotiations. It also shows why many men in Northern Nigeria believe in high fertility, which clearly reflects the nature of Northern Nigeria's hegemony. One of the policymakers who was interviewed said,

"The large family is 100% power-driven in the North. You can see it from the last general election that was concluded. It helped the North win national elections easily because of the large number of votes from the region and the large population. From the north-central, north-east, and north-west, the number is there. So, it is about the number and tradition of the great-grandfathers to the current generation. It is a traditional belief (POLM#2)."

"The Hausa and Fulani people often have large families for them to win an election. They believe many children and wife equals more votes (COMS#10)*."*

The reality captured here in the above extracts is that, because of the power dynamics in the Northern region of Nigeria, many stakeholders in the community believe the size of their family is an essential tool for political negotiations, which puts them at a more significant political advantage. This explains why the North has continued to be Nigeria's political capital because of its large population. Even though the centralisation of political power has not led to any remarkable health and socio-economic development, it was clear from these findings that procreation and family size decisions were aimed at political voting advantage in many cases.

5.4.5 Belief about large families as cheap labour for farming purposes

The fact that Northern Nigeria is an agrarian community where farming is a major occupation, which includes pastoral and arable farming, means many farmers give birth to many children to help them on the farm. In many cases, the children are used as cheap labour for the pastoral and land cultivation of different crops. Although some of the participants in this study believed that using children as cheap labour for farming purposes was more predominant in the olden days when mechanised farming was not so popular, many of the participants, particularly the community leaders, still believed large family sizes in the north is driven by the desire to have many hands to help during farming activities.

"Farming is one of the main reasons why many have large families here, especially those who are not well educated. Even our parents, farming was the main reason they gave birth to many children (FGD3M#4)."

"In my family, we are many, and when we go to the farm and start to work on the farm, we work like a tractor clearing the bush, and when we plant, we plant many food crops, and people will admire us. We have enough food for people to eat within the family and even have excess to give outsiders (FGD5M#3)."

The desire to have cheap/free labour on the farm was shown as one of the reasons for large family-size decisions based on the above extracts. Even though children require more resources for adequate care, some of the participants revealed that they have many children because of the benefits they would derive from children's contributions. In the extracts below, some participants revealed their parental sentiments in giving birth to many children.

"Many people see having many children as a source of generating more income by bringing them up to go to the farm. It is like you are investing in something that will promote your industry. That is why our parents were marrying so many wives and giving birth to many children to help them in farming (COMS#7)."

"In the olden days, for example, when many people were predominantly farmers, the father would say, 'If I am going to farm, let my family follow me. I do not want to carry people from outside; let my people follow me to the farm'. That increased the large numbers in the societies here because farming is not mechanised; it is manual, almost everything. So, you need more hands and the more children you have, the better it will be on the farm (FGD3W#1)."

Many people in the North had large families because of the economic advantage derived from cheap labour for farming when having many children. This was also revealed in the extract

below, where one man has seven wives to ensure that each wife has enough children for farming labour activities.

> *"Let me cite an example of one man in our village. The man married seven wives. He said that the reason why he married them like that is because of farming. He has plenty of farms, so he will pack them when it is time to farm. He has about three cars, and he will pack them in his car to the farm. If you see them on the farm, you will think maybe three or four different groups of people are on the farm, but you will not know that it is only one family* (FGD4W#4)."

> *"Many have large families because a father with a large farm would not need to hire people to work on his farm. He would depend on his children to help him out on the farm. The same thing applies to a father who rears animals or who is a fisherman. It is more like a family business where the workers are the wives and children. The benefits of having more children were that you have free/ cheap labour and could always engage in your farming business, but unfortunately, times have changed now that these children have to go to school. It then becomes a burden to the parent to finance the education* (HCP3Nr)."

Farming is a principal occupation for many people in Northern Nigeria. Therefore, the extracts above showed that one of the reasons why many families have many children is so that the children can help the parents' farming enterprise. This means children are giving birth for financial gains because, as described by some of the participants, these children are then used for cheap labour on the farm- the parents do not need to pay these children for their work on the farm. With this, the family can save more, and the parents make more profits than if they must pay labourers.

5.4.6 Poverty, lack of education and empowerment

Some participants in this study, particularly the policymakers, believed poverty, lack of education, and poor education contribute to large family sizes. They also believed that the fact that many are not empowered or have work to do makes them always copulate with their wives. Without protection, this leads to unwanted pregnancies, resulting in more children, which contributes to large family size and population growth. There were also perspectives that the high illiteracy rate contributed to the large family size prevalent in Northern Nigeria.

> *"Education is a huge factor in family size decisions because the more enlightened people are, the better decisions they make for themselves, spouses, children, and society. That is why you will see among the educated elites that their family size is not usually more than six- a maximum of four children. Poor or lack of education makes people do less family planning because of biases and lack of ability to make informed decisions* (POLM#6)."

> *"Poverty is a major factor. The poor family may be unable to afford spacious accommodations to give parents decent and secluded space. This makes them always be together and have sex. There are also no recreational activities being done among poor people. They are always in the house, which makes them more likely to have sexual activities and if not done with protection or contraceptives, unplanned pregnancy results, leading to more children and increased family size* (POLM#3)."

Social determinants of health were the re-emerging factors influencing family size decisions and population growth. Based on the above extracts, policymakers echoed poverty and education as determining factors for large family size in Northern Nigeria. One of the healthcare professionals working on family planning programming further emphasised these views. He said;

> *"Because many people are not educated or empowered, they are always at home with their spouse, which many a time results in them making love- mostly unprotected sex. This lovemaking most times leads to pregnancy that is not planned, and because they may not want to have an abortion, they give birth to another child, and that is how the size of the family increases. Many of these people who are not educated see themselves as having seven, eight, or ten children even when they do not have resources to cater to those children* (HCP5Dr)."

Many of the community leaders (traditional and religious) believed that people have large families for future security and to boast among peers that they have the capacity of a big home. They also feel that large family sizes make the family name heard and known everywhere. Some also reported that large family sizes surround them with a great army of children.

> *"I know out of the many children I gave birth to, some will grow richly enough and, in the end, will take care of me when I am old and cannot do anything again. My large family makes my family known everywhere, and in the future, I will have enough to take care of myself because each of the children will say, Father takes this money, and another will bring something else. So old age will be full of surplus if I have many children* (COMS#7)."

The extracts above showed that because of poverty and lack of knowledge and education, which are critical social determinants of health, many people give birth to many children, thinking it will provide them future wealth and security even when they are not certain of what the future holds for the children and themselves.

Therefore, because of the persistent poverty and lack of education, ignorance about fertility and adoption of family planning services has caused an increased desire for many children even when there are no resources and provisions for how to take care of the children. As shown in

this research, the large family size, which is more prevalent in the Northern region of Nigeria, has resulted in several health and socio-economic impacts reported in this study.

5.5 Perceived existing impacts and effects of large family size on health and socio-economic well-being in Northern Nigeria

Participants in this study gave their views and opinions about the perceived impacts of large family size and population growth on Northern Nigeria's health and socioeconomic well-being. While there were important perspectives about the negative impact of large family size, some participants also described some of the positive and significant impacts. In terms of the negative impacts, the participants in this study were of the view that large family size contributes to the high level of insecurity, banditry and criminality currently happening in Northern Nigeria because of the inability of the parents of large families to take adequate care of their children, who end up becoming an easy target for recruit into some of the criminal gangs.

The burden of malnutrition resulting from food insecurity was also identified as one of the impacts of large family size and population growth. Other impacts reported in this study include poor or lack of education for children in large families, illiteracy, economic hardship in the home, poverty and underdevelopment, environmental impact (pollution, overcrowding and migration), child begging and child abuse. Most interviewed participants reported these negative impacts of large family size and population growth. However, some believe that large family size and population growth can increase the workforce and the nation's productivity. There were perspectives that population growth provides social, political, and economic protection and security.

5.5.1 Increased Poverty and Underdevelopment

The participants in this study were interviewed, and poverty was identified as one of the impacts of large family size and population growth in Northern Nigeria. Poverty was also

mentioned as leading to underdevelopment of society. Participants believed that problems with feeding and the inability to pay for children's school fees result from the impact of poverty arising from having a large family size. It was posited that with fewer resources, managing a small family size can be done easily compared to when the family is large.

> *"... Because of poverty, in a large family, there is the problem of feeding, schooling, paying school fees, buying textbooks for children and even the problem of accommodation. In such a family, six children will occupy a room because the parent cannot afford to rent more rooms, and because of room congestion, infections can easily spread. For example, if one of the children has a contagious infection because they live together in one room, the infection can easily spread, and everyone will be affected. In such large families, quality of life is low from any angle you are looking at it, from feeding to clothing and even the children's education* (FGD3M#4)."

One of the policymakers explained how large family size and population growth lead to poverty. She said;

> *"Some people are already grandparents before the age of 40 years. This is probably because they married at 14 or 15 years because of their poverty background. Since they have their first child at 14 or 15 years, that child may also get married at that same age. This happens more often among those whose parents are poor because they cannot afford to send them to school. So, being a grandparent at 40 years old in a large family causes stress, and you see the quality of life of these people drop compared with those with smaller families. Also, remember a very good standard of living can affect your life span. Even if there are some diseases or problems, you will be in a better position to get adequate medical care, unlike somebody who does not have those resources; that is why many people are dying from preventable diseases. Your economic ability also*

determines the environment where you live. Good areas, good environments, and good accommodations are expensive, and life becomes difficult if you do not have them. That is why we have so many slums everywhere, and life in those areas is terrible. If you trace the cause, it is a large family size and a growing population. Available resources are no longer enough for people currently living in Northern Nigeria (POLM#2)."

The extracts above showed that poverty increases when there are many mouths to feed within a home. Poverty, which is a social determinant of health, was shown to be aggravated by large family size, which can impact the quality of life and standard of living of every individual within the family. Some participants in this study were also of the view that poverty arising from having a large family size can lead to stress for the parent, particularly the father, which could result in some mental health issues.

"In a large family, even if the woman is working, you can imagine the stress on the man/ husband. The stress can result in high blood pressure and even stroke and other mental health conditions. If the man is not careful, stress will kill him because of the pressure to meet the family's needs, and if he should die, the children that he is trying to provide for will become orphans. The woman will be a widow, you could imagine what will happen next, the poverty level of such family will increase (FGD1W#2)."

Some male participants within the communities where this study took place believed that large families could lead to an uneven distribution of wealth and resources.

"When families are too large, say families comprising more than five children, in the reality of the current Nigeria economy, irrespective of the intervention of the government in supporting families and homes, the resources cannot go around in a large family, and this could become a problem in the society, and it can make a society to become underdeveloped. I can tell you that the impact of large family size is not only

felt in Northern Nigeria, but it has also become a challenge for the whole of Nigeria (FGD5M#7).*"*

The extracts above showed that the challenges arising from a large family are not only a problem for Northern Nigeria but a problem for the whole country because increasing challenges and inequality in the Northern region would mean more government resources would be focused on that region and a somewhat neglect of the other regions, which could cause another regional inequality. Therefore, to address health and socio-economic inequality arising from large family size and population growth, interventions should be regional and national to achieve maximum and impactful gains. It is also essential that every level of influence for health, as established by the socio-ecological model, should be carefully considered during the planning and implementation of any social and public health interventions.

5.5.2 Criminality, Banditry, and Insecurity Situation

According to participants, a large family size and an increase in population were shown to have resulted in a high level of criminality and insecurity in Northern Nigeria. The continued increase in bandits and criminal elements was linked to the failure of family care from large families. Many of the participants believed that because of the inability of parents in large families to take care of their children, many of these children become easily recruited by criminal groups to unleash mayhem on society. It was also gathered that if family sizes were moderate and small, parents could easily give better care to their children. However, when parents who cannot even care for themselves have many mouths to feed and cater for, the parent may join any gang to make money. This was reported to have contributed to the increased rate of kidnapping and cattle rustling in the North because everyone wanted to survive. Some of the participants' perspectives are presented.

"Let us tell ourselves the truth: insecurity is the number one impact of population growth and large family size. Quote me anywhere. This is because if you have a large family, for you to be able to have total control of those children, it is going to be very difficult. For example, in a polygamous family where the children are mostly many, the father may not even know if any of the children have joined armed robbers, whether they have gone to join the insurgents, or if any of them are now sex workers or prostitutes. This problem is because the family is large, coupled with many of these parents being poor. You know, family is the first and the most important agent of socialisation. Imagine a child growing up without the adequate care and supportive love of the parents. The child can become anything bad. So, I advise people to have a family size they can take good care of. No matter how poor a man is, it cannot be too difficult to take care of just a child or two children, but in a situation where a poor man is giving birth to eight or ten children like is the case here in the North, you should know it will be a big problem (FGD5M#6)."

Insecurity has become a prominent social and economic challenge in Northern Nigeria. The above extract shows that the growing insecurity situation is not unconnected to large family size and population growth. This is because the important agent of socialisation, which is the family, failed to provide adequate supervision and meet the needs of the children, thereby exposing many of these children to fend for themselves and become exposed and influenced by untoward external influences. A salient perspective on the manifestation of the impact of insecurity was also expressed by another participant interviewed in this study, who said,

"We have an issue in the palace where a child went and carried the father's ATM card and withdrew all the money in the account; till now, the boy is nowhere to be found. Guess how many children the father has? Nine children! Where does he stay? One single room with all the children, not even a self-contained room. In this situation, you

can see that the father cannot take care of those kids. It is only the firstborn that is in school; the rest are just roaming about the street doing trade, handiwork, and other kinds of stuff, which makes them vulnerable to the hands of criminals (FGD2M#2)."

"...Because parents in large families are mostly not able to take care of their children, the children themselves find a way of surviving by engaging in various activities like robbery, banditry, and kidnapping. Some of them even join the dreaded Boko Haram group just for survival. Some of the Boko Haram members that were captured recently, you see children of less than 20 years among them, and a fact is, these people are products of large families because, in the North, many of these children become touts, cultists and hooligans and bad boys and girls because they are many. The parents could not take care of them. Moreover, the children who are not well taken care of in the family and society today are the ones who will attack and kidnap those who are doing well, leading to various degrees of societal unrest (FGD3M#6)."

From some of the policymakers' perspectives, they also opined that the easy indoctrination of poor children into various gang groups is a result of large families, particularly the ones where the children are not cared for and who have not been well educated. Some policymakers believe that large family size is not bad if the parents have the resources to care for them and provide them with quality education.

"...Yes, I am aware that among the bad elements in society are the educated ones, but they are few. Most criminal gang foot soldiers are those whom they can easily indoctrinate because of their level of education. They are easily deceived into criminality, making them believe that it is a religious duty, and this is largely because of the inability of parents to provide quality and holistic education for those children. You can see in politics that most of the political thugs, go and check their level of education and their family background, most of them are children who are just

practically abandoned by their parents because of a lack of resources to school them. Many of them have been brainwashed because of a lack of education, and this is because the parents have so many children that they cannot afford to send all of them to school (POLM#4)."

"All the social vices, the trouble we have, kidnapping, and abduction, all fester because the young people are idle; they are not in school because many of their parents cannot afford them to go to school. Remember, they all come from a household, mostly a large household, and they cannot feed well. They are out of school. They are there hanging out. So, anybody can use them. If they were in school, if they were active or gainfully employed, they would not be available for all of those (POLM#5)."

Meanwhile, even though many of the participants viewed large family size and population growth as resulting in an increased level of crime and insecurity, one participant, a healthcare professional, strongly believed that large family size does not necessarily contribute to the issues of banditry and insecurity in the North. She believed a child joining any bad gang was his personal choice, not because of the size of the family.

"I would not want to believe that large family size is a cause of any criminality or insecurity in this region because you can have one child, and he will still be useless and decide to become a bandit or criminal. So, I honestly do not think family size has a role (HCP4Nr)."

Another community leader believed that even though a large family size contributes to the rate of crime, he believed the availability of hard drugs to the youth contributes to the mayhem that is being unleashed on society, whether in the North, East, West or South. He said,

"...In the Eastern part of Nigeria, where you have militant and all other forms of criminality, is it also a result of population growth or family size, even when many

families have just two to three children? See, hard drug availability causes the issue of banditry and insecurity here in the North. Yes, hard drugs. They drug people's children before they start using them for this banditry and kidnapping. Have you ever seen a sane person take a gun to kill a fellow man when he is in his right senses? It is drugs. Drug is what is killing this country. The government should know how to stop drugs from entering the country (COMS#10)."

Based on the extracts above, aside from family size contributing to issues of criminality, banditry and insecurity, the use of hard drugs was also identified as an enabler of these vices. However, this can also be traced to home training and parental supervision, which was revealed to be inadequate because of the lack of capacity to oversee many children in a large family. The findings, therefore, showed the multi-level influences and impacts of large family size and population growth in any society, which require holistic interventions that must cut across different layers and sectors of the society.

5.5.3 Neglect, abuse, and malnutrition of children in large families.

Another emerging impact of large family size and population growth in Northern Nigeria from the perspective of the participants was child neglect, child abuse and malnutrition. Many of the participants believed that children from large families are often malnourished. Some experience different forms of abuse and neglect because of the inability of their parent to give them proper care due to the size of the family. Participants reported that many of the children from large families are seen on the street begging, and they contribute largely to the increasing number of the 'Almajiris' in the North. Almajiri is an Islamic system of education in Northern Nigeria where different children from poor backgrounds are under the tutelage of a Mallam- an Islamic scholar to teach them about Islam. In return, the Mallam sends these children out to

beg for alms so he can have money to take care of them. Some of the participants expressed their views.

> *"... I talked about the out-of-school children. In many of these homes, the children's needs are not met, and then that exposes them to several issues, not even talking about the harm they experience when some of them go out to hawk in the streets or beg for money, especially the girls. They are exposed to different forms of abuse, sexual and physical. These result from the large family size from which many of them come* (HCP3Nr)."

> *"If you walk around the road, you will see many children standing along the road begging and selling. This morning, it was raining heavily around 6:30 am; many children were already out to beg, some of them to hawk, and the reason was that their parents could not provide them with what to eat. Many of these children are neglected and stunted* (HCP6Dr)."

The Almajiri system in the North was shown to be exacerbated by the large family size, which has resulted in various child abuse and child malnutrition, which is a prevailing public health issue.

> *"Large families and the increased population growth in the North are contributing to the large number of Almajiri children you see on the street. They are hungry, and you know the consequences of hunger and malnutrition. Many of them are currently homeless and have become a nuisance to society. Here in this community, we did not use to have the Almajiri children, but now they have started to come in because of parental neglect and because their parents cannot take care of them* (COMS#10)."

> *"Some parents, because they have so many, do not even know the number of their children. That is why you see the children everywhere begging. Their parents send them*

out to survive. If they are even killed there, they will not know because the children are too many for them (COMS#3)."

The reality captured in the above extracts is that child begging and hawking result from parents' inability to take care of the number of children they gave birth to. These extracts established that the Almajiri system in the North is a testament to the negative impact of large family size, which has negative socio-economic and health implications on the children and the larger society.

One healthcare professional in the health development sector reported his experience from his organisation's field assessment on the 'Almajiri' situation in Northern Nigeria.

"Most of the out-of-school children in Nigeria that are from the Northern Part also boil down to family size because what you find in a typical Northern family is many children and from the assessment that we just concluded in our organisation among what Nigeria called Almajiris- the children begging on the street, we found out that in many Northern families, because the parents are unable to care for these children, they send them to Alfas/ Mallams. These Mallams are Islamic scholars in the community. The primary objective is for the children to go and learn the rudiments of Islam from these scholars, but there is a secondary reason, which is the parents transferring the burden of care to the scholars who you know are usually well-respected people in the society and supposedly someone with access to means to provide what these children need. Nevertheless, what our assessment has found is that because the children under one Alfa are so many, sometimes thirty, fifty children he cannot adequately care for, he then finds a solution of sending them (the children) out to go and beg for money, to beg for food and bring home so that they can have what to eat and survive on. In many cases, no Islamic lessons are taught, and the children are not enrolled on a former school (HCP1Ph)."

The above extracts depict how the parents' inability to take care of their children made them transfer their responsibility to an Islamic Mallam who, in turn, sent these children to beg for alms for survival. In the process of begging, these children are exposed to many risks such as abuse, rape, accidents, kidnapping and even infections and diseases, which fuelled the current health and social inequality in Nigeria as a nation.

5.5.4 Poor education and increased level of illiteracy of large families' children

This study also identified poor education and increased illiteracy levels as impacts of population growth and family size. Some participants reported that the increased rate of school dropout in Northern Nigeria can be attributed to family size, mainly when there are more hands to feed with limited resources on the part of the parents. The poor education received by many children in large families often led to low aspirations, making many of them become peasants. One of the healthcare professionals said,

> *"In many large families, sending all children to school is difficult. Like my family, I was the only one who went to school among 8 siblings. Remember, children who are not sent to school mostly end up becoming illiterates and a menace to society. The illiteracy is what led to the issue of banditry here in the North because many of those uneducated children can easily be manipulated. They can easily make wrong decisions, and you know, the political class also keeps them as illiterates to continue exercising political power over them for their political gain. Meanwhile, it is the issue from the family* (HCP4Nr)."

Education is becoming expensive in Nigeria because free education is mostly currently non-existent. Many children of large families are not able to go to school because their parents cannot afford the cost, heightening the level of illiteracy and reducing the quality of education children get. One of the policymakers said that in most large families,

"...Aspirations become very low. For example, getting a university-level job becomes impossible if a higher education level is primary in a large family. This made many of these children end up becoming peasants. The current issue of low funding for public education in Nigeria has made it difficult for many families to send their children to school. Now imagine if the children are many, it will be nearly impossible to school all of them, and if they are not trained, skilled or educated, their possibility of getting into poverty is high because they would not also be able to get jobs or good employment and if they get a job at all, the job will be menial (POLM#6)."

Another community stakeholder who has a large family also said,

"Being able to provide quality education to children in large families is difficult. There is the issue of buying textbooks, other educational materials, and even feeding because how you feed a child can impact his intellectual quotient and capacity (COMS#9)."

Therefore, as shown in the extracts above, it could be deduced that large family size contributes to some social determinants of health, including illiteracy and lack of quality education. The inability of parents in large families because of the increased financial burden and the capacity to afford basic education for their children makes these children drop out of school, and in most cases, makes the child's aspiration low because of their low exposure and opportunity for quality education compared to other children from small to moderate home who may be more advantaged because the parents may have a lesser financial burden in caring for many children.

5.5.5 Economic hardship for parents of large families

During the interview session with participants in this study, particularly the healthcare professionals and community leaders, they opined that having a large family brings untoward hardship on the parent because the resources to manage a large family are enormous compared to what is needed for small or moderate family size. According to the participants, it is believed

that the economic hardship a large family can cause will affect every facet of life of members of the family, from education to feeding to health, shelter, and clothing. Some of the participants shared their views.

> *"…Of course, the cost of caring for one child is different from the cost of caring for two children and taking care of eight or ten. To pay school fees these days, parents who value education must take loans running into millions. If you are to pay five hundred thousand Naira for one child, imagine what the cost is for six children; that is a whopping 3 million Naira, my brother! Recall that school fees, especially University fees, are just getting higher. So, the size of the family affects the financial expenses that the parents bear, and it can affect them economically. It is affecting me personally, let me not lie* (HCP2Dr)."

> *"Large family size increases the family finances. The more children there are, the more money is needed to manage the home. There are more expenses for food and other consumption. Monies are spent continuously on basic needs, the monies that should be used for other investments and better things, you see it is used on food and necessities* (COMS#10)."

According to the participants, large family sizes cause economic hardship for parents, especially when they have more dependent populations, as revealed in the above extracts. Family expenses increase with more children, which can negatively impact family finances and savings capabilities.

5.5.6 Poor health outcomes for children and parents

In this study, healthcare professionals reported the health impacts of having a large family size on children and their parents, particularly the mothers. Opportunistic infections arising from

malnutrition and hunger, impacts of living in overcrowded homes and urban slums and mental health issues for the parent, such as depression, are some of the health consequences identified, among others. One of the doctors said,

> *"...Mothers who give birth to plenty number of children get exhausted, and have chances of bleeding, and complications in pregnancy. Even the child, they are presented with different childhood illnesses because of poor nutrition from breastfeeding because the mother has other children to look after. So, a child born into a family with five or more siblings is already disadvantaged in attention, except the parents are super-rich to get house help. And of course, there would already be some competition for food, which could lead to a food crisis or insecurity in such homes* (HCP2Dr)."

Competition for food and essentials for decent living is mostly common in large family homes; many children are underfed and live in unhygienic conditions, thereby directly or indirectly affecting their health. Some of the health professionals who participated in this study have this position.

> *"...Because large families require large resources to sustain and where resources are limited, especially as is the case in Northern Nigeria, it results in inequality gaps in access to services or who gets what and how much of it are they getting. So, take a typical primary health care (PHC) in a local community; for instance, the PHC probably has a manpower of maybe five staff members. So, you would find in those PHCs with just a few staff, maybe one or two qualified nurses, the rest may be auxiliaries and an entire village with several children coming for healthcare daily, you will see it will be very difficult for them to all receive good care because the demand for the healthcare service far outweighs what is available to them. Health situations*

may get exacerbated, and some of the patients may even die. This is one of the consequences arising from large family size and population growth (HCP3Nr)."

"Having large families resulting from women giving birth to many children could result in death because when a woman gives birth too much, there is a time that the uterus can even come outside with the baby, which will result in postpartum haemorrhage that can lead to death (HCP5Dr)*."*

Giving birth to many children by one individual mother was revealed to have adverse health outcomes. These include the risks of postpartum haemorrhage and complications in pregnancies and delivery. Aside from the mothers who are at risk of various health complications, the children too are also at risk of being malnourished and risk of opportunistic infections, which are very preventable.

5.5.7 Environmental Impacts

Some of the participants in this study, particularly the policymakers, believed that population growth leads to rural-to-urban migration, which results in the congestion of the urban centres with serious competition for resources. It was reported that the over-congestion of the urban centres leads to the destruction of trees and forests for building and industrialisation, which impacts the ecosystem. Some of the responses are presented.

"Migration is a major problem with a large population. People will want to leave their locality for better opportunities in the urban centre, thereby congesting it. The migration to the urban centres makes competition more intense for the facilities in those urban centres, too, and the truth is that large family sizes contribute to population growth (POLM#1)."

"Large family size and population growth lead to environmental degradation. In most large families' households, many do not even have toilets. They do open defecation on the land and even on the streams, and you know open defecation can cause a lot of environmental issues and breeds diseases (POLM#6)."

The above extracts revealed that because the government is currently incapable of providing all the amenities to meet the increasingly growing population resulting from large families, especially in all rural communities, there is an increased migration to the urban areas, resulting in overcrowding. This situation has impacted the social determinants of health, which have led people to engage in various unhealthy behaviours (such as open defecation, deforestation, and bush burning), which negatively affect the ecosystem.

5.5.8 Positive impact/ advantages of a large family and population growth

While the negative impact of having a large family size and population growth in Northern Nigeria has been overwhelmingly reported in this study, some of the participants in this study strongly believed that large family size and population growth have numerous advantages. It was believed that having a large family size and population growth could increase the nation's workforce and productivity. There were perspectives that population growth provides social, political, and economic protection and security. Some of the participants expressed their opinions as follows:

"You see, the world is proud of manpower, and you cannot get manpower unless you have a large family. Look at Germany and most other European countries; they do not have a youthful population to work; they depend on immigrants and other nations to send their citizens to work in their companies, industries, and schools. In Nigeria today, we are the giant of Africa, not necessarily because we are economically buoyant or financially strong but because of our population. That is why in every African country,

if you call yourself a Nigerian, you will be respected and feared attacked. It is our population speaking, which is one of the advantages of large family size (FGD2M#3)."

"…When the family is very large, you are protected, and your neighbours cannot easily attack you. The family is also well-recognised; they are known everywhere. If the children in a large family are well trained and all become successful in life, the parents also enjoy old age because there will be many hands to give them something. Looking at China, for instance, that country's economy is very developed today because of its population. They use that population to their advantage, so I expect anybody with many children or any nation with a large population to take advantage of it for job creation and many other things. So, I see population growth as development (FGD5M#5)."

The above extracts showed that even though there are many negative impacts of large family size and population growth, there are several advantages to it, especially if the population is harnessed for productivity. It is believed that the population in Northern Nigeria is not harnessed adequately for development, which is why it looks more of a challenge than good for the region and the entire country. However, if the population had been made productive, the impact of population growth would have only highlighted its positive impacts and merits.

5.6 Stakeholders' Attitude toward large family size and population growth

This study also attempted to examine the attitude of some important stakeholders in the community on family size and population growth. This is because attitude has the potential to shape actions and inactions. The community stakeholders' attitudes about population growth can influence decisions and support any possible intervention that may be proposed. Generally, many of the participants felt that having a small to moderate family size is the best because the family's needs can easily be met, unlike in situations where the family is large. The children have to suffer to survive. Participants believed that population growth would be good if the

government were responsible for managing the growth, considering the natural resources that Nigeria is endowed with.

> *"To be very honest, the current growing population is a problem. For instance, if Nigeria continues to grow at a 3.2% fertility rate with a 5.3% fertility rate, we are projected to become overpopulated by 2050, which will have very negative consequences. Remember, we cannot manage the current population; now imagine if we become overpopulated* (POLM#6)"

> *"I do not think the growth in our population is the problem. The question we should be asking is, why is the money being stolen not used to build schools and employ more teachers in schools and health care workers in our hospital? Our population is not the problem but the government's failure to judiciously use the available resources for the benefit of all* (COMS#10)."

Attitude toward large family size and population growth varies among participants. However, there was a consensus that population growth is not a problem but how it is managed. There was a revelation that border porosity contributed to some of the negative impacts of population growth in Northern Nigeria with the belief that migrants from close neighbouring causing havoc in the region. One of the community leaders said,

> *"I feel the large population of the North is not really from us, the Northerners. Nigeria, particularly the Northern part, shares borders with different countries like Chad, Niger, Cameroun, and others. So, the porosity of our borders, I think, is another major factor that contributes to the region's growing population and even the increased rate of banditry. Most of them are non-Nigerians. They are migrants from these countries and are here causing havoc to the entire nation. So that is another aspect our population needs to consider* (COMS#8)*."*

"As far as I am concerned, there is nothing untoward with our population. If those in government want this country to do well, it will do well. For example, our population is not up to that of the United States of America, and they are doing very well. The population is not a problem at all. It is not the population that matters. Don't we have enough arable land to farm? To build schools or for any other good things? Nigeria has enough land for good purposes. If the government of Nigeria goes back to agriculture alone, discussion about issues of population growth will not even come up (COMS#7)."

The general attitude of critical key stakeholders in the community about large families is positive, and it corroborates reports on the positive impact of large family size sub-theme. Many of these community stakeholders did not see the growing population as challenging. They believed that the negative impacts arising from the growing population resulted from the government's failure to harness the potential of the large population for the public good.

Many participants reported that determining the number of children is mostly a joint decision between them and their spouses when deciding on family size.

"Each time we want to have a child, we consider why we want to. It is an agreement between me and my wife. Nobody can do it alone. There must be agreements for it to happen. We had already decided we would have five children, which is what we had (COMS#1)."

The above extracts showed that family size decisions were a joint venture between couples, and this suggests why population-related interventions must target both couples and consider the different levels of influence of health and behavioural change based on the socio-ecological model. Furthermore, since the general attitude of community stakeholders about large family sizes is positive and supportive of the current situation of the population, any recommended

intervention must be co-produced by the community members and stakeholders to achieve meaningful and impactful outcomes.

5.6.1 The Use of Birth Control and Family Planning Service

Fertility control and family planning are significant in managing population growth and maintaining the family size that a family has decided to have. There are different views and perspectives about the use of birth control in Northern Nigeria. This study explored the attitude of participants and critical stakeholders on contraceptive use and some of the barriers and limitations to using family planning services. The participants in this study expressed their opinions about the use of birth control and identified some cultural, religious, and traditional beliefs that prevented their utilisation of family planning services. Some of these are presented.

5.6.2 Attitude towards contraceptive use and family planning services

Some of the participants in this study, most especially the female participants, expressed positive attitudes towards contraception and the use of family planning services. Many stated that they use contraceptives purposely for child spacing, while others used them to manage their family size. Some feel contraceptive use is good, while some feel it is bad because it has some side effects and that the intention of those who developed contraceptives was to reduce the population of Africa. The set of participants who held this view believed contraceptives are foreign products designed to destroy Africa and Nigeria, which is the giant of Africa.

> *"...Like me, I did advise my wife to go for family planning so that there would be spacing among our kids, but I insisted that she undergo some tests so as for us to determine which type of family planning would be most suitable for her* (FGD2M#4)"

> *"Let us just forget about birth control and talk about some other things. Nigeria has 200 million plus population. That is not much compared to India, China, and other*

world nations. We are just 200 million people and the poverty hub of the world. That is what we should be bothered about. We should be talking about responsive leadership in government and not birth control. I will never use a condom for my wife or any contraceptive (COMS#2)."

The view that population growth strengthens nations in terms of human capital is why many participants have negative attitudes toward birth control. In the above extract, examples of populous nations were cited. Speaking on population contributing to the nation's strength, a stakeholder said,

"Contraceptives are foreign products designed by the West to destroy Africa and Nigeria, which is the giant of Africa (COMS#4)."

"I know many women who have been complaining of losing blood, changes in their menstrual cycle and other issues because of taking contraceptives. I personally also think it can affect the womb. Maybe later, after some years, when the couple now wants to give birth, pregnancy may not hold. These are what is keeping me far away from taking contraceptives. I do not like them, I don't approve of them, and I can't advise their use (FGD2W#6)."

The silences about apathy for modern contraceptive use were revealed in this study. The extracts above revealed that there is generally a negative attitude toward the use of birth control due to some negative experiences of its usage. Essentially, the negative attitude of one individual or a stakeholder can influence another individual in a communal society like Northern Nigeria, where there appears to be strong interpersonal relationships among community members, as explained by the different levels of the socio-ecological model.

To buttress the above explanations, some religious leaders in this study who are important figures of influence in the community believed that contraceptives affect women and can cause sickness and even death.

> *"The reason why I do not like family planning is because it affects women's health and causes diseases. So, it causes much sickness and can cut life short. I cannot advise anybody to take contraceptives for family planning except the person wants to die fast* (COMS#5)."

This view about family planning and contraceptives by this religious leader can impede actions toward encouraging the adoption of family planning services by community members. This is because agents of influence, such as religious leaders, already have strong biases about contraceptives, and this can influence their followers.

Some participants also believed contraceptives do not need to be taken to prevent unwanted pregnancy. Some participants believed family planning should be a thing of the mind.

> *"What I do is the calendar method. I am consistent with it. I tick it whenever my wife menstruates and when we have sex. I believe it is just mindset. If your mind is certain that your wife will not be pregnant, you do not have to use any contraceptive* (FGD4M#2)."

> *"As for condoms, I do not use them. I do not get the vibes while using a condom. I do not even have any fun while using a condom. I cannot recommend any birth control for anybody* (FGD5M#5)."

As revealed in the abstract above, negative attitudes toward contraceptive use, especially condoms, are pronounced among some of the male focus group participants. Perceived lack of pleasure while using condoms was what influenced their attitude. This might be a misconception that requires robust health promotion and education.

5.6.3 Influence of Beliefs

Some participants reported that their beliefs, particularly religious, cultural, and traditional beliefs, make them oppose the use of any contraceptive method for family planning. The religious beliefs were more dominant, particularly the Islamic belief that holds the position that children are blessings from God, which should not be prevented by any means. The opinions of some of the participants are presented.

> *"My religion believes in family planning in different ways, but not the practice of preventing more children from being born. In Islam, we believe in the husband to know how to space his children as he deems fit, but not taking contraceptives because we know that using contraceptives has adverse effects on women* (FGD5M#2)."

> *"I do not believe in family planning. I only believe in child spacing because if God plans to bless my wife to have ten children, I will give birth to those ten children. There is no way I will now say I want four or five if God still blesses me more. I cannot shut down the blessing of God because it is God who gives us children and will provide them with the means to sustain them. It is not by our power, and even like I said earlier, every child comes with their blessings, so I cannot prevent procreation* (FGD5M#3)."

> *"In my church, to be very frank, we are not so much interested in all those things called family planning or using contraceptives because it is like trying to alter the cause of nature. If the word of God dwells in you, you will know you are not supposed to take in foreign things into your system to prevent childbirth. It is a sort of ignorance that makes people engage in using contraceptives* (COMS#6)."

Participants reported that the people's belief system is an important determinant of contraceptive use. As shown in the above extracts, people's beliefs largely influence their use of contraceptives or adoption of family planning services. Based on people's beliefs,

preventing procreation through family planning is perceived as a sin or preventing the blessings of the supreme God, which they hold very highly.

5.6.4 Fear of Side Effects

In this study, some of the participants also expressed their reasons for being opposed to the use of modern contraceptives for family planning. A key reason was the fear of side effects, which has made many women not willing to uptake contraceptives. Many, however, agreed that if the side effects were little or non-existent, they would gladly be willing to uptake modern contraceptives. Participants shared their perspectives.

> *"I will never use contraceptives because of a lady who was lamenting about her body size and that the time she started using these contraceptives was when her body ballooned up. She added excess weight* (COMS#8)."

> *"Contraceptives make menstruation irregular. 'I could not see my period for up to eight months, and it was causing me serious stomach pain, so I had to remove it'* (FGD3M#3)."

Another factor that contributes to the negative attitude toward the use of contraceptives and family planning services, as indicated in the extracts above, is the fear of the side effects of many contraceptives. This fear prevents participants from using them. As revealed by the different participants, the fear of side effects was based on personal experiences and the influence of information received from others who have experienced some side effects using contraceptives. This shows the significance of others' influence in adopting family planning services and contraceptive use.

5.6.5 Traditional methods of birth control

Some of the participants alluded that they use only traditional methods of contraception for

birth control and not modern ones. The reason why they preferred the traditional methods was because of the fear of side effects of the modern ones and because they perceived the modern contraceptives cause some forms of discomfort.

> *"If I want to make love with my wife, I use the traditional method of birth control. I use Concoction. I have my concoction that I use. If you want me to give it to you now, I can. It is very effective* (COMS#1)."

> *"Those contraceptives, particularly condoms, at the earlier time of our marriage, we wanted to use it, but it was giving discomfort. So, I, as the man, decided to do away with it because it did not give me any pleasure. I am now using traditional methods* (COMS#9)."

> *"For me, what I do is, by the time the sperm wants to enter the woman, I remove it and pour it into the ground. I use the withdrawal method. I do not believe in contraceptives, and I cannot encourage anyone or my wife to use them. Please forget about that nonsense called family planning. It is the Oyinbo's things* (COMS#7)."

Some of the participants, especially the male, prefer the traditional method of birth control, such as the use of concoction or withdrawal method, to the modern one, such as condoms. This was shown to be largely influenced by their desire for sexual satisfaction, which they reported they do not get when using condoms. The abstract above revealed gender inequality and preferences in birth control adoption.

5.7 Addressing the Population Growth in Northern Nigeria

This study attempted to explore the way out to address the growing population in Northern Nigeria. From the participants' perspectives, to address population growth and minimise the desire for large family size, making formal education compulsory and women empowerment,

access and use of modern contraceptives and family planning services, and supportive government policies were suggested. Also, the involvement of men/ husbands, public enlightenment, awareness, health education, debunking misconceptions about family planning services, and advocacy to religious and traditional leaders were recommended. These suggestions are presented in line with the participants' views.

5.7.1 Compulsory formal education and investing in women empowerment.

Education was mainly reported as a way out to keep many in school, especially the girl child, from getting pregnant at teenage. It was believed that when a girl starts giving birth early, she has a long reproductive life span, which could make her give birth to many children, resulting in an increased number in the population. Empowering and making employment opportunities available was also suggested to address the increasing population. It was reported that when people are gainfully employed, the desire to spend productive time raising many children might decrease; hence, small to moderate family size could be realised.

> *"The government should get the people employed and let them become busy. By the time the man and the woman go to work, there will be no spare time for them to have an over-bloated family from procreation. A way out is to get people busy through job creation* (COMS#6)."

> *"The best way to address the desire for large family size and the growing population is the provision of wholistic education, and this should not just focus on the citizens alone but also the leaders* (FGD3M#5)."

> *"I think the best population control measure that can work in the North is to educate the people- although it may take a long time for you to see the effect. The government needs to educate them freely because the more they are educated, the more likely they are to accept and use those family planning methods* (POLM#2)."

Among the focus group participants, community stakeholders, and policymakers, education was echoed as the most significant way to address the growing population in Northern Nigeria. Education could help reduce the desire for large family sizes because it is important in the emancipation of the mind and a tool that helps to make informed decisions in life.

> *"If you look at us Northerners closely, most girls do not attend school. So, all that they know is to have children. However, if you look at the tiny percentage of those who go to school, after having a first degree, she wants to have a master's and a PhD degree, which helps delay the time they start giving birth. I am making a point that the girl child needs to go to school. That is an important way out. The government must ensure all the girls attend school and monitor them to complete at least a minimum of senior secondary school education. They should not be allowed to drop out* (POLM#5)."

> *"People need to be well educated. Education influences the minds, perspectives, and the way people think. The more educated a person is, the more likely the person will have a high chance of making quality and informed decisions, especially regarding family size decisions in this current economic situation* (POLM#6)."

Education is an essential social determinant of health. The above extracts clearly articulate the importance of education's influence on making informed decisions. Education of the girl and boy child can have long-term effects and influence healthy decisions around family planning and the desire for small to moderate family size.

5.7.2 Access and use of modern contraceptives and other family planning methods

Contraceptive uses are important in birth spacing, birth control, family planning and population growth. Participants in this study believed that for people to have small to moderate family sizes, modern contraceptives should be made accessible, available, and affordable, as well as other sexual and reproductive health services. It was reported that although there are barriers

to the acceptance of modern contraceptive use, efforts at addressing some of these cultural and religious biases must be taken very seriously.

> *"I think that the country we are in does not encourage people to use contraceptives. We have cultural and religious barriers to contraceptive use. I even recently realised that there are religions that are anti-contraceptives, and I am like, why? I know God says, 'Be fruitful and multiply the earth,' but then, I feel like people need to know that beyond their religion, beyond their culture, they must understand that they need modern contraceptives if they want to keep having sex. We live in a world where contraceptives are very important because the population is getting overwhelming; we need to address it, and contraceptive use can help* (HCP5Dr)."

> *"Unlike what we currently have, family planning facilities need to be made closer to people, and these clinics should be user-friendly for people to adopt the services available* (POLM#6)."

The above extracts showed that access to and use of modern contraceptives can help to prevent unintended pregnancies. This emphasises why it is vital that people are educated because the education they have can encourage their adoption of the use of modern contraceptives for family planning purposes.

> *"A major reason why many people do not come to the family planning unit is because it is built together within the same PHC facility where other services are provided, such as immunisation. For people to come for family planning services, the facilities should be built separately from the main building. This is to ensure users' privacy. The family planning care providers also need to be more confidential. We should provide privacy. We should respect them irrespective of their sex, age, and where they come from. If*

privacies are ensured, the level of uptake of service may increase. Also, the commodities need to be always made available (HCP4Nr)."

"Family planning services are not completely free in most facilities, particularly in rural areas where people are largely poor. They still pay for consumables. Family planning services should be made entirely free for people. The government should make it free because our Northern brothers and sisters, the moment you mention money, that they should pay for contraceptives, they will rather choose to go back home. However, when you make it free, they may want to know more about it and give it a try (HCP7Dr)."

The participants also echoed the call for free modern contraceptive services during the Focus group. One of the participants said…

"… if they make contraceptive and family planning services to be completely free for people to use, there will be an increased level of utilisation. Many married people want it, but the money they will need to go and get it is a challenge. Take me, for example. I wanted to remove the one I inserted for a long time, but I do not have the money, so I am just waiting till I have money. So, if the service is made free, especially for the poor, it may encourage uptake, helping to address the population growth (FGD2W#3)."

Based on the above extract, aside from the access, availability and affordability of contraceptives were mostly talked about by the participants to encourage increased use. This suggests that if family planning services are readily accessible and affordable, the level of use might be increased, which can significantly help manage family size and the growing population. There were also concerns by many of the female participants that more research should be done in addressing the side effects of some of the hormonal contraceptives as it is one of the reasons that discourages many women from using hormonal contraceptives.

5.7.3 Public enlightenment, awareness creation, and health education

Many of the participants strongly believe that there is a need for more enlightenment on the importance of moderate family size, especially one that can be commensurate with the resources available to the family. Awareness and health education on the disadvantages of large family size and population growth were recommended. Public enlightenment, awareness creation and health education were suggested to be carried out among the important community stakeholders, especially religious leaders and traditional leaders who can help further educate their followers and subjects. Some of the participants also suggested the need for street orientation. People should be orientated, even on the streets, on the importance of family planning and birth control. Some of the views of the participants are presented.

> *"One important way is to sensitise people about the negative impact of not doing family planning. As far as I know, the disadvantages of having many children outweigh the advantages. When people see the good and bad sides of having a large family, their decision can be best informed* (FGD2M#2)."

> *"...keeping on sensitising the masses through religious leaders, traditional heads, television, music, and every avenue can help address the growing population. People can be sensitised in the churches, mosques, and neighbourhoods. When the importance of birth control is preached through the religious leaders, particularly the Islamic scholars, their followers will likely listen. The focus should be on those Imams because some of the wrong beliefs around birth control are passed down to the people through them* (COMS#3)."

> *"For me, I feel health education should focus on addressing people's beliefs about family size. In the case of contraceptive use, I do not think it is a problem of unavailability of services because, in both private and public facilities, there are*

trained healthcare workers who provide these services. People need to be reoriented, and religious leaders have a critical role in this (HCP3Nr)."

The impacts of public enlightenment and health education in addressing population growth cannot be overemphasised. These were echoed in the above extracts, where many participants suggested the need for continuous sensitisation and enlightenment on the importance, health, and socio-economic benefits of having small to moderate family sizes. Community re-orientation of religious and traditional leaders who have so much influence on their subjects has been identified as an essential way to go.

5.7.4 Use of public policy to drive population control efforts.

In this study, some participants believed that government policy could help reduce the current population growth in Northern Nigeria. They recommended that if the government could fix the maximum number of children a family could have, it could address the growing population. Some of the participants suggested that the one-child policy of China if adopted to some extent, could caution many people from giving birth to more children than necessary. Some of the opinions of the participants are presented.

"... As done in some countries, the government can make policies stating the maximum number of children a family can have. This policy can have some incentives and consequences if the government is determined (FGD1W#1)."

"The government can create incentives for those with small families. For example, if you have a particular number of children, the government take some responsibility for the education and healthcare of those children. However, when it exceeds a particular number, individual parents are compelled by law to take care of the needs of those children out of pocket. This can make many people more responsible for their fertility desire (COMS#6)*."*

"Hmm. I think there should be punishment for any family that cannot cater for their children. This might reduce their desire for many children (FGD2W#2)."

Because of the negative impacts of large family size, especially when the parents do not have the wherewithal to take care of the children, some of the participants felt public laws/ policies should be enacted to punish people who give birth to a number of children they cannot cater for. There were also views that regulating the number of children a family can have could help reduce the negative impacts of large family size and population growth.

"There should be a strong policy on access and utilisation of family planning services. For example, in all government facilities, married people should be allowed to access family planning free of charge. This can help address the fertility rate and growing population. Some people may argue that family planning services are currently free, but that is not entirely true. People still pay for registration, consumables, and other things. It should be free (HCP1Ph)."

"Policy should be made on marriage rites and processes, particularly in the North. Their way of getting married should be a little bit organised. Marriage should not be cheap. This will reduce polygamy. By the time you have the first marriage, you will know whether you can try the second, which will impact the family size. Marriage should not be cheap for just anybody to go into and start giving birth (COMS#2)."

Meanwhile, even though many participants supported enacting public policy to drive the control of population growth in Northern Nigeria, some were opposed to it. They believed the policy would not effectively address the growing population; instead, the government should plan and judiciously spend the available resources to meet all needs. It is believed that Nigeria has enough resources but is being wasted and syphoned by the people in government.

"To be honest, policy will be difficult to drive population control in Nigeria because Nigeria is complex. If we look at it from a religious angle, if the government should say a family should have a particular number of children, people may protest that they have a right to their reproductive health. There might be an argument like, "You cannot tell me how many numbers of children I should have because some people, even if they give birth to ten, can give them the best of care. So, how do you stop them when they feel four or five children is insufficient?" So, policy in such a situation becomes a big problem because we often do not obey policies in Nigeria. How many policies are being obeyed? Some of them are written down but are not followed. People will feel intimidated if policies like this are enacted. You cannot control the number of children people should give birth to. It is the people's right to decide (HCP2Dr)"

While some of the participants supported the use of public policy for population control and family size decisions, some were opposed to it. In the above extract, one of the healthcare professionals felt that using policy would be against reproductive health and human rights and that since currently available policies on other issues are not even fully implemented, why go through the same route of policy formulation?

"Nigerians are stubborn people. Thinking of using a policy to restrict family size may not work. We all know it worked in China in the one-child policy, but it cannot work in Nigeria because many people do not see the government as a responsible entity. You can use several examples to illustrate why this will backfire. Take taxes, for instance. People know they are supposed to pay taxes. However, because they do not see the government as a responsible entity to do what they are supposed to do and to deliver good governance, people evade taxes even without consequences. A government that cannot provide quality education or build good roads, people will question its moral authority to want to gag people's desire to give birth to any number of children they so

desire. However, I do know that there are already policies to support family planning. A policy has been on the ground for years that family planning services are to be provided free of charge at government-owned hospitals so that a woman can walk in and get the service without paying a dime. Although I know the hospitals charge maybe two hundred nairas for registration, there is still much distrust in the government (HCP3Nr)."

"There have been policies in the past where it was recommended that the number of children should be four per woman, but the policy never saw the light of day. People, particularly leaders in the North, did not accept it. They argued that the government cannot peg the number of children they should have. So, in the subsequent population policy, the number was removed from the policy with an emphasis on encouraging small family size (POLM#5)."

Based on the above extracts, even though driving population control through public policy was largely supported, implementing such policies was considered more important. Nigeria, as a nation, has many policies that are not currently well implemented for the public good. This made the co-production of policy with community stakeholders and agents of influence imperative.

5.7.5 Advocacy to religious and traditional leaders

Efforts to address population growth in Northern Nigeria are multidimensional because many factors contribute to the growing population in the region. From the data collected from the research participants, a meaningful way suggested by participants to address population growth, especially with the encouragement of adoption of family planning services, was through advocacy and health education for religious and traditional leaders. Some of the participants' opinions are presented.

"…To be honest, there is much work to be done among religious leaders. Advocacy, seminars, and education of religious leaders are important. More emphasis should be placed on monogamy, that is, one man, one woman. The Christians even try, but you know those Imam, they have been the ones telling their followers to marry two, three, four, five wives. So, if efforts can be focused on those Imams, some gains can be achieved in reducing large families (COMS#1)."

"I think our country does not generally encourage contraceptive use, and that is why our population is growing. We have a lot of cultural and religious barriers and biases. I even recently realised that there are religions that are anti-contraceptives, and I wonder why. I know God says, "Be fruitful and multiply the earth." However, then people need to know that beyond their religion and culture, they need to understand that contraceptive use is important for family planning and to address population growth. Many people listen to their religious leaders, so efforts should be focused on empowering and educating the religious leaders to encourage their followers to utilise family planning services (HCP4Nr)."

Agents of influence, especially religious leaders, need to be actively involved in any orientation, enlightenment campaigns, and health education that would be done among the people. This is because, as indicated in the abstracts above, many participants reported that people listen and take instructions from their religious leaders. This made these religious leaders necessary health promotion agents to help educate their followers to improve the community's use and adoption of family planning services.

5.7.6 Male involvement in family planning services

Some of the participants in this study, particularly the female participants, believed that involving men in the family planning services programme and intervention can significantly

impact the level of use of the services, helping address the growing population.

> *"What I think can be done is involve the husbands because many do not even understand family planning. They want to give birth. You people should ensure that any activities and programmes you carry out involve the men because they have the final say in the home* (FGD3W#3)."

> *"There is much work that needs to be done among the men. Most of these men need to know that caring for both the wife and the children is their responsibility. Moreover, they should allow women to decide the number of children they want because, in the Western World, women have some right to decide whether to give birth or not, but because of our culture here, women are forced to give birth to many children. Some men blatantly say, "I do not want family planning". So, the focus should be on the men. They need to be educated on the importance of family planning and about having small to moderate family size* (HCP5Dr)."

The extracts above suggest that the interpersonal relationship between husband and wife needs to be harnessed in the planning and implementing any reproductive and family health programme. Involving the men who are important agents of influence and reproductive decision-makers in family planning programmes can yield plausible outcomes, as explained by the socio-ecological model, which is one of the theoretical underpinnings of this research. The above extracts suggest the need for men/fathers' involvement in family planning. This is because, in this study, men have been reported to oppose the use of contraceptives or any family planning service because of their beliefs and personal pleasure.

5.8 Chapter Summary

This chapter presented a thematic analysis of 80 research participants interviewed for this study across the selected states of Northern Nigeria. While 55 community members participated in

the Focus Group, others were healthcare professionals, policymakers and community stakeholders who participated in the interviews (key informant and in-depth) to investigate the impact of large family size and population growth on health and socio-economic well-being in Northern Nigeria. The experiences and opinions of participants about the factors that contribute to family size and their impacts on health and socio-economic well-being, as well as the ways to address the growing population in Northern Nigeria with views from all stakeholders (community members, healthcare professionals, policymakers, religious and traditional leaders) were carefully presented in this chapter.

An overview of the findings shows that religious and cultural beliefs, as well as other determinants, influence family size decisions in Northern Nigeria, and these determinants contribute to population growth. The chapter presented new knowledge about the socio-economic and health impacts of large family size and population growth in Northern Nigeria. The chapter showed the relationship of themes that emerged during the analysis of the initial focus group carried out among community members, with the later interviews done among stakeholders. Analysis of these results showed how the emerging themes interrelate and interact. This is because the participants' views from the focus group to the in-depth interviews and key informant interviews provided a similar result, clarifying the achievement of this study's set research objectives.

The transcript presented in the chapter was to present some of what participants said during the interview, thereby boosting the study's credibility and voicing the silenced voices. The next chapter (chapter six) of this thesis presents a detailed discussion of the findings obtained from the field in line with existing literature and theory.

CHAPTER SIX

DISCUSSION OF RESEARCH FINDINGS

6.1 Introduction

This chapter discusses the findings from this research presented in chapter five of this thesis. The chapter starts with a detailed discussion of the research outcomes from this study. The principal findings were extensively discussed, including the identified perceived determinants of large family size and population growth in Northern Nigeria and the perceived impacts of large family sizes and population growth from the participants' perspective. The perspectives of critical stakeholders and policymakers on the significant efforts to address the impacts of large family size and population growth in Northern Nigeria were also discussed. This chapter articulated how the population growth in Northern Nigeria can be curtailed using community-directed interventions and policies at the local, regional, and national levels.

The last part of this chapter discusses the implications of the research on family planning activities/programmes, contraceptive use, and population control policy for improved health and socioeconomic well-being in the northern part of Nigeria and the entire Nigerian nation. It also provides a closer look into the implications of the research for improved health systems in Nigeria. This chapter concludes with a succinct discussion of the limitations and strengths of the research processes.

6.2 Summary of Research Findings

The emerging findings from this research have been presented in the previous chapter (chapter 5) and arranged under specific themes and sub-themes in line with and addressing the study objectives (see Table 5.2). This study utilised the Silences Framework and the Socio-ecological model theoretical underpinning, which allowed the involvement of different levels of participants in diagnosing the social determinants of health and providing a multi-level

construct and baseline for health interventions (see 3.2). Stage three of the Silences Framework provided the theoretical guidance for the data analysis phases. It allowed the silenced voices in the community to be heard in the research process and findings (see 3.3). As Janes et al. (2019) and Serrant-Green (2011) argued, the Silence Framework helped situate the silences in sexual and fertility decisions and the influencers/ determinants of family size decisions and population growth in Northern Nigeria. It guided and enhanced the active participation of the research subjects in the process and output of the study and provided the findings with a critical associative eye, as recommended by Serrant-Green (2011).

The socio-ecological model as an interventional framework guided the selection of the different levels of individuals who generated the research findings. It provided multi-level community participation in this research. The participants included community members (those with small and large families), leaders and stakeholders in the community (religious, traditional, and political), healthcare professionals and policymakers. The significant contribution of this study is showing how different determinants contribute to large family size and population growth in Northern Nigeria, with each influencing factor being corroborated by each level of the participants. The study established the overarching and very pronounced influence of culture and religion on family size decisions, fertility intention, reproductive behaviour, and population growth, among many other factors such as large family size for political advantage, cheap labour for farming activities, influence of poverty, and lack of access to and use of modern contraceptives.

Utilising the research model and framework (socio-ecological and Silences, respectively) as theoretical underpinnings, this study also revealed the impacts of large family size and population growth in Northern Nigeria. The impacts, as expressed by the research participants, were the impacts on the health and socioeconomic well-being of the people. Distinctively, many participants who participated in this study across all levels believed and reported that

large family size and population growth contribute to increased poverty and underdevelopment, criminality and insecurity, economic hardship, food insecurity, child malnutrition, child abuse/ neglect and environmental degradation currently happening in Northern Nigeria. Thus, efforts to address the growth of the population or make the population productive were popular opinions. The significance of the influence of policy, male involvement, health education, public enlightenment, and advocacy to encourage reasonable family-size decisions and address the growing population in the North for improved health and socio-economic outcomes were reported in this study. Attitude toward large family size, population growth and use of family planning was also documented. Even though many participants believed the population in Northern Nigeria has contributed to many negative impacts on health and socio-economic well-being, some still believed the population is not too much and is economically and politically beneficial. Negative attitudes toward contraceptive use and family planning services were also documented in this study, which were largely influenced by religious and cultural beliefs. The majority opinion from this study was that having large family sizes, and a growing population should provide some demographic dividend if the country's leadership has been determined enough to make the population productive through heavy and deliberate investment in human capital development.

Another significance of this study is that the opinions and voices of the participants, mostly community members, were loud on the issue surrounding family size and population growth in Northern Nigeria. The participants' narratives and involvement in this study demonstrated how interested and concerned people are about family size, family health and population growth. The expression of community involvement in the process of this study has the potential to enhance community collaboration and participation in any proposed intervention programme that will improve family life, health, and social and economic well-being and can also yield

positive outcomes in family size decisions in Northern Nigeria and the entire nation at large (George et al., 2015; Halden et al., 2019).

6.3 Discussion of Principal Emerging Findings

6.3.1 Determinants of large family size and population growth in Northern Nigeria

This study revealed some of the determinants and factors that influence large family size and population growth in Northern Nigeria from the participants' perspectives. These determinants include ‘culture’, ‘traditional and religious beliefs’, ‘large families and many children as a means of cheap labour for farming purposes’, ‘large families for political advantage during elections’, ‘level of access and use of contraceptives and family planning services’, ‘poverty situation’, and ‘lack of education and empowerment’. The strong voice on the cultural, traditional, and religious beliefs as determinants of the large family size reported in this study reflected the dynamic impacts of culture and religion on many health decisions, eventually affecting health outcomes. Even though many health decisions can be constrained and influenced by many other external factors and structures, socio-cultural beliefs have been shown to impact people's way of life.

Description and knowledge of large family size

The participants in this study based their views, responses, opinions, and perspectives about large family size on personal experiences. Many of the descriptions of large family size in this study are in support and at variance with many previous studies (Endriyas et al., 2023; Blaabaek & Militoris, 2020; Akram et al., 2020). In this study, some of the participants view a large family size as a polygamous family or a family size that has up to 10 children and above. Even though some participants also believed that any family size with more than four children, as recommended in the previous Nigeria population policy, is large, some believed that large family size should be described from the perspective of the ability to take care of the family

and meet daily decent living requirements. The opinion that a large family size is one with more than four children is in line with a previous study in Nigeria by Akinyemi and Odimegwu (2021), where a large family size was defined as having many children greater than four.

Some participants in this study described a large family size as one with many wives and children numbering up to 10. This situation of having many children has been shown to result in delinquency and corroborated by a 1984 study by Fischer, where it was first reported that large family size is often related to greater delinquency as well as undesirable family conditions, which makes it an important issue for public health discussion. The study participants' description of large family size provided the baseline to investigate further the perceived determinants and factors influencing large family size decisions. This understanding also helped to explore further the impacts of large family size and population growth on the health and socioeconomic well-being of the people. The description of large family size by the study participants also gave directions and focus to the research discussion, as argued by Slife et al. (2016), where the description of key terms in any study is adjudged to be beneficial in the operationalisation of such study in context. It is, therefore, interesting to state that participants have an idea about what a large family should be in terms of size description.

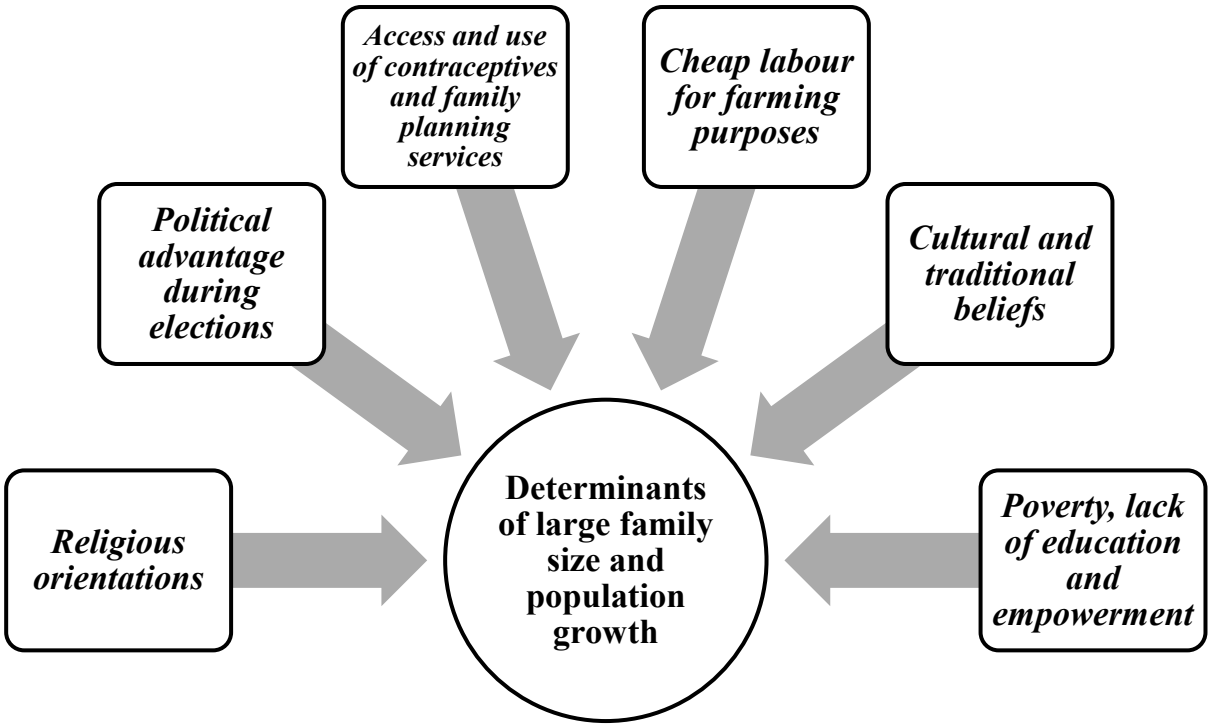

Figure 6. 1: Summary of the determinants and factors contributing to large family size and population growth (from the study findings) in Northern Nigeria

Influence of cultural and traditional beliefs on large family size and population growth

A major theme from the data analysis of this study was how cultural and traditional beliefs influenced family size decisions and how this led to large family sizes in Northern Nigeria. According to the participants, the desire for male children was the reason many had large family sizes. This is because they kept giving birth until they had a male child, which is majorly influenced by their cultural and traditional beliefs that a male child is a symbol of authority and continuity of family names and heritage.

As shown clearly in this study, the preference for male children has also been a consistent practice in many other developing countries (Le & Nguyen, 2022; Goli et al., 2022; Nguyen & Sukontamarn, 2022; Wang et al., 2020; Qadir et al., 2011). These revelations in this study are similar to a previous study in India- the largest country in the world based on population

(UNDP, 2024; Ahmed, 2007), where the influencing factor for large families was the desire for male children, which was also driven by cultural beliefs and traditional sentiments for male children. The preference for boys was also associated with family stability, cohesion, and lack of marital dissolution (Okyere et al., 2023). A further look into the literature aligned this finding with the report by Jayaraman et al. (2009) in a study carried out in South Asia, where it was shown that the desire for another child decreases when the number of male children increases, which in turn increases the level of contraceptive use.

A related study also showed a positive, persistent link between parents and children's fertility in France (Beaujouan & Solaz, 2019), which was explained by culture and demonstrated that an individual's family origin could be a determinant of their fertility decisions. However, in the French study, family size usually has between 1 and 2 children, which has been the practice from one generation to the other, influenced by their culture.

Culture has, therefore, been a major and standard explanation for many fertility and population health issues in previous and recent times. Even though it can differ arbitrarily between groups, it can explain the determinants of certain behaviours. Culture can either be a protective factor or a barrier as it reinforces or sustains behaviours or actions that impinge on health and well-being (Hruschka, 2009).

An African study by Abdi et al. (2021), which adopted a similar methodology to this study among Muslim men, further revealed that in patriarchal societies, the idea of family planning is seen as ‘foreign or Western’ and because of this cultural ideology, the use of modern contraceptives should not be adopted in the African continent. It was believed that family planning is associated with ill health and promiscuity. Because many of their participants have Islamic beliefs, they held the view that preventing children from coming to the world is ‘un-African’ and ‘un-cultural’. Furthermore, aside from the cultural influences in the Abdi et al. (2021) study, religious beliefs about family size and fertility decisions were also identified as

important determinants. Similarly, a qualitative study in Sudan by Badri et al. (2023) supported many of the positions from this study. In the Sudan study, local social-cultural factors contributed to men's preference for large family sizes. The study showed that the preference for male offspring and the desire to elevate social status often influence fertility decisions by most men. This is because, in the context of the study and like this study, virility usually defines men's social status in society, which causes many men to distance themselves from any perceived threats to their masculinity.

Therefore, based on the relationship of this study with previous similar research, the widespread preference for sons, negative attitude toward family planning and the cultural desire for male children were a significant factor for reproductive behaviours and family size decisions, which suggests that reducing such preferences would need a serious change in people's attitudes and social-cultural norms as well as empowering and improving the status of women in the society. Changing perception, which gives equal importance to male and female children, can help address the culture of male children's preferences. It is imperative to state that culture was a major perceived determinant of large family size and a significant influencer of population growth in Northern Nigeria as revealed in this study. From the literature, there was no evidence to indicate the contrary. This may be because culture is a way of life and an important determinant of health behaviour.

Influence of religious orientations on large family size

This study also reported the religious underpinnings of large family sizes and population growth in Northern Nigeria. In the Christian religion, it is believed that the God who gave the children will provide the means to care for them. Some Christian believers who participated in this study were of the view that God asked men to go to the world to multiply and procreate; this made many opposed to the idea of utilisation of family planning services or the use of

contraceptives. Meanwhile, some of the Muslim participants believed that since their religion allows polygamy, having a large family size becomes inevitable for them because their religion supports a large family size. Some of these revelations were related to the study by Akinyemi and Odimegwu (2021), Adefalu et al. (2019) and Durowade et al. (2017) where they reported that the Islamic religion was a driver of large family size and population growth in many developing countries including Nigeria because its teaching support polygamy and have an aversion to contraceptive use or the adoption of family planning services. Also like this study are the findings by Badri et al. (2023) and Alamgir (2014), where religious beliefs were shown to influence the size of the family, particularly regarding the bearing of children, which is believed to be a deepening of faith and divine duty.

The influence of religion on family size and fertility decisions has been documented in many other studies. Notably, the South Asian study by Pearce et al. (2015) identified religiosity as the significant determinant of family size decisions, with religious influence positively associated with preferred family size. Also, the study by Lyer (2019) has put forward a view that religious influences continue to have an essential collective effect on many countries' populations and overall demographics. It was explicitly argued that religion influences fertility behaviour as well as mortality, especially with some religious beliefs opposing any form of use of birth control and family planning. This, however, supported the more significant agreement among many researchers in health and demographics that the total fertility rates around the world will continue to decline as a result of increased use, access to and religious support for the use of modern contraceptives (Peri-Rotem, 2022; UN, 2020). This study, like other previous research in regions where population growth is on the rise, religious orientation and beliefs of the individuals, particularly husbands, influence the choice of their family size with those whose religion supports polygamy, such as the Muslims, having a large family size and many

Christians whose religions orientation did not oppose to use of contraceptives and adoption of family planning services having small to moderate family size.

Since population growth depends significantly on the total fertility rate, the world population is expected to increase considerably in this century. A study across Europe, Africa, Latin America, Asia, and the Caribbean reported fertility to potentially decrease only with the increase in positive religiosity, level of education, GDP per capita, and increased strength of family planning programmes and contraceptive use prevalence. Religion was predominantly shown to affect the total fertility rate in sub-Saharan Africa because of the level of religious fanaticism (Gotmark & Andersson, 2020). Therefore, this research has expanded current theories and beliefs on the relationship between religion, family size preferences and fertility intention/ decisions. This study suggests that health education interventions along religious lines that address negative beliefs in fertility and sexual health behaviour should be given serious focus in a time like this, where religious fanatism is on the rise and affecting every facet of life.

Large families for political advantage/ gains during elections

This study has revealed that many large families exist in Northern Nigeria for political gains. It is interesting to note that findings from this study showed that some of the people in Northern Nigeria gave birth to many children to be able to negotiate for political gains during elections. This opinion was echoed by many participants who expressed that large family and the rise in population is 100% power-driven because they provide the opportunity to win an election and use the large family size to negotiate for votes. They believe having many children and wives equals more votes during an election.

Previous studies have not documented having large family sizes for political advantage. This is the first time this has been reported in empirical research. However, some studies in areas where there have been wars have reported that large family sizes were encouraged to increase

the nation's population because of war to compensate for high child death rates and men who perished during the war in such situations. This was when having a large family size became a national obligation for every citizen (Bongaarts & Casterline, 2013; Elmusharaf et al., 2017). Meanwhile, despite this obligation and the perceived political benefits of large family size and population, the consequences of large family size, which include financial burden and inability to take care of the children (Elmusharaf et al., 2017), are not considered mainly by those who choose to have large families even in situations when it becomes national obligation during a war. The findings from this research are not surprising because the northern part of Nigeria is believed to be Nigeria's political capital, and the region has the political structure to win an election (Kastfelt, 2006) and has consistently held that power for many years. Despite the political power and perceived advantage of the number for political negotiation, poverty and underdevelopment have also been conspicuous in the North. Participants in this study believed that the large population in the North for political advantage has become an inter-generational tradition. They reported that large families usually helped the North to win national elections easily because of the large number of votes that came from the region because of the large population, and it is the tradition from the great-grandfathers to the current generation.

Therefore, based on the participants' perspectives, it can be agreed that the desire for large family size and population growth in Northern Nigeria has a political undertone, even when there are no plans and provisions to take care of the growing population, particularly children and youths. The consequences of this, which have led to health and socio-economic impacts, will be discussed later in this chapter.

Level of access and use of contraceptives and family planning services

Contraceptive use and adoption of family planning services by families have been shown severally in many previous studies to improve women's reproductive health, address the surge in population and put family size in check (Oshinowo et al., 2020; Sinaga et al., 2015 and

Epenyong et al., 2015). From this research, another major determinant of large family size and the increase in population is the lack or inadequate access to contraceptives and the adoption/ use of family planning services by many Northerners. This determinant was also reported to be influenced by other factors, such as culture and religion, as revealed in a previous study in a different region (southern) in Nigeria (Akamike et al., 2020). Participants in this study expressed the opinion that not having access to contraceptives and the fact that they have to pay for family planning commodities in healthcare facilities impact the level of their utilisation.

Also, the idea that some of the contraception and family planning methods sometimes fail and result in some complications has discouraged many people from using them. This has resulted in many families having unplanned pregnancies, which makes them have many children and impacts the overall population growth rate. The opinions and views expressed in this study are similar to the findings of Hamadeh et al. (2008) in Kuwait and Akamike et al. (2020) in Nigeria, where access and use of modern contraceptives and family planning services were determinants of increased childbearing in many rural communities. However, the findings from this research did not align with some studies in other parts of the world, particularly areas where there was war or civil unrest (Hackett et al., 2021; Sedgh & Hussain, 2014). For example, in a Pakistani study, large family size was driven by precarity and violence and not access to or use of any family planning method. This is because many families choose to have several children in response to precarity resulting from persistent conflicts, economic insecurity, social insecurity, terrorism, and child mortality (Ataullahjan et al., 2022). Families have several children with the belief that if one or two of the children should die, some others will remain. In contrast, in many cases, none of the children end up dying, hence resulting in a large family and population growth.

Meanwhile, a study in Southern Nigeria on contraceptive use showed similar results to what was reported in this study, where the lack of use of contraceptives and other family planning services was reported. In the study, the lack and decline in the rate of use of contraceptives were associated with some misconceptions and myths, which include the peak of sexual satisfaction cannot be attained with contraception (Akinwale et al., 2020). In some previous studies, the level of use of contraceptives was also associated with awareness, which is sub-optimal (Atchison et al., 2019; Apanga & Adam, 2015). This low level of use has led to planned and unplanned pregnancies, contributing to family size and population growth. A study by Taiwo et al. (2023) revealed an understanding of the lack of contraceptive access in many Northern States. These were characterised by family honour and the social norms of girl-child chastity. This fact was also related to a previous study by Schwindt et al. (2017), where minimum age biases and marital status characterised the lack of access to contraceptives in many urban cities in Nigeria. This is because, in many cases, some contraceptive service providers impose restrictions on access to contraceptives on some people based on their looks/ perception of their age or their perceived marital status, thereby preventing those who need contraception from accessing it.

It is, therefore, essential to state that, as revealed in this study and corroborated by much previous research, the fact that access to and the use of contraceptives is a determinant of large family size in Northern Nigeria cannot be overemphasised. It is vital that for increasing access to contraceptives, the providers-imposed eligibility barriers for access to contraceptives need to be removed forthwith through a serious re-orientation programme for healthcare service providers. There is also the need for an increased supportive provision of family planning services to families and youths who may need it to prevent unwanted and unplanned pregnancies, which in many cases has led to unsafe abortion and even death. This further emphasises why access to contraceptive use is essential for every sexually active population,

male and female. Mass campaigns to create more awareness about the importance of the use of contraceptives and other family planning services need to be taken more seriously as a matter of urgency to address the growing Northern Population, which is largely a dependent population.

Addressing population growth has become increasingly necessary. This has also been adjudged as a significant effort for economic solutions and prosperity, which is currently lacking in Northern Nigeria and the entire Nigerian state. Addressing this population concern aligns with the resolution made by the Nigeria Economic Summit Group (NESG) in their 2024 macroeconomic outlook, where a reduction in the national population growth rate was recommended as one of the possible practical efforts to achieve economic transformation and stability. Among many other reasons, the recommendations were based on the present Nigeria population and economic reality and on the argument that inevitably, the use of more of the finite resources currently available in Nigeria and increased population growth will reduce the long potential growth of Nigeria by every standard- health, economic and wellbeing (Linden, 2017). To achieve economic transformation and prosperity, access to and use of family planning services becomes very important.

Belief about large families as cheap labour for farming purposes

Northern Nigeria's important economic activity is Agriculture, which has been practised for centuries. The agricultural production in Northern Nigeria has been beneficial to the region and the entire country because food production was the primary reason for the national food security in Nigeria in the past (Oladunni et al., 2022). However, as revealed in this study, to increase and harness the capacity for food production and other farming purposes, many families have given birth to many children to help them on the farm. Since Northern Nigeria is an agrarian society, many people see having many children as a source of income by bringing them up to go to the farm, work on the farm and promote their farming industry. This was why

many men marry many wives and ensure each wife gives birth to many children to help in farming activities. Essentially, instead of hiring labourers to work on the farm, the children and the wives do most of the work, and more money is safe for the family.

The idea of giving birth to many children for farming purposes and using many children for cheap labour for agricultural purposes was not first highlighted in this research. The study by Komlos and Carson (2017), Carson (2021) and recent research in Pakistan by Ayaz and Mughal (2022) have shown that many large families exist to increase labour specialisation for major agricultural productivity, marketing, and trade. This is a common practice in Northern Nigeria, as evidenced in this study, where children are born for farming and animal husbandry, especially for rearing cattle and household wealth. The previous research by Carson (2021) established a relationship between household size and agricultural productivity using a fertility model. The model posited that increased agricultural productivity significantly increases the desire to have a large family size to meet the demand for labour. This echoes that children were being birth due to labour and productivity.

However, this purpose may have lost its significance, especially now that significant technological advancements and mechanisation for agricultural production exist. In the present time, with machines and two or more operators, the high need for human labour in the farming process has become less essential and insignificant. This is because mechanisation has improved the development of the value chain and food production and has the significant potential to ensure cultivation, production, harvest, post-harvest process and food marketing activities and functions are more effective, efficient, of high quality, sustainable and environmentally friendly (Food and Agriculture Organization, FAO, UN, 2023).

The increased use of mechanisation in farming activities has also helped to meet the challenge of food insecurity and fighting malnutrition by ensuring greater yields of agricultural produce (Emami et al., 2018). Therefore, the availability and increasing use of mechanisation in farming

could have defeated the perception and belief that giving birth to many children for farming purposes is essential for cheap labour. One machine can do much of this work more efficiently and effectively. As such, many children may not be as valuable for farming purposes in this present time as before. Hence, the number of children still adds to the number and size of the household and the community/ nation population. Meanwhile, when many children do not now get jobs, work or opportunities for decent living, competition for the available resources is the result, which could cause some untoward situations, including crime, as is currently being experienced in many parts of Northern Nigeria.

The influence of poverty, lack of education and empowerment

In this study, it was reported and believed that poverty, lack of education and empowerment influence significant family size decisions, contributing to the population growth in Northern Nigeria. This belief was more reported among the policymakers who participated in this research. Their opinions were premised on "the more enlightened people are, the better decisions they can make for themselves, spouses, children, and society". Poverty and lack of empowerment or job opportunities were also reported as contributors to large family size by community members and leaders in this study. The findings from this research aligned strongly with a European study by Wietzke (2020), where poverty was associated with fertility and mortality rates. In essence, it was shown that a fall in poverty level rapidly improves fertility and family size. Important country demographic variables were associated with poverty and empowerment in the study.

Similar research to this study by Gotmark and Andersson (2020) reported a negative correlation between high fertility rate and education. An increase in education and empowerment for women and schoolgirls was associated with decreased fertility intention. This has been further shown in many studies in different countries. Longer and more education has been reported to have the potential to empower women, thereby resulting in delayed marriage, later onset of

childbearing and smaller family size (KC & Lutz, 2017; Wang & Sun, 2016). Essentially, these findings can be said to have significantly pointed to the fact that the desire for large family size and fertility intention differs between less and more educated women and men across regions and countries.

This can be further explained on the premise that the improved exposure and enlightenment that comes with more education inform the right decisions and choices. For example, educated women are more likely to adopt family planning services, which could enable them to have a desired family size, which can be small or moderate. Educated parents are also more likely to ensure that their children are also educated because they, as parents, can easily be incredible role models for the children to follow, unlike in the case of uneducated parents. Education has been established to be beneficial and significant for all-around growth and development (World Bank, 2023; UNESCO, 2022; McCowan, 2019).

Therefore, since poverty and level of education can influence and have influenced the desire for large family size in Northern Nigeria, as reported by the participants in this study and as discussed within the framework of previous similar research, it then becomes very imperative that improving the economic situation and capacity of the people through serious and deliberate investment in human capital development, particularly education and empowerment must be paramount and should take priority. This can help address the desire for large family size and population growth. This would mean there will be fewer poor people who will be able to afford basic needs, including access and the ability to afford family planning services when not free. When educated, people can make better and more informed decisions about family size, desires and intentions, which will impact their personal and national overall health and socio-economic well-being.

As articulated above, it is important to re-state that many determinants and factors influence the decisions for large family size and, perhaps, the current population growth in Northern Nigeria. Even though the perceived determinants revealed in this study may not be exhaustive, they can be adjudged to be very significant determinants. Much other research in similar settings and regions has reported similar influencing factors for the desire for large family size and population growth. However, the most significant and newly reported determinant and factor influencing the desire for large family sizes in this study was having "large families for political advantage during elections". This has significantly contributed to the population growth in Northern Nigeria. Many men, especially those who are politically conscious, give birth to have the number for political activities without necessarily giving much consideration to how to take care of the children or being concerned about the health and well-being of the children they are giving birth to.

6.3.2 Impacts and effects of family size on health and socio-economic well-being in Northern Nigeria

In this study, while many large family sizes were reported to exist in Northern Nigeria, which was influenced by many determining factors, as discussed in 6.3.1, the large family sizes prevalent in Northern Nigeria were revealed to have many health and socio-economic impacts. These impacts include criminality, banditry, insecurity situation, increased poverty and underdevelopment, economic hardship for parents of large families, child neglect/abuse, and malnutrition of children in large families. Also, poor education and increased level of illiteracy of large families, poor health outcomes for children and parents and environmental impacts are some of the effects of large family sizes highlighted. However, some participants also view large family sizes and population growth as having positive impacts.

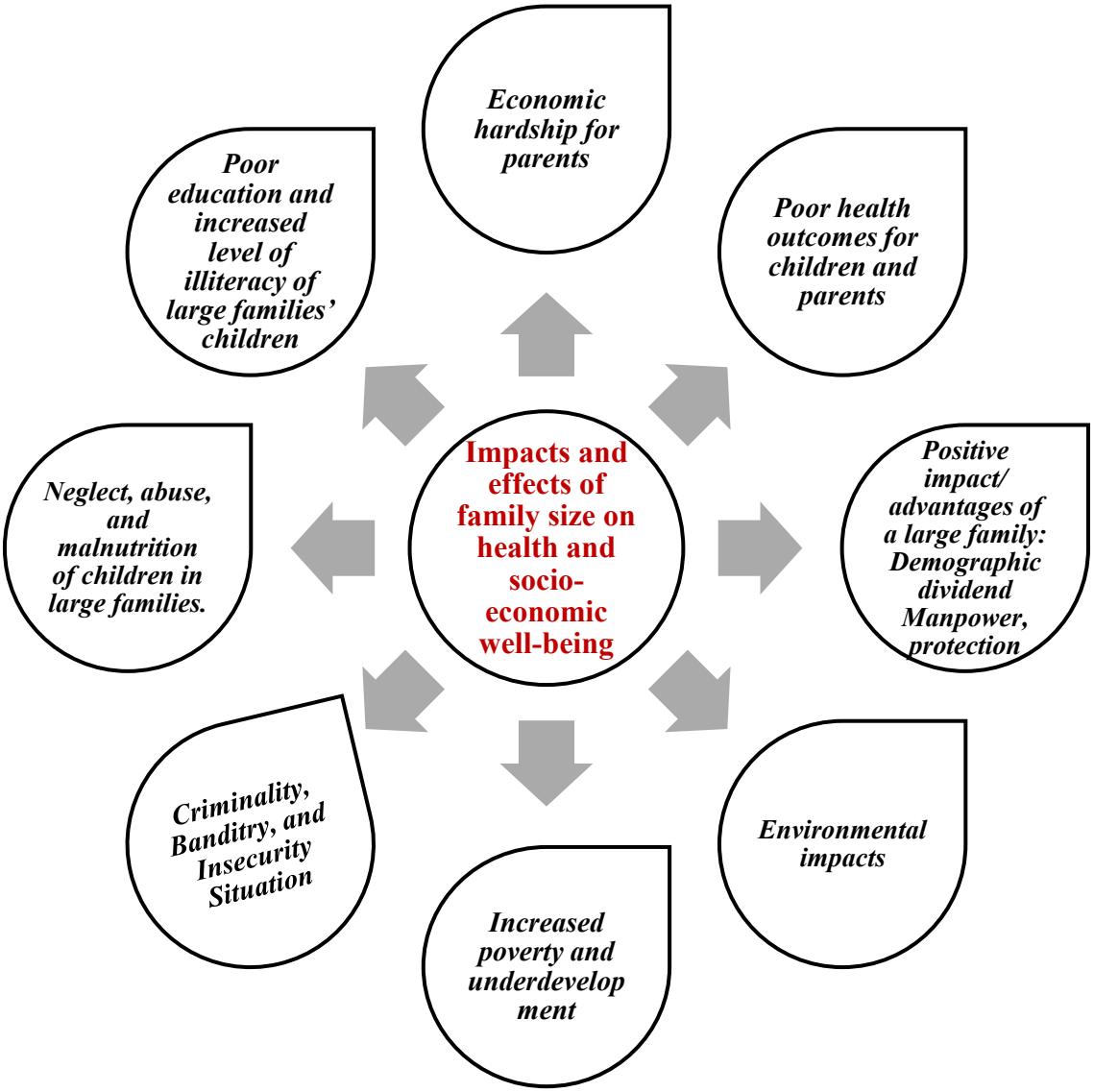

Figure 6.2**:** Summary of the impacts and effects of family size on health and socio-economic well-being (from the study findings) in Northern Nigeria

Increased poverty and underdevelopment

Poverty is an essential variable in measuring development and has been defined as the inability to afford a basic standard of living. It is a state of being poor and unable to meet the minimum daily needs required by any individual (Okpala et al., 2021; Deonandan, 2019; Danaan, 2018). According to a community-based study by Savadogo et al. (2015), poverty is living in a condition perceived as indecent, characterised by the absence of social capital and social networks for assistance and support during times of need.

In this study, large family size and population growth contributed to Northern Nigeria's high poverty and underdevelopment. Participants showed that many children in large-family homes find it difficult to be sponsored in school because of the cost. Many of these children stayed home and became dependent on society. Their failure to go to school because of the inability of their parents to afford quality education, sometimes based on the family size and/ or poverty situation of the parent, makes many of these children do not have basic education or get a skill, thereby making them unemployable and not being able to contribute to the economic growth and development of the society. As also shown in this study, because some of the children in large families could not go to school, they get married quite early, and the poverty situation becomes generational. In any case, they cannot live in good areas, environments, and accommodations, with many living in urban slums or overcrowded houses, thereby affecting their quality of life and exposing them to opportunistic infections and preventable diseases. These findings corroborated the reports in literature by Adeyeye et al. (2021), Singh et al. (2021) and the World Bank (2022) report, where increased poverty and underdevelopment were associated with large families and population growth, even though large populations are expected to provide dividends if its potentials are harnessed. In those previous reports, poverty and underdevelopment were shown as impacts of large populations, particularly in the rural areas, as shown in this study.

A similar study by Wietzke (2020) revealed that because of the effects of income and consumption level in a high-fertility family where many children co-exist, poverty and household underdevelopment are usually the results whose collective effects by many other similar families can affect the overall societal poverty and underdevelopment level. In this study, the poverty level reported was related to the high fertility level. A related argument in the 1990s by Ahlburg (1996) showed that even though there may not be an exact direct link between large family size, population growth and poverty, there are indirect links, especially

because the rise in family size and population has the potential to reduce income per capita growth and wellbeing which tends to increase poverty (Piketty, 2015; Peterson, 2017). The adverse effects of large family size on child feeding, health, and education due to poverty, as revealed in this study, have the potential also to increase the poverty level in the next generation. This revealed concerns about population dynamics on reproduction and women's rights in national and global development initiatives. These findings, therefore, predict that to accelerate health and socio-economic growth and development through poverty reduction, effective action and interventions targeting fertility and family size determinants should be of serious focus.

Criminality, Banditry, and Insecurity Situation

From the findings of this study, it was shown that the growth in the population of Northern Nigeria has contributed to the rise in the rate of criminality, banditry, and insecurity situation of the region. Some participants alluded that it is always difficult to control and take good care of many children in the face of the current economic reality. This then left some of these children to self-help. For instance, as posited by one of the participants, "In a polygamous family where the children are mostly many, the father may not even know if any of the children have joined armed robbers or bandits' group, whether they have gone to join the insurgents, or if any of them are now sex workers or prostitutes. This often happens because the family is large, and many of these large family parents are poor.

Self-survival of children in large families predisposes them to various activities like robbery, armed banditry, cattle rustling and kidnapping. This was a common variable and response from many of the different groups of participants in this study. Some of the policymakers and community leaders revealed that since many children from large families are out of school because their parents are mostly poor and cannot afford to provide them with quality education, these children become easily available for indoctrination into criminal gangs. This finding

supported the study by Vande (2023), where the human needs theory was used as an analytical framework, revealing that the increase in human insecurity and banditry in most parts of Northern Nigeria was driven and associated with the high poverty and unemployment situation resulting from an increase in population among other factors. Large family size and population growth in developing countries like Nigeria is a challenge-multiplier. This is because a high employment rate among young people, which could contribute to enhanced economic growth and development, has been a nightmare, thereby causing exacerbated economic woes, ethnic conflicts, political instability, various forms of crime and an uncertain future (Walker, 2016). Similarly, because of the high unemployment rate that many children from large families experience because of their educational level due to the inability of their parents to afford quality education, the crime rate increased because of income inequality. This revelation is like the study by Anser et al. (2020), Constantini et al. (2018) and Hinton (2016), where it was empirically established that to reduce crime incidence and minimised any form of insecurity in a nation, addressing the population growth through fertility reduction and social spending on health and quality education is very imperative. Investment in health and education was a very important denominator. A study by Blaabaek and Milotoris (2020) showed that the size of a family could harm children's educational attainment, with a smaller family having a less negative effect. Smaller families were shown to mostly produce children with higher academic and educational achievement, intellectual quotient, and occupational performance (Wagner, 2010), which was reported to be influenced by higher investment of resources because there is usually a lower demand for available resources in smaller families when compared to large families, thereby reducing the possibility of children from such small families to engage in crime.

Since fertility, family size, health, education, and wealth are strong predictors of reducing insecurities and crimes in any nation or region, deliberate public policy and efforts to address

the rise in population from curtailing family size and public and private investment in education and health become pertinent.

Neglect, abuse, and malnutrition of children in large families.

As shown from the emerging themes from this research, another impact of large family size and population growth in Northern Nigeria from the perspective of participants is child neglect, abuse, and malnutrition. Due to economic hardship and the inability of parents in large families to provide care for their children, some of these children are left on their own to fend for themselves. They experience harm when some of them go out to hawk in the streets or beg for money, especially the girls. They are exposed to different forms of abuse, sexual and physical. Findings also revealed that the increase in Almajiri children in Northern Nigeria results from large family size and the rise in population (Almajiris are children whose parents have transferred their care to an Islamic Scholar for the sole reason of learning the Quran).

Almajiris' idea was a means to transfer the burden of caring for children to someone else. However, because of too many children that an Islamic scholar has the responsibility to cater for despite not getting any financial or food support from the parents of those kids and even from the government, he then sends them out to beg for alms on the streets. This has led to the absence of proper care for these children and the denial of their rights (Mohammad et al., 2023; Okonkwo, 2022). Many of these children are hungry, and even when they get some food to eat, it is not always adequate- leading them to malnutrition and causing them some opportunistic infections that could have been fought or prevented by a proper and adequate diet.

The Almajiri system, aided by large family size and especially the inability of parents to take care of their children, is a serious social and public health concern. A comparative cross-sectional study in the Northwestern part of Nigeria by Abubakar-Abdullateef et al. (2017) using the Schedule for Affective Disorders and Schizophrenia for School-aged Children Present and

Lifetime Version (K-SADS-PL) revealed that the Almajiri children are faced with a lot of mental and psychiatric disorders due to their early exposure to the streets and self-survival. Many of these Almajiri children are children from poor parents with large families. Up to 50% of these children were reported to be significantly more likely to have any psychiatric diagnosis, substance abuse, depression, post-traumatic stress syndrome and enuresis. The Almajiri system has also been shown to symbolise a disavowal of hope for many Nigeria children who are left destitute on the street, making them a victim of family, marital, parental, and institutional failure where children are the sufferers and victims of the global and national inequality (Buba & Ibrahim, 2023).

Moreover, the national food insecurity arising from population growth has also been associated with malnutrition among children. As revealed in the study and supported by the argument of Wells et al. (2021), nutrition deficiency because of the economic incapacity of parents has been shown to result in undernutrition and the challenges of nutritional deficiencies. The food insecurity arising from banditry, criminality, and human insecurity in the Northern part of Nigeria, where agriculture is a major activity, has declined the rate of food production. Meanwhile, criminality, ethnic conflicts, economic saboteurs, and banditry activities have earlier related to the growing population and level of poverty and unemployment. With the reduced food production, food inflation has resulted in making it difficult for many families to afford adequate nutritious food for their children, thereby causing child undernutrition and malnutrition (Tan et al., 2022; World Bank, 2022; Okapala et al., 2021 and Dimelu et al., 2017). To be able to address the issues of food insecurity, malnutrition, child neglect and abuse, advocating for people to have a considerable family size that they can cater for becomes very imperative. This is because if everyone can cater for his own family, it will have a ripple effect on the entire community. After all, no child will be a burden to someone else. A society where everyone can afford decent and healthy living can be achieved in line with the Sustainable

Development Goals (SDGs) one, two and three of no poverty, zero hunger, and good health and well-being, respectively.

Poor education and increased level of illiteracy of large families' children

This study showed that large family sizes can impact the affordability of quality education for children and affect the illiteracy level in society. In many large families, sending all children to school is difficult. Remember, children who are not sent to school mostly end up becoming illiterates and a menace to society. This view was a general opinion by many of the participants in this study. It is believed that providing quality education to children by parents in large families could be difficult, and the lack of education can make the aspirations of children very low. For example, if a higher education level is primary for a child in a large family, getting a university-level job could become impossible. This could cause many of these children to become peasants. These findings align with similar research in Nigeria by Khan and Cheri (2016), in which illiteracy was associated with the rise in population.

Similarly, a study by Blaabaek and Milotoris (2020) revealed that a large family size can harm children's educational attainment, while a smaller family has a less negative effect. In some other cases, illiteracy due to less or no investment of resources in education has resulted in early marriage for both males and females. Smaller families have also been shown to produce children with higher academic and educational achievement, intellectual quotient, and occupational performance (Wagner, 2010). This is because there is a higher investment of resources due to the usual lower demand for available resources in smaller families than in large families. Related studies have also shown that the size of the family is a determinant of parental investment because, in a large family, the possibility of siblings/ offspring competing on resources is very high compared to a small-sized family or a family with no offspring at all (Uvaag, 2023; Lawson & Mace, 2011).

Meanwhile, a study by Maralani (2008) in Indonesia like this research revealed that family size has no significant adverse effect on children's schooling and educational attainment. This is because, in the context of the Indonesia study, the opinion of the participants was based on the interplay of socio-economic factors and supportive government policies and programmes for education where children have access to free quality education irrespective of the socioeconomic circumstance of the parent as opposed to the context of this study in Northern Nigeria where the sole responsibility of child's education is that of the parents who receive little or no support from the government.

The literature also shows that formal educational attainment is significantly associated with personal health outcomes and risks such as drug use/ abuse, smoking, mortality, accidents, and the contraction of many diseases. This is because educated individuals live longer and healthier (Baker et al., 2011; Gnavi et al., 2004; Backlund et al., 1999). With the high rate of illiteracy shown to be associated with the rise in population, it has been reported to influence health and well-being.

Illiteracy is an important factor that can affect and inhibit the socioeconomic well-being of any society. At the personal level, illiteracy prevents the individual's all-round development by imparting the capacity and ability which education provides to people and, more importantly, causing a lack of self-esteem, which can impede aspiration and taking advantage of societal opportunities. At the societal level, illiteracy can make people need help to function competently in the knowledge-driven world, civic participation, community involvement, economic development, health, and well-being (Katiyar, 2022). This further established why education is vital.

Therefore, the impact of large family size and population growth on education and illiteracy can be argued from the perspective of finite resources. This is because parents have limited resources (money, time, and patience) to devote to the education of many children, with parents

who have fewer children being able to invest more per child compared to those with more children. To be able to address the challenge of access to quality education and reduce the level of illiteracy in Northern Nigeria, efforts toward encouraging parents to give birth to fewer children need to be given serious attention. This is because investing in the education of fewer children can be less herculean, and this can help foster a healthy society.

Economic hardship for parents

One of the impacts of large family size from this study was the economic impact. This study revealed that parents of large families spend more money on family financing, affecting other areas of their personal life. The more children, the more money and other resources needed to manage the home. There are more expenses on food and utilities. More money is spent continuously on basic needs, and the resources that should be used for other investments to improve growth and development are expended on consumption. This situation was reported to affect family savings capacity and ability. The findings from this study were similar to the research conducted in Europe by Van Winkle and Monden (2022) on parental wealth and family size using the data from the survey of health, ageing and retirement in Europe, where it was shown that families who have four or more children are more likely to be in debt and economic woes than those with lesser number of children or those who are childless. This happens because much of the disposable family income is spent to care for the large family, and no money is usually left to be saved or invested. It has been shown that the size of the family is a determinant of parental investment because, in a large family, the possibility of siblings/ offspring competing on resources is very high compared to a small-sized family or a family with no offspring at all (Lawson & Mace, 2011). These findings also support the research in Mexico by Fernandez-Ramos et al. (2016), where poverty and economic instability among parents were associated with having a large family. Similarly, the study by Joshua et al. (2020) is in line with reports from these findings, where it was equally shown that a rise in

population or family size is a significant inhibitor to economic prosperity in addition to other government policies, especially in the areas of trade openness and globalisation of the nation's economy.

Population growth arising from large families has been linked to land exploitation, destruction of biodiversity and deepening economic woes at the regional and national level in many developing countries based on the United Nations Report (2012). Population growth in most sub-Saharan African countries is characterised by low economic development where the gross domestic product (GDP) per person is lower than the GDP growth at the National or Country level. Meanwhile, the transition to parenthood and family size based on the number of children often affects household finances due to the direct and indirect costs of raising children. These costs typically include food, housing, clothing, and healthcare. Therefore, with the increased number of children in a household, the ability of the parent to save money is reduced. This further supports the argument that wealth, economic status, and family size vary by the number of children (Fernandez-Ramos et al., 2016). Decreasing family size and fertility can play a significant role in the wealth and economic ability of parents and thereby help in addressing wealth and health inequality among adults.

Poor health outcomes for children and parents

This study reported that large family sizes have health impacts on both the children and the parents (father and mother). Opportunistic infections arising from malnutrition and hunger and the impacts of living in overcrowded homes and urban slums were reported as some of the health outcomes for the children. In contrast, mental health issues such as stress and depression were reported as some of the health outcomes for large family sizes for the parents. Mental health issues for the parents, especially the fathers, were reported to be due to stress and overworking to be able to meet the needs of the large family demands. The mothers in a large family size were also reported to be exposed to the risk of postpartum haemorrhage because of

many children labour. A small or moderate family of two or three children could have prevented these poor health outcomes.

The findings from this study align with other research in other parts of the world, which revealed some important impacts of large households on children's health outcomes. A study in Norway by Grinde and Tambs (2016) showed that a large family size can positively affect the well-being of children, especially concerning mental well-being.

Larger households were positively associated with fewer mental problems in children. This is because, in such households, there is a high opportunity for comfort, security, and play among siblings. Developing behavioural problems becomes very unlikely because of the interactions available in larger households. The family environment has been shown to play a critical role in the shaping of psychiatric outcomes and neurodevelopment in children. Previous investigations have revealed that the family's socioeconomic status has neurodevelopmental outcomes in children, with lower socioeconomic families having poorer outcomes than those with a higher socioeconomic status (Ackerman et al., 2004; Duncan et al., 1994). This has also been associated with academic achievement and intellectual quotient. Research by Bush et al. (2020) established that family size, composition, parental mental health, and functioning all have significant health outcomes for children.

As indicated in this study, nutritional deprivation arising from the impact of large family size can expose some of the children in large families to opportunistic infections as well as some psychosocial effects, including anxiety, depression, self-neglect, and apathy (Saunders & Smith, 2010). Food insecurity and malnutrition resulting from large families and increased population have been documented to have several adverse health and well-being risks to families, especially to children who are still in their growing stage. Food insecurity was linked to the development of mental disorders/ illnesses, behavioural problems, poor health in neonates, toddlers, and infants, and negative psychological, social, and academic outcomes in

growing children and teenagers, especially adolescents (Jyoti et al., 2005; Rose-Jacobs et al., 2008). Therefore, efforts at reducing or stopping these poor health outcomes for children and parents could be addressed by reducing fertility rate and large family size intention by intending couples. This is why continuous health education, health promotion, public enlightenment and community mobilisation on family planning need to be given more serious attention by every health stakeholder.

Environmental impacts of large family size and population

This study revealed that population growth arising from large family size leads to rural-to-urban migration for opportunity-seeking purposes among rural dwellers. This migration has resulted in the congestion of the urban centres, significantly impacting competition for resources. The migration has also caused some form of destruction of trees and forests (deforestation) for building and industrial purposes, negatively impacting the ecosystem. Further findings also reported that population growth has led to environmental degradation because most large families' households were reported not to have toilets, and they do open defecation on the land and the streams of water. This has increased the breeding of pathogens. This finding aligned with a previous study in Nepal by Biddlecom et al. (2005), where it was similarly shown that large family size contributes to poorer environmental quality because, with more people in a family, there is greater reliance on publicly owned resources.

Further research has shown that population growth has enormous excellent and dire consequences. A relationship was established between population growth and its impact on climate change, especially regarding carbon emissions, which contribute largely to the greenhouse effect and changes in climatic conditions. Lower population growth was associated with lower carbon emissions with a reduced effect on climate change. A study by Casey and Galor (2017) on the role of population reduction in diminishing/ reducing carbon emissions

revealed that reducing the population growth rate can lower the yearly carbon emission by 35.0% and increase the income per capita by about 20.0%.

This environmental impact, especially climate change, has been reported to impact food insecurity and the distribution of infectious diseases worldwide. Carbon emissions have been severally reported to cause human cancer (Di Napoli et al., 2022; Tan et al., 2022). Also, similar research by Sulaiman and Abdul-Rahim (2018) revealed an association between carbon dioxide emissions and population growth in Nigeria using the Autoregressive Distributed Lag (ARDL) approach. The ARDL approach showed that population growth contributes to the emission of greenhouse gases, especially carbon dioxide, because of human activities. This emission has been shown to have adverse health effects on humans and animals. In essence, the impact of carbon emission is shown to have significant adverse effects on respiratory health, the increased risk of cardiovascular disease and death. Carbon emissions affect plant yield in agriculture, affecting food production and leading to food insecurity and malnutrition (Sulaiman & Abdul-Rahim, 2018; World Bank, 2022; Tan et al., 2022).

A previous study related to this research by Ahmad and Haie (2018) in Kano State, Nigeria, one of the Northern states where this study was conducted, also revealed that population growth affects the environment and water use performance. The impact of population growth on the water use system was found to be more significant than climate change's impact when using the sustainable efficiency framework. It was established that if population growth in Kano State is not addressed, the demand for water use will exceed the available supply by the year 2050. This was backed by similar research in Ethiopia (a country in Africa), where a positive, strong association between rapid population growth, large family size, quality of water use, hygiene, and sanitation was established (Gebremichael et al., 2021). The evidence from this research, as backed up by available literature, further established the need to address the increased population growth in Northern Nigeria as an effort toward achieving a sustainable environment

in line with Sustainable Development Goals (SDGs) 6 and 13, clean water and sanitation and climate action, respectively.

Positive impact/ advantages of a large family and population growth

Even though this research documented many negative impacts of large family size and population growth, some participants differed and expressed an opinion suggesting that large family size and population growth have many advantages and benefits, especially when large populations are made economically productive. It was believed that making people economically productive could result in many demographic dividends.

It is believed from this study that the manpower needed to improve or better any economy is a product of having a large family. The rise in demand for skilled workers by many European countries such as the UK and Germany resulted from a fertility decline and a large older population dependent on the youthful population. The fact that Nigeria called itself the giant of Africa was attributed to the population, which was perceived as why it is respected among African countries. According to some participants, a large family size was also believed to protect the family name, and a large community population can prevent the risk of attack by intruders.

Also, the example of China was cited, where it was believed that the prosperity of China's economy was driven by the rise in population growth resulting from large family size. It was believed that the Chinese government used the population to the advantage of their people and that if there is proper harnessing of potentials and opportunities, having a large family size and increasing population can lead to strong economic growth and development for the nation. Therefore, in essence, large family size and population growth are not a bad phenomenon, but because of the bad leadership and governance structure where the potential of the population is not harnessed for growth and development, the adverse effects on the population are well-

pronounced and why efforts at addressing the negative impacts of large family size and population growth need to be taken very seriously.

6.3.3 Stakeholders' attitude toward family size and population growth

Another significant aspect of this research is the attempt to examine the attitudes of different stakeholders on family size and population growth within the study area. Based on the current population size of Northern Nigeria and in line with the nation's present economic reality, the attitude about population growth among essential stakeholders, especially the policymakers and those in government (legislatures), could have been more positive. Some felt that the growing population at a 3.2% rate with a 5.3% fertility rate is a big problem for the entire nation and not only the Northern region. However, other stakeholders, including community leaders who are not involved in governance, felt the growing population in Northern Nigeria and the entire nation is nothing terrible or untoward but the failure of people in government to judiciously make use of the available resources for the benefit of all. Many of these community stakeholders who are not in charge of governance or are directly involved in government have positive attitudes about population growth and large family size. They opined that population growth from having a large family size is good. However, the challenge is the government's failure to harness the growing population's potential for the public good and demographic dividend. There were, therefore, opposing attitudes and views about population growth and family size in Northern Nigeria among the different stakeholders. This difference in attitudes might be explained to be informed by knowledge, perceptions, and cultural and socio-religious beliefs.

A related Scottish study where attitudes on family size of people, including community stakeholders, were sought to provide insights into Scotland's population dynamics and growth revealed general positive attitudes and support for small family size preference. This was

influenced by the individuals' social, financial, housing, and personal situation. Concerns around the cost of childcare, home ownership and the inadequacy of maternity pay leave were also raised. They were the main reason for small family size preferences, which has led to a decline in the fertility rate of Scotland over the decades (Scottish Government, 2022). Unlike in this study, where many participants feel it is the responsibility of the government to provide basic amenities and make the people economically reproductive, the Scottish research revealed that the attitude about family size was influenced by personal individual factors and the ability to care for their children by themselves. This difference in attitude can be explained by the knowledge and awareness of self-responsibility for the number of children born by any parent. In the case of the Scottish study, they were not concerned about what the government could do for them to raise their children. However, they were more concerned about their capacity to care for their children themselves, unlike in this study, where the people expect more support from the government in taking care of their children even when it has been reported that many of these parents did not pay income tax or contribute nothing to the government to generate income (Nigeria Federal Inland Revenue Service, 2024; Ayoola et al., 2023).

Furthermore, it was revealed in this study that family size decisions were a joint venture between couples, which showed the importance of why population-related interventions must target both couples and consider the different levels of influence of health and behavioural change based on the socio-ecological model. Also, since the general attitude of community stakeholders about having large family sizes is positive and supportive of the current population situation, any recommended intervention must be co-produced by the community members and stakeholders to achieve meaningful and impactful outcomes. The significance of stakeholders and community engagement in any community actions, such as population growth management, was well documented in the study by Silberberg and Martinex-Bianchi (2019), where the importance of collaboration with all levels of stakeholders to achieve sustainable

success and long-term impact was recommended in population health interaction and research. This vital community engagement must be followed by several principles, including respect, power sharing, commitment, humility, co-learning, and an agreed goal of making change.

6.3.4 The Use of Birth Control and Family Planning Service

To control the rise in population, achieve fertility decline and encourage moderate family size intentions, the use of family planning services such as the utilisation of birth control methods become increasingly necessary. From this study, it can be said that there was strong opposition against the use of modern birth control methods and contraceptives, which were largely influenced by the sociocultural and religious beliefs of participants. Meanwhile, there was some level of support for the use of birth control among the female participants, while most of the men were completely opposed to it. It can, therefore, be said that there was gender disparity in attitude and intention to use birth control among the participants in this study. Even though the opposing position for the use of birth control among most of the male participants was largely cultural, other factors such as perceived lack of pleasure while using condoms, the fear of side effects of some contraceptives and the perception that family planning services and contraception are the ideas of the White people were the reasons for the low level of use of family planning services. As documented in this study, similar qualitative research in Nepal by Bhatt et al. (2021) revealed similar reasons why using birth control and family planning services is not optimally adopted. These factors, among many others, include fear of the side effects of modern contraceptives, lack of knowledge of modern contraceptives and religious and cultural beliefs and misconceptions.

As shown in this study, men's opposition to the use of modern contraceptives and family planning services may also explain the reasons why there are many large families in Northern Nigeria. As previously documented in a study by Olaseinde et al (2022), Akinyemi et al (2020)

and Maitanmi and Olowolabi (2020), which supports some of the findings of this research, the disapproval of husbands to allow their wives to uptake family planning services and use modern contraceptives coupled with the fact that the patriarchal system which is well entrenched in Northern Nigeria which gives family leadership to the husbands has contributed to the low adoption of family planning services. This has also been exacerbated by the misconceptions and myths that surround the use of modern contraceptives.

A different study in the United States of America by Alhusen et al. (2021) among women with disabilities who were willing to uptake family planning services revealed that there were physical barriers, non-responsive healthcare providers and financial limitations which prevented willing women from the uptake of family planning services. This finding, even though carried out in a developed world, established the barriers around accessibility and affordability, which suggest the need for targeted intervention for people living with disabilities to optimise reproductive health care. It further espoused the need to improve healthcare providers' training and policy changes to improve access to family planning services.

Meanwhile, similar to the findings from this research, the fear of side effects and the desire to have more children, level of education and empowerment have been reported as barriers to the use of birth control in previous research in Nigeria (Ajayi et al., 2018; Durowade et al., 2017; Olaolorun et al., 2016, and Sedgh and Hussein (2014). These were pronounced barriers that have affected the level of adoption of modern contraceptives. The similarity of results in previous studies and the findings from this research can be explained from the perspective of the nature of African people, where adoption of any innovation outside the norms and current cultural practices can be very slow or resisted. This is because there is usually scepticism about the adoption of foreign practices, such as the use of modern contraceptives and other family planning services by many African people. Also, as revealed in this research, the belief and perception that procreation is the Divine will of God and that children are God's blessings

could explain the reasons for strong opposition to the use of contraceptives by many of the male participants who are custodians of traditions and cultures in their respective community.

However, many of the participants in this study, especially the males, prefer to use traditional methods of contraceptives such as withdrawal or the use of concoctions. The preference for these methods has also been documented in similar qualitative studies by Rabiu and Rufai (2018) and Ajayi et al. (2018) in Ondo, Ekiti and Kano States where the fear of side effects such as irregular menstruation for women, weight gain/loss, swollen stomach and bleeding have influenced the preference for the adoption of traditional methods of family planning including the use of herbal medicine and rhythm.

Meanwhile, there have not been any clear and scientifically proven benefits of traditional methods of birth control in reducing family size. It is, therefore, sufficient to say that the evidence from this study has shown the importance of encouraging and educating people on the significance and value of modern contraceptives because of their scientifically proven benefits of preventing unwanted pregnancies and reducing family size. It is, however, also pertinent to reorientate the African people that the use of modern contraceptives is not only the ideas of the "Whites" as perceived but that the utilisation of modern contraceptives for birth control has far-reaching health and socio-economic benefits. These benefits should be the centre of family planning messages for health education.

Some of these benefits include reducing the risk of unplanned pregnancies and abortions, reduced child and maternal morbidity and mortality, and improved overall health outcomes for mothers and children. Some oral contraceptives have also been shown to reduce the risk of ovarian and endometrial cancer and protect against ectopic pregnancies and acute pelvic inflammatory diseases. Also, barrier contraceptives such as condoms have a protective capacity against sexually transmitted infections, including HIV/AIDS, herpes, and syphilis (Bansode et

al., 2023; Britton et al., 2020; United States of America National Research Council, 1989). Aside from the emphasis on the benefits of the use of birth control by married couples, there is a need for increased efforts aimed at intensifying locally made effective contraceptives that can be trusted to be used by the people. Decolonising contraceptive products could yield more effective and robust outcomes among many African married couples.

6.3.5 Addressing the Population Growth in Northern Nigeria

This study attempted to document people's perspectives on how the population growth in Northern Nigeria could be addressed. Participants in this study highlighted some ways to address the growing population in the North. Some suggested interventions include making formal education compulsory, investing in women's empowerment, improving access to modern contraceptives and family planning services, and supportive government policies. Also, the involvement of men/ husbands, public enlightenment, awareness, health education, debunking misconceptions about family planning services, and advocacy to religious and traditional leaders were recommended.

Compulsory formal education and investing in women empowerment.

Making formal basic education affordable and compulsory was echoed by most of the participants in this research. It was believed that education has the potential to influence the mind positively and improve people's aspirations. It thus makes them make more informed healthy choices, such as those relating to their reproductive and family health. The findings also revealed the importance of investing in girl child education and women's empowerment. This is because a girl who is well educated is likely to get a skilled job, thereby reducing the possibility of a longer reproductive life span. Girl child education has been recognised to improve women's productivity, quality of life, income level, and better nourished and healthier population and contribute to economic development.

It has been documented that education empowers women and increases their autonomy and ability to make informed decisions, such as fewer children (Jejeebhoy, 2023). Similarly, Bongaarts et al. (2017) found that the mean age at first birth, first sex, and first marriage of young people in sub-Saharan Africa rises with increased education opportunities. Specifically, it was shown that reproductive events timing for girls was positively associated with the level of education, with those who have secondary education and above having more potent effects on reproductive effect timing. For example, as shown in this study, it was revealed that Northern Nigerian girls who go to school have a delayed timing when they start giving birth. Those who are privileged to have a first degree want a master's degree and a doctoral degree, which makes them more educationally empowered and more autonomous with the capacity to make informed decisions on their family size without being subjected to the influence of culture and religion that is endemic in the region.

Previous research also documented the influence of education on the use of family planning services and the use of modern contraceptives. Women who are well-educated and empowered have been reported to be more likely to use family planning methods compared to those who are not (Fantage & Damtew, 2024; Ajayi et al., 2018; Durowade et al., 2017; Kifoyle et al., 2016). Girl empowerment through education, community, economics, and policies has been shown to favourably impact the level of unwanted pregnancies that have contributed to the increase in population (Nkhoma et al., 2020). However, a contrast to this study is research in the UK by Maslowski et al. (2023), where they reported that despite education empowerment, “many young people in the UK are at risk of leaving school with an inadequate understanding of concepts that could impact their reproductive behaviour and family life”. This difference in findings may be due to the socio-cultural differences between the UK and Northern Nigeria, where this study was conducted. In the UK, an average British family has between 2 and 3 children, which comes with adequate government support and provisions for financial and

social benefits for both the parents and the children, unlike in Northern Nigeria. So, irrespective of the reproduction knowledge obtained from school through education by young people, there is already a culture of small to moderate family size in the UK, which is transferred from one generation to the next.

Therefore, as revealed in this study, because of the massive potential of education and women's empowerment in fertility decisions and reproductive behaviour, compulsory education and investment in women's empowerment must be given priority across the different governmental levels. Efforts toward engaging the communities to change social norms that devalue the education of girl-child, such as girl-child safety, promotion of gender equity in school, and support structure for girl child to pursue formal education, should be taken seriously. To encourage girl child education, the school environment needs to be made safe to disabuse the fear of sexual exploitation. More women could be employed as teachers and made to head local leadership positions to encourage them to pursue formal education. As much as possible, basic education should be made compulsory, affordable, and accessible for all young people, particularly girl children who are mostly disadvantaged. To change the fertility transition and address the growing population in Northern Nigeria, education became essential, as quoted by Nelson Mandela- a foremost African leader who opined that “education is the most important powerful weapon which can be used to change the world”. This change can be reproductive, social, economic, political, health, religious, and cultural.

Access and use of modern contraceptives and other family planning methods

The use of modern contraceptives has become increasingly relevant to decreasing fertility, such as unwanted pregnancies and having a desired family size. Other family planning methods such as implants, intrauterine devices, injectables, vasectomy, and tubal ligation are effective in preventing unintended and unplanned pregnancies. This study has revealed that to address the population growth in Northern Nigeria and encourage people to have small to moderate family

sizes, making modern contraceptives accessible, available, and affordable becomes very pertinent. It was shown in this study that despite some of the socio-cultural and religious barriers to contraceptive use, an increased level of access can improve the level of use. This revelation supports previous studies conducted in Nigeria by Abdul-hadi et al. (2013), Kassa et al. (2014), and Olaolorun et al. (2016). A synthesis of systematic review studies by D'Souza et al. (2022) similar to the findings of this research also revealed that modern contraceptive use is largely dependent on accessibility, availability, confidentiality, and affordability of the service, even though other factors such as the attitude, skills, and behaviours of healthcare workers were found to be significantly related to the use of modern contraceptives globally.

The failure of the healthcare system to make contraceptives readily available and accessible has made many women not to use it. This view aligned with the World Health Organisation (2023) report where more than 200million women of reproductive age in developing countries have an unmet need for contraception due to lack or inadequate access, limited choice of methods, religious or cultural barriers/ oppositions, and poor availability of quality contraceptive services, among other factors. The issues around the level of access to influence contraceptive use have been reported by many studies even though barriers such as fears of side effects, gender barriers, partner opposition, and other social determinants were also significant influences (Bolarinwa & Olagunju, 2020; Morgan et al., 2020; Ajayi et al., 2018; Apanga & Adam, 2015; Sedgh & Hussain, 2014; Ross & Hardee, 2013).

Therefore, to improve the level of access to contraceptive use in Northern Nigeria as a measure to improve the desire for small to moderate family size and address the growing population, there is a need for collaboration between community stakeholders and the healthcare system to bridge the challenges of access. One way to do this is to involve traditional and religious leaders in family planning campaigns, which should be done using the local dialect. The government and some well-to-do people in society can help subsidise the price of some effective modern

contraceptives to address the affordability challenge. This is why collaboration and partnership with every stakeholder is important.

Public enlightenment, awareness creation, and health education

This study revealed the need for serious public enlightenment and health education about the benefits of having small to moderate family sizes as well as more awareness and information on the use of modern contraceptives and family planning services available in some healthcare facilities. Because of the damning impacts of the large population in Northern Nigeria, some participants in this study suggested that health education and enlightenment should be carried out among the important community stakeholders, most especially the religious and traditional leaders who can help further educate their followers and subjects. This is because most factors contributing to a large family size resulting in the large Northern population are cultural and religious. The participants' views in this study align with the survey by Haln and Truman (2015), where they provided empirical evidence to describe a theoretical framework that argues that health education and public enlightenment are essential for public health intervention. This is because education is a fundamental social determinant of health. Policymakers, public health professionals, and health educators can collaborate to implement effective educational interventions that can encourage the adoption of family planning services among community members to address the growing population in Northern Nigeria.

Studies have shown that health education, public enlightenment, and awareness creation can inspire changes in behaviour that can lead to improved health choices and outcomes, such as the desire for small family size, the use of modern contraceptives, and the adoption of family planning services (Campos & Fernades, 2020; Estacio, 2013 and Chinn, 2011). Health education can also lead to a more empowered, conscious, and mobilised society who are decisively deliberate about the impacts of their decision, such as the impact of family size on health and socio-economic well-being. The above arguments and support for health education

make it an important intervention to address the growing population in Northern Nigeria when applying it together with other suggested interventions.

The use of public policy to drive population control efforts.

Population policies are mostly put forward to achieve a decline in fertility rate, reduce the impacts of humanity on nature and save society from any untoward ecological catastrophe. This study raised the argument for the one-child policy in China. However, due to the socio-cultural dynamics of Northern Nigeria, with a solid African heritage that believes children are blessings from God and a sign of productivity, the one-child policy may not be realistic. Meanwhile, there was a supporting argument for a firm policy on accessing and utilising family planning services. For example, it was recommended by participants in this study that married people should be allowed to access family planning services free of charge in all government facilities. There were also supportive opinions on the need for the government to regulate marriage rites and processes in Northern Nigeria to make it more organised and structured, which could potentially reduce polygamy. These findings align with the eco-centric moral theory, which argues that for human health, well-being, perfection, autonomy, etc, population policy is inevitable, and it is ethically right to do so both in principles and practice for the protection of life and the sustainability of the entire ecosystem (ten Have and Patrao, 2021).

However, the findings disagree with the consequentialist ethical theory, which argues that population control policy can only be justified if it leads to a better outcome or consequences. The consequentialist theory is welfarist and values the well-being of humans. It judges the right or wrong of something based on its consequences. It is a principle that bases moral quality on the results (whether it will be for society's overall benefit/ good). It also believes that an individual has the right to make his/ her reproductive decisions without coercion. It holds the view that coercive population policy is justified so long that it will lead to improved overall well-being in the world (Moroz, 2021; Attfield, 2015, p. 129; Anscombe, 2005; Raikka, 2001).

For instance, in line with the consequentialist perspective, China's one-child policy is justified because the alternative of uncontrolled population could have led to ecological catastrophe and other socio-economic backwardness, even though China may have acted ethically wrong by coercively limiting reproduction freedom for its citizens.

Meanwhile, despite the supportive positions of eco-centric and consequentialist philosophy for population control policy in principles and practices, the libertarian moral theory critiques that population policy unduly restricts individual reproductive decisions and liberty. The libertarian argues that population policy can only be justified if it does not violate people's rights or interfere with anyone's procreative freedom (Cato & Inoue, 2022; Iyer et al., 2012). Another perspective which argues against the findings from this research is the feminism theory, which sees population control policies as targeting a specific gender, particularly the women or the poor within the society, with the argument that population policy must be designed, planned, and implemented in a manner which avoids any structural discrimination against gender, sex or group of people. Therefore, in the context and based on the recommendation of participants in this study, population policy must be driven by its potential benefits for improved health and socio-economic well-being. Furthermore, the policy needs to be all-inclusive, without structural discrimination.

Advocacy to religious and traditional leaders

Another vital way suggested by participants to address the population growth in Northern Nigeria, especially with a focus on encouraging the use and adoption of family planning services, was through advocacy and mobilisation of important leaders in the communities, such as the religious and traditional leaders who have so much influence on the people from a cultural and spiritual standpoint. Participants believed re-orientation could be done among community leaders to discourage polygamy, which is a common practice among many people practising Islam. This recommendation is essential because mobilising community leaders

(religious and traditional) through advocacy and health education to gear these leaders to encourage their subjects to use family planning services can go a long way in addressing the population growth in Northern Nigeria. This view aligned with qualitative research in Burkina Faso by Barro and Bado (2021). It was shown that even though religious leaders were very knowledgeable about family planning and birth control, they were reluctant to promote its use among their followers for religious and cultural reasons.

Also, as similarly argued in an African design study in Kenya by Abdi et al. (2021), religious leaders, particularly Muslims, were not comfortable with supporting any actions around family planning intervention because the family planning or contraceptives idea was seen as "Western or foreign" with no Qur'anic basis than the fact that contraceptives are associated with promiscuity and ill-health. The perspective that contraceptives are associated with promiscuity and ill health was also opined by many of the male traditional leaders who participated in this study. Meanwhile, to achieve a real demographic dividend, gaining the cooperation of religious and traditional leaders in family planning programming and interventions is critical. This is because multiple pieces of evidence have shown that religious and traditional leaders are important, influential voices and essential agents of change with communities and policymakers and can be strong advocates for family planning within their communities of influence (Mwakisole et al., 2023; Bornmet et al., 2021; Adedini et al., 2018; Schenker & Rabenou, 1993).

There is, therefore, the need for an innovative approach to engaging religious and traditional leaders, and such a creative approach can be through a contraceptive-focused community-directed intervention where these leaders can be made to see by themselves the importance, benefits, and significance of the adoption of family planning services. This intervention could foster positive change toward accepting the uptake of family planning services by these leaders, which can equip, motivate, and engineer them to easily mobilise and encourage their subjects,

especially their fanatic followers. However, there are concerns and more significant implications for the influence of religious and community leaders on family planning advocacy. This is because too much influence of religious and traditional leaders who are mostly male could reinforce the power dynamic currently existing and compromise women's freedom and autonomy in family planning decisions and contraceptive choices. To address this, an equal number of male and female community leaders (religious and traditional) should be involved in any intervention. There is a need for a gender-transformative approach.

Male involvement in family planning services

Female participants in this study were of the strong opinion and view that involving men, particularly husbands in the family planning services programme and intervention can significantly impact the level of use of the services, thereby helping in addressing the growing population in Northern Nigeria. Harnessing the interpersonal relationship between husband and wife was an important suggestion because men are important factors in reproductive decisions. Male involvement is also key because many African men believe that family planning is a woman's affair that does not necessarily concern them. Most men believe in having a big family size (Abdi et al., 2021). Men's participation in family planning decisions and services' utilisation can go a long way in achieving more outstanding results. When the men are involved in the decision-making, approval, and encouragement of their spouse to use family planning services, the level of adoption of these services can potentially increase significantly in Northern Nigeria, where economic power and home leadership are vested in the men. Some studies have also shown that education significantly influences male involvement in family planning.

A study in Ethiopia by Wondim et al. (2020) revealed that even though the level of direct male involvement in the use of family planning services is low, educated partners (men) who also have knowledge of family planning services and the importance of its utilisation were more

involved in the use of family planning services. More support for male involvement is also supported by the findings of Kassa et al. (2014), Vouking et al. (2014), and Yeshang et al. (2014). Also supporting the argument for the involvement of men in family planning interventions was a more recent systematic review by Aventin et al. (2023), where the involvement of men and/or boys was shown to be very effective in increasing the use of family planning services and contraceptive use. It was also argued that to promote and enhance gender equality for women and girls, engaging men and boys in family planning programming could be an essential strategy.

Meanwhile, there have been some opposing arguments in the literature for male involvement in family planning services. Many studies carried out in Africa revealed that men's resistance to the use of family planning methods was based on religious and cultural reasons. This was also documented in this study. In some studies, some men feared that contraceptives could make their women unfaithful. There were also some negative perceptions about the functions of some contraceptives, such as condoms, which are believed to only functions to prevent Sexually Transmitted Infections such as HIV/AIDS when having sex with prostitutes and are not associated with family planning purposes at all (Demissie, 2016; Kassa et al., 2014; Bayray et al., 2012). This shows the misconception and misinformation around family planning services and their utilisation in most parts of Africa. It thus suggests the need for the introduction of detailed and accurate information to address negative perceptions and attitudes towards contraceptive methods among men. Also, it is vital to carry out comprehensive health education on the importance and benefits of family planning services on families' health and socio-economic well-being. Increasing awareness, knowledge, positive attitude, and perception can encourage more men to be involved and encourage their partners to use family planning services. This can contribute to actions aiming at addressing the growing population in Northern Nigeria.

6.4 Implications of Study

6.4.1 Implication of study for social and population control policy

Population policies and issues have been an important subject of discussion between the 20th and 21st centuries. Many efforts are being made globally by developing health policies and setting goals and targets to achieve sustainable health for all. With the growing trends and advances in science and technology toward addressing some of the socio-economic challenges of society, this study has revealed that population growth contributed by having large family sizes has negatively impacted socioeconomic well-being and people's quality of life. In this sense, efforts aimed at addressing population growth through population policy were recommended by many of the participants in this study. These findings notably provided insight into the critical roles of cultural, traditional, and religious beliefs in family size decisions and population growth. Hence, there is a need to carefully consider these important determinants in any population policy development or amendments.

Despite the investment in family planning programmes and interventions in Africa, the population growth rate has been consistent over the decades, from over 800 million in 2000 to about 1.5 billion people in 2023 (World Bank, 2023). This situation suggests the need to consider policy actions aimed at reducing the high demand for births, the desire for large family sizes, and the growing population momentum in Africa to achieve socio-economic growth, development, and prosperity, which significantly impact health and quality of life.

Meanwhile, even though low fertility can increasingly threaten the future workforce, welfare and economic growth of many developed countries, the massive rapid increase in population in low and middle-income countries can be a threat to health and socio-economic well-being as well as cause massive environmental pressures (Ezeh et al.; 2012; Goldstone & May 2023). Therefore, as shown in this study, any population policy that will be sustainable must be culturally and religiously sensitive. There must also be serious consensus-building with the

community members and stakeholders through robust public enlightenment, consultation, engagement, and mobilisation activities. Population policy also needs to be research-driven and evidence-based. Findings from this research can provide some of the evidence. Moreover, the policy must be gender sensitive. This study emphasises the importance of male involvement and the need to reduce the over-centralisation of population control measures on the female population.

In line with one of the research frameworks used for this study (the socio-ecological Model), population policy intervention must carefully focus on the social-cultural and religious milieu and dynamics, with a particular focus on the different levels of change, including the personal, interpersonal, community, organisational, and societal levels.

Since the goal of any population policy is for behavioural change and primarily to improve the quality of life in line with the available resources (Hardee, 2022), a policy must align and respect human rights and individual rights to reproduction. This is why, according to findings from this study, the centre of population control policy must be the people through investment in human capital development. Education and empowerment should be an essential focus of intervention because it has the potential to aid people in making informed choices about their fertility and family size. This study, therefore, presents a culturally and religiously sensitive health intervention model for large family size and population control based on this study's findings (See Figure 6.3).

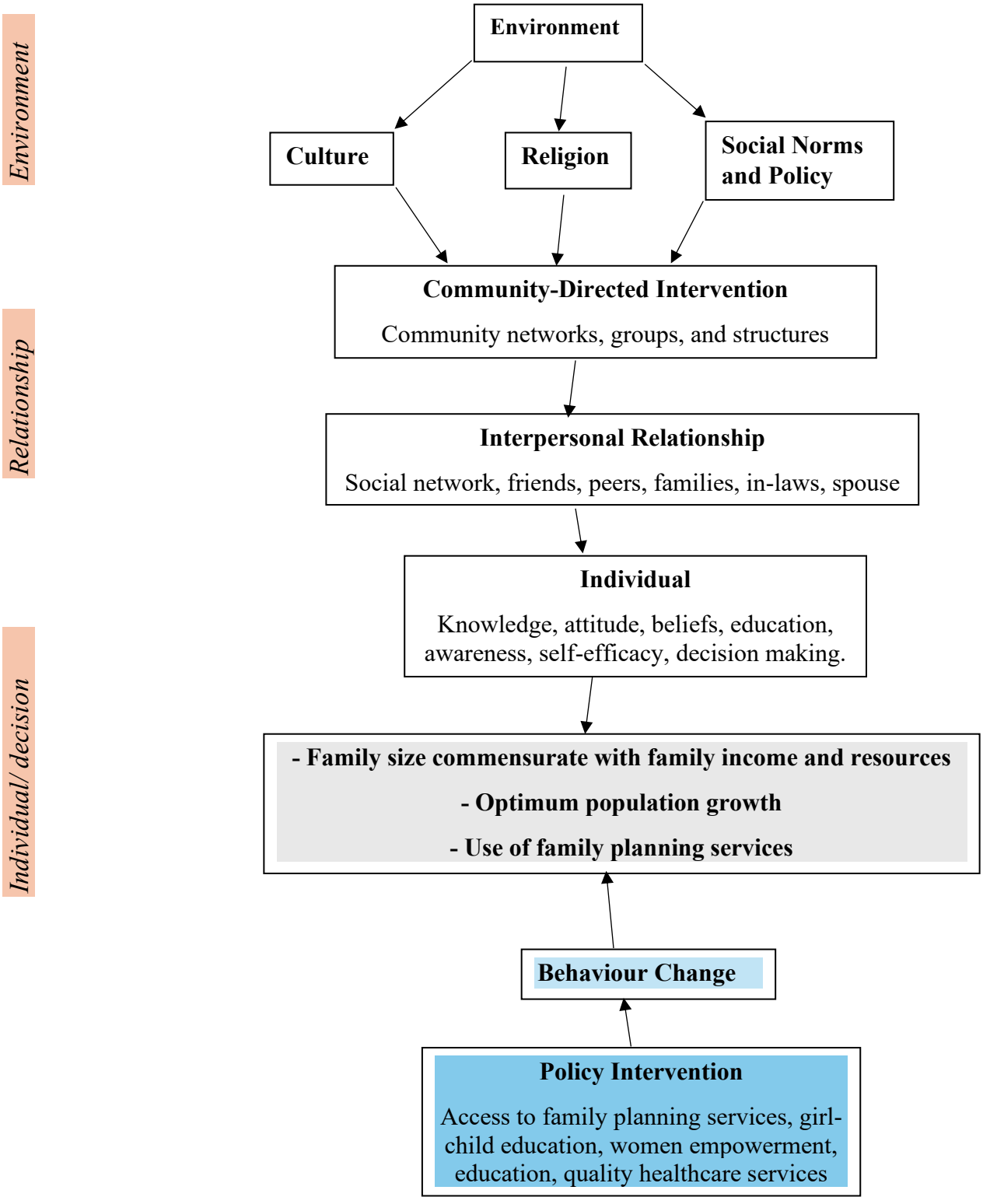

Figure 6. 3: Culturally and Religiously Sensitive Health Intervention Model for Large Family Size and Population Control based on this study's findings (*Adapted from the Socio-ecological model, which states that health and health decisions are influenced by the interaction between the individual, community, and environmental factors*), Bronfenbrenner (1989).

6.4.2 Implication of study for family planning programming

The findings from this research have some important implications for family planning programming in Northern Nigeria and, most importantly, in many parts of sub-Saharan Africa where adoption of family planning services is sub-optimal based on traditional, cultural, and religious beliefs and sentiments, among other reasons. Here are some of the implications of the findings for family planning programming.

1. Need for co-production of family planning interventions between practitioners and the community: From the findings of this study, it was revealed that cultural and religious beliefs significantly impact fertility decisions and, as such, affect the level of use of modern contraceptives and other family planning services. Many of the participants believe procreation is an act of God, a blessing from the Supreme being, which any canal being does not control. The belief systems of the people, which are also deeply rooted in their culture and tradition, influence their family size decisions and use of birth control. Therefore, to achieve meaningful gains in family planning intervention, the community members (users of the family planning interventions) must be actively involved in planning, designing, and delivering such interventions. The intervention needs to be co-produced with the users. This can be achieved through systematic community engagement, participation and involvement. The intervention must also consider some of the community's socio-cultural dynamics. Family planning interventions should not just be designed and planned by the practitioners alone and then dumb on the people. The end-users must actively participate at every stage of the intervention. In other words, the intervention must be community-directed to ensure sustainability.
2. Decolonise family planning intervention through local nomenclature of some of the modern contraceptive products: This study revealed that many participants see the idea

of using family planning services and interventions as the ideas of the Western world. Modern contraceptive use among couples was reported by participants as foreign ideas to depopulate Africa and Black people. Even though there are many health and socio-economic benefits of the use of these modern contraceptive products, people are suspicious about its adoption and utilisation, especially on the basis that it is Western products that possibly have ulterior motives in reducing Africa's population growth. In essence, some of the participants questioned the vested interest of some of the development organisations such as the World Bank, United Nations, Foreign, Commonwealth & Development Office (FCDO) formerly DFID, European Union, and the USAID, among many others, for making funds available for family planning programmes in Africa. Some of these suspicions and negative perceptions about the interests of these international funders have prevented many people from uptake of family planning services or using any modern contraceptives, which has contributed to large family sizes and growing populations because many people reverted to using the traditional methods which research has shown to be very unreliable in preventing unwanted pregnancies.

This, therefore, suggests the need to encourage, educate and mobilise people to accept that family planning services and interventions are not Western manipulations or ideas but crucial interventions for reproductive and family health which have numerous socio-economic and health benefits for all population groups (children, mothers, men, and the elderly). Some modern contraceptive products should be produced locally with local resources and local nomenclature, with which people in the local areas can easily relate. The interests of the development sectors in funding most of the family planning programming in Africa also need to be adequately and properly communicated to the people to avoid and clear some of the suspicions and foster trust in the services and

products. The local government should also be made to champion family planning activities and interventions because the people can easily trust them.

3. Addressing social determinants of health: These findings revealed, among many other factors, that poverty, lack of education and empowerment contribute to large family size and population growth in Northern Nigeria. In essence, the level of education was shown to particularly influence people's decision-making on their personal lives and health, such as the decision to use family planning services and other healthcare services. Education from this study has also been shown in this study as an essential tool which can be used to change social norms, such as cultural and religious apathy for the use of family planning services and modern contraceptives. Empowerment, particularly women's empowerment, could increase autonomy and the ability to make informed family decisions, such as having fewer children. Also, reducing poverty by all necessary means through serious government investment in human capital development could improve the socio-economic capacity of the people to access and utilise family planning services. Addressing poverty can influence health outcomes and increase individual and societal wealth.

6.4.3 Implication of study for public health and community development

The findings from this study also have important implications for public health and community development. From the participants' perspective, the impacts of large family size and population growth include poor health outcomes for children and parents, child neglect, abuse, and malnutrition. Since public health aims to improve people’s health and well-being, efforts to address population growth through interventions to encourage small to moderate family size should be a priority.

Child neglect and abuse is a critical social issue in Northern Nigeria, where this study was carried out. In most of the Northern part, there is a high prevalence of Almajiri children who roam about the streets without clothing, shelter, or food. They beg for alms to survive. For children to have access to decent living and live a healthy life, the number of children in a family needs to be commensurate with available resources. This is why family planning intervention is required, which can help to enhance public health. This means that to reduce the rate of these Almajiri children in Northern Nigeria, there is a need for strong legislation and social policy to mandate parents to give birth to only the number of children they can adequately take care of without necessarily having to transfer the burden of care to someone else. Failure to do this should come with some stringent consequences. The people can be educated, empowered, and mobilised to plan their families. Efforts need to be made to discourage people from giving birth and expecting others to take responsibility for their children's care. There is also a need for health education to make people understand the responsibilities that are attached to giving birth to many children.

Moreover, since this study revealed that large family size and population growth lead to an increase in poverty, criminality, insecurity, economic hardship, and high rate of illiteracy, which are indices of underdevelopment which negatively impact health and socio-economic well-being, interventions that reduce family size and population growth through robust family planning programming can help achieve some development. To achieve community growth and development in health, social, political, and economic well-being, the population must be commensurate with available resources to cater to the population's needs. Such population management must be done from the family level, and the ripple effects can be felt in society. Families having a number that the available resources can cater for can help achieve public health as there would be enough resources to address the social determinants of health. Education, nutrition, shelter, clothing, and other social amenities will be sufficient to cater for

the people. It could help reduce the possibility of neglected children becoming a nuisance or societal problem. A well-trained and cared-for child can become very useful and productive to himself, his family, and the larger society, bringing about shared prosperity, progress, and development. Children with access to quality education and healthcare become necessary capital for societal development.

6.4.4 Implications of Study on Sustainable Development Goals (SDGs)

The findings from this study have some implications that can contribute to achieving the 2030 agenda for sustainable development, which all member states of the United Nations adopted in 2015. Specifically, the findings of this research can contribute to the achievement of SDG Goal One (no poverty), Goal Two (zero hunger), Goal Three (good health and well-being), Goal Four (quality education), Goal Five (gender equality), Goal Ten (reduced inequality) and Goal Eleven (sustainable cities and communities) despite the global challenges affecting the achievement of the many targets of the SDGs.

These findings revealed that large family size and population growth increase poverty in Northern Nigeria. Therefore, practical actions towards addressing large family size and population growth are imperative to eradicate poverty in Northern Nigeria. Also, large family sizes were shown to impact children's nutrition negatively and, in some cases, caused malnutrition in many children because of the low level of family financing in many large family homes despite the need to feed many mouths. The pressure on available food resources because of family size causes hunger, as documented in this study. This means interventions to address large family sizes can also contribute to achieving SDG two, zero hunger. Large family sizes in Northern Nigeria have been shown to impact health and well-being negatively, especially concerning the social determinants of health. Achieving health and well-being for all by 2030,

family planning and population growth interventions could help contribute to achieving some gains.

Furthermore, quality education was reported to be negatively impacted by large family size and population growth. It was shown in this study that parents of large families find it difficult to send all their children to school, thereby affecting the level of access to quality education. Those who can send their children to school find it difficult to provide them with higher education because of the meagre financial resources available. This has contributed to increasing levels of illiteracy, as evidenced by the high rate of Almajiri children in Northern Nigeria. Therefore, achieving SDG 4 may also require interventions to address large family size and population growth.

Also, access to and use of family planning services have been mainly focused on girls and women. These findings revealed the need for male involvement in contraceptive use and family planning programming to achieve more sustainable success and increase the level of adoption. To enhance and promote gender equality for women and girls, engaging men and boys in family planning programmes could be an essential strategy that can yield formidable outcomes. Meanwhile, as part of the effort to achieve and sustain income growth based on one of the targets of goal 10 of the SDGs, there is a need to address population growth so that available resources can be sufficient for people, especially in job creation and employment. Population growth in the era of technological advancement has made many humans redundant and useless for maximum organisational productivity, causing people to lose their jobs and widening the inequality gap. The findings from this research have emphasised and expanded the need to harness the population's potential to make it more productive to achieve demographic dividends. However, it is also crucial that reducing the population growth through family planning interventions can make it easy to plan for a smaller population with reduced inequality adequately.

Moreover, the effects of large family size and population size have made our cities unsafe because of the high rate of criminality, banditry and insecurity, as revealed in this study. There is overcrowding and a lack of safe and affordable housing due to large rural-to-urban migration, which has resulted in many avoidable deaths. To achieve sustainable cities and communities (goal 11), efforts must be made toward rural development, address the reasons for rural-urban migration, reduce population as much as possible or make adequate provisions for basic amenities for the growing population size.

Based on this study's findings, it suffices to say that it has some important implications and contributions for achieving at least seven of the 17 Sustainable Development Goals.

6.5 Research Contributions

The exploratory research on the impact of large family size and population growth on health and socio-economic well-being in Northern Nigeria has significantly contributed to knowledge and theory for present and future research in the public health and social policy field. The contributions of this research are discussed.

6.5.1 Contribution to Knowledge

The main contribution of this research is that it expands the knowledge of the health and socio-economic impacts of large family size and population growth in Northern Nigeria. This is the first time a research project has been carefully carried out to explore the perceived determinants and impacts of large family size and population growth from the perspectives of community members, other important stakeholders, and policymakers in Nigeria. Exploring the socio-cultural and religious influences of population growth and determinants of large family size enhances the knowledge and understanding of how to address some of the challenges arising from large family size and the increase in population in Northern Nigeria. Based on the Silences

Framework adopted for this study methodology, participants' silences were heard, and what the silences revealed contributed to the new knowledge generated in this study.

Who were silenced?

Studies focusing on family and reproductive health, especially as it relates to family size, are mostly a silent area of research in Northern Nigeria due to its cultural and religious sensitivity. Because of the deep-rooted patriarchalism of Northern Nigeria, issues surrounding family size have been mostly discussed among men and political leaders. However, in this study, voices were given to all genders (male and female), including rural community members who are mostly silenced from participation in research because of a lack of access to them and due to language barriers. The voices of women and rural dwellers were heard in this research, and they were not further silenced. This made the findings holistic.

What did they say?

In voicing their silences, the participants (‘silenced voices’) freely expressed their views and perspectives as they relate to the socio-economic and health impacts of large family size and population growth in Northern Nigeria without being judged. They also documented and provided recommendations and possible ways to address the negative impacts of large family size and population growth, which have been extensively documented in the results chapter of this thesis. Adopting participants' recommendations during the interviews can foster adoption of the intervention, encourage ownership, and sustainability.

How what they say contributes to knowledge

The sampling of important stakeholders, including religious and traditional leaders, healthcare workers working on family planning programmes, and legislators who are involved in making policies and laws, as well as lay community members to voice their silences, contributed to expanding knowledge of the health and socio-economic impacts of large family size and

population growth in Northern Nigeria from a robust population group. This is the first time a research project has been carefully carried out to explore the perceived determinants and impacts of large family size and population growth from the perspectives of community members, vital stakeholders, and policymakers in Northern Nigeria. The collective perspectives of the participants strengthen the originality of the knowledge contribution. The rigour employed in involving these sets of participants adds to the innovative contribution of this study to research and practice.

Some of the new knowledge from this research revealed that the desire for a large family size in Northern Nigeria is influenced by political negotiation during elections and the use of children for cheap labour and trading. From the perspectives of community members, the study emphasises that the benefits achieved by large family size and population growth for negotiation for political power in the North significantly encourage the desire for large family size. Other determinants reported were poverty, lack of quality education and access to and use of modern contraceptives. This study expands the knowledge of community development from the perspective of family size and population growth. The study attributed Northern Nigeria's increased poverty and underdevelopment to large family sizes and population growth. Many parents in large families mostly do not have the resources to provide adequate care for their children, making these children dependent and a burden to the larger society. This is essential to upscale family planning education and programming, especially among less educated people.

Besides, the findings from this research indicated that even though population growth and large family size have a significant negative impact on health and socio-economic well-being, large family size and population growth could be advantageous and provide some demographic dividends if the potential of the large population is harnessed adequately for growth and development. It was also revealed that even though those with the resources to care for large

families do not have so much of an issue, their large families can still significantly impact the general societal population with competition for available meagre resources. This portends the need for family planning for everyone, irrespective of current socio-economic status.

Meanwhile, in reporting the perceptions and experiences of community leaders and stakeholders in Northern Nigeria on the use of birth control and adoption of family planning services, the findings highlighted that participants have negative attitudes toward family planning use, which was primarily influenced by the fear of side effects of modern contraceptives, the belief systems, and the desire to use the traditional method for birth control. Even though the conventional method of family planning is not very effective, this study emphasises and suggests the need to upscale and enhance the effectiveness of some of the traditional methods of birth control through research as well as locally produced contraceptives with local resources and name them with local nomenclatures which community people can easily relate with, comprehend and accept without the fear of it being a foreign product that is being imposed by the Western world to reduce the population of Africa as being suspected.

The study also emphasises the need for cultural and religious sensitivity in awareness and health education among healthcare professionals working on family planning programming and interventions in Nigeria. It suggests the need to provide culturally and religiously sensitive information to improve family planning activities and outcomes among community members to improve health, socioeconomic well-being, and community development. These findings further provided significant insight into population policy and family planning policy review/ amendment to include culturally and religiously sensitive programmes and community-directed interventions. The participants in this study have shown their knowledge and understanding of the factors contributing to large family size and population growth and articulated the impacts of population growth on health and socio-economic well-being. Despite this, the findings revealed significant doubt about whether their knowledge is translated into

actual practice. This is because, from the demographics of participants in this study, most have large family sizes with more than five children. Many of the male participants were also polygamous.

This study's significance of community similarity and homogeneity has reinforced the importance of applying a holistic socio-ecological approach in addressing health issues such that health determinants are addressed from the individual to the societal levels. These findings, therefore, showed that having knowledge and understanding of the impact of large family size and population growth is not enough to address the growing population or the impacts of population growth in Northern Nigeria. There is a need for deliberate intervention at all levels involving the community members, stakeholders, and government to address the social determinants causing the increasing population in Northern Nigeria and other parts of sub-Saharan Africa.

6.5.2 Theoretical Contributions

The theoretical underpinnings for this research were the socio-ecological model by Bronfenbrenner (1974) and the Silences Framework by Serrant-Green (2011) used in investigations of sensitive issues such as family size. These theories have been extensively discussed in Chapter Three of this thesis, and how they were applied to this research. These theoretical approaches were selected for this study because of their suitability and usefulness in assessing socio-cultural issues such as family size and population growth from the community perspectives. The socio-ecological model, for example, is defined by its practical efforts to identify multi-level relationships and influences on health behaviours from the individual characteristics to the societal levels. In contrast, the Silences Framework was significantly helpful in guiding the investigation of culturally sensitive issues. People act differently and make health decisions based on religious and socio-cultural reasons, especially

in Northern Nigeria. These decisions affect their health and socio-economic well-being and impact others. Therefore, this study emphasises the significance of listening to silenced voices about the determinants and impacts of large family sizes, which can help foster new knowledge and understanding on improving health behaviours around reproduction and the use of family planning services.

From the review of relevant literature, it was shown that some previous quantitative and qualitative research have investigated the level of family planning adoption and some barriers to contraceptive use. However, this study contributed a new dimension by exploring and understanding the impacts of non-use of family planning services, which contribute to large family size and population growth with evident health and socio-economic consequences such as underdevelopment, poverty, criminality, child abuse, poor health, hardship and environmental degradation. This study provided evidence of the interconnectivity of individual, interpersonal, community, organisational and societal influences on family size decisions. The theoretical approaches provide helpful proof that establishes the influence of social and community structures and dynamics in family size decisions and the use of family planning services.

The socio-ecological model was particularly helpful in guiding the selection of study participants across the different levels of health and behavioural change, which helped provide holistic perspectives to the subject of investigation. However, the critical issues from these findings include the need to address the cultural, social, traditional, and religious influences on the use of modern contraceptives and family planning services in Northern Nigeria, as well as other barriers to contraceptive use, such as fear of side effects, influence of beliefs systems and lack of access to modern contraceptive services. Community- involvement in family planning programming and interventions is also vital.

The Silences Framework (stage 3, which guided the data analysis phase), as applied in this study, guided the silenced dialogue, research review, user voices and researcher reflection. The framework guided the researcher in investigating family size (a culturally sensitive issue). It helped get participant feedback to provide opportunities for further checks and additional dialogues about the findings. The perspective of other social networks of participants was also included in drafting the findings of this study, which gives the findings the potential generalizability. The involvement of different stakeholders who did not participate in the initial data collection to provide additional insights about the data collected helped provide the findings with a critical associative eye, as Serrant-Green (2011) recommended, an essential aspect of applying the Silences Framework.

This study therefore provides theoretical evidence that the socio-ecological model and the Silence Framework can be useful in diagnosing and understanding the determinants and impacts of large family size and population growth in Northern Nigeria and can potentially help to guide public health interventions as recommended in this study.

Furthermore, this study contributes to the socio-ecological framework on operationalising behavioural theories beyond the individualised approach to study family size dynamics and population growth among people in Northern Nigeria. Important modifying factors such as the intrapersonal and interpersonal factors have important roles in family size decisions, population control and the use of family planning services. This study has shown that established theories, such as the Silences Framework and the socio-ecological model, can be applied to family size and population study. This is because the model can guide the investigation of family size's overarching cultural and community dynamics and population growth. The theory could also guide the multi-level interventions for family planning programming. This model could also provide context for community-directed interventions addressing the determinants of large family size and population growth.

Meanwhile, the socio-ecological and silence frameworks within the methodological approach used in this research also allowed the researcher to position as both an insider (a Nigerian) and an outsider (the researcher) of the studied community to explore the research participants' perspectives adequately. This fosters the uniqueness and flexibility of the study in uncovering a sense of collection within the communities that were studied, and this may also help encourage future community participation in later studies. Therefore, this study proposes that a community's corporation and collective senses are crucial when studying culturally sensitive issues such as family size and population growth and their impact on health and socioeconomic well-being. The collective sense of a community can also be helpful in studying the impacts of health behaviour and the adoption of family planning services. This may ensure that complete community knowledge is immersed and acknowledged in future related research in Northern Nigeria.

This is the first time any study focusing on the impact of family size and population growth is adopting the Silences Framework and socio-ecological models as theoretical underpinnings.

6.6 Strengths and Limitations of the Study

This study has several strengths that have contributed significantly to exploring the impacts of large family size on health and socio-economic well-being in Northern Nigeria. It also provided knowledge and understanding of the determinants of large family size and population growth in Northern Nigeria. However, there were also a few identified limitations in this study.

6.6.1 Research Methodology

As revealed in the literature, information on the impacts of large family size and population growth on health and socio-economic well-being in Northern Nigeria is limited. At the time of writing this thesis, this is the first exploratory qualitative research design on the impact of large

family size and population in Northern Nigeria, further identifying the determinants of large family size decisions and population growth.

The findings provided significant insight into family size decisions, the use of birth control and family planning services and the health and socio-economic impact of population growth. Conversely, a major strength of this research is its methodology (exploratory qualitative approach), which uses focus groups, key informants, and in-depth interview methods to explore an area of research that is least discussed (family size) in Nigeria and Africa. These methods helped to provide a holistic view that many factors outside individual factors contribute to family size decisions in Northern Nigeria. It also revealed the multi-level influence of culture, religion, farming, politics, and other social determinants on family size decisions and population growth. The various interview methods helped gain deeper, richer, and more detailed perspectives from the participants (those with large and small family sizes, community stakeholders- religious and traditional, healthcare professionals and policymakers). The researcher's nationality and having worked in some parts of the Northern region of Nigeria as a development public health expert facilitated and enhanced the community entry process and mobilisation of respondents' participation in the research.

Furthermore, obtaining similar perspectives from different data sources during data collection provided the reliability and internal validity of the collected data. Additionally, the Silences Framework theoretical underpinning used to guide the data analysis helped subject the initial emerging themes to participant reviews and other stakeholders who did not primarily participate in the initial data collection to provide review feedback on the first analysis draft. This helped to validate, increase credibility, and verify and reduce biases that might have risen during data analysis. However, even though the methods used for data gathering in this study were viewed as the most appropriate in exploring the subject of research, the use of other data collection methods, such as a questionnaire in a quantitative approach, may have helped to

cover a more significant number of participants. Meanwhile, the quantitative approach was not used to explore the subject under investigation because only the qualitative approach was adjudged adequate to allow participants to express their views on the research subject without limitations. The main strength of this study was that it involved rural, semi-urban and urban men and women, community stakeholders, healthcare professionals and policymakers, which improved the generalisability of the findings.

6.6.2 Sampling method and selection bias

There might have been selection bias in recruiting participants for this study because of the purposive sampling strategy. However, participating communities in this study were randomly selected to be representative of the entire two selected Northern States. The participants were also selected across the three senatorial districts in each of the selected Northern States. A local government was selected in each of the senatorial districts, and participants were selected from at least one community per selected local government. Some community stakeholders and policymakers were purposively selected because of their level of knowledge, influence, and ability to provide robust information about the subject of discussion. In essence, selection bias is minimal in this study and cannot affect the internal validity of the findings to make generalisations and valid conclusions.

The participants were recruited through community mobilisation from community centres, religious centres, workplaces, support groups and markets. The selection of participants across different levels of behavioural change and health interventions (community members, including male and female, healthcare professionals, community leaders and policymakers) speaks to the robustness and involvement of key stakeholders around family size and population growth. Even though it might be difficult to generalise these findings on the entire Northern Nigeria because not all Northerners or a more significant percentage of them

participated in the study, the conclusions of this research still present the general reality about the determinants and impacts of large family size and population growth in Northern Nigeria.

6.7 Chapter Summary

This chapter discusses the study's findings in line with the available literature. It articulates the implications of these findings and their contributions to the body of knowledge. The research outcomes based on the perspectives of critical stakeholders and policymakers on the impacts of large family size and population growth in Northern Nigeria were extensively discussed. The implications of this research for community development, public health intervention, social and public policy and the achievement of the Sustainable Development Goals were discussed in this chapter. The knowledge and theoretical contributions, as well as the critiques of the study's strengths and limitations, were presented toward the end of the chapter. The next chapter (chapter seven) presents the study conclusion in line with the silences that have been voiced based on the Silences Framework adopted for this research. Recommendations for future direction, as well as general researcher reflection were presented.

CHAPTER SEVEN

CONCLUSION AND RECOMMENDATIONS FOR FUTURE RESEARCH

7.1 Introduction

This research investigated the impacts of large family size and population growth on health and socioeconomic well-being in selected States of Northern Nigeria using a qualitative research design. The conceptual and methodological approach allowed a thorough investigation into the community perspective of the impacts of large family size and population growth, as well as determinants and factors contributing to large family size and population growth in Northern Nigeria. The research focused on a broader understanding of people's attitudes toward family size decisions, fertility, birth control, and the use of family planning services to address the growing population in Northern Nigeria.

This chapter presents the summary of this research and a concluding statement. It further provides recommendations for future research. The last part of this chapter documents my reflection as the researcher of this study.

7.2 Summary of the study

This community-based exploratory qualitative research revealed a range of traditional, cultural, and religious beliefs that play crucial roles in family size decisions and population growth in Northern Nigeria. It also revealed other determinants of large family size and population growth and how they impacted health, socioeconomic well-being and growth and development. These findings show that various factors influence family size decisions and support large family sizes, significantly contributing to the increasing population in Northern Nigeria. Aside from the belief system, factors such as the perception of large family size and population growth for political negotiations and advantage during elections and the large family size for cheap labour for farming activities were the most reported determinants. The lack of access to

and use of modern contraceptives and family planning services was further reported as a factor influencing large family size and population growth in Northern Nigeria. There was considerable emphasis by most of the healthcare professionals and policymakers who participated in this study that large family size in Northern Nigeria is mainly driven by poverty and lack of education and women empowerment, which is believed to have influenced the other determinants of large family size, especially culture and religion. Level of education was shown as an essential factor influencing life decisions, including family size decisions. From this study, culture and religion were reported to have adverse outcomes on family size decisions and influence family planning services use. These findings, therefore, add substantial value to the existing literature on family planning utilisation among Nigerians. It revealed the influence of critical social structures and provided context specificity to family planning use in Northern Nigeria.

From the participants' perspectives in this study, large family size and population growth significantly impact health and socioeconomic well-being. The increased poverty and underdevelopment, which are ravaging most parts of Northern Nigeria, were reported to have contributed to by large family size. Poverty is an important social determinant of health with devastating effects on health and well-being. It impacts the types of food eaten, clothing, quality of education, shelters, and access to healthcare facilities. According to the findings from this study, the criminality, banditry, and insecurity ravaging Northern Nigeria can be connected to a lack of family size control and population growth. The economic hardship that parents in large families experience, issues of child abuse, child neglect and malnutrition, as well as the increased level of illiteracy in Northern Nigeria, were reported as some of the impacts of large family size and population growth coupled with the inability and failure of the government to manage the people’s resources for the public good. Moreover, poor health outcomes such as maternal mortality, child mortality, childhood illnesses and disease were revealed to be impacts

of large family size and population growth. Another impact of population growth was the impact on the environment. Meanwhile, some participants feel that large family sizes and population growth have significant socio-economic advantages. However, the government's failure to harness the population's potential for its demographic dividends has made the population in Northern Nigeria appear all bad.

The contribution of this study offered qualitative support for public health programming in family planning services interventions among Northern Nigerians as well as many parts of Africa. This is because most of the determinants and impacts of large family size and population growth in Northern Nigeria are similar to those in most parts of Africa because of cultural and religious similarities. This study also filled the gap in the limited scope of qualitative literature on determinants and impacts of large family size and population growth in Northern Nigeria and sub-Saharan Africa. These findings showed that the use of birth control and family size were motivated by many factors. There was a negative attitude toward modern contraceptive use among most community stakeholders. The fear of side effects and the influence of beliefs were the identified barriers to family planning services in Northern Nigeria, contributing to large family size and population growth. Many of the participants also prefer the use of traditional methods of birth control, which suggests the need for more research to improve the effectiveness, efficiency, and efficacy of some of the conventional methods of birth control, which many people seem to be more comfortable with.

In summary, various overlapping factors influence family size decisions, contributing to large family size and increased population growth in Northern Nigeria. Participants recommend that to improve population growth in Northern Nigeria, compulsory formal education and women empowerment, access and use of modern contraceptives and other family planning services, the use of public policy like it was in China, male involvement in family planning intervention activities, public enlightenment and advocacy to religious and traditional leaders are the

important measures to take. Multisectoral (health, education, trade, and finance) interventions are also needed to address the growing population and large family size. Multisectoral collaborations are also needed to address the current impacts of large family size and population growth in Northern Nigeria.

This research uncovered some silent voices that were never heard in previous research on family planning, population growth and socio-economic development. Rural community members, local community stakeholders and healthcare professionals participated in this research, which gave credence to uncovering silenced voices that are usually unreached or involved in studies of this nature.

The analysis of this study's findings was informed by the Silences Framework, which moves beyond analysing study findings by the researcher alone but involves study participants and other stakeholders to verify what has been analysed to give voices to the participants and provide valid findings.

The Socio-ecological model also ensures that all levels of behavioural change for health promotion intervention were considered and involved in the design and implementation of this study. People with families, community leaders, healthcare professionals, and policymakers involved in data collection provide robust insight into this study by getting information from multiple important sources. The focus group discussion used for data collection also enhanced interpersonal relationships among participants during the focus group sessions, which fostered interaction dynamism and helped gather quality data. This study's findings, therefore, provide some new evidence that can inform population policy amendments in Nigeria and other African countries. It also provides recommendations for addressing the growing population in Northern Nigeria and most other African Countries.

7.3 Concluding Statement

Overall, this study is informed by the socio-ecological model and Silences Framework theoretical lenses, and it was able to document the factors that influence family size regarding large family size and population growth. It further explores the impact of large family size and population growth within the health and socio-economic context. This study shows that the non-use of family planning services and the desire for large family size were rooted in many cultural, religious, and personal factors. It revealed the attitude of community stakeholders and leaders on the use of birth control and how their influence affects the level of use by their followers and subjects. The understanding of the influence of cultural, religious, and social structures on the desire for large family size and how this has contributed to population growth in Northern Nigeria, as well as the reported impacts of large family size and population growth on health and socioeconomic well-being can potentially provide a more holistic approach to family planning and population growth interventions. Understanding the root determinants of large family size through listening to community members (Northerners who participated in the study) articulating their understanding of large family size and its impacts on health and wellbeing can help to create/ develop a more culturally, religiously tailored and community-directed interventions programme to enhance the uptake of family planning services. Understanding the impacts can also help address some of these socio-economic impacts.

As previously articulated in the discussion chapter of this thesis, this study reaffirmed that socio-cultural, socio-religious, and social determinants of health need to be addressed using context-specific community and local approaches. As revealed in this study, addressing the determinants of large family size and population growth needs to be context-specific. Community-directed efforts must also address the health and socioeconomic impacts of large family size and population growth. An individualised interaction may not provide a robust result due to the interconnectedness of culture and beliefs and the interactions and relationships

with behavioural transition. Therefore, this research proffers unique insight for sociological and anthropological-based intervention for public health specialists, particularly experts in reproductive and family health and policymakers, to work effectively with community structures in addressing the determinants and impacts of large family size and population growth.

7.4 Recommendations for future research

This research provided a conceptual clarification and framework for a better understanding the impact of family size and population growth on Northern Nigeria's health and socio-economic well-being. Therefore, based on the findings of this study, the following recommendations are made for future research.

1. Broadening the use of the exploratory qualitative approach in family size and population study to examine the broader determinants and health and socio-economic impacts: This research recognises the significance of the qualitative approach as an important method for the detailed understanding of determinants of large family size and population growth, its impacts as well as the attitude of community members and important stakeholders toward the use of birth control and family planning services. The qualitative approach allowed the Northern participants to express their diverse views about the subject of investigation. It helped to answer the questions of ‘whys’ and ‘hows’. It gave the researcher the platform and opportunity to relate well with the research subject to foster further engagement while implementing any population control interventions. This approach helped to get the perspective of healthcare professionals and policymakers directly involved in family planning programming and population control interventions. Using a qualitative approach to gather their perspective helped identify hidden religious and cultural barriers to effective population

control interventions. Acknowledging the participants' views and silent voices has the potential to understand community dynamics and the interventions that could positively enhance positive behavioural change in family size decisions and the use of family planning services.

Therefore, a further exploratory qualitative approach can be used to investigate participants' perspectives on the effectiveness of family size and population control interventions at the community level.

2. Increasing knowledge of determinants and impacts of large family size and population growth: This study revealed that participants were mostly knowledgeable about the determinants and impacts of large family size and population growth; however, their knowledge did not translate into improved health behaviours such as the use of birth control and family planning services for population control as revealed from their attitudinal disposition to use of birth control in this research. The non-translation of knowledge to practice based on cultural, religious, and other primordial factors has led to the increasing population growth rate in Northern Nigeria. Therefore, there is a need for practice-centred intervention in which knowledge is translated into practice and improved health behaviours. In the case of this study, intervention focusing on ensuring people practice what they already know can be helpful. This perspective must also be considered in all policies and programmes for family health, family planning, and population control activities in Northern Nigeria and similar population settings.
3. Enhancing the cultural and religious competencies of healthcare professionals working on family planning programmes: This study has shown that cultural and religious beliefs play a central role in family size decisions and population growth, as well as in the use of birth control. The healthcare professionals who are mostly involved in family planning interventions should be provided with religious and cultural competency

training to effectively support the development, planning, and implementation of community-directed family planning and population control interventions. This can help to achieve more sustainable and robust outcomes. Health promotion and education activities should be culturally and religiously consistent with the involvement of the custodians of culture and religion. Healthcare professionals must understand the cultural and religious dynamics to enter the communities and achieve great results on any planned intervention. Meanwhile, before training and empowering these healthcare professionals with religious and cultural skills, a proper needs assessment should be done to determine the nature and level of skills and knowledge required by them to deliver adequate and appropriate health intervention effectively.

4. Community network involvement in family size and population control interventions: Community participation, engagement and mobilisation have been shown and proven to be very effective in addressing health situations and conditions. These strategies could be used to harness the efforts of stakeholders within the community to drive intervention activities. Involving religious leaders, traditional custodians of culture, in family planning activities can help achieve better gains because of the important influence of these leaders on their subjects. The mobilisation of community gatekeepers should not just be to accept any proposed intervention but involve them in the delivery and implementation of the interventions so as for the community to take full control of their own health and socio-economic well-being, which could enhance sustainability, empowerment and self-reliance, which is a critical element of primary healthcare. This involvement can help reduce the growing population and its impacts on health and well-being. Some important community networks that can be harnessed for interventions include mosques, churches, community associations and groups, political groups, and social groups. Involving the community in health promotion on family size intervention

and addressing population growth by recognising their cultural and religious beliefs could help achieve more significant health outcomes and improve family size decisions.

Key points for future research

1. Investigate the effectiveness of existing community-directed family planning and population control interventions. This can help create an informed framework in line with this study's recommendations to guide new possible interventions for family planning activities. Understanding the influence of community networks and the barriers associated with working with them can enhance effective planning and implementation strategies.
2. Quantitatively explore the pattern of use of family planning services among community members (male and female) and how this informed family size decisions. This can help clarify the perception of family planning service utilisation in Northern Nigeria and chart a way forward.
3. Investigate how to address most of the side effects of modern family planning services because, as revealed by the participants in this study, this was a major concern and barrier to the low level of utilisation. Clinical research aimed at reducing the side effects of hormonal contraceptives needs to be explored.
4. Research should be done on how traditional methods of family planning, such as the withdrawal, calendar and use of herbal concoctions, can be effective in birth control. Most of the participants (male and female) were more comfortable with these methods even though it has failed many times, leading to unplanned pregnancies.
5. A mixed-methods approach can be considered to explore further the attitudes and perceptions about large family size and population growth among the youthful population (unmarried ones) who are future parents. Perspectives from this population group can help guide necessary interventions among the youth.

7.5 General Reflections

It is very important that I reflect on my personal experiences during this research. My contribution, the benefits and the challenges faced during this research will form part of my learning experience for future research activities. The articulation of my reflection on my experiences during this research is based on the reflection cycle by Gibbs (1988). This cycle describes the research, feelings, evaluation, conclusion, and actions. In line with this cycle tenets, my reflection would be based on the following headings: the preparation stage of my research, my engagement with the research and the processing of research.

Research Preparations (Description of research and feelings)

This research title was particularly of great interest to me because of my interest in family health and the personal belief that I have in the negative impact that family health and wellbeing could have on the overall community and societal well-being as well as on national growth and development. I have an interest in family planning interventions, and people should only give birth to the number of children that they can comfortably take good care of without expecting to transfer the burden of care to someone else or the government. This interest was based on my work experience working with the key population as a development public health specialist at the Nigeria federal capital territory, Abuja. I saw first-hand many children suffering and unable to feed, roaming the streets and yet seeing their mothers still pregnant with more children. This made me very passionate about researching the determinants of family size decisions, particularly the desire for large family size and exploring the impact of large family size and population growth to have empirical evidence for advocacy and make a case for robust public health and social interventions. This research focuses on Northern Nigeria because the entire Nigerian population (more than 65%) is predominantly from the Northern region, with apparent evidence of poverty and underdevelopment. This necessitates this study to explore the

local perspectives on the impacts of large family size and population growth, specifically focusing on health and socio-economic well-being.

By sharing the same identity as a Nigerian, even though I am not from the Northern region, I was able to use my skills and working knowledge with some parts of Northern Nigeria to negotiate access into the sampled communities in researching this study of interest, which is seen as major and contemporary public health issue. While interviewing the study participants, I noticed they saw themselves as contributing to community development by discussing the determinants and impacts of large family size and population growth and how to address the growing population and its impacts on health and socio-economic wellbeing in Northern Nigeria. Even though their belief systems, including culture and religion, impacted their perspectives in some way, overall, robust discussion was done in line with the study objectives, and this positively affected the research process during data collection. The researcher's effective negotiation and communication skills helped recruit study participants and key stakeholders into this study within the sampled communities. These are people who naturally would have dissent participation.

Furthermore, my previous research experience working in some of these Northern Nigeria States gave me an understanding of the religious, social and cultural dynamics, which makes the process of community entry easy for the recruitment of study participants across different levels in line with the theoretical underpinning of this study (the socio-ecological framework). However, it is imperative to state that I experienced some stiff opposition and a lack of enthusiasm for the study from some of the intended participants for the focus groups. Some people are lay community members who believe that researchers who come to their communities only gather information about them for the researcher's interest without any plan to meet their needs or design interventions to address community challenges. Therefore, to encourage more participation, the researcher had to carefully communicate and explain the true

intention of this research to the community members and promise that necessary intervention would be done after the completion of the research. Recruiting policymakers was also difficult but the snowballing approach was used to get more legislators and policymakers to participate in the research. Also, some of the policymakers refused to be audio-recorded for personal reasons. So, notes were taken during their interviews. Community leaders easily showed commitment to participate in the study, but most healthcare professionals showed some opposition and kept changing interview appointments because of their work schedules.

The comprehensive and in-depth approach to collecting and describing data was a distinctive contribution. The qualitative approach, as opposed to the quantitative approach, provides a deep understanding of people's opinions and beliefs on the 'why and how' family size and population growth impact health and wellbeing. The socio-ecological perspective of this study, which revealed different levels of social interactions and influences, enabled the development of knowledge which could enhance the development of social and public health policy that could help address the wider determinants of large family size and population growth in Northern Nigeria. Thus, this study's findings add significance to the need to address the socio-cultural and religious influences of family size decisions and the need for community-directed efforts to address the impact of large family size and population growth.

Research Engagement (Evaluation and Conclusion)

Even though the research process was engaging for me, it was not easy because I was fully immersed in searching the internet, textbooks, journals, and monographs for relevant literature and data (primary and secondary) that could guide the research. I developed a research plan using a Gantt chart for the whole research activities to put me in check and enable me to finish in record time. The plan guided my research milestones even though it was not strictly followed at some point due to unforeseen required changes or delays for statutory approvals. While it was a bit challenging for the policymakers and healthcare professionals to participate in this

study due to their busy work schedules, the sampling method (snowballing) and the researcher's persistence helped minimise this challenge. Different from transcribing the entire interview and analysing the raw data, the interview process was less herculean. My skills in data analysis before this research were helpful during the analysis phase, and the QSR NVIVO software was used to organise and manage the research data. New skills were acquired during the data analysis process, particularly in generating themes that aligned with the thematic analysis stages. The research process was a very eye-opening experience with lots of learning, unlearning and re-learning. Regularly reviewing my work and feedback from my supervisory team was also very helpful in guiding the research course. This research has expanded my frontiers of knowledge in qualitative research and advanced independent study.

Research Experience Processing (Action)

The research process built and improved my confidence level and enhanced my ability and competence to organise and manage time. My experience and confidence during this research have also enabled me to participate as a co-author of four (4) original research papers and systematic reviews and two (2) book chapters currently under peer review and editorial consideration. The research papers focus on sensitive issues in family health, mental health, and public health theory. I have also acquired more robust skills in qualitative research, which could make me confidently take a lead role in any qualitative study. This knowledge and abilities would benefit future research and collaboration. Improving my skills in quantitative data analysis using the QSR NVIVO to organise my data was an added skill to my research analytic knowledge. Undoubtedly, the research experience was a substantial positive learning opportunity for me.

It is also worthy of note to state that despite my decisive tendency to stay neutral on the issue around the cultural and religious influences of large family size and population growth in Northern Nigeria because of my shared cultural identity as a Nigerian, maintaining neutrality

as a researcher was sometimes challenging but with a high level of professionalism and sound knowledge and application of principles of research ethics, I was able to avoid allowing my personal feelings, emotions, and sentiments to affect the outcome of this research. This position, therefore, suggests the need for researchers to openly acknowledge their feelings, beliefs, and emotions when they share similar or close identities with the community/ population under investigation. Continuous discussion with my supervisory team was invaluable in helping me navigate these professional and personal challenges.

My experience in this doctoral research process and the beauty of working with people to solve public health problems have interested me in pursuing further studies and exploring postdoctoral research opportunities.

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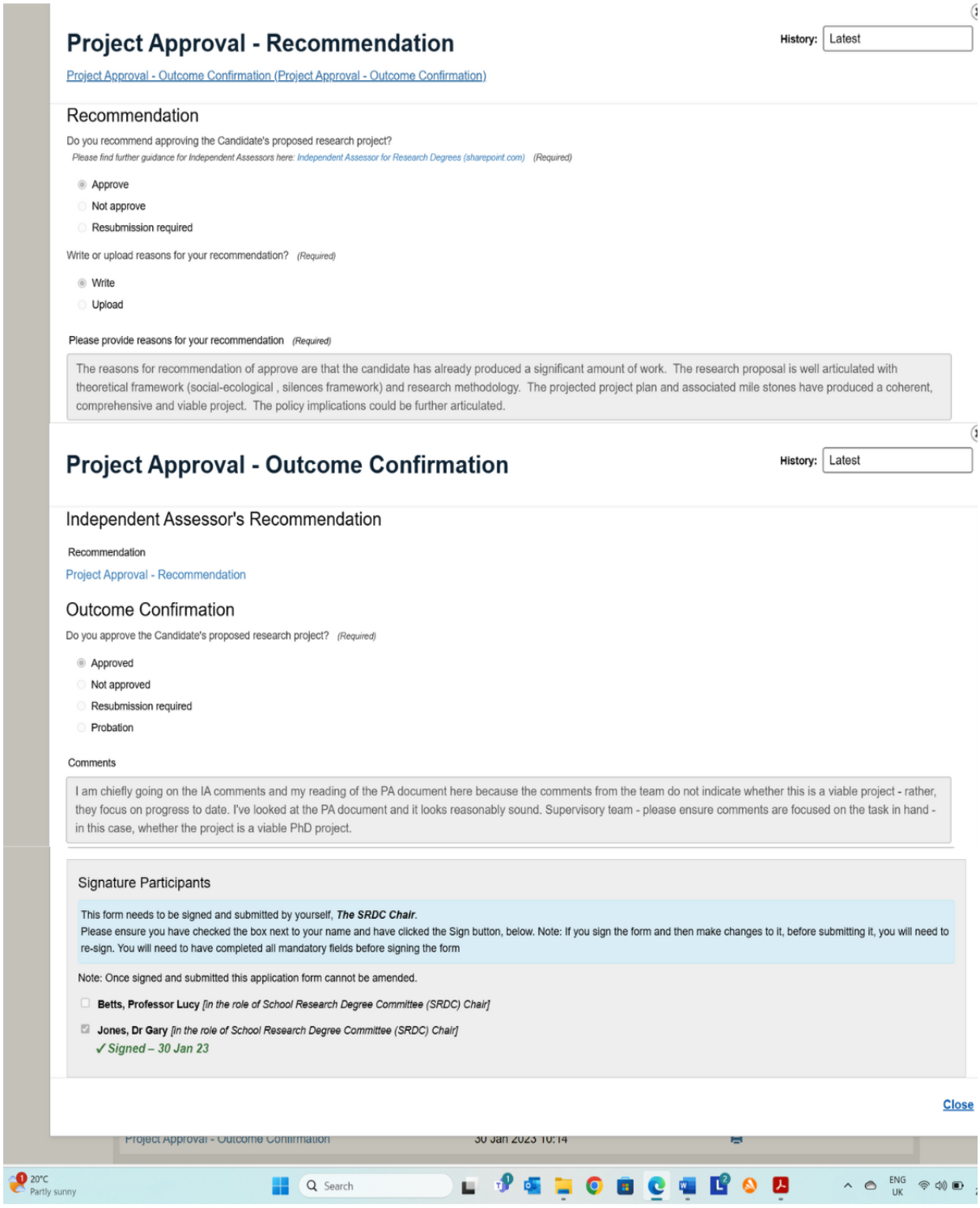
APPENDIXES

Appendix A: Project Approval



Project Approval - Recommendation

History: Latest

Project Approval - Outcome Confirmation (Project Approval - Outcome Confirmation)

Recommendation

Do you recommend approving the Candidate's proposed research project?

Please find further guidance for Independent Assessors here: Independent Assessor for Research Degrees (sharepoint.com) *(Required)*

- Approve
- Not approve
- Resubmission required

Write or upload reasons for your recommendation? *(Required)*

- Write
- Upload

Please provide reasons for your recommendation *(Required)*

The reasons for recommendation of approve are that the candidate has already produced a significant amount of work. The research proposal is well articulated with theoretical framework (social-ecological , silences framework) and research methodology. The projected project plan and associated mile stones have produced a coherent, comprehensive and viable project. The policy implications could be further articulated.

Project Approval - Outcome Confirmation

History: Latest

Independent Assessor's Recommendation

Recommendation

Project Approval - Recommendation

Outcome Confirmation

Do you approve the Candidate's proposed research project? *(Required)*

- Approved
- Not approved
- Resubmission required
- Probation

Comments

I am chiefly going on the IA comments and my reading of the PA document here because the comments from the team do not indicate whether this is a viable project - rather, they focus on progress to date. I've looked at the PA document and it looks reasonably sound. Supervisory team - please ensure comments are focused on the task in hand - in this case, whether the project is a viable PhD project.

Signature Participants

This form needs to be signed and submitted by yourself, ***The SRDC Chair***.
Please ensure you have checked the box next to your name and have clicked the Sign button, below. Note: If you sign the form and then make changes to it, before submitting it, you will need to re-sign. You will need to have completed all mandatory fields before signing the form

Note: Once signed and submitted this application form cannot be amended.

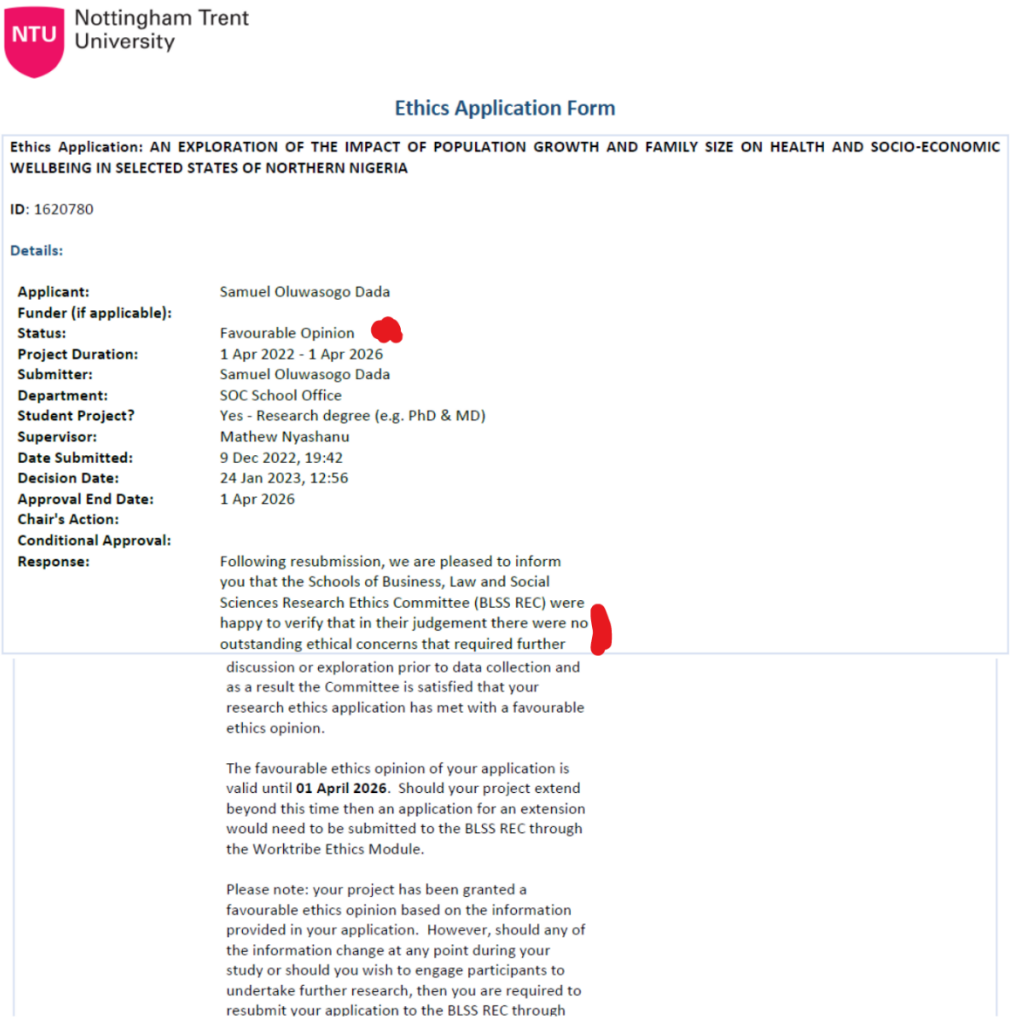
- ☐ **Betts, Professor Lucy** *[In the role of School Research Degree Committee (SRDC) Chair]*
- ☑ **Jones, Dr Gary** *[In the role of School Research Degree Committee (SRDC) Chair]*
  ✓ *Signed – 30 Jan 23*

Close

Project Approval - Outcome Confirmation 30 Jan 2023 10:14

20°C Partly sunny Search ENG UK

Appendix B: Research and Ethics Committee Approval



Nottingham Trent University

Ethics Application Form

Ethics Application: AN EXPLORATION OF THE IMPACT OF POPULATION GROWTH AND FAMILY SIZE ON HEALTH AND SOCIO-ECONOMIC WELLBEING IN SELECTED STATES OF NORTHERN NIGERIA

ID: 1620780

Details:

Applicant:	Samuel Oluwasogo Dada
Funder (if applicable):	
Status:	Favourable Opinion
Project Duration:	1 Apr 2022 - 1 Apr 2026
Submitter:	Samuel Oluwasogo Dada
Department:	SOC School Office
Student Project?	Yes - Research degree (e.g. PhD & MD)
Supervisor:	Mathew Nyashanu
Date Submitted:	9 Dec 2022, 19:42
Decision Date:	24 Jan 2023, 12:56
Approval End Date:	1 Apr 2026
Chair's Action:	
Conditional Approval:	
Response:	Following resubmission, we are pleased to inform you that the Schools of Business, Law and Social Sciences Research Ethics Committee (BLSS REC) were happy to verify that in their judgement there were no outstanding ethical concerns that required further discussion or exploration prior to data collection and as a result the Committee is satisfied that your research ethics application has met with a favourable ethics opinion. The favourable ethics opinion of your application is valid until **01 April 2026**. Should your project extend beyond this time then an application for an extension would need to be submitted to the BLSS REC through the Worktribe Ethics Module. Please note: your project has been granted a favourable ethics opinion based on the information provided in your application. However, should any of the information change at any point during your study or should you wish to engage participants to undertake further research, then you are required to resubmit your application to the BLSS REC through

BABCOCK UNIVERSITY
HEALTH RESEARCH ETHICS COMMITTEE

Our Ref. NHREC/24/01/2020 Your Ref. BUHREC744/22 Date: November 07, 2022

NAME OF PRINCIPAL INVESTIGATOR: DADA SAMUEL O.

TITLE OF STUDY: AN EXPLORATION OF THE IMPACT OF POPULATION GROWTH AND FAMILY SIZE ON HEALTH AND SOCIO-ECONOMIC WELLBEING IN SELECTED STATES OF NORTHERN NIGERIA.

RESEARCH LOCATION: NORTHERN NIGERIA.

NOTIFICATION FOR ETHICAL APPROVAL

Babcock University Health Research Ethics Committee has approved your research proposal and other related materials after the necessary reviews and corrections.

The National code for Health Research Ethics requires that you comply with all institutional guidelines, rules and regulations. All forms and questionnaire must carry the assigned BUHREC number. No changes are permitted in the research without prior approval by the Committee.

Please, note that the Committee will monitor the research study. All data collection must be completed within twelve calendar months (One year), from the date stated on this approval.

You are expected to give a progress report of the investigation and submit a final copy of the research to the Committee.

This approval is with effect from November 02, 2022.

Thank you.

BABCOCK UNIVERSITY RESEARCH ETHICS COMMITTEE Date. Nov. 8, 2022

Professor K. O. Ogunwenmo
Chairman, Babcock University Health Research Ethics Committee
09133507122

Appendix C: Informed Consent Form

Nottingham Trent University

INFORMED CONSENT FORM FOR PARTICIPANTS

STUDY TITLE	An Exploration of the Impact of Population Growth and Family Size on Health and Socio-Economic Wellbeing in Selected States of Northern Nigeria
Short Title	Impact of Population Growth and Family Size on Health and Socio-Economic Wellbeing

NAME OF PRINCIPAL INVESTIGATOR: Mr. Samuel Dada (Doctoral student)

AFFILIATION: Institute of Health and Allied Professions, School of Social Sciences, Nottingham Trent University, United Kingdom.
TELEPHONE: +234 7064 202918
EMAIL ADDRESS: Samuel.dada2021@my.ntu.ac.uk/

1. **DIRECTOR OF STUDY**: Dr. Mathew Nyashanu

AFFILIATION: Institute of Health and Allied Professions, School of Social Sciences, Nottingham Trent University, United Kingdom
TELEPHONE: +44 (0)115 848 2672
EMAIL ADDRESS: mathew.nyashanu@ntu.ac.uk

2. **SUPERVISOR**: Dr. Dung Jidong

AFFILIATION: Department of Psychology, School of Social Sciences, Nottingham Trent University, United Kingdom
TELEPHONE: +44 (0)115 848 6478
EMAIL ADDRESS: dung.jidong@ntu.ac.uk

3. **SUPERVISOR**: Prof Linda Gibson

AFFILIATION: Institute of Health and Allied Professions, School of Social Sciences, Nottingham Trent University, United Kingdom
TELEPHONE: +44 (0)115 848 5593
EMAIL ADDRESS: linda.gibson@ntu.ac.uk

	Please Initial Each Box
1) I, ----------agree to partake as a participant in the above study. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, and without my rights being affected	
2) I understand from the participant information sheet, which I have read in full, and from my discussion with **Mr. Samuel DADA** that my participation in this study will involve me answering interview questions for about 45minutes	

Nottingham Trent University

3) It has also been explained to me by **Mr. Samuel DADA** that there are no risks or side effects that may result from my participation in this study except my time in answering the interview questions ☐

4) I confirm that I have had the opportunity to ask questions about the study and, where I have asked questions, these have been answered to my satisfaction. ☐

5) I undertake to abide by university regulations and the advice of researchers regarding safety. ☐

6) I understand that any personal information regarding me gained through my participation in this study, will be treated as confidential and only handled by individuals relevant to the performance of the study and the storing of information thereafter. Where information concerning myself appears within published material, my identity will be kept anonymous. ☐

7) Consent for storage and use in possible future research projects: ☐

I agree that the information gathered about me can be stored by **Mr. Samuel DADA** at Nottingham Trent University, UK for possible use in future projects of a similar nature. I understand that some of these projects may be carried out by researchers other than **Mr. Samuel DADA, Prof Linda Gibson, Dr. Mathew Nyashanu, and Dr. Dung Jidong** (research team) who ran the first project, including researchers working for commercial companies.

8) I confirm that I am 18 years of age or older. ☐

9) I confirm that I have no reason, medical or otherwise that would prevent me from partaking in this research. ☐

Please contact the LSE Governance and Legal Services Team at lsegovernanceand@ntu.ac.uk if:

i. you have a query about how your data is used by the University.
ii. you would like to report a data security breach (e.g., if you think your personal data has been lost or disclosed inappropriately)
iii. you would like to complain about how the University has used your personal data.

Participant name and signature		Date	
Primary Researcher's name and signature		Date	

*When completed: 1 for participant; 1 for researcher site file; 1 to be kept in medical notes (if appropriate).

Appendix D: Information Sheet

Nottingham Trent University

PARTICIPANT INFORMATION SHEET

STUDY TITLE

An Exploration of Effects of Population Growth and Family Size on Health and Socio-Economic Wellbeing in Northern Nigeria.

INVITATION AND A BRIEF SUMMARY

I am Samuel Oluwasogo DADA, a Ph.D. student at Nottingham Trent University (NTU), United Kingdom. I am inviting you to participate in my study aimed at exploring the effects of Population Growth and Family Size on Health and Socio-Economic Wellbeing in Northern Nigeria.

The project has gone through the relevant NTU research ethics procedures and has been given a favourable ethics opinion by Nottingham Trent University's Schools of Business, Law, and Social Sciences Research Ethics Committee.

This study is adopting a qualitative research approach using Focus Group Discussions (FGDs), Key Informant Interviews (KIIs), and In-depth Interviews (IDIs) methods. The research anticipates providing evidence for an informed population policy formulation and/or an amendment. It may also provide evidence to guide interventions toward addressing and managing the impact of population growth in Nigeria and other African countries. Please be assured that the information gathered will be completely anonymised and treated as highly confidential. Should you wish to stop participating in this research at any time, you are free to do so without any consequence. Each interview will last about 30 minutes. Be very assured that all notes that would be taken, and recordings will be kept very securely and safely.

WHAT WOULD TAKING PART INVOLVE?

Your participation in the study would help to consider your views on population growth in northern Nigeria and the factors that are contributing to it. Taking part will require your time to respond to some of the interview questions and you have the right to respond or choose otherwise as your participation is entirely voluntary.

WHAT ARE THE POSSIBLE BENEFITS OF TAKING PART?

This research guarantees no direct benefits to participants, however, evidence from this research is aimed to guide interventions toward addressing and managing the impact of

population growth in Northern Nigeria and other African countries. This will help in achieving good health for all.

WHAT ARE THE POSSIBLE DISADVANTAGES AND RISKS OF TAKING PART?

There is no risk in participating in this study. This study would involve no form of invasive material or course any side effects to research participants.

WILL MY TAKING PART IN THE STUDY BE KEPT CONFIDENTIAL?

Confidentiality is assured at all stages of your participation in this study. Be informed that there would be no access to your data by a third party except by the researcher and the supervisory team. The audio recordings will be transferred to a secure password-protected computer. Audio files will be uploaded to the NTU DataStore and deleted from the original devices once correctly uploaded. All notes taken during interviews will be shredded as soon as it is appropriate and once they have been written up in an MS Word document. Kindly be aware that Pseudonyms will be used for transcripts and a key will be retained in a separate file saved in a folder. All folders will be organised carefully and stored on NTU DataStore

WHAT WILL HAPPEN TO MY DATA?

The data would be analysed and the results of the findings will be made public at a community town hall meeting and through publication in a peer review journal. It will also be used to influence policy decisions. However, kindly note that no identifiers would be traced to you. All data and de-identified interview transcripts from this research will be deleted and erased from the archive and saving devices after 10 years and in line with NTU Records Retention Schedule. This study is carried out in the interest of the public good. Therefore, all information gathered will be securely protected.

WHAT WILL HAPPEN IF I DON'T WANT TO CARRY ON WITH THE STUDY?

Participation is entirely voluntary and research participants have the right to change their minds and withdraw at any stage of the research without any consequence. If you withdraw at any stage of the research, your data in the research will be destroyed unless you state otherwise that the data so far collected be used as part of the data analysis.

WHAT HAPPENS AT THE END OF THE STUDY?

The results of this finding will be published in peer-review journals and presented at conferences and feedback would be given to participants and community stakeholders. This research is being undertaken to contribute to the fulfilment of my NTU Doctoral Degree

Please contact the LSE Governance and Legal Services Team at lsegovernanceand@ntu.ac.uk if:

i. you have a query about how your data is used by the University
ii. you would like to report a data security breach (e.g., if you think your personal data has been lost or disclosed inappropriately)
iii. you would like to complain about how the University has used your personal data

WHAT IF SOMETHING GOES WRONG?

If you have any problems or encounter any challenges during the study or would like to discuss the study, you can contact the research principal investigator and any members of the supervisory team. You can find the contact details below.

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Appendix E: Focus Group Discussion Guide with Community Members

Participants ID: ……

Introduction:

Good day! I am Samuel Oluwasogo DADA, a Ph.D. student at Nottingham Trent University, United Kingdom and I will be facilitating this FGD. My partner here would be helping me with note-taking. I appreciate your time to be available today for this discussion. Our interaction today would center around your perception of the impact of population growth and family size and its relation to health and socio-economic well-being in Northern Nigeria. I would also like to know your views about birth control. Please be assured that the information gathered will be completely anonymised and treated as highly confidential. Should you wish to stop participating in this discussion at any time, you are free to do so without any consequence. The information that will be discussed today will help us to understand better ways to address issues relating to family size and population growth in Northern Nigeria.

We would be recording the discussion so we can go back and listen to any information we may miss during notetaking. We assure you that all notes taken, and recordings will be kept very securely and safely. Is everyone comfortable with recording this discussion? (participants' consent would be confirmed).

While speaking, we ask that you take turns and do not interrupt fellow participants. We are interested in everyone's opinion, so let's respect each other's views. This discussion would last only about 40 minutes.

Does anyone have questions before we begin?

Socio-demographics

1. Age (in years) as of last birthday_____

2. Family type: a. Nuclear [ ] b. Extended [ ]
3. Household numbers_____
4. Average family income (in Naira) _____
5. Family size: a. Large [ ] b. Small [ ]
6. Religion: a. Christian [ ] b. Muslim c. African Traditional [ ] d. Atheist [ ]
7. Employment Status: a. Employed [ ] b. Unemployed [ ] c. Self-employed [ ]
8. Gender: a. Male [ ] b. Female [ ] c. Prefer not to say [ ]
9. Level of Education: a. Primary [ ] b. Secondary [ ] c. Tertiary [ ]

List of Questions

1. How would you describe a large family in the Nigeria of today?
2. What are some general problems that affect families in this community?
3. How is your family protected from these challenges?

   ***Probe**: If issues of security, austerity, and lack of food are not mentioned, ask about them*
4. In your opinion how does the size of a family or the community population contribute to these problems
5. What do you think a small family size should be like? ***How many children? Why do you think so?***
6. What do you think a large family size should be like? ***How many children? Why do you think so?***
7. What are the factors that you think contribute to family size decisions in this community?
8. In your opinion, what are the reasons that make a family have many children?

   ***Probe** for farming, religion, culture, and access to family planning services*

9. How do your religion, cultural beliefs, and traditional practices influence your family size decision?
10. Between a large and small family size, which one do you prefer?

    Probe *for why*
11. Who determines the number of children you have? Your spouse or both of you? ***And why?***
12. What do you think are the effects/ impact of large family size?

    Probe *for out-of-school children, more family expenses, poor health outcomes, insecurity, increased morbidity, and mortality*
13. What do you think are the effects/ impact of small family size?

    Probe *for focused care, improved health, high academic performance, prosperity, reduced family expenses…*
14. How does your family size impact your family's health and expenses?
15. What do you think can be done to address population growth in Northern Nigeria?

    (Dwell on this question)
16. Do you think using birth control can prevent giving birth to many children and result in small family sizes? ***Why do you think so?***
17. What birth control methods are you currently using, and can you encourage others to use them?

    a. ***Probe*** *for the specific birth control methods they are using.*

    b. *For those not using any birth control methods, ask for the reason why.*
18. In what ways do you think husbands and wives can be encouraged to use birth control methods?
19. Is there anything you wish to add that has not been covered in this interview?

Thank you!

Appendix F: Interview Guide for Stakeholder Interviews

Interview Guide for Traditional, Religious Leaders and Policy Makers

Participants ID:……

List of Questions

a) How would you describe a large family in Nigeria of today?
b) What are some general problems that affect families in this community?
c) How is your family protected from these challenges?
   ***Probe**: If issues of security, austerity, and lack of food are not mentioned, ask about them*
d) In your opinion how does the size of a family or the community population contribute to these problems
e) What do you think a small family size should be like? ***How many children? Why do you think so?***
f) What do you think a large family size should be like? ***How many children? Why do you think so?***
g) What are the factors that you think contribute to family size decisions in this community?
h) In your opinion, what are the reasons that make a family have many children?
   ***Probe** for farming, religion, culture, and access to family planning services*
i) How do your religion, cultural beliefs, and traditional practices influence your family size decision?
j) Between a large and small family size, which one do you prefer?
   ***Probe** for why*
k) Who determines the number of children you have? Your spouse or both of you?
l) What do you think are the effects/ impact of large family size?
   ***Probe** for out-of-school children, more family expenses, poor health outcomes, insecurity, increased morbidity, and mortality*
m) What do you think are the effects/ impact of small family size?
   ***Probe** for focused care, improved health, high academic performance, prosperity, reduced family expenses…*
n) How does your family size impact your family's health and expenses?
o) What do you think can be done to address population growth in Northern Nigeria?
   (Dwell on this question)
p) Do you think using birth control can prevent giving birth to many children and result in small family sizes? ***Why do you think so?***
q) What birth control methods are you currently using, and can you encourage others to use them?
   a. ***Probe** for the specific birth control methods they are using.*
   b. *For those not using any birth control methods, ask for the reason why.*
r) In what ways do you think husbands and wives can be encouraged to use birth control methods?
s) Is there anything you wish to add that has not been covered in this interview?

Appendix G: Sample of Interview Transcribe

Q: Thank you very much, sir. So, in your opinion, what do you think about large family size in the Nigeria of today?

A: Okay. In, Nigeria of today, large family is very, very good, when you have faith. If you have the faith, the large family is very, very okay. Because... The more you acquire them, the more Allah provide for you. The higher you go into it, the higher Allah give to you. Before Allah give you a child or whosoever or a woman, Allah will provide what you will be feeding the baby or the woman together. He will not leave you behind except if you don't have the faith, but if you have acquire a large family and say this will be somehow, that is how it will be. And if you have the believe that if you have large family it will be better for you, so shall it be. But if you think otherwise, it will be like that. That is how it will be. And in my view, you will remain where you are.

Q: In your opinion, how many children will somebody have before you can say this is a large family, for example?

A: Large families start from 10. Large families start from 10, 50, 20, 20, or above that. Any family size below that is small.

Q: Okay. In your opinion, what do you think are some of the reasons that will make someone want to have a large family.

A: The reason that will make you say that you have a large family is the God that created me and you, he needs us to have a large family. You understand? So because of that, if you have faith, he doesn't have to be heavy or difficult no matter the number of children you have

Q: In this community what are some of the challenges that you think people with large families are facing?

A: The challenge that large families face is, education. And maybe Sickness is but if you try by all means with calculation to make sure you give them the two side, which is Islamic. Side and English side. If you can be able to offer out those things, you feel joy in your life, like I, as I am today, I feel joy because some of my children, some are graduating in higher institution and in fact, before they graduate, they know something about Islam. So as I'm here, I feel joy in life and I don't feel any headache in that. But if you don't know, You think that, uh, when somebody accumulate a large family, you'll be having problem to train the children to do this, to do that. It's not like that. He (Allah) is the one that you believe he will provide for you because he knows your faith.

Q: What do you think are some of the effects? the impact that large family size brings.

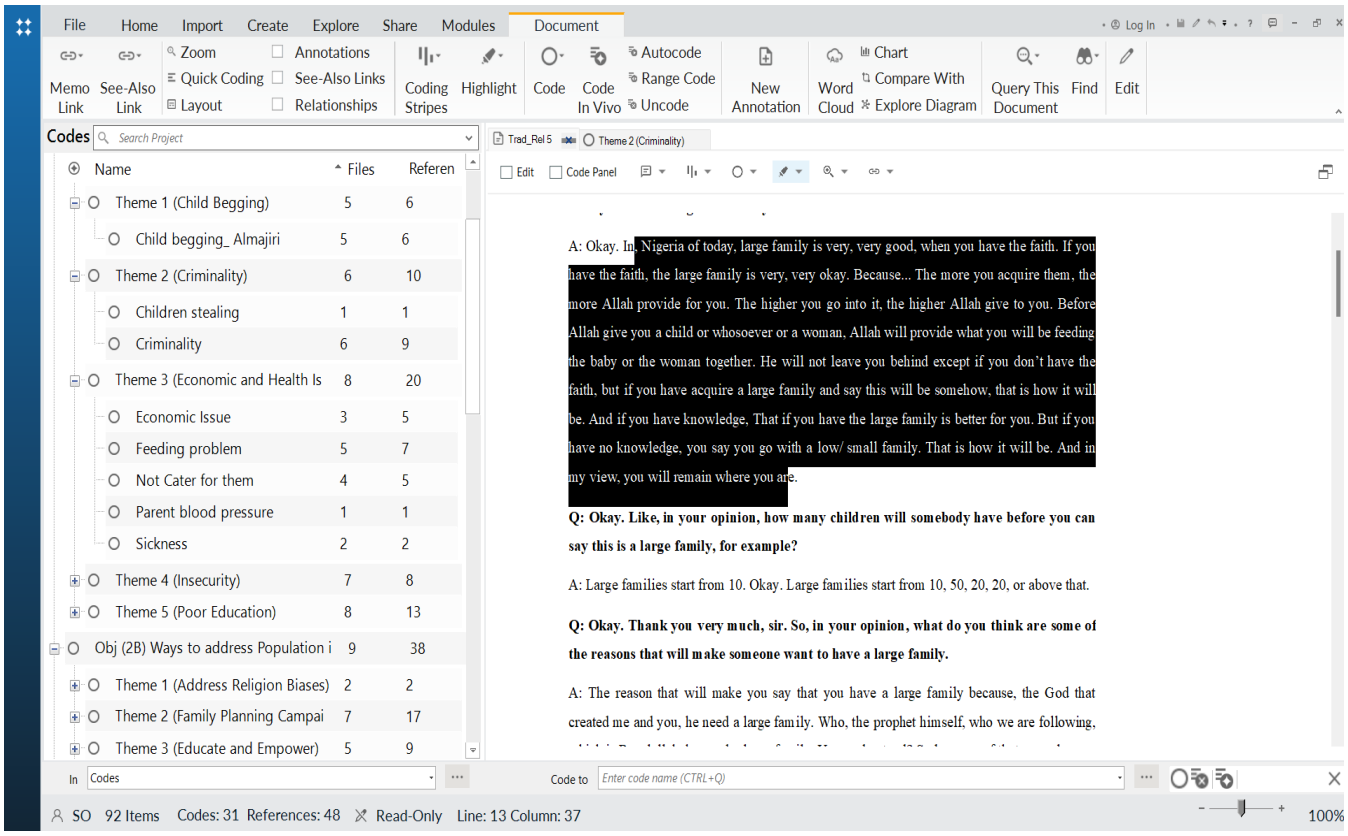
A: You know, in, in other side, don't be a liability for each other's system. You always make sure before you accumulate them, you get one or two things on the other to acquire on yourself so that Allah will put hijaba (blessings) for you, so that you can have something to sustain them. If you do not go to school, be a hard worker or be a farmer. If you have work and have large family everything will go smoothly with you. But if you don't have that, uh, uh, uh, it will be financially hard.

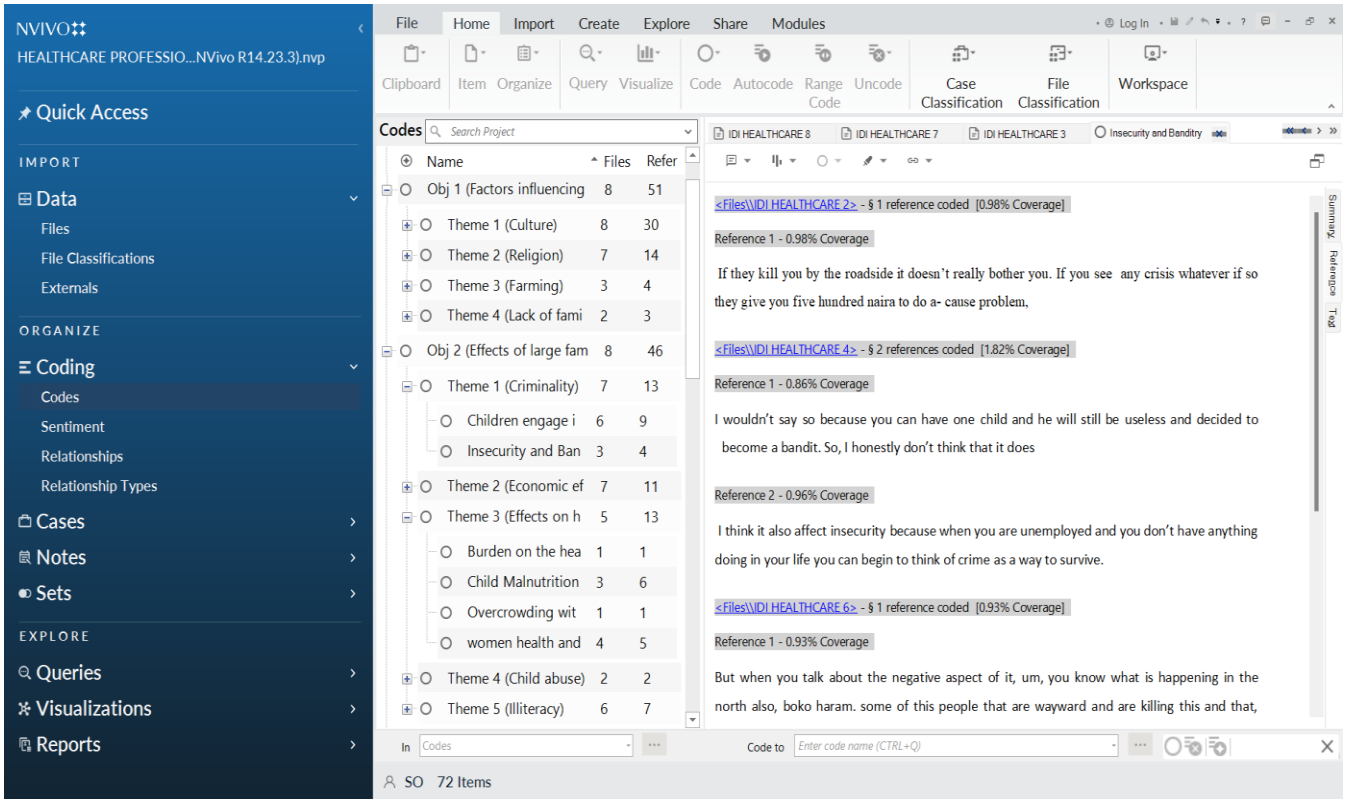
Q: What do you think the population growth in the north has caused this country?

A: We in the north believe the population is to our advantage for political negotiations. We believe many children is a material to us. Whenever you see we are been dragging something good, reasonable we always get the upper hand because we prepares from the beginning to accumulate the children.

Q: To Address the population of the North, what are some of the things that can be done to control the population?

Appendix H: Screenshot of QSR NVIVO data management





Appendix I: List of Conference Attendance and Presentations Associated to this Thesis

Dada, S.O, Nyashanu, M., Jidong D.E., & Gibson. L (2024). Exploring the health and socio-economic impacts of family size in Northern Nigeria. An oral Presentation at the workshop on Family Diversity and Social Inequality: A Global Perspective, Germany, July 3- 4, 2024.

Dada S.O (2024). The impacts of large family size on socio-economic well-being in the Northern region of Nigeria. An oral Presentation at the Sociology of Global Health and Development Symposium, Nottingham Trent University, UK, July 1, 2024

Dada S.O., & Jidong D.E (2023). The socio-economic and health impacts of large family size: A case study of Northern Nigeria. An oral presentation at the 3rd International Culture and Mental Health Symposium, April 14th, 2023.

Dada, S.O, Nyashanu, M., Jidong D.E., & Gibson. L (2025). An exploration of the impacts of large family size and population growth on health and socio-economic wellbeing in Northern Nigeria. International Population Conference, 13-18 July 2025, Brisbane, Australia (Upcoming)- Abstract Submitted

Appendix J: List of Publications Associated with this Thesis

Dada S.O., Nyashanu M, Jidong D.E., & Gibson L. (Under peer review). The Health and Socio-economic Impacts of Large Family size and population growth using the Nigerian Perspective: Literature Review. *Sage Open.*

Sodi, T., Rantho, K., Matlakala, F. K., Wadende, P., Ikhile, D., **Dada, S. O**., … Gibson, L. (2025). Types and effectiveness of mental health promotion programmes for young people in sub-Saharan Africa: A systematic review. *Cambridge Prisms: Global Mental Health*, *12*, e27. doi:10.1017/gmh.2024.153

Dada, S.O., Chireshe, R., Nyambayo, I., Ekpenyong, M.S., & Nyashanu. M. (2024). Utilisation of Modern Contraception Among Married Couples in Nigeria Underpinned by the Socio-ecological Model. *Emerging Perspectives on Society, Health, and Economics in Sub-Saharan Africa. Book Chapter, (1st Ed.).* Ethics International Press: pages 89-103

Nyashanu M., **Dada S.O.,** Mudzimu E.R., Chireshe R., Maramwidze E., & Ekpenyong, M.S. (2024). Transforming Health Promotion and Community Engagement through Ubuntu Philosophy: A Case Study narrating the creation of the Ubuntu Health Promotion Model. *Emerging Perspectives on Society, Health, and Economics in Sub-Saharan Africa. Book Chapter, (1st Ed.).* Ethics International Press: pages 188-204

Nyashanu M, Mushonga F.T, **Dada S.O** & Ekpenyong, M.S (2024). Examining the Impact of HIV-Related Stigma in People Living with HIV: A Systematic Literature Review. International *Journal of Reproduction, Contraception, Obstetrics and Gynaecology* 13(10):2875-2885

Udochi-Nwachukwu A.P., **Dada S.O.**, and Nyashanu M (2023). The Use of Indigenous Communication Media for Children's Vaccination and Immunisation Promotion in Rural Communities of Abia State, Nigeria. *Journal of Public Health and Primary Care*. 4 (3), 162-167.