UNIVERSITY OF SOUTHAMPTON

FACULTY OF HUMAN, SOCIAL AND MATHEMATICAL SCIENCES

Social Statistics and Demography

Sociocultural barriers to family planning in the high fertility context of Nigeria

By

ADANIKIN, Abiodun Idowu

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ABSTRACT

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Despite several family planning interventions, there has been little improvement in contraceptive use in Nigeria where fertility rates have remained high for the last few decades. Using a mixed-methods approach, this thesis aims to understand the pertinent factors underlying the resistance to fertility decline in the country, with a focus on social and cultural barriers to family planning. The analyses are based on quantitative data drawn from the 2013 Nigerian Demographic and Health Survey (NDHS) and qualitative data collected from a semi-urban residential area in Ekiti State. The findings of the thesis are presented in a three-paper format. The first analysis applied life tables and proportional hazard regression to NDHS data to examine the association between child mortality and fertility behaviour.

The findings show that recurrent experience of child deaths exacerbate the risks to higher parity transition. The second analysis used couple dataset from the NDHS to investigate the influence of men's contraceptive perceptions on family planning demand and use. The findings highlight that men's perception of contraception as women's business did not significantly influence family planning demand, however their concern that wife's contraceptive use may lead to promiscuity was associated with lower demand for family planning and higher traditional method use. The third analysis used vignette and thematic analysis from qualitative data to examine couples' contraceptive decision-making processes and wife's empowerment to adopt family planning in situations where husband opposed family planning. The findings demonstrate imbalance in power relation and decision-making within marital relationships, and that women are poorly empowered to overtly use contraceptives when opposed by their partners.

The findings direct the need to adopt targeted approach focusing on couples, and reorient policy and program efforts for FP counselling and behavioural changes in men. Interventions aimed at reducing fertility in Nigeria should aim at promoting child survival and family planning concurrently.

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ACADEMIC THESIS: DECLARATION OF AUTHORSHIP

I, ADANIKIN ABIODUN IDOWU declare that this thesis entitled, "**Sociocultural barriers to family planning in the high fertility context of Nigeria**"**,** and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. Parts of this work have been published as:

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Signed: .....

Date: .....

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To my Lord and my Saviour, Jesus Christ, thank you for grace, the strength, the favour and the gift of life to start and finish. You did it all!

List of acronyms

USAID	The United States Agency for International Development
UNFPA	The United nation Population Fund
DFID	The Department for International Development
WHO	World Health Organization
NPC	National Population Commission
DHS	Demographic and Health Survey
TFR	Total Fertility Rate
CEB	Children Ever Born
FP	Family Planning
IBI	Inter-Birth Interval
PPR	Parity Progression Ratio

Chapter 1

Introduction

This thesis contributes to a better understanding of socio-cultural factors underlying high fertility and low contraceptive use in Nigeria. This chapter presents the background, the rationale for the study, the key research questions, and outlines the structure of the thesis.

1.1 BACKGROUND

Family planning (FP) is considered a key part of any comprehensive developmental strategy (Bongaarts, 2014, Cates, 2010). Aside empowering couples to plan the number and the spacing of their children, FP also contribute to health and overall quality of life of the population (Frost et al., 2007). Specifically, it has been established that FP has a major role in ensuring the optimal health and wellbeing of mothers and their children as its adoption could lower maternal death by 32% and childhood death by 10% (Cleland et al., 2006). Furthermore, improvement in FP uptake can lower fertility and reduce poverty and hunger (Cleland et al., 2006, UNFPA, 2013).

It has been estimated that a worldwide adoption of FP would prevent 54 million unintended pregnancies annually, lead to 26 million fewer abortions (of which 16 million would be unsafe) and avert about 272,000 maternal deaths (Population Action International, 2010, Ahmed et al., 2012, Singh and Darroch, 2012, Moreland and Talbird, 2006). However, despite these benefits wide discrepancy exists in FP utilisation among population subgroups,

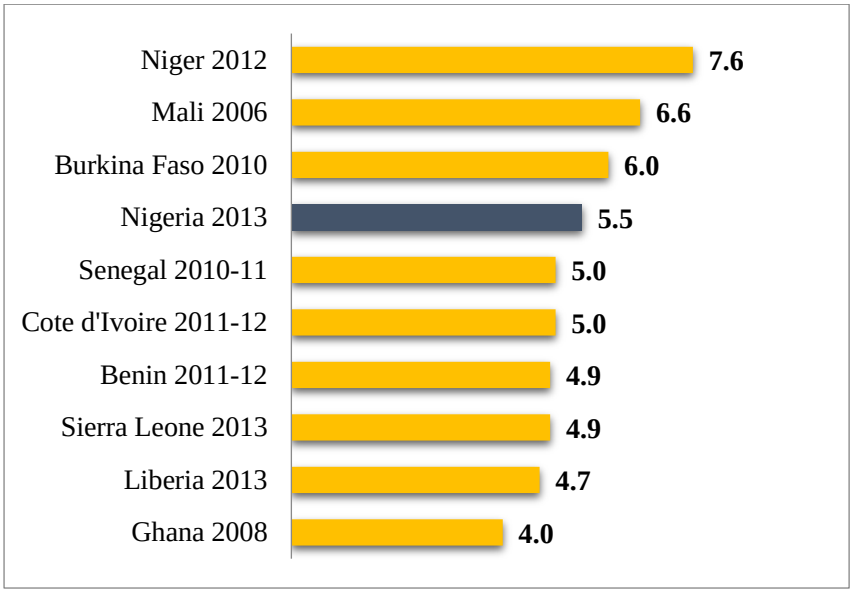
resulting in differences in fertility rates, maternal and child wellbeing, and developments in various parts of the world (Cleland et al., 2012).

Recently, population scientists has given special attention to fertility reduction and enhancement of contraceptive uptake in sub-Saharan Africa. Although 64% of married/in-union women use contraceptives globally, uptake is particularly low in Africa where the average contraceptive prevalence is 33%. When African region is disaggregated however, spatial variation in contraceptive prevalence is apparent, for example by sub-regions – Northern Africa [53%], Southern Africa [64%], Eastern Africa [40%], Middle Africa [23%] and Western Africa [17%] (United Nations, 2015a). Though multiple national and international organizations have deployed financial resources to fund FP program in the sub-regions which may be considered low contraceptive 'hotspots', the outcome has not been encouraging as FP use remains low (Cleland et al., 2012). The argument is that fertility remains high in these places because having many children is perceived as socially and economically advantageous (Caldwell et al., 1992, Cleland and Wilson, 1987, Caldwell and Caldwell, 1987). Recent cross-cultural evaluation identifies high ideal family size as an important obstacle to fertility decline in Africa (Korotayev et al., 2016). However, the assumption of a resolute pro-natalistic view has been challenged as rising incidence of induced abortions in the region shows that not everyone want many children or at least some people desire to delay/limit childbearing (Ogunjuyigbe et al., 2010). Moreover, available data show that in developing countries about half of sexually active reproductive age women (818 million) desire to stop childbearing or delay it for at least 2 years (Population Reference Bureau, 2012), although 25% of them (approximately 215 million) are not using modern contraception (Bongaarts et al., 2012, UNFPA, 2013, Darroch et al., 2011)

Within sub-Saharan Africa, Nigeria presents a typical example of a country where little progress has been made with regards to contraceptive uptake and lowering of fertility. The

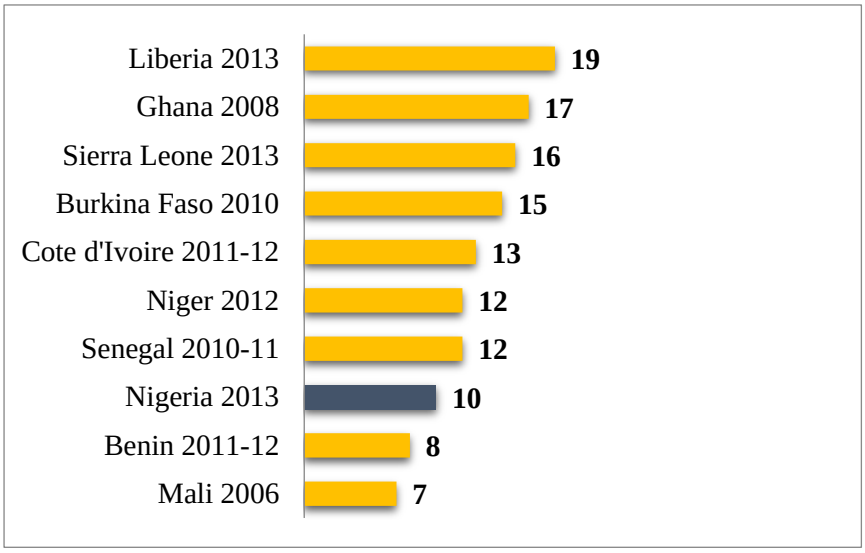
country's fertility has remained at high levels next to Niger, Mali and Burkina Faso in West Africa (Figure 1.1). Similarly, the country ranks low in terms of modern contraceptive use. When ten West African nations were compared, Nigeria ranked 8th in modern contraceptive use (Figure 1.2).

Figure 1.1: *Total fertility rates (TFR) in West African countries*



Source: 2013 Nigeria DHS report

Figure 1.2: *Modern contraceptive prevalence in West African countries*



Source: 2013 Nigeria DHS report

It is also a concern that when married reproductive age women who are contraceptive non-users were asked of their future contraceptive intention during the 2013 DHS, 63% of them indicated that they still do not intend to use contraception in the future, another 10% were unsure of using it, and only 23% indicated future intention to use (NPC [Nigeria] and ICF International, 2014). The response shows that closer attention needs to be paid to promoting the acceptance of FP in Nigeria.

1.2 NIGERIA'S FERTILITY IN CONTEXT: THE RATIONALE FOR STUDY

Nigeria, situated in West Africa (Figure 1.3), has the largest population in Africa and the 7th most populous nation in the world (Population Reference Bureau, 2016, United Nations, 2015a).

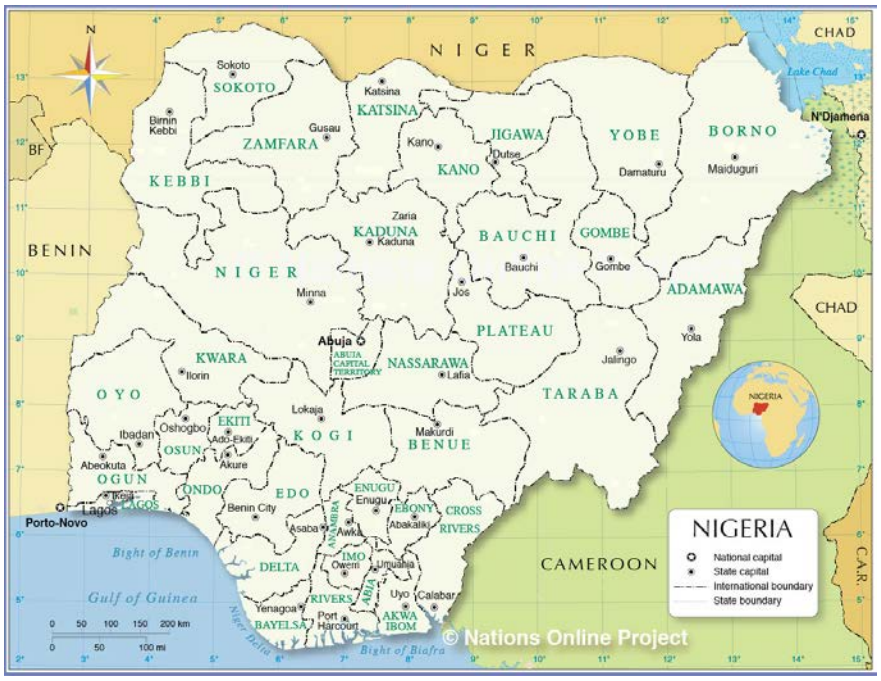
Figure 1.3: *The map showing Nigeria in West Africa*

Source: http://www.nsbe.org/Regions/Region1/Membership/Geographical-Zones/West-African-Zone.aspx

The country was formed by the British in 1914 following the amalgamation of the Northern and Southern Protectorate, it however did not gain independence until the 1st of October,

1960. The nation has about 389 ethnic groups. Although Nigeria is currently sub-divided into 36 States and a Federal Capital Territory (Figure 1.4), significant differences in culture, religion, economic activities and social equality based on the regional formation persist (Lamidi, 2016, Aka, 1995, Nmehielle, 2004).

Figure 1.4: *The map of Nigerian states with their capitals*



Source: http://www.nationsonline.org/oneworld/map/nigeria-administrative-map.htm

Indisputably, Nigeria has one of the highest fertility rates and lowest contraceptive uptake in the world (Population Reference Bureau, 2016, Singh et al., 2009). With a population of about 170 million people, annual growth rate of 2.8% and a total fertility rate of 5.5, in the absence of family planning interventions, it is projected that the country's population would double within a quarter of a century (United Nations, 2015a, NPC [Nigeria] and ICF International, 2014). The population size has already put immense pressure on the limited socio-infrastructures including education, economic empowerment and health and social care.

Consequently, there is poverty, insecurity and poor state of health – especially affecting women and children (Hogan et al., 2010, NPC [Nigeria] and ICF International, 2014, World Bank, 2016b).

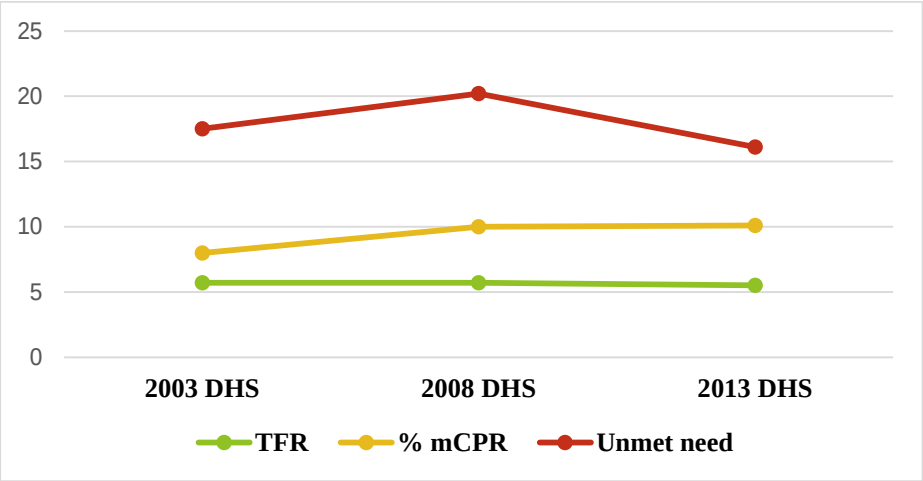
For example, between the last two DHS (2008 and 2013), there was no improvement in maternal mortality ratios (MMR) in Nigeria (Austin, 2015, NPC [Nigeria] and ICF International, 2014). In 2013 alone, maternal deaths from Nigeria accounted for 14% of the global maternal mortality burden, though the nation's population is just 2% of the world's population (World Health Organization, 2014). Childhood mortality rates are also far from being acceptable. In the period between 2009 and 2013, the infant mortality rate only marginally declined from 75 to 69 per 1000 live births (NPC [Nigeria] and ICF International, 2014). As of 2015, the under-five mortality rate for Nigeria stood at 109 per 1000 live births compared to 4 per 1000 live births in the United Kingdom (World Bank, 2016a).

The Nigerian government first responded to the demographic concerns by formulating a National Policy on Population and Development in 1988 (Federal Republic of Nigeria, 1988). The Policy's salient goals were to reduce the number of women bearing more than 4 children by 50% by the year 1995 and by 80% by the year 2000. The policy also sought to reach the same percentages of women (50% and 80%) to use FP by 1995 and 2000 respectively (Federal Republic of Nigeria, 1988). The policy however failed to achieve the stated objectives. Critiques of the 1988 population policy suggested that it failed, first and foremost, because it did not recognise the socio-cultural landscape within which women's fertility occurs. The policy targeted the control of women's fertility while disregarding men's reproductive motivation. It ignored the influence of patriarchal structures on women's fertility, and polygyny was untouched. Aside these, it did not acknowledge women's reproductive rights in fertility control (Adegbola, 2008, Enang and Ushie, 2012, Obono, 2003).

The policy was revised in 2004 to become the National Policy on Population for Sustainable Development (Federal Government of Nigeria, 2004). The revised population policy abandoned stipulating number of children for women. It focused on improving the quality of life and standard of living of people through the attainment of specific goals, which among others include the achievement of a balance between the rate of population growth and available resources (a growth rate ≤ 2% by 2015), a target reduction in total fertility rate by at least 0.6 every five years through effective contraceptive use, and a reduction in child mortality rate to 45 per 1000 live births by 2015 (Federal Government of Nigeria, 2004). However, further evaluation showed that progress fell short of the goals because of inadequate policy dissemination and limited content knowledge, weak enabling environment and poor institutional memory as a result of shifts in government (National Population Commission of Nigeria and Health Policy Project, 2015).

In Nigeria, there is considerable difference between knowledge and use of contraception (NPC [Nigeria] and ICF International, 2014, Avidime et al., 2010, Adinma et al., 2011). Over the last two decades (1990-2013), modern contraceptive use among married women increased only marginally from 4% to 10%, although contraceptive knowledge among these women increased from 42% to 82% during the same period (Federal Office of Statistics, 1992, NPC [Nigeria] and ICF International, 2014). The last three DHS showed stagnation in total fertility rate (TFR), with no discernible improvement in modern contraceptive prevalence rate, and high unmet need (Figure 1.5).

Figure 1.5: *10 years (2003-2013) fertility and contraceptive trend in Nigeria*



But there are reports that improved contraceptive uptake would promote safe motherhood in Nigeria especially through prevention of unintended pregnancies (Bankole et al., 2009, Oye-Adeniran et al., 2014). Furthermore, there is growing indication to show that where countries succeed in reducing fertility, they put in place an important potential stimulant for economic development and certainly minimizes poverty trap - as reduction in birth rates generates a decline in the ratios of dependent to working age population in the medium term, and accordingly create a window for economic growth (Sinding, 2009). Hence, fertility reduction can be an essential means for poverty reduction and sustainable development in Nigeria.

With strong programmatic intervention it is possible to reduce unmet need, increase modern contraceptive uptake and lower fertility (Bongaarts, 2014). This thesis therefore aims to understand the pertinent factors underlying the resistance to fertility decline in the country, with a focus on social and cultural barriers to family planning.

1.3 MAIN RESEARCH QUESTIONS

The main research questions of the thesis are:

1. What patterns explain the transition to higher fertility in Nigeria, and how are they shaped by recurrent child mortality risks?
2. How do Nigerian men perceive family planning, and what influence does it have on spousal contraceptive demand and use?
3. How do women control their fertility when their spouses oppose family planning?

1.4 STRUCTURE OF THESIS

The thesis is presented in six main chapters. Chapter 1 is this introduction. The second chapter is the literature review and describes a conceptual framework for fertility desire and contraceptive uptake. In order to answer the three main research questions, the thesis is developed in three distinct but related papers, and adopts a mixed-methods approach using quantitative and qualitative data. The adoption of mixed research methodology gave opportunity to elaborate on the findings from quantitative data analysis. Chapters 3 to 5 present the three individual papers. A variety of analytical methods were employed to answer the research questions. The specifics of the adopted analytical methods are described in the relevant chapters. Each chapter has five sections namely, introduction, methodology, results, discussion, and strength and limitation of study.

The research question 1 is addressed in Chapter 3 of the thesis. The data source for the analysis in Chapter 3 is the individual (women's) dataset from the most recent (2013) Nigeria Demographic and Health Survey (NPC [Nigeria] and ICF International, 2014). The first

paper applies life tables and proportional hazard regression to the 2013 NDHS data to examine the association between child mortality and fertility behaviour.

The research question 2 is addressed in Chapter 4 of the thesis. It examines psycho-social influence (male partner's FP perception) on a woman's contraceptive demand and uptake. The data source for the paper is the couple's dataset of the 2013 NDHS. Two primary outcomes of interest were considered – demand for contraception and uptake of modern contraceptive methods. Binomial and multinomial logistic regression models were fitted to explain men's contraceptive perceptions on family planning demand and use.

Research question 3 is presented in Chapter 5 of the thesis. The paper explores marital contraceptive decision-making process in Nigeria and a woman's decision-power to adopt FP in the scenario that the use is opposed by her husband because of a negative perception. In this paper, I describe fieldwork that I conducted in Nigeria among couples through the use of vignette. I employed thematic analysis on primary data collected and presented the result of my findings.

The last chapter (Chapter 6) presents the thesis conclusion and recommendation based on the findings from the three papers.

Chapter 2

Determinants of fertility and contraceptive uptake: a literature review

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This chapter presents relevant literature review to the thesis, and introduces a conceptual framework to describe factors at individual, societal and service provision (systems) level associated with fertility desire and contraceptive use.

2.1 Introduction

A number of studies have attempted to investigate fertility and contraceptive practices globally, majority of which have been published in peer-reviewed international journals. The summative considerations from these papers include important factors which possibly drive fertility and facilitate/hinder contraceptive uptake in different populations, culture and institutional settings. There are also scholarly articles that specifically considered fertility and family planning in Nigeria. In this chapter, a review of literature is presented based on evidence from existing scholarly articles and how they contribute to the current research focus.

The literature search covered seven databases that abstract peer-reviewed journals relevant to social sciences and, population and reproductive health: Web of Science, PopLine, PsycINFO, PubMed, Scopus, Google Scholar, and African journal online (AJOL). The databases were selected to capture diverse geographical area, disciplines and perspectives pertinent to fertility and family planning. In searching the databases, a range of fertility and family planning related terminologies (e.g. “high fertility”, “fertility desire”, “birth transition”, “parity progression”, “mortality and fertility”, “family planning”,

"contraception", "birth control", "contraceptive myth", etc.) were used. Based on the research focus, I also searched the database specifically for relevant articles on "Nigeria", and "Africa". The literature search period was mostly limited to 2003-2018, but in few instances the period was expanded to get more articles.

2.2 Socio-demographic characteristics associated with fertility and contraception

Evidence from various regions of the world presents insights into the influence of socio-demographic attributes on fertility and the decision to use FP methods. While women in union are likely to be more intentional about having children (Westoff, 2006, Klijzing, 2000), the prevalence of contraceptive use increases with women's age (Hailemariam and Haddis, 2011, Lamidi, 2015). The place of residence also influence fertility. For example, Alaba et al (2017) found that women in rural Nigeria had higher fertility than urban dwellers. The 2013 Nigeria DHS also showed variation in contraceptive uptake by place of residence (NPC [Nigeria] and ICF International, 2014, Alaba et al., 2015, Lamidi, 2015). In addition, the analysis of the 2003, 2005 and 2007 National HIV/AIDS and Reproductive Health Survey in Nigeria revealed considerable variation in the use of modern contraceptive with distinct north-south regional divide (Adebayo et al., 2013). The literature has consistently shown that women with higher education give birth to fewer children and tend to use family planning methods more (Westoff, 2012, Oginni et al., 2015). In the same vein, women from wealthier household had fewer children (Mberu and Reed, 2014, Lamidi, 2015).

2.3 Sociocultural contribution to pronatalism

Evidence from the literature identify perceived ideal fertility, based on number and/or gender, as an important contributor to reproductive behaviour (Edmeades et al., 2012). Family size expectation is known to be high generally in sub-Saharan Africa, Nigeria inclusive (Korotayev et al., 2016, Bongaarts and Casterline, 2013). In the case of Nigeria, its pronatalism defied the concept that a booming economy can lower fertility as evidence shows that even in economic prosperity high fertility persisted (Korotayev et al., 2016). The pronatalist culture is believed to be deeply rooted in traditional, social and economic systems prevalent in most African nations (Bongaarts and Casterline, 2013, Caldwell et al., 1992). The assertion offered is that the number of children a couple has in any traditional African setting is a symbol of pride, perceived as economically advantageous for the present and it is a form of social security for the future (Korotayev et al., 2016, Caldwell and Caldwell, 1987, Caldwell et al., 1992).

Nonetheless, because of fluidity in perceived ideal fertility, its definite association with reproductive behaviour has come under scrutiny. There is argument of a possibility of discrepancy in the stated '*ideal*' fertility depending on whether the responses were recorded before the commencement of childbearing or thereafter (Bhargava, 2007). Some researchers argue that ideal fertility may have less predictive power on reproductive behaviour compared to current fertility and/or future fertility intention (Kodzi et al., 2010, Dommermuth et al., 2015, Islam and Bairagi, 2003, Tan and Tey, 1994, Bankole and Westoff, 1995). The future fertility intention was assessed as being more predictive of reproductive behaviour since it has both elements of desire and planning (Stanford et al., 2000). But together, it is appreciated that both ideal fertility and future fertility intention drive child bearing and, if future course of fertility will decline, there must be changes in fertility desire towards smaller family size (Feyisetan and Bankole, 2009, Kodzi et al., 2010).

Other identified sociocultural drivers of high fertility include the practice of polygyny, male gender preferences, widespread child fosterage within kinship, cheap child nurseries and the demand of manpower for subsistence agriculture (Madhavan, 2001, Taylor et al., 1976, McNicoll, 2011, Korotayev et al., 2016, Moultrie et al., 2008, Ratcliffe et al., 2000, Bledsoe et al., 1998, Hossain et al., 2007b, Mberu and Reed, 2014). As observed by Korotayev *et al* (Korotayev et al., 2016), the continued commitment to extended family system in most African settings and the availability of cheap nurseries than the rest of the world fuels high fertility. Compared to the West where females may stop working because of childcare, mostly in Africa, women rarely leave work to rear children. The continuity of such a system that provides the ease of combining wage employment with cheap child rearing is seen to contribute to a delay in fertility reduction (Ware, 1977, Oppong, 1975, Korotayev et al., 2016).

Another important sociocultural consideration is religion. It is believed that religious tenets shape and regulate an individual and societal behaviour including matters of sexual and reproductive health (Edewor, 2005, Goujon et al., 2007). Research findings suggest religion has the power to shape the decision on use of modern contraception (Westoff, 2012). Where permission is granted, the belief system could dictate the specific FP method choice for an individual (Oluwaseyi, 2013, Ringheim, 1993). Although the exact direction of influence is not universally accepted, the weight of evidence is that religion exerts considerable influence on fertility and the decision to use contraception (Agadjanian et al., 2009, Edewor, 2005, Yeatman and Trinitapoli, 2008, Wusu, 2015).

In explaining the pathway of influence, two perspective are presented in the literature – *particularized* and *characteristic* perspectives (Wusu, 2015). The *particularized* perspective proposes that the doctrinal stance of religious groups influences the decision to use FP methods while the *characteristic* perspective states that it is the socioeconomic and

demographic characteristics of adherents of a specific religion that determines their fertility and contraceptive practices (Hirsch, 2008, Zhang, 2008, Agadjanian et al., 2009, Avong, 2012, Akintunde et al., 2013). Till date there is no consensus on which perspective is true.

Not all religions have clear cut stance on fertility control and adherence to doctrine varies within people ascribing to a particular religion, thereby complicating interventional schemes. Unlike the Catholic church whose formal doctrinal stance on contraception is widely known (LeMaire, 2017), the universal stance of Islam on contraception is less clear. While some articles show Islam's support for family size limitation, though opposed to sterilization, most Muslim respondents in surveys give religious reasons for non-use of contraception (Edewor, 2005, Hoodfar and Assadpour, 2000, Casterline et al., 2001). However, regarding unplanned pregnancies, studies emanating from Nigeria show that Christians and Muslims alike have similar perception that pregnancy is a gift from God, but Muslims do not believe the concept of unwanted pregnancy (Oye-Adeniran et al., 2005, Osuafor and Mturi, 2013). Osuafor and Mturi found that Muslim women were less likely to use modern contraception compared to their Catholic counterparts in the four consecutive DHS conducted between 1990 and 2008 (Osuafor and Mturi, 2013).

In many traditional religions in sub-Saharan Africa, the commitment to have many children is seen as a fulfilment of one's duty to the spirit of the ancestors. And, any attempt to limit births is perceived as working against ancestors' wishes which could attract misfortunes or punishment from the gods (Edewor, 2005, Doctor et al., 2009, Wusu, 2015). This makes most traditionalists favour having many children.

2.4 Gender relations and fertility

When considering fertility level and birth control, gender relation is critical. Gender norms are socially constructed expectations for male and female behaviour found in every known human society (Blanc, 2001). This expectation prescribes a division of labour and responsibilities between women and men, and grants different rights and obligations to them (Mason, 1997, Gupta, 2000). Traditional gender norm has capability to limit a woman's ability to use family planning, especially when she perceives herself bound to cultural expectation or the will of her husband (Waszak et al., 2001). Gender-based power inequalities mostly include the belief that men should control women's sexuality and their child bearing capacity – a privilege weakened when women access family planning (Blanc, 2001). One way of thinking about power is in terms of the ability to make choices (Kabeer, 2005). This can be *'power to'* act, or *'power over'* i.e. being able to assert wishes and goals above opposition from another (Riley, 1997, Kabeer, 2005). To be disempowered means to be denied choice, while empowerment refers to acquisition of the ability to make strategic life choices in a setting where it was previously denied (Kabeer, 2001).

To understand how power is balanced in relationships, Blanc (2001) presented a framework highlighting how individual, couple, family, and community characteristics determine the balance of power in sexual relationships. According to the framework, at individual level, social, economic and demographic attributes, for instance, level of education, place of residence and religion influence power relations. Similarly, relationship (couple) characteristics – including the partnership type (legal marriage, cohabitation, or commercial sexual union), and inter-spousal communication affect power balance. In addition, family features such as co-residence with in-laws and household economy impact on power relations within sexual union. Finally, the community characteristics – social, political and economic, shape the context within which power relations between partners occur. Any resultant

gender-based power imbalance can therefore impede a partner's ability to acquire information, make decisions and/or take action on reproductive health (Blanc, 2001).

Undeniably, women's status in the society and gender empowerment is viewed as an important factor in development (Corroon et al., 2014, Upadhyay et al., 2014). As described by Malhotra *et al*, empowerment spans through economic, sociocultural, familial, interpersonal, legal, political and psychological domains (Malhotra et al., 2002). Commonly, a woman's empowerment is viewed from four dimensions – economic freedom, attitude towards domestic violence, partner prohibitions and decision-making (Corroon et al., 2014); although most studies use woman's household decision-making ability as a measure of her empowerment (Upadhyay et al., 2014). It represents the degree of a woman's access to and control over material and social resources within the family, community and society at large (Desai and Johnson, 2005). More specifically, marital decision power is to the ability to influence decisions in a marriage and to have a final say on the issues of health, finance, visit to family members, and so on (Klomegah, 2006, OlaOlorun and Hindin, 2014).

The role of power relations in sexual and reproductive health is important because evidence shows that gender equity impacts on fertility decisions (Mason and Smith, 2000, Gwako, 1997, Campbell, 2002), ideal family expectation (Isiugo-Abanihe, 1994b, Mcallister et al., 2012), inter-spousal communication (Hindin, 2000, Hogan et al., 1999, Blanc, 2001), unmet need (Wolff et al., 2000), use of modern contraceptives (Taukobong et al., 2016), inter-birth interval (Upadhyay and Hindin, 2005, Al Riyami and Afifi, 2003) and incidence of unplanned pregnancy (Taukobong et al., 2016, Rahman, 2012, Abada and Tenkorang, 2012). It is also known that a power imbalance fuels men's opposition to family planning, and enhances covert contraceptive use by women (Blanc, 2001).

For instance, an investigation into the association between different dimensions of women's empowerment and reproductive health outcomes in urban settings in Nigeria showed an

increase in modern contraceptive uptake and in the patronage of health facilities among women empowered to make decision compared to those who lacks it, though there were variation in the association depending on the empowerment dimension and region/city in Nigeria. Corroon *et al* found that each of the four dimension of empowerment commanded higher influence in promoting contraceptive uptake in the Northern cities compared to the Southern cities and the Federal Capital Territory (Corroon et al., 2014).

Another study by OlaOlorun and Hindin, using the 2008 NDHS data, which investigated the influence of decision-making power on contraceptive uptake among the older reproductive aged women (35-49 years) found that those empowered to make decisions had a significantly higher odds (OR:1.70; 95% CI: 1.31-2.21) in current use of modern contraception (OlaOlorun and Hindin, 2014). The extent of participation in decision-making however has no uniformity in the country. Studies show variation by place and region of residence. More women in urban areas and Southern Nigeria had better decision-making power than their counterparts in rural areas and Northern Nigeria (Lamidi, 2016, Feyisetan, 2000).

There is a widespread social conviction that African women in marital or sexual unions should abide by their partner's decisions and wishes (Mesfin, 2002, Eliason et al., 2013, Palamuleni, 2013), believed to be crucial for ensuring stability in relationships. Like most African countries, Nigeria practices a patriarchal family system and men dominate reproductive health decisions (Federal Ministry of Women Affairs & Social Development, 2006, OlaOlorun and Hindin, 2014). Indigenous studies highlight that the support of male partners significantly influence spouses' desire to use contraception (Ezeanolue et al., 2015, Omideyi et al., 2011, Nte et al., 2009). Male support for FP is low in Nigeria (Okigbo et al., 2014, Aransiola et al., 2014). Based on inputs from focus group discussions conducted by Aransiola *et al* (Aransiola et al., 2014), women felt their partner's low support for FP may stem from traditional pronatalistic belief and tendencies, and FP misconceptions.

With hierarchical structure of marital relationships in Nigeria, social interdependence is inevitable. As posited by the interdependence theory, a form of social exchange theory, when a partner (i.e. the woman, in this instance) has low comparison level of *alternatives* outside her current relationship, there will be high dependency, as she feels unable to leave (Guerrero et al., 2017). The *'alternative'* is largely construed to include the possibility of successfully securing another relationship, the consequence she might face for leaving current relationship, plus the loss of her investment in current relationship and social disapproval of her action (Guerrero et al., 2017, Crawford et al., 2003). With these in mind, a woman can be restricted to accepting her husband's wishes or at best devising a way to convince him on every matter. Certainly, having a platform to discuss within the marital union offers the chance for her to secure partner's approval or a joint decision on various issues in the home.

Although it is documented that a gender-based power imbalance contributes to poor inter-spousal communication in most developing countries (Blanc, 2001), literature also suggests that power relations between couples become closer to equal, the more they discuss together (Hogan et al., 1999). Specifically, when spouses discuss fertility-related matters they are able to discern each other's attitude to contraception, thereby resulting in shared decision-making about it. The discussion can also avail them the opportunity to discuss issues relating to reproductive health (Rakhshani et al., 2005). For example, Feyisetan *et al* documented that spousal communication enhanced joint decision to use FP among the Yorubas in southwest Nigeria (Feyisetan, 2000). However, in another qualitative study conducted by Izugbara *et al* in Northern Nigeria, they observed that while motivation towards spousal contraceptive communication was positive, very few engaged in it. Izugbara *et al* found that poor spousal FP communication in the Northern region of the country in many ways stem from the popular pronatalistic belief that couples are duty bound to continue to have children (Izugbara et al., 2010).

There is no doubt that distinctive reproductive interest play out in gender relations. Men seems to want more children than women do, and they recognize their biological potential to achieve their desired family size (Ratcliffe et al., 2000, Ezeh et al., 1996, Bankole and Singh, 1998). On the other hand, women accept their limited capacity to reproduce but are willing to maximally use their reproductive potential to effectively cement their marriages and social standing (Bledsoe et al., 1998). Considering Nigeria, Isiugo-Abanihe stated that the high premium that men place on having many children drives fertility in the country (Isiugo-Abanihe, 1994a). A recent qualitative study by Izugbara and Ezeh revealed that women in North-western Nigeria ascribed the responsibility of having a high fertility to their male partners. They admit that having many children inhibit their partners from divorcing them or engage in polygamy (Izugbara and Ezeh, 2010). On the whole, the role of gender relations remain an important consideration when investigating fertility and birth control, especially in an African setting.

2.5 Contraceptive myths

Myths and misinformation passed from one person to another pose a major obstacle to the use of modern FP methods (DeClerque et al., 1986, Gueye et al., 2015, Ali et al., 2012). In different parts of Nigeria there are myths about modern contraceptives (Ujuju et al., 2011, Omo-Aghoja et al., 2009, Asekun-Olarinmoye et al., 2013, Ankomah et al., 2011). The myths and misinformation sometimes revolve around perceived side effects, future fertility prospects and superstitions (Orji and Onwudiegwu, 2002, Asekun-Olarinmoye et al., 2013). An analysis of the Measurement, Learning and Evaluation project data collected between 2010 and 2011 from women aged 15-49 years in selected urban cities in Kenya, Nigeria and Senegal found common myths among reproductive women to be that "*people who use contraceptives end up with health problems,*" "*contraceptives are dangerous to women's*

health" and "*contraceptives can harm your womb*". The number of FP myths that women from the sampled cities believe in was negatively associated with contraceptive use (Gueye et al., 2015). Although the study provided valuable insight into the influence of women's contraceptive myth on FP use, its focus mainly on urban cities limits generalization of findings. Aside, since men are more dominant in contraceptive decision-making in most African countries, Nigeria inclusive, the extent to which individual male partner's contraceptive perception impacts spousal FP demand and uptake is yet to be known.

2.6 Child mortality and fertility relationship

There has been competing theories regarding the main trigger of fertility decline. For years, the debate has revolved around reduction in *child mortality* and, *opportunity cost* – which is the desire to avoid financial constraints that attend having to cater for many children (Kalemli-Ozcan, 2002). It was posited that couples decide on limiting fertility to improve their financial capability to spend on other things aside childcare. Those in favour of the theory of opportunity costs argue that the costs of child rearing, even when wage increased, can dominate positive income effects and lead couple to decide on reducing fertility (Becker, 1981, Cazzola et al., 2016). Nonetheless, the ability of the theory to explain observed fertility has been inconsistent since fertility was noted to simultaneously decline in both high and low income countries (Kalemli-Ozcan, 2002, de Silva and Tenreyro, 2017).

More importantly, Eckstein *et al* compared the two factors in Sweden and suggested that a reduction in child mortality accounts for two-thirds of the observed fertility decline (Eckstein et al., 1998). Accordingly, understanding the mortality-fertility link has been a research priority (Cleland, 2001, Preston, 1978, Lindstrom and Kiros, 2007). More so, demographic observations show that a mortality decline in the developing world do precede a fall in

natality (Korotayev et al., 2016, Feyisetan and Bankole, 2009, Montgomery, 2000, Cleland, 2001).

The child survival hypothesis suggests that reduced child mortality will somewhat automatically produce a compensatory reduction in fertility level and overall impacts on population growth (Shelton, 2014, Taylor et al., 1976). The problem however has been specifying the pathways of influence. The likely two feasible pathways are societal and individual (Cleland, 2001). At societal level, homeostatic forces i.e. negative feedbacks from rapid population growth and poor standard of living can increase mortality and reduce fertility (Lee, 1987). At the same time, government population policies, especially the one that stipulates the number of children per couple, can lessen fertility (Cai, 2010). Though the evidence regarding population control policies seem positive, that of homeostatic force is less apparent.

At individual level, investigation focuses on reproductive physiology, behavioural responses to child loss (replacement) and/or anticipation of future child losses (insurance/hoarding) (Cleland, 2001, LeGrand et al., 2003). The physiological effects relate to the inhibiting influence of breastfeeding on fecundity. This is especially true when death involves the index child (Lindstrom and Kiros, 2007). The consequence is shortened postpartum amenorrhea and return of ovulation (Lloyd and Ivanov, 1988, Jackson and Glasier, 2011). For non-contracepting populations, who rely more on postpartum amenorrhea, early return of menses contributes to higher risk of conception and shorter inter-birth interval (Lindstrom and Kiros, 2007, Hossain et al., 2007a). Based on multi-country analysis by Grummer-Strawn *et al*, interval to next birth is 60 percent longer when a child lives than if it dies during early infancy (Grummer-Strawn et al., 1998).

One of the explicit theoretical links between child mortality and fertility is the insurance/hoarding effect – sometimes also referred to as the *extra-familiar effects* (Preston, 1978, Nobles et al., 2015). The proposition is that child mortality societal level could inform a family's decision on the number of children to have. It is possible that mortality outside the family affects fertility through risk sharing at community level or by ethnic group; and in instances where the community will benefit from next generation of children, e.g. for farming purposes, a collective rise in fertility may be the response to child mortality at the community level (Nobles et al., 2015, Conning and Udry, 2007). Though an insurance effect has logical credence, few studies found fertility to be associated with changes in child mortality at the level of villages and social networks (LeGrand et al., 2003, Atella and Rosati, 2000, Sandberg, 2006). The reason may be because investigating insurance effect has proved more difficult.

The analysis of a hoarding effect must consider each couple's perception of child mortality risks and how it influences their reproductive decision – an issue that cannot be fully addressed with survey data (Bungu, 2013, LeGrand et al., 2003). It is appreciated that mortality perceptions and reproductive decisions may not be static but rather shift over time. In general, two measuring approaches have been attempted. Heer and Smith initially introduced a simulation method to investigate hoarding effect. They used a series of computer-simulation models to relate varying mortality levels to fertility behaviours (Heer and Smith, 1969). However, the method was flawed as it does not correspond to real-life decisions. Another method used perceived mortality to predict fertility behaviour (Rutstein, 1974, LeGrand et al., 2003). However, since there can be substantial lag and biases in risk perception by people, Montgomery (2000) suggests that the link between perceived and actual societal mortality prevalence will be weak. Moreover, studies that adopted the method

found that insurance motive had little effect at individual level (Rahman, 1998, Cleland, 2001), and at community level (LeGrand et al., 2003).

Conscious effort to replace a deceased child (replacement effect) is another couple's response investigated in the literature. This behaviour can impact more in populations experiencing fertility decline and/or using contraception (Lindstrom and Kiros, 2007, Park et al., 1998). Surprisingly, empirical support for a replacement effect has been modest (Cleland, 2001, Nobles et al., 2012, Palloni and Rafalimanana, 1999). Preston (1978) observed that parents who have lost a child were about 30% more likely to proceed to the next birth. Although the rationale is that the experience of child mortality may affect people at their subconscious level, perhaps making them more fatalistic and resistant to adopting any fertility control strategy (Zajonc, 2000), the opposite can happen. Mortality shock, such as the loss of a family member, can affect some couples psychologically leading to reduction in coital frequency and desire for children (Segraves, 1998, Parker and Douglas, 2010). Psychological resilience further posits that the experience of child mortality may shift preferences to interpersonal connection and the need to invest more in the remaining children having realised human frailty (Fritsche et al., 2007). Besides, behavioural fertility response to mortality shock can vary depending on women's fertility goal, parity, and the age composition of surviving children (Nobles et al., 2015).

Overall, when linking child mortality and fertility at an individual level, reproductive physiology and replacement behaviour seem more convincing. Another research consideration is whether the two effects can be separated (Defo, 1998, Palloni and Rafalimanana, 1999). When death involves the index child, it may be difficult to separate physiological and replacement effects (Lindstrom and Kiros, 2007). But, a fertility response to death of a non-index child during a conception interval provides some measure of

replacement effect that is not confounded by physiological mechanism (Nobles et al., 2012, Lindstrom and Kiros, 2007).

It is worth noting that not all demographers agree with the link between child mortality reduction and fertility decline. Some argued that the association between child mortality and overall population growth though has some intuitive reliance, does not prove causality (Shelton, 2014). This stance is strengthened by the cumulative evidence from other studies which indicate that physiological and replacement effects have modest effects on fertility (LeGrand et al., 2003). Furthermore, there have been instances where birth rates and death rates decline fairly concurrently or that birth rates began to decline earlier than death rates (Watkins, 1986). The proponents of this stance therefore feel that reduction in child mortality may not actually reduce fertility and lower population growth but instead increase it (Shelton, 2014).

Nonetheless, Cleland provides a valid explanation of how improved child survival links up with opportunity costs to lower fertility. The submission is that the improvement in child health and survival impinges on families in profound ways that do not require an accurate perception of demographic change. A steep mortality decline can present a *"train of disadvantages"* as the number of surviving children per family increases, which implies – having to rear, educate and bequeath inheritance to more children. The attending strain or pressure on families sooner or later forces them to innovate behavioural responses that emphasizes child quality rather than quantity, and the need to limit births by contraception or abortion (Cleland, 2001).

Further, it is pertinent to note that no nation successfully lowered and maintained their fertility to replacement level (or even below) without bringing child mortality risk under control and sustaining it at low levels (Feyisetan and Bankole, 2009). Even if reduction in

child mortality contributes initially to a boom in population growth, ultimately it can act as an incentive to abandon the need to hoard or replace children. In the case of Nigeria, little is known about the contributory role of child mortality experience to reproductive behaviour. If known, such knowledge can provide further insights to overcoming the challenges encountered in the generation of contraceptive demand and lowering of fertility in the country.

2.7 THE KNOWLEDGE GAPS

The review of existing literature highlights ongoing efforts at unravelling the barriers to birth control in Nigeria and ways to tackle those challenges. The review demonstrates that there appears to be underlying sociocultural factors which promote high fertility and disparages contraception, notable is the preference for a large family size. Although a shift in couples' desire towards smaller family size is possible, it may take time. On the other hand, a timely and appropriate approach to lowering fertility can be to reduce child mortality, so that couples do not need to hoard/replace children to realise their fertility goal. However, there is gap in evidence on the influence of child mortality risks on reproductive behaviour of women in Nigeria.

Secondly, in a patriarchal society like Nigeria, it is important to understand the influence of men on couples' decision to control fertility. In particular, how men perceive the use of FP methods and the impact of their perception on wives' demand for and use of contraceptive methods. Furthermore, evidence is lacking on the extent of women's ability to control their fertility when partner has opposed family planning. Gaining these insights will fill pertinent knowledge gaps, provide better understanding of socio-cultural dynamics underlying

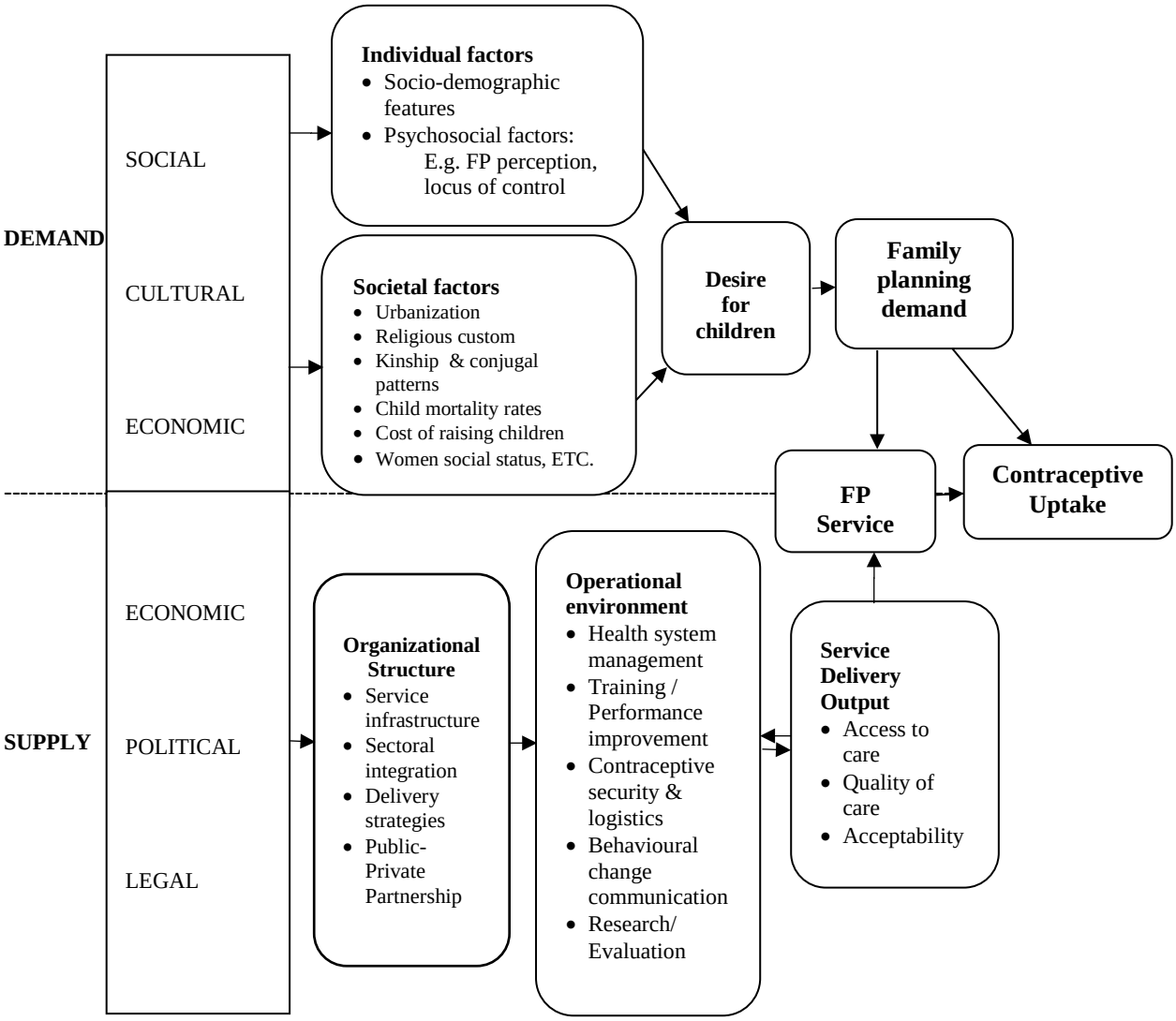
reproductive attitudes and behaviour in Nigeria, and assist policy formulation and design of programmes to enhance fertility reduction.

2.8 CONCEPTUAL FRAMEWORK

In predicting and explaining health behaviours and to provide foundation for behavioural interventions, theoretical frameworks such as social cognitive models are considered. However, emerging evidence from the literature rule out theoretical dominance for all health behavioural interventions. This is because the theoretical frameworks are individualistic, in that they promote individual as the unit of decision-making (McNicoll, 2001). But, reproductive behaviour is more complex and multidimensional in nature as it is embedded within specific social relations, political and cultural contexts. Informal social networks, political institutions, religious and spiritual advisors, kinship affiliation, etc. can shape reproductive behavioural decisions (Price and Hawkins, 2007).

For example, the Health Belief Model (HBM) – a cognitive behavioural model, was originally oriented for the avoidance of disease such as tuberculosis (Rosenstock, 1974, Carpenter, 2010). In its adapted application to contraceptive behaviour, the core of motivation is believed to be the desire to prevent unintended pregnancy. However, the original intent of the model limits its applicability to contraceptive behaviour since pregnancy is not a disease which one always wish to avoid (Fisher, 1977). More importantly, a recent Cochrane review posited that the adaptation of social cognitive theories for contraception appear to be more successful when applied to adolescents rather than to individual adults (Warriner, 2012). Against this backdrop, the conceptual framework as proposed by Bertrand et al (Bertrand et al., 1994) which depicts how fertility desire relates with contraceptive uptake was adopted for this study [Figure 2.1].

Figure 2.1: Conceptual framework



In any given country, there are two symbiotic drivers of contraceptive uptake – demand and supply (Austin, 2015). The two drivers occur within the social, cultural, economic, political and legal system of the country. While demand is basically affected by the social, cultural and economic factors, supply is dictated by the nation's macro socioeconomic development, political will and enabling legislations. Demand for contraception is manifest through multiple social, economic and cultural factors that operate at societal level to determine the norms of family size. These factors which include the degree of urbanization, prevailing religious custom, existing old-age support and economic security, cost of raising children,

child mortality rates, kinship structure and conjugal patterns, women's social status, etc. are structural determinants that historically have sustained high fertilities in developing countries. Then in combination with socio-demographic characteristics and psycho-social factors (such as contraceptive perception, locus of control) influence a person's fertility desire. It is the desire for children that correspondingly determines the extent of contraceptive demand which can then be satisfied with FP uptake (Bertrand et al., 1994).

However, contraceptive demand and uptake is also affected by the family planning supply environment. Key to the success of any family planning intervention are the political and administrative systems within which service delivery operates. Legal codes and regulations also affect the flow of contraceptives into the country – the number of methods that are legal, eligibility criteria to receiving them, and related issues that may determine access to contraception.

The political, administrative and legal system sets the stage for the country's FP organizational structure through policy formulations. The policy environment influences the infrastructure available for service delivery, integration of FP with other healthcare provisions, service delivery strategies, and the relative contribution of public and private sector to FP efforts. Aside the organizational frame, the supply domain has the operational environment which entails FP program management, supervision, staff training, commodities and logistics, contraceptive behavioural change communications, and research and evaluation of FP programs. Ultimately, adequacy of FP supply is measured in terms of its service delivery output – accessibility, quality of care and acceptability by clients (Bertrand et al., 1994).

This thesis focuses on the demand-side of the framework, reflecting on dimensions of social and cultural factors which influence desire for another child and contraceptive use.

Chapter 3

Recurrent child mortality risks and parity transition in Nigeria*

ABSTRACT

Fertility rates remain persistently high in Nigeria, with little difference across socioeconomic groups. While the desire for large family size is culturally rooted, there is little understanding of how child mortality experiences influence fertility behaviour and parity transition in Nigeria. Using birth history data from the 2013 Nigeria DHS, we applied life table techniques and proportional-hazard regression model to explore the effect of child survival on parity transitions. We hypothesize that a woman with one or more child death experience is at elevated risk of progressing towards higher parities. Our findings show that child mortality is concentrated among mothers living in deprived conditions especially those resident in rural areas of the northern part of Nigeria and among those with little or no education and, those belonging to Hausa/Fulani ethnicity and Islam religion. Mothers with repeated experience of child deaths were significantly at a higher rate of progressing to higher parities than their counterparts (HR: 1.45; 95% CI: 1.31-1.61), when adjusted for relevant biological and socio- demographic characteristics. Recurrent experience of child deaths exacerbate the risks to higher parity transition. Interventions aimed at reducing fertility in Nigeria should target promoting child survival and family planning concurrently.

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3.1 INTRODUCTION

Fertility is one of the three principal components of population dynamics that determines the size and the composition of any country's population (Adhikari, 2010). It is also a crucial element for population health and economic development (Myrskylä et al., 2009, Bryant, 2007). However, the differentials in fertility behaviour and its levels in various regions of the world and among different population strata make fertility interventions a daunting task (Cochrane et al., 1979, Mberu and Reed, 2014). Since the middle of the last century, population scholars have focused on fertility transition (a shift from high, fluctuating fertility rates to low, controlled fertility rates) and how to achieve replacement-level fertility which is seen as a panacea for economic development (McNicoll, 2011, Korotayev et al., 2016). Though some regions such as Latin America and Asia have made progress along this path, nations in sub-Saharan Africa lag behind (Korotayev et al., 2016, Bongaarts and Casterline, 2013, Shapiro and Gebreselassie, 2009).

Since the 1980s, there is relatively little progress in fertility reduction in sub-Saharan Africa, especially in the western region. By 2050, it is expected that the total fertility rate currently at 5.5 children per woman in the western African region will decline by only 24% (United Nations, 2017). The future changes in population in the western region are dependent on the pace of fertility decline in Nigeria, Niger, Mali, Gambia and Burkina Faso. Between 1980 and 2015, Nigeria's total fertility rate declined by only 20% when compared to Africa (31%) as a whole. The UN estimates Nigeria's current fertility to decline from 5.4 to 3.6 children per woman by 2050 (United Nations, 2017). Consequently, Nigeria's present population estimated at 181 million is expected to grow more than double before the middle of this century.

Evidence from national and regional data in Nigeria show mortality decline was slower than elsewhere (World Health Organization, 2012, NPC [Nigeria] and ICF International, 2014).

The lifetime risk of a maternal death from pregnancy and/or childbearing in Nigeria is 1 in 30. Thirty two percent of all deaths among women of reproductive ages are pregnancy-related (NPC [Nigeria] and ICF International, 2014). Similarly, child mortality is very high in Nigeria as 1 in 15 children die before their first birthday and, 1 in 8 children die before their fifth birthday (NPC [Nigeria] and ICF International, 2014). Poverty and unemployment are endemic across the country. Nigeria is currently ranked 152 on the Human Development Index, with 84% of its population classified below $2 a day and 41% of youth unemployed (Nigeria Bureau of Statistics, 2013, Hogan et al., 2010, United Nation Development Programme, 2015).

There are several socio-cultural explanations for the persistent high fertility in Nigeria. Polygyny is widely practiced in most regions of Nigeria and having a large family is culturally symbolic as a proof of social standing (Izugbara and Ezeh, 2010). There is also widespread child fosterage by extended families and provision of affordable childcare including community kindergartens (Korotayev et al., 2016, Mberu and Reed, 2014). The demand of work force for subsistence agriculture is yet another factor associated with high fertility in Nigeria (Izugbara and Ezeh, 2010, Mberu and Reed, 2014, Caldwell et al., 1992). These attributes are deeply entrenched within the existing cultural norm and have been resistant to change. A demographic explanation, however, relates to the frequency and clustering of child mortality in Nigerian families. The strong desire for large families could motivate couples to continue reproduction and replace dead children until the desired family size is attained. A reduction in child mortality is likely to trigger a compensatory reduction in fertility levels, subsequently slowing down the rate of population growth (Shelton, 2014, Taylor et al., 1976).

When the risk of child mortality is high, there are two response mechanisms with behavioural and cultural implications (Gyimah and Fernando, 2002, Angeles, 2010). The first response is

replacement behaviour, which is a deliberate and conscious effort of couples to replace a dead child. The second response is hoarding, which is having more children than desired as an insurance against future child mortality (Feyisetan and Bankole, 2009, Gyimah and Fernando, 2002, LeGrand et al., 2003). Couples who want to replace or hoard children are less likely to use contraception or cease its usage in order to get pregnant (Gyimah and Rajulton, 2004, Rahman, 1998). Another mechanism described by which child mortality leads to high fertility is the short-term physiological changes following the cessation of breastfeeding, return of ovulation and subsequent increased vulnerability to getting pregnant (Gyimah and Fernando, 2002). In certain situations, the physiological and replacement response could be concomitant (Tymicki, 2005).

There is little research evidence on the underlying effect of child mortality experience on parity transitions in Nigeria. We hypothesize that a woman with one or more child death experience is at elevated risk of progressing towards higher parities. An understanding of the potential effects of child mortality on parity transition and fertility behaviour can inform the design of appropriate family planning programs and child survival programs that can synergistically work at curtailing high fertility in Nigeria.

3.1.1 Child mortality trend and differential in Nigeria

Based on the 2013 Nigeria DHS, infant and under 5 mortality rate in Nigeria was 69 and 128 deaths per 1000 live births respectively (NPC [Nigeria] and ICF International, 2014), and a careful examination of trends in childhood mortality reveals that some progress has been made. For instance, 2003 and 2008 NDHS report infant mortality rate of 93 and 86 deaths per 1000 live births, and under 5 mortality rate of 185 and 162 deaths per 1000 live births (NPC

[Nigeria] and ICF International, 2004, NPC [Nigeria] and ICF International, 2009). That notwithstanding, the prevailing rate is far from being acceptable.

Importantly, the prevalence and progress made in reducing child deaths vary across geo-political regions. Northwest Nigeria has the highest under 5 mortality rate (185 per 1000 live births), followed by Northeast (160 per 1000 live births), then southeast (131 per 1000 live births), north central (100 per 1000 live births), south-south (91 per 1000 live births) and the southwest (90 per 1000 live births) (NPC [Nigeria] and ICF International, 2014). However, it is noteworthy that between 2003 and 2013, much of the gain in reducing under 5 mortality occurred in the north, partly due to vigorous programmatic efforts and deployment of international partnership funds (Akinyemi et al., 2015). In 2003, northwest, northeast and northcentral Nigeria had under 5 mortality rate of 269, 260 and 165 per 1000 live births respectively, while the south-south, southeast and southwest regions had under 5 mortality rate of 176, 103 and 113 per 1000 live births respectively (NPC [Nigeria] and ICF International, 2004).

3.1.2 Research questions and hypothesis

The main research questions are:

1. What patterns explain the transition to higher fertility in Nigeria, and how are they shaped by recurrent child mortality risks?
2. What is the relationship between a woman's child mortality experience and the number of children ever-born in Nigeria?

The research hypothesis is that:

> A woman with one or more child death experience is at elevated risk of progressing towards higher fertility

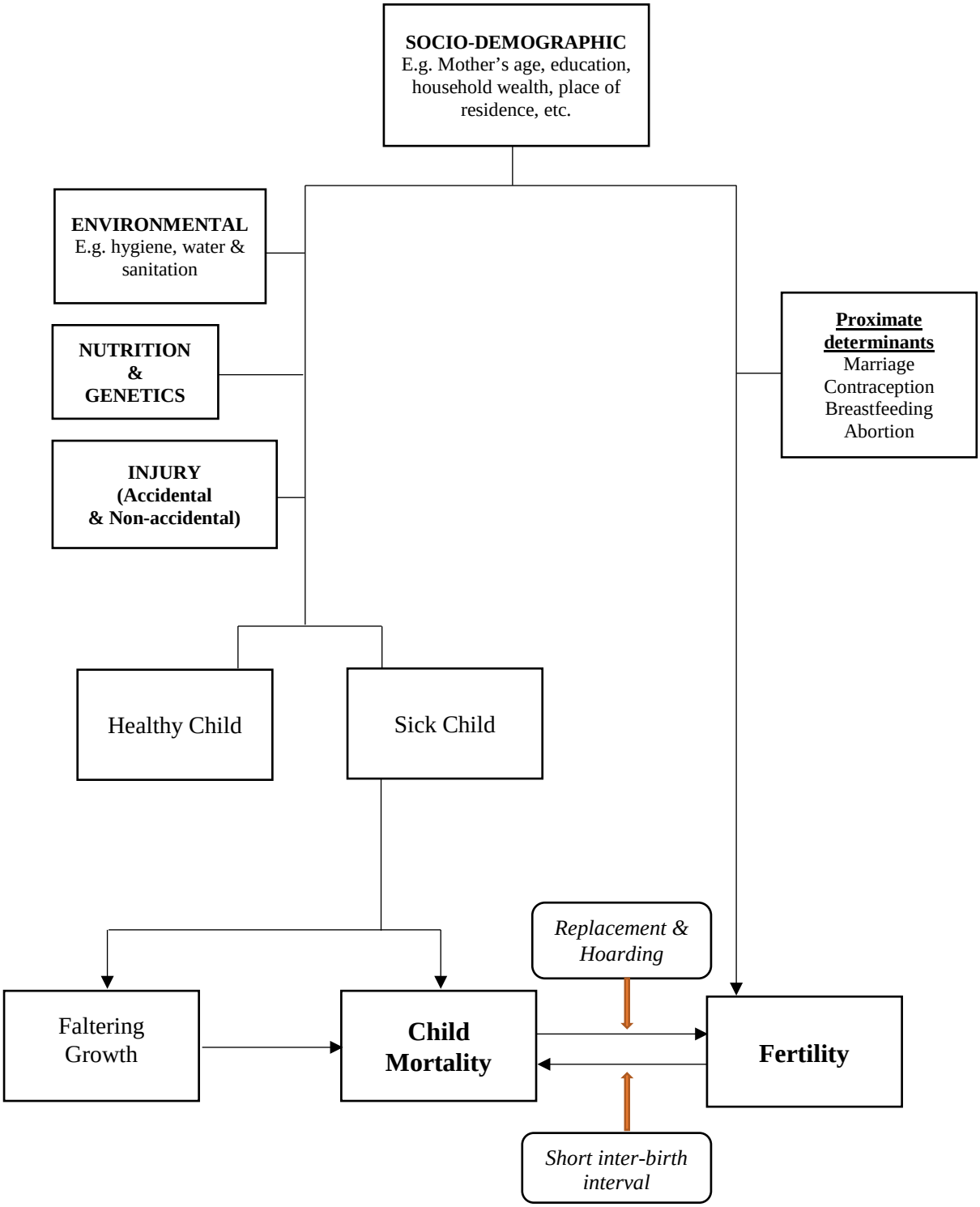
3.1.3 Framework outlining the relationship between child death and fertility

Interpreting the relationship between child mortality and fertility can be inherently complex as they seem causally linked in both directions (Figure 3.1). Similar socio-economic and demographic factors affect fertility and child mortality (Bungu, 2013). But in addition to these, proximate determinants such as marriage, age at first cohabitation, postpartum infecundability (lactational amenorrhea), contraceptive use and abortion are crucial in determining a woman's total fertility (Hinde, 2014, Bongaarts et al., 1984). In contrast, the health status of a child is determined not only by household socio-economic condition and environmental factors but also by nutrition, genetics and exposure to injuries (Mosley and Chen, 1984); these can make an unhealthy child to falter in growth and/or die during early years of life .

To establish a causal link, the endogeneity of both births and deaths makes interpretation challenging, especially as it relates to hoarding effect. High fertility could increase child mortality through shorter inter-birth interval. On the other hand, child mortality can lead to cessation of breastfeeding, resumption of ovulation and, increase the chance of conception and childbearing (Obonyo et al., 2005, Lindstrom and Kiros, 2007, Bungu, 2013). In analysing replacement effect, time-to-event analysis can be adopted (Gyimah and Rajulton, 2004). However, to estimate the influence of child mortality on the number of children ever-born, although regression can be applied, given the problems of simultaneity we need to exercise caution while drawing inference on the contribution of child mortality to total

fertility. It is likely that child deaths may be higher for a woman simply because she had more children, though her child mortality rate was the same as others (Bhat, 1998). That notwithstanding, evidence of child replacement in a society is alone sufficient to generate a positive relationship between child mortality and total fertility (Doepke, 2005).

Figure 3.1: *Framework showing relationship between child mortality and fertility*



3.2 METHODS

3.2.1 Data Source

The analysis is based on the individual birth histories drawn from the most recent (2013) Nigeria Demographic and Health Survey (NDHS). The 2013 NDHS was the fifth survey implemented by the Nigeria Population Commission (NPC), after the consecutive rounds carried out in 1990, 1999, 2003 and 2008. The 2013 NDHS was supported by the USAID, UNFPA, DFID (through the Partnership for Transforming Health Systems Phase II [PATHS2]), and the Government of Nigeria. The overarching goal of the 2013 NDHS was to provide quality data for monitoring the population and health situation in Nigeria especially maternal and child health and family planning services (NPC [Nigeria] and ICF International, 2014).

Three questionnaires were implemented in the 2013 DHS: household, women and men. The women's questionnaire was administered to all women aged 15-49 years in a nationally representative sample of 40,680 households. The households were selected using a three-stage stratified design consisting of 904 clusters. All women aged 15-49 years who were permanent residents or visitors who were present in the households a night before the survey were interviewed. The questionnaire obtained information on their background characteristics, birth history, family planning practices, fertility preferences, and so on. The birth history data provide detailed information of each birth including birth order, month and year of birth, sex of the child, survivorship status, and age at death.

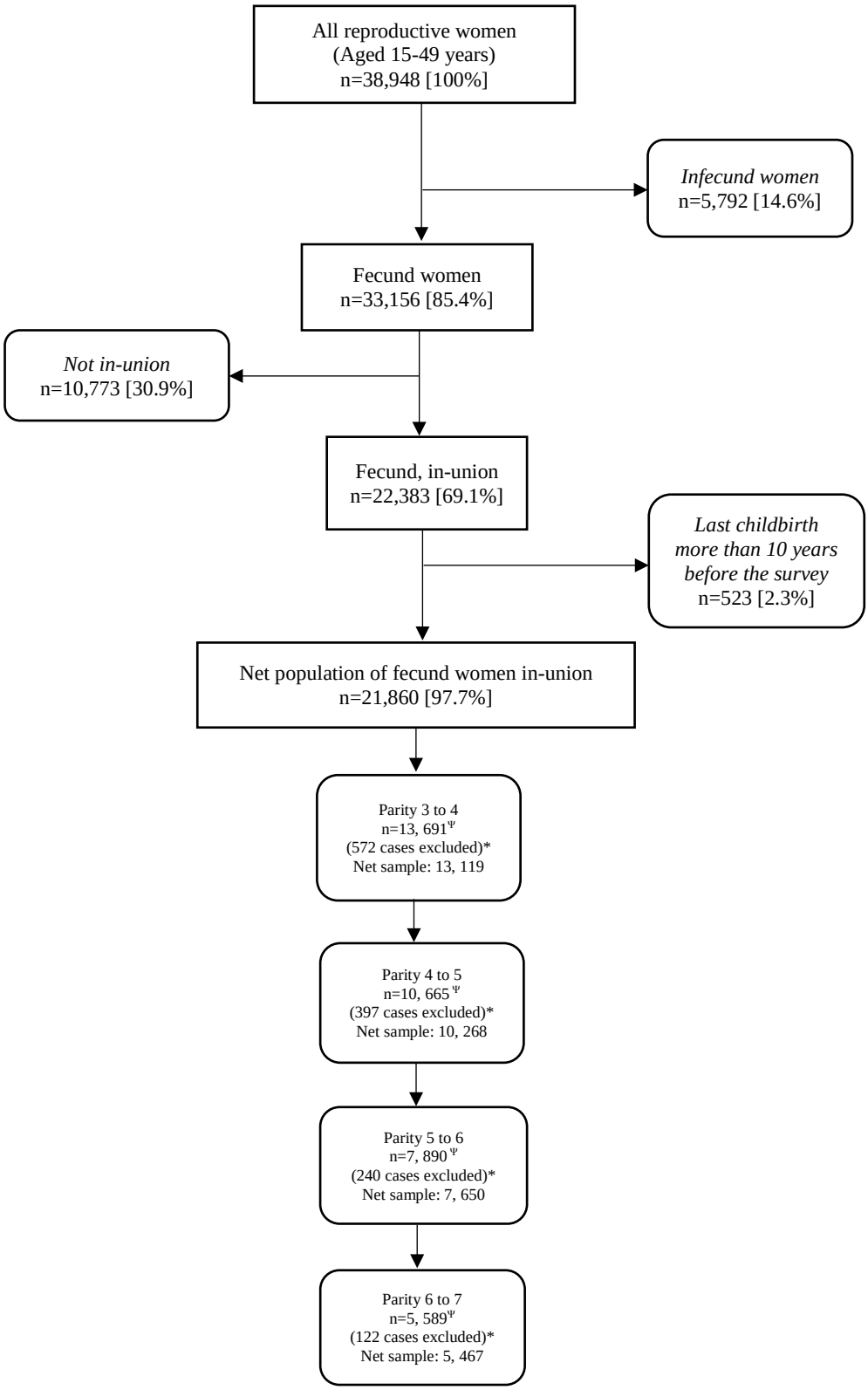
3.2.2 Operationalising variables

Our study population consists of fecund women who are currently in a marital union or cohabiting. The analysis was restricted to a period of 10 years prior to the date of interview

(survey) to capture recent trends in parity progression. Of the 22,383 reproductive women reported to be currently in-union, 523 women who had their last birth more than 10 years before the survey were excluded. A flow chart showing the selection of sample for the analysis is shown in Figure 3.2

To consider the impact of child(ren)'s death on the subsequent birth, for each of the parity analysed, births that occurred less than 9 months after a child's death were excluded. The assumption of minimum 9 months takes into account of the factors that influence the length of inter-birth intervals including post-partum infecundability and waiting time to conception in the absence of contraceptive use. However, since the decision to have another child could be triggered by protracted illness of a child, even before the child's demise, we conducted sensitivity analysis without excluding cases in which the duration between child's death and next birth was less than 9 months.

Figure 3.2: *Case selection from the 2013 NDHS individual women's data (% weighted)*



Ψ Population of women with "events" or "censored" for each parity transition
*Cases in which child's death and the next birth interval was less than 9 months

3.2.2.1 Dependent variables

The analysis considered two primary outcome variables of interest. The first primary outcome of interest in this study was *parity transition*, defined as a successful progression from one parity to another, from 3 to 4, 4 to 5, 5 to 6 and 6 to 7 children. Our analysis focuses on high parity behaviours and hence we consider parity 3 and higher for the analysis, also reflecting on levels of current fertility in Nigeria. For each of the specific parity considered, a successful transition to the next parity was classified as an 'event'. In situations where transition to the next parity (event) had not occurred at the time of the survey, the event in question was right 'censored'. The second outcome of interest was *the total number of children ever-born* (CEB) to women aged 45-49 years, who presumably are at the end of their reproductive career.

3.2.2.2 Explanatory variables

In order to understand a woman's progression to subsequent parity, the survival status of the immediate preceding child (IPB) and older children, if any, was considered. The explanatory variable was therefore coded into five sub-categories: *all children alive*; *immediate preceding birth (IPB) alone died*; *IPB and a previous child[ren] died*; *IPB alive but a previous child[ren] died since index birth*; and, *IPB alive but a previous child[ren] died before index birth*.

Furthermore, to understand the relationship between child mortality and CEB by the end of reproductive life, the explanatory variable was - *any child mortality experience*, categorized as: No (0), Yes (1) (Table 3.1).

3.2.2.3 Control variables

A set of control variables were considered for the analysis, their selection guided by the conceptual framework and relevant fertility-related factors from the literature. These include socio-demographic characteristics - age, educational status, place and region of residence, ethnicity, religion, and wealth status. Other characteristics include reproductive and union-related variables such as age at first cohabitation, number of unions, conjugal type, perceived ideal family size, partner's fertility preference, antecedent inter-birth intervals (IBIs) and contraceptive ever-use (Table 3.1).

Table 3.1: Definition of variables

Variable name & code	Original variable categories	Recoded variable categories
Dependent variable 1 Parity transitions (BORD & B3$01-B3$20)	*Continuous variable* (CMC)	Birth occurred [‘*event’*] (1) No birth [‘*censored’*] (0)
Dependent variable 2 Total children ever-born (v201)	*Count variable*	Count
Explanatory variable 1 (BORD & B5$01-B5$20)	No (1) Yes (0)	All children alive (0) Immediate preceding birth (IPB) alone died (1) IPB and a previous child[ren] died (2) IPB alive but a previous child[ren] died since index birth (3) IPB alive but a previous child[ren] died before index birth (4)
Explanatory variable 2 Previous child mortality experience (Compute v206 & v207)	*Count variable*	No (0) Yes (1)
CONTROL VARIABLES		
Reproductive & Union-related characteristics		
Age at first cohabitation (v511)	*Continuous variable*	≤ 14 years (3) 15-18 years (2) 19-24 years (1) ≥ 25 years (0)
Number of unions	Once More than once	Once (0) More than once (1)
Type of union [*Number of other wives*] (v505)	*Continuous variable*	Monogyny (0) Polygyny (1)
Ideal number of children (V613)	Count variables Non-numeric response	≤ 3 (0) 4-5 (1) ≥ 6 (2) Non-numeric response (3)

Table 3.1: *Contd.*

Variable name & code	Original variable categories	Recoded variable categories
Partner's fertility preference (V621)	Both want same Partner wants fewer Partner wants more Don't know	Both want same/partner wants fewer (0) Partner wants more (1) Unsure (2)
Prior inter-birth intervals (IBIs) (BORD & B11$01-B11$20)	Continuous variable	All prior IBIs ≥2 years (0) All prior IBIs <2 years (1) Some prior IBIs <2years (2)
Ever use contraception (V302A)	No Yes	No (0) Yes (1)
Background characteristics		
Current age (v012)	*Continuous variable*	15-19 years (1) 20-24 years (2) 25-29 years (3) 30-34 years (0) 35-39 years (4) 40-44 years (5) 45-49 years (6)
Highest level of education (v106)	No education Primary Secondary Tertiary	No education (0) Primary (1) Secondary and Higher (2)
Place of residence (v025)	Urban Rural	Urban (0) Rural (1)
Region of residence (V024)	North central North east North west South south South east South west	North (1) South (0)
Ethnicity (v131)		Hausa & Fulani (1) Other tribes (0)
Religion (v130)	Catholics Other Christians Islam Traditionalists Others	Christians & others (0) Islam (1)
Wealth index (v190)	Poorest Poorer Middle Richer Richest	Poorest (0) Poorer (1) Middle (2) Richer (3) Richest (4)

3.2.3 Statistical analysis

3.2.3.1 Exploratory data analysis

First, a descriptive analysis of the individual data was done to gain insight into the basic characteristics of the fecund women in-union, their parity distribution and progression based on socio-demographic attributes.

3.2.3.2 Observed parity progression ratios

Parity progression ratio (PPRs) is the proportion of women who progressed from parity *(i)* to the next *(i+1)*. PPR can be *observed* (*un-projected*) or *projected* (Moultrie and Zaba, 2013). *Observed* parity progression shows historically the actual proportion of women who transited from one parity to the next whereas *projected* parity progression estimates future parity transition. The observed PPR reflects the experience of real people and is not distorted by transient period effect. To disaggregate fertility by births has advantage in that different parity progressions (e.g. 3 to 4, 4 to 5, etc.) could respond to varying influence; therefore, studying each parity transition may provide valuable insight into ongoing fertility dynamics in a population (Moultrie and Zaba, 2013).

More often, PPR is calculated by women's age cohorts. For cohorts of women that have finished childbearing (45-49 years old), these measures are fixed, but for the younger women the measure changes as increasing number of them move to further parities (Moultrie and Zaba, 2013, Hinde, 2014). To calculate the *observed* parity progression ratios in Nigeria, we adopted the method as proposed by Moultrie and Zaba (Moultrie and Zaba, 2013). We defined observed proportion ever-attaining parity order i, ${}_5M_x(i)$, as the proportion of women aged x to $x + 5$ who have had i or more births, and the observed parity progression ratios of

order *i* for women aged *x* to *x* + 5 as *a*5*x*(*i*), representing the proportion of women with at least *i* children who have progressed to have at least one more subsequent birth.

If, *M*(*i*) be the proportion of women who have at least *i* children and, *a*(*i*) is the proportion of women who progress from a given parity, *i*, to the next parity, *i* + 1. Assuming, *N* is total population of women, and *N*(*i*) is the number of women in the population with parity *i* exactly, and we consider *W*(*i*) to be the number of women who attained parity ≥ *i*. Hence, when the highest parity attained in the population is denoted by π, the number of women who have attained parity ≥ *i* can be obtained mathematically as,

$$W(i) = \sum_{j=i}^{\pi} N(j) = N(i) + N(i+1) + \cdots + N(\pi) \quad (3.1)$$

And the corresponding proportion, *M*(*i*), will be:

$$M(i) = \frac{1}{N} . \sum_{j=i}^{\pi} N(j) \quad (3.2)$$

Going forward, the number of women with parity ≥ 0, *W*(0) will be:

$$W(0) = \sum_{j=0}^{\pi} N(j) = N \quad (3.3)$$

So that the proportion of women at parity ≥ 0, *M*(0), becomes:

$$M(0) = \frac{N}{N} = 1 \quad (3.4)$$

The average parity, *P*, in the whole population will be:

$$P = \frac{1}{N} . \sum_{j=1}^{\pi} j . N(j) = \frac{N(1)}{N} + \frac{2 . N(2)}{N} + \frac{3 . N(3)}{N} + \cdots + \frac{\pi . N(\pi)}{N} = \frac{1}{N} . \sum_{j=1}^{\pi} W(j) = \sum_{j=1}^{\pi} M(j) \quad (3.5)$$

And,

The parity progression ratios, a(i), can be written in terms of numbers or proportions as:

$$a(i) = \frac{W(i+1)}{W(i)} = \frac{W(i+1)/N}{W(i)/N} = \frac{M(i+1)}{M(i)} \quad (3.6)$$

The parity progression ratios were calculated using the Microsoft Excel 2013 version.

A worked example [using the 2013 Nigeria DHS] to ease understanding of the observed PPR method:

First, extract a tabulation of parity by reproductive age group (15-49 years) of mothers into an Excel spread sheet (see below).

1/A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
2	***Parity (i)***	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**	**(Total row)**
3	**0**	882	499	289	99	39	12	5	**1825**
4	**1**	822	1303	717	228	67	13	4	**3154**
5	**2**	206	1222	1097	442	176	39	8	**3190**
6	**3**	34	733	1208	637	298	94	22	**3026**
7	**4**	5	226	1032	797	464	204	47	**2775**
8	**5**	0	63	642	767	505	242	82	**2301**
9	**6**	0	12	302	621	514	270	93	**1812**
10	**7**	0	1	92	394	507	266	100	**1360**
11	**8+**	0	0	44	318	865	759	431	**2417**
12	**Total Column**	**1949**	**4059**	**5423**	**4303**	**3435**	**1899**	**792**	**21860**

Given that total population of women, *N* =21860

N (i) i.e. total number of women attaining parity 1= *SUM (C4:I4)* = 3154.

N (i+1) i.e. attaining parity 2 = *SUM (C5:I5)* = 3190.

Therefore,

The number of women with parity ≥0:

W (0) = 1825+3154+3190……+2417 = 21860 = N.

And, the number attaining parity ≥1:

$W(i)$ = 3154+ 3190……+2417= 20035.

The proportion of women that ever-attained parity 1, M(i), will be:

$$M(i) = \frac{1}{N} \cdot W(i) = \frac{1}{21860} \cdot 20035 = 0.9165,$$

And that attained parity 2, M($i+1$):

$$M(i+1) = \frac{1}{N} \cdot W(i+1) = \frac{1}{21860} \cdot 16881 = 0.7722$$

Hence, observed parity progression ratio, $a(i)$:

$$a(i) = \frac{M(i+1)}{M(i)} = \frac{0.7722}{0.9165} = 0.8426$$

Indicating that 84.3% of women in the sample who had parity 1 progressed to having another birth, parity ≥2.

To disaggregate proportion ever-attaining parity order by age cohort, ${}_5M_x(i)$, and progression ratio by age cohort, $a5x(i)$, let us consider age cohort 25-29 years as example:

$N_{(25\text{-}29\ years)}$ = SUM (E3:E11) = 5423

The proportion of women aged 25-29 years old, denoted $M_{(25\text{-}29\ years)}$, that attained parity ≥3 will be:

$$M(25-29\ years) = \frac{SUM\ (E6{:}E11)}{SUM(E3{:}E11)} = \frac{SUM\ (E6{:}E11)}{N(25-29\ years)} \frac{3320}{5423} = 0.6122$$

Indicating that 61.22% of women aged 25-29 years old had attained parity ≥3.

To obtain observed parity progression from 3 to 4 by mother's age, $a5x(i)$, for instance age cohort 25-29 years:

$$\frac{Proportion\ of\ women\ aged\ 25-29\ years\ that\ attained\ parity\ \geq 4}{Proportion\ of\ women\ aged\ 25-29\ years\ that\ attained\ parity\ \geq 3}$$

$$\frac{0.3895}{0.6122} = 0.6362$$

It shows that 63.6% of women aged 25-29 years old who had parity 3 had progressed to parity 4 or more.

3.2.3.3 Survival analysis

Survival analysis, also known as lifetime data analysis or time to event analysis, is a statistical procedure employed in analysing data when the time until event is of interest. Usually, in a time to event analysis participants are followed up over a specified period of time and the focus is on the time at which the event of interest occurs. It is possible for information on time to event not to be available for some study participants, either because they have not experienced the event of interest over the specified period or due to loss to follow up, in that instance they are right 'censored' (Fagbamigbe and Idemudia, 2016, Prinja et al., 2010, Leung et al., 1997).

Since this study takes interest in the time to birth of another child, survival analysis is appropriate. Hence, the event of interest was childbirth while women who does not progress to subsequent parity over the specified period were 'censored'. When births are examined using a retrospective data, the problem of right censoring exists (Allison, 1995). To overcome this problem of censoring, the survival models make the assumption that the censored individuals will experience the event at some time in the future. We defined the survivor

function *S*(*t*) as probability that a woman "survives" longer than the specified time *t* without a birth, and hazard function *h*(*t*) as the instantaneous rate per unit time *t* of transition to the next parity, given that the transition has not occurred before. Mathematically, assume that T is the response variable, T≥ 0, survival function is:

$$S(t) = \Pr(T \geq t) = 1 - F(t) = \int_t^{\infty} f(x)dx \qquad (3.7)$$

And the hazard function is,

$$\mathrm{h}(t) = \lim_{\Delta t \to 0} \frac{\Pr(t<T\leq t+\Delta t | T>t)}{\Delta t} = \frac{f(t)}{S(t)}. \qquad (3.8)$$

Furthermore, as two variables '*survival time*' and '*censoring index'* are needed for survival analysis, we defined '*survival time*' as the interval (in months) between previous birth and the succeeding birth for those who made the parity transition, and the time difference (in months) between the last birth and the date of interview for those who did not progress to next parity. The '*censoring index'* was coded '1' for those who have had the specific parity transition and '0' for those who have not.

At first, the median survival time for each parity transition was calculated using a life table. We then applied a Cox proportional hazard regression to predict the hazard of parity transition, given a specific group of independent variables – guided by the conceptual framework and literature. The Cox model assumes the relationship for one covariate, where $h_o(t)$ is the baseline hazard function, Xi are the covariates and βi are the coefficients.

$$h(t, X) = ho(t)\exp(\textstyle\sum_{i=1}^{p} \beta i Xi) \qquad (3.9)$$

where,

$X = (X1, X2, X3, \ldots, Xp)$ are explanatory/predictor variables

The coefficient β*i* indicates whether the changes in parity transition duration is significant at the statistical level of significance set at 0.05. The hazard ratio, HR, (i.e. the ratio of

incidence rate of parity transition), expressed as the exponential of the coefficient βi, was used to interpret the change in outcome of interest for a unit increase in the predictors. Log rank test was used to compare the survival experience by different attributes of the women and multiple adjusted cox-regression model was conducted. The control variables were retained in the final multivariate model for each of the parity transition examined in an effort to aid cross comparison, and we confirmed that the underlying proportionality assumption was satisfied by each independent variable. The Statistical Package for Social Sciences (SPSS) version 22 was used for the analysis.

3.2.3.4 Poisson Regression

The basic model for analysing count data is the Poisson regression model. Here, "the probability of a count variable (children ever-born) is determined by Poisson distribution, where the mean of the distribution is a function of the independent variables" (Kazembe, 2009, Poston Jr, 2002, Long and Freese, 2006). Since the second outcome of interest in this study is a count variable, *children ever-born*, we fitted the data for a Poisson regression using the individual women's characteristics as the independent variables.

The Poisson model assumes the count variable has a Poisson distribution and that the mean equals variance (equi-dispersion). For this research, the use of Poisson regression is appropriate as the CEB among women aged 45-49 years showed equi-dispersion (mean, $\bar{x}$ = 7.92; variance, σ^2= 7.92).

Mathematically Poisson model is expressed as:

$$\Pr(Y = y) = \frac{\exp(-u)u^y}{y!}\ , y = 0,1,2 \ldots .. \qquad (3.10)$$

Where: the parameter *u* represents the mean, and *y* is an integer indicating the number of times the count has occurred, ranging from 0 to some higher positive integer. The model incorporates observed heterogeneity according to the structural equation:

$$\mu_i = \exp(a + X_{1i}b_1 + X_{2i}b_2 + \cdots + X_{ki}b_k) \quad (3.11)$$

Where: μ_i is the expected number of children ever born for the i^{th} woman, $X_{1i}, X_{2i} \ldots X_{ki}$ are her characteristics; and $a, b_1, b_2 \ldots b_k$ are the Poisson regression coefficients (Poston Jr, 2002). Three sequential models were fitted controlling for any child mortality experience, marital characteristics and the women's socio-demographic attributes respectively. The Statistical Package for Social Sciences (SPSS) version 22 was also used for the analysis.

3.3 RESULTS

3.3.1 Sample characteristics

Table 3.2 summarises the basic characteristics of the fecund women in union. Their mean age was 29.64 ± 7.88 years and their median age was 29 years. About two-third of them reside in rural areas and northern Nigeria, and were mostly from Hausa/Fulani ethnicity. Approximately 50% had no formal education, and only 7% had a higher education.

Out of the 21,860 women, 5,857 (26.8%) have ever-used a method of contraception. Seventy three percent of contraceptive never-users reside in rural areas, 61% had no formal education, and more than half of them are from Hausa/Fulani ethnic group. On the other hand, urban residents and those living in southern Nigeria constitute 62% and 70% of contraceptive ever-users respectively.

Table 3.2: Basic characteristics of the fecund women in-union

Variable	All women	Contraceptive status	
		Never used	Ever used
Total (n)	21860	16003	5857
Age group (years)			
15-19	1949(9.6)	1855(12.5)	94(9.6)
20-24	4059(18.8)	3331(21.0)	728(18.8)
25-29	5423(24.8)	4077(25.3)	1346(24.8)
30-34	4303(19.6)	2938(18.1)	1365(19.6)
35-39	3435(15.4)	2176(13.2)	1259(15.4)
40-44	1899(8.4)	1146(7.0)	753(8.4)
45-49	792(3.4)	480(2.9)	312(3.4)
Parity			
≤3	11195(52.1)	8406(53.2)	2789(49.2)
4-5	5076(23.1)	3369(20.9)	1707(29.3)
≥6	5589(24.7)	4228(25.9)	1361(21.5)
Place of residence			
Urban	7505(36.1)	4152(26.8)	3353(61.7)
Rural	14355(63.9)	11851(73.2)	2504(38.3)
Region			
North	14515(67.6)	12610(54.4)	1905(30.3)
South	7345(32.4)	3393(45.6)	3952(69.7)
Ethnic group			
Hausa & Fulani	8427(41.8)	8044(54.4)	383(6.9)
Igbo	2198(10.4)	1092(6.8)	1106(20.3)
Yoruba	2827(12.9)	1005(5.8)	1822(32.7)
Middle-Belt	2209(10.8)	1682(11.3)	527(9.6)
Niger-Delta	1954(6.8)	1052(4.6)	902(12.9)
Others	4245(17.2)	3128(17.1)	1117(17.6)
Highest educational Status			
No education	9869(47.4)	9274(61.0)	595(9.9)
Primary	4393(19.0)	2944(17.1)	1449(24.2)
Secondary	5932(26.4)	3141(18.3)	2791(48.7)
Higher	1666(7.2)	644(3.6)	1022(17.2)
Wealth status			
Poorest	4675(22.7)	4495(29.8)	180(3.1)
Poorer	4864(22.0)	4302(26.7)	562(9.2)
Middle	4205(18.0)	3119(18.6)	1086(16.5)
Richer	4146(18.1)	2406(14.5)	1740(28.1)
Richest	3970(19.1)	1681(10.5)	2289(43.1)

Data presented as n (%).
The percentage is adjusted for sample weight. Column add up to 100%

3.3.2 Proportion ever-attaining each parity

Table 3.3 shows the proportion of fecund women by age group ever-attaining each parity. Among those aged 15-19 years, 55% have had at least one child and 2% already had 3 children. In the 25-29 years old age cohort, 20% have had 5 children and over 30% of women

aged 30-34 years have had a sixth child. It is noted that 25% of those aged 35-39 years have reached parity of 8+ and for the cohort at the tail end of reproductive life (45-49 years), 54% had 8+ children.

Table 3.3: Proportion of women ever-attaining each parity by age group

Parity	15-19	20-24	25-29	30-34	35-39	40-44	45-49
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	0.5475	0.8771	0.9467	0.9770	0.9886	0.9937	0.9937
2	0.1257	0.5560	0.8145	0.9240	0.9691	0.9868	0.9886
3	0.0200	0.2550	0.6122	0.8213	0.9179	0.9663	0.9785
4	0.0026	0.0744	0.3895	0.6733	0.8311	0.9168	0.9508
5	0	0.0187	0.1992	0.4880	0.6961	0.8094	0.8914
6	0	0.0032	0.0808	0.3098	0.5491	0.6819	0.7879
7	0	0.0002	0.0251	0.1655	0.3994	0.5398	0.6705
8+	0	0	0.0081	0.0739	0.2518	0.3997	0.5442

3.3.3 The observed parity progression ratio

Table 3.4 presents the summary of observed PPR by age cohort among the fecund women in-union. At the time of the survey, 55% of women aged 15-19 years have had a child; out of which another 23% made further progress to having a second child. For those in the early twenties, 25% who had a fourth child had progressed to the fifth child and another 17% of them to the sixth child. In the cohort between the ages of 35-39 years, more than 70% of the women made successive transition to the next parity until the seventh child. Among the women aged 45-49 years (who have presumably completed their family size), 81% made the transition from seventh child to 8+ parities.

Table 3.4: Observed parity progression ratios by age group

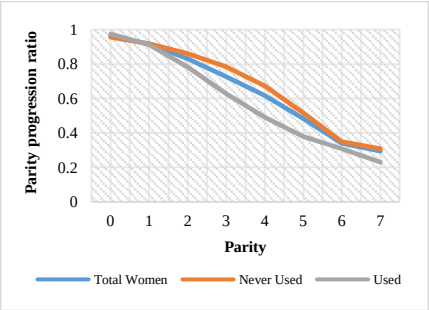
Parity	15-19	20-24	25-29	30-34	35-39	40-44	45-49
0 to 1	0.5475	0.8771	0.9467	0.9770	0.9886	0.9937	0.9937
1 to 2	0.2296	0.6340	0.8603	0.9458	0.9803	0.9931	0.9949
2 to 3	0.1592	0.4586	0.7516	0.8888	0.9471	0.9792	0.9898
3 to 4	0.1282	0.2918	0.6361	0.8198	0.9055	0.9488	0.9716
4 to 5	0	0.2517	0.5114	0.7249	0.8375	0.8828	0.9376
5 to 6		0.1711	0.4056	0.6348	0.7888	0.8426	0.8839
6 to 7		0.0769	0.3105	0.5341	0.7275	0.7915	0.8510
7 to 8+		0	0.3235	0.4466	0.6305	0.7405	0.8117

Figure 3.3 gives a pictorial representation of how PPR varied by a woman's child survival experience. In the absence of child mortality, notable decline in PPR started after the birth of the second child and, further reduction in the ratio of women making parity progress occurred among contraceptive ever-users. For those who experienced child death, there was a less steep decline in PPR. For instance, among women aged 30-34 years old with no history of child mortality, there was successive reduction in PPR; but among those who have experienced at least one child mortality, there was a lag before the reduction in the ratio of women making further parity progress. This lag appears more in those with history of 2 or more child deaths. It should be acknowledged however that reverse effect can also be argued – that the subset of women as identified with child mortality experience and lag before a reduction in their PPR, depict those with short inter-birth intervals, who invariably end up with higher child mortality since their children were at higher risk of dying during infancy.

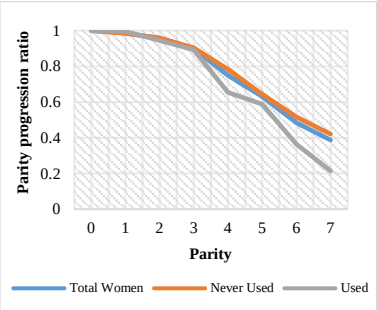
More graphical details of how parity progression ratio varies by women's socio-demographic attributes is presented in Appendix A.

Figure 3.3: ***Relationship between child survival and parity progression ratio***

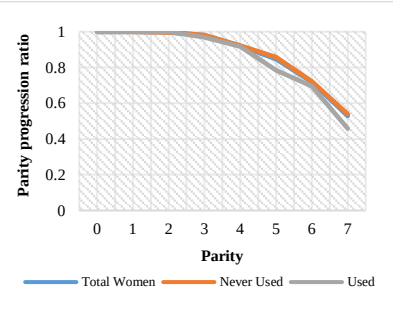
No child mortality (30-34 years)



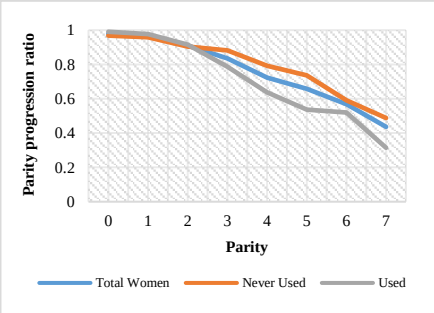
1 child mortality (30-34 years)



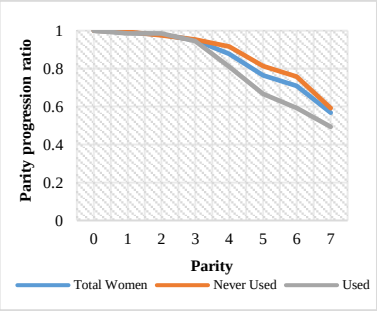
≥ 2 child mortality (30-34 years)



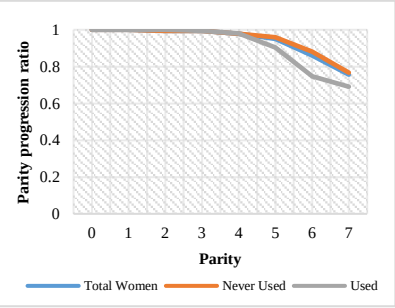
No child mortality (35-39 years)



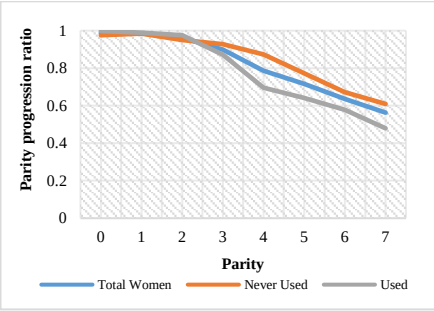
1 child mortality (35-39 years)



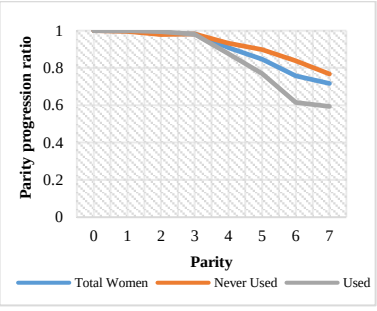
≥ 2 child mortality (35-39 years)



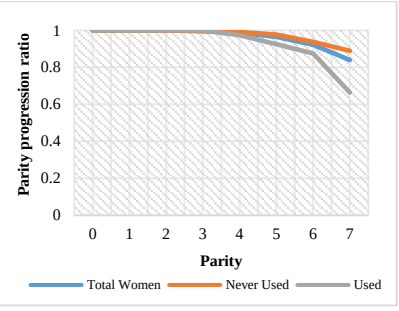
No child mortality (40-44 years)



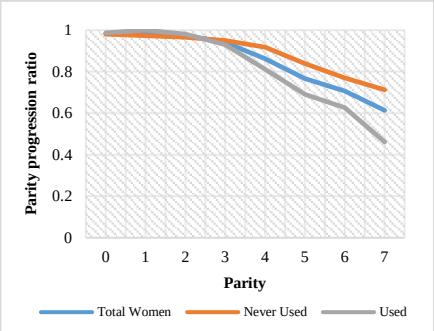
1 child mortality (40-44 years)



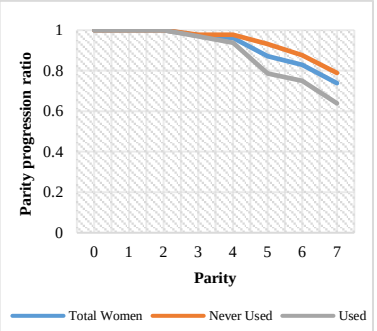
≥ 2 child mortality (40-44 years)



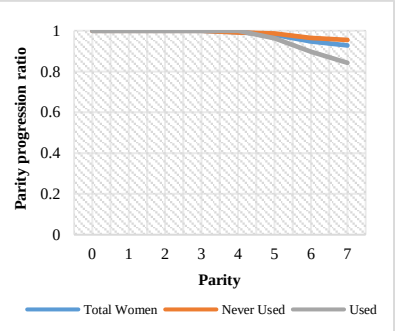
No child mortality (45-49 years)



1 child mortality (45-49 years)



≥ 2 child mortality (45-49 years)



3.3.4 Prevalence of child mortality experience by parity transition

Table 3.5 summarises the prevalence of women's child mortality experience by parity transition. A total of 13,119 women experienced a transition from parity 3 to 4, of which 10,268 made further transition from parity 4 to 5, and so on. More women with history of child mortality constituted the group making higher parity transition. For instance, the prevalence of child mortality was 34% among those who made a transition from parity 3 to 4, however, it was 64% among women moving from parity 6 to 7. Similarly, the experience of demise of older child[ren] was commoner among women making higher parity transition.

Table 3.5: Child mortality prevalence by parity transition

Variable	***Parity 3 to 4***	***Parity 4 to 5***	***Parity 5 to 6***	***Parity 6 to 7***
Base population	*13119(100)*	*10268(100)*	*7650(100)*	*5467(100)*
Child mortality experience				
No	8560(65.7)	5620(55.3)	3456(45.5)	1969(36.5)
Yes	4559(34.3)	4648(44.7)	4194(54.5)	3498(63.5)
Conditional on child mortality				
Immediate preceding child (IPB) alone died	597(4.4)	394(3.8)	215(2.7)	125(2.2)
IPB + a previous child[ren] died	994(7.6)	985(9.6)	845(10.8)	676(12.2)
IPB is alive, but a previous child[ren] died *since index birth*	236(1.8)	225(2.3)	195(2.5)	157(2.9)
IPB is alive, but a previous child[ren] died *before index birth*	2732(20.5)	3044(29.0)	2939(38.6)	2540(46.1)

Data presented as n (%)
The percentage is adjusted for sample weight

3.3.5 Characteristics of women who have experienced child mortality

The women's attributes by child mortality experience are summarised in Table 3.6. More women aged 15-19 years, without any formal education, living in rural areas and/or the northern region of Nigeria, who are of Hausa/Fulani ethnicity, practicing Islam, from the poorest wealth strata, who married early and had short IBIs experienced child death(s).

Table 3.6: Child mortality experience by women's attributes (n=13,119)

Variables	*No child mortality, n (%)*	*Previous child mortality, n (%)*	*χ2 (P value)*
Current age group (years)			164.3 (<0.001)
15-19	12 (32.5)	27 (67.5)	
20-24	635 (63.2)	390 (36.8)	
25-29	1951 (60.6)	1299 (39.4)	
30-34	1978 (58.8)	1398 (41.2)	
35-39	1566 (53.4)	1416 (46.6)	
40-44	841 (50.0)	888 (50.0)	
45-49	301 (42.6)	417 (57.4)	
Educational Status			584.3 (<0.001)
No education	2922 (47.4)	3444 (52.6)	
Primary	1768 (58.1)	1288 (41.9)	
Secondary	2028 (70.0)	935 (30.0)	
Higher	566 (78.4)	168 (21.6)	
Place of residence			312.2 (<0.001)
Urban	2884 (67.2)	1458 (32.8)	
Rural	4400 (50.4)	4377 (49.6)	
Region of residence			274.7 (<0.001)
South	2864 (66.7)	1494 (33.3)	
North	4420 (51.5)	4341 (48.5)	
Ethnicity			481.0 (<0.001)
Hausa/Fulani	2306 (46.0)	2828 (54.0)	
Igbo	822 (65.2)	464 (34.8)	
Yoruba	1158 (68.6)	526 (31.4)	
Middle-Belt	782 (63.9)	458 (36.1)	
Niger-Delta	767 (70.3)	376 (29.7)	
Others	1449 (57.9)	1183 (42.1)	
Religion			219.4 (<0.001)
Christianity & Others	3433 (64.5)	2002 (35.5)	
Islam	3851 (51.3)	3833 (48.7)	
Wealth status			724.6 (<0.001)
Poorest	1242 (42.7)	1765 (57.3)	
Poorer	1380 (47.3)	1603 (52.7)	
Middle	1551 (59.5)	1046 (40.5)	
Richer	1596 (65.6)	883 (34.4)	
Richest	1515 (74.5)	538 (25.5)	
Age at first cohabitation (years)			452.5 (<0.001)
≤14	1662(44.6)	2130(55.4)	
15-18	2806(56.4)	2322(43.6)	
19-24	2152(65.8)	1133(34.2)	
≥25	664(73.4)	250(26.6)	
Number of union(s)			140.8 (<0.001)
1	6535(58.3)	4820(41.7)	
≥2	749(42.1)	1015(57.9)	
Type of union			202.5 (<0.001)
Monogyny	4980(61.2)	3285(38.8)	
Polygyny	2304(47.9)	2550(52.1)	
Perceived ideal fertility			346.4 (<0.001)
≤3	309(65.1)	158(34.9)	
4-5	2171(69.0)	980(31)	
≥6	4202(51.3)	4153(48.7)	
Non-numeric response	602(55.8)	544(44.2)	
Partner's fertility preference			126.3 (<0.001)
Partner wants same/fewer children	4208(60.1)	2889(39.9)	
Partner wants more children	2767(50.7)	2775(49.3)	
Unsure	309(67.5)	171(32.5)	
Short inter-birth intervals (IBIs)			863.9 (<0.001)
No	3316(73.5)	1223(26.5)	
Yes	3968(47.2)	4612(52.8)	

The percentage is adjusted for sample weight

3.3.6 Survival analysis of parity transition

Table 3.7 shows the median survival time of parity transitions from 3 to 4, 4 to 5, 5 to 6, and 6 to 7 by selected women's characteristics. In each of the parity transition, the experience of child mortality influenced the passage to the next parity: the median survival time is the shortest among women who had lost their IPB and previous child. The life table also gave a pertinent insight into the fact that among those who had already reached parity 3, younger cohorts of women were on a faster progression to higher parity. While the median survival time from parity 3 to 4 was 30.9 months among women aged 45-49 years, it only took 26.8 months for their counterparts aged 20-24 years old to make the same transition.

Women's education status also had an influence on the rate of transition to higher parities. For each parity, it took much longer for the educated women to move on to the next parity. Women with no education made the transition faster than those who had only primary education. Furthermore, a significant difference in the median time for parity transition was observed between rural and urban areas. For each transition considered, rural women progressed to the next parity at a faster rate than those living in urban areas. However, the median survival time from parity 6 to 7 between the urban and rural areas was statistically not significant.

The difference in median survival time of parity transition was shorter and significant for women in the northern region when compared to those in the southern region. Regarding ethnicity, women of 'Hausa/Fulani' ethnic origin made faster transition to the next parity when compared to other ethnic groups. The result also showed the presence of significant differences in the median parity transition time by religion. Women practising Islam progressed faster to the next parity when compared to those belonging to other religions. Women in the lowest wealth quintile (poorest) made fastest transition to the next parity when

compared to their counterparts. There is generally an inverse relationship between wealth status and rate of parity transition.

The survival function of birth transitions by women's experience of child mortality in presented in Figure 3.4. The survival curve is the steepest for women who experienced death of an IPB and that of another child(ren) when compared to those without any child loss.

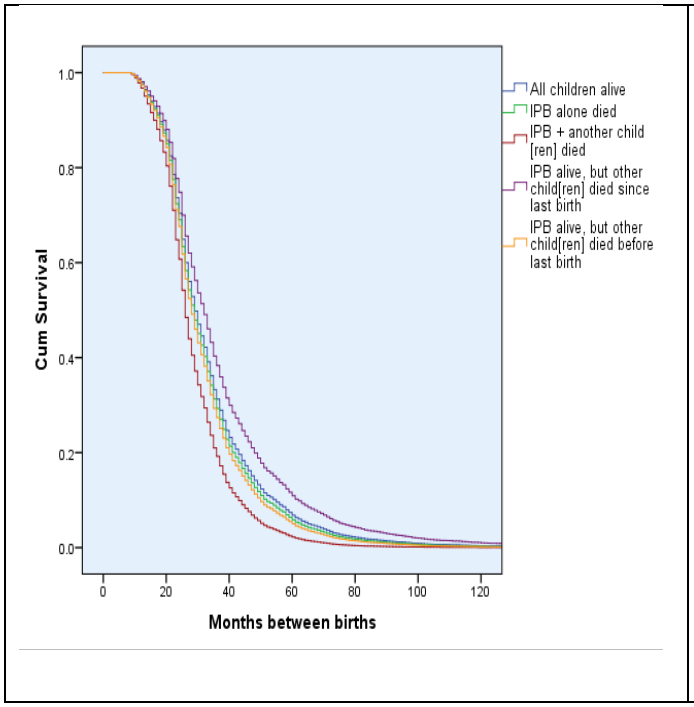
Table 3.7: Median survival time (MST) of parity transitions by selected women's characteristics

Variables	*MST (Parity 3 to 4) in months*	*Wilcoxon Statistics*	*MST (Parity 4 to 5) in months*	*Wilcoxon Statistics*	*MST (Parity 5 to 6) in months*	*Wilcoxon Statistics*	*MST (Parity 6 to 7) in months*	*Wilcoxon Statistics*
Child mortality experience		248.15*		218.63*		146.24*		158.63*
All children alive	30.45		30.47		30.47		31.17	
Immediate preceding child (IPB) alone died	28.47		28.16		28.18		25.80	
IPB + a previous child[ren] died	25.33		24.60		25.59		24.53	
IPB is alive, but a previous child[ren] died *since index birth*	31.76		30.68		32.68		35.61	
IPB is alive, but a previous child[ren] died *before index birth*	28.84		29.13		29.21		29.17	
Current age group (years)		105.28*		76.14*		54.54*		42.17*
15-19	30.00		-		-		-	
20-24	26.83		27.57		21.00		27.00	
25-29	28.58		28.15		28.20		25.78	
30-34	29.30		28.96		28.86		28.98	
35-39	30.64		29.87		29.57		29.40	
40-44	30.88		30.74		30.47		30.64	
45-49	30.90		32.03		31.40		30.20	
Educational Status		110.39*		57.99*		52.28*		15.45*
No education	28.55		28.65		28.65		29.04	
Primary	30.75		30.28		31.05		30.40	
Secondary or higher	31.85		31.89		32.16		31.25	
Place of residence		38.68*		14.15*		25.10*		3.00$^{(NS)}$
Urban	30.10		30.94		31.01		30.09	
Rural	29.16		29.14		29.13		29.35	
Region of residence		53.71*		44.91*		15.28*		6.01*
South	31.18		31.45		31.17		30.85	
North	29.13		28.99		29.14		29.23	
Ethnicity		126.36*		57.98*		31.85*		19.62*
Other tribes	31.04		30.77		30.67		30.35	
Hausa/Fulani	28.22		28.42		28.67		28.87	
Religion		50.36*		30.56*		17.50*		25.93*
Christianity & Others	30.79		30.88		30.85		31.37	
Islam	29.06		28.97		29.04		28.93	
Wealth status		135.97*		90.72*		54.01*		29.98*
Poorest	28.24		27.83		28.82		28.80	
Poorer	28.83		29.08		28.68		28.70	
Middle	29.96		30.68		30.31		29.90	
Richer	31.09		31.29		30.46		32.03	
Richest	32.83		32.18		32.84		32.29	

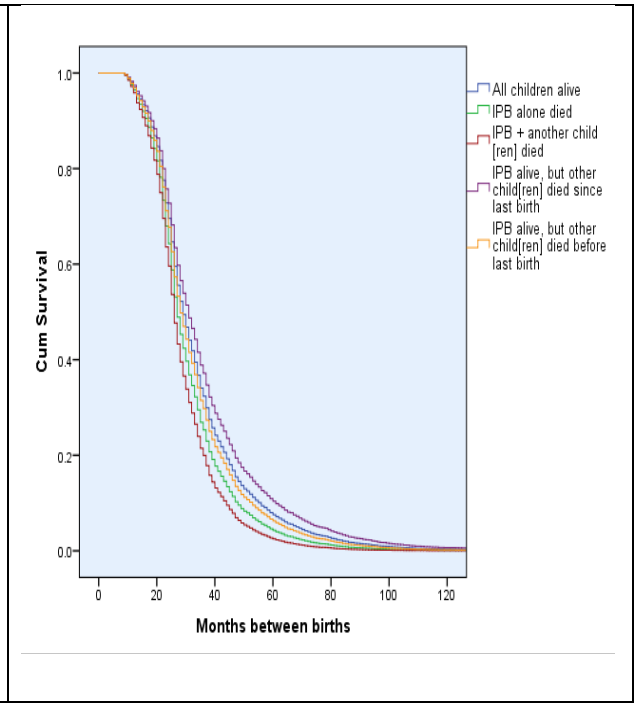
*p<0.001; NS (not significant at p<0.05)

Figure 3.4: *Survival function showing parity transition by women's child mortality experience*

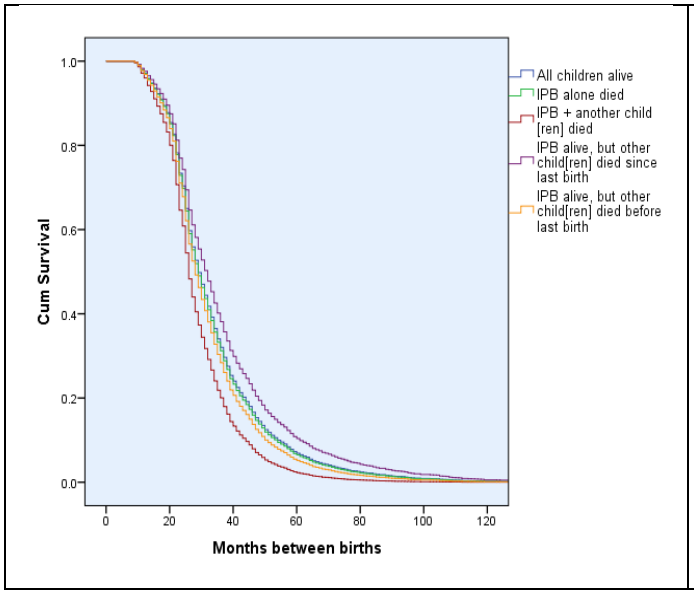
Parity 3 to 4



Parity 4 to 5



Parity 5 to 6



Parity 6 to 7

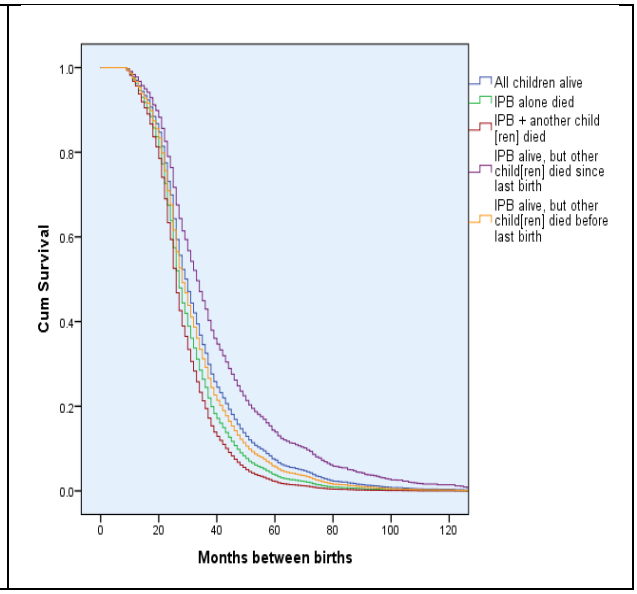


Table 3.8 reports the adjusted Cox regression models illustrating the relationship between the hazard of parity transition and selected women's characteristics. After adjusting for biological factors, marital attributes and socio-demographic variables, child death remains the strongest factor influencing parity transition. Specifically, women who had experienced multiple child losses, IPB and older child, were approximately 1.4 times likely to progress to next parity when compared to those without any child loss and this was consistent across parities. Although a 'one-off' death involving the IPB had no consistent pattern of influence on the rate of parity transitions, relative risk (RR) of parity transition is higher than 1 when a multiple child loss involved an IPB, compared to when IPB survived but a previous child died since index birth. Indeed, in the scenario that IPB survived but a previous child(ren) died since index birth, the progression to having another birth was delayed. It is possible more allowance for time to mourn the demise of an older child, and postpartum infecundability determined by breastfeeding of a younger child account for the delay in parity transition. Though it was observed that the experience of child bereavement predating a woman's last childbirth had potential to influence parity transition, it was not in every occasion.

Moreover, whilst women with history of short IBIs (<2 years) were likely to have higher parity transition, short IBI was inconsistent as a predictive factor and the effect size smaller compared to multiple child loss. It is probable that a woman can have rapid births to enable her resume career pursuit or her education in time. The reverse is equally plausible - as a compensation for delay in childbearing owing to career or academic endeavour, a woman can have short IBIs without necessarily progressing to high parity.

The hazard associated with higher parities, irrespective of child mortality experience, tend to be lower for women after age 35, and rather consistently for those belonging to the highest wealth strata. The place of residence and religion were not significantly associated with higher parity transition. The sensitivity analysis that included cases in which the interval

between child's death and next birth was less than 9 months yielded similar results (not shown separately).

Table 3.8: Adjusted hazard ratios from cox regression models showing the relationship between higher parity transitions and child mortality experience

Variables	*Hazard ratios (95% CI)*			
	Parity 3 to 4	***Parity 4 to 5***	***Parity 5 to 6***	***Parity 6 to 7***
Child Mortality Experience				
All children alive *(Ref)*				
Immediate preceding child (IPB) alone died	1.04(0.95-1.14)	**1.25(1.11-1.40)**	1.01(0.86-1.19)	1.25(1.00-1.56)
IPB + a previous child[ren] died	**1.36(1.27-1.47)**	**1.39(1.29-1.51)**	**1.40(1.28-1.52)**	**1.45(1.31-1.61)**
IPB is alive, but a previous child[ren] died *since index birth*	**0.78(0.69-0.89)**	**0.85(0.74-0.98)**	**0.83(0.72-0.97)**	**0.75(0.63-0.88)**
IPB is alive, but a previous child[ren] died *before index birth*	**1.09(1.03-1.14)**	1.05(1.00-1.11)	**1.10(1.01-1.11)**	1.09(1.00-1.18)
Current age group (years)				
15-19	1.15(0.47-2.77)	-	-	-
20-24	**1.34(1.19-1.53)**	1.25(0.97-1.60)	**3.70(1.92-7.15)**	1.25(0.17-8.95)
25-29	**1.07(1.01-1.14)**	1.05(0.97-1.13)	1.04(0.93-1.17)	1.22(1.00-1.47)
30-34 *(Ref)*				
35-39	**0.90(0.85-0.95)**	**0.88(0.82-0.93)**	**0.89(0.82-0.95)**	0.92(0.83-1.01)
40-44	**0.83(0.77-0.88)**	**0.77(0.72-0.83)**	**0.80(0.74-0.87)**	**0.80(0.72-0.89)**
45-49	**0.73(0.67-0.80)**	**0.69(0.63-0.76)**	**0.69(0.62-0.77)**	**0.73(0.64-0.83)**
Educational Status				
No education *(Ref)*				
Primary	0.99(0.93-1.05)	0.98(0.91-1.04)	0.95(0.87-1.02)	0.99(0.90-1.10)
Secondary or higher	0.93(0.87-1.00)	0.99(0.91-1.08)	0.94(0.83-1.04)	0.97(0.85-1.11)
Place of residence				
Urban *(Ref)*				
Rural	1.00(0.94-1.05)	0.96(0.90-1.02)	1.01(0.94-1.09)	0.96(0.87-1.05)
Region of residence				
South *(Ref)*				
North	0.98(0.93-1.04)	1.02(0.95-1.09)	0.94(0.86-1.03)	**0.86(0.77-0.97)**
Ethnicity				
Other tribes *(Ref)*				
Hausa/Fulani	**1.12(1.05-1.19)**	1.05(0.98-1.12)	1.08(1.00-1.17)	1.05(0.95-1.15)
Religion				
Christianity & Others *(Ref)*				
Islam	1.00(0.94-1.06)	1.00(0.93-1.08)	1.04(0.95-1.14)	1.28(1.14-1.44)
Wealth status				
Poorest *(Ref)*				
Poorer	0.98(0.93-1.04)	0.94(0.88-1.01)	1.05(0.98-1.14)	0.97(0.89-1.06)
Middle	**0.92(0.86-0.98)**	**0.88(0.82-0.95)**	0.93(0.85-1.02)	0.96(0.86-1.07)
Richer	**0.90(0.83-0.97)**	**0.86(0.78-0.94)**	0.90(0.81-1.00)	**0.81(0.71-0.93)**
Richest	**0.83(0.75-0.92)**	**0.80(0.72-0.90)**	**0.83(0.72-0.96)**	**0.80(0.66-0.96)**
Age at first cohabitation (years)				
≤14	**0.80(0.73-0.89)**	**0.77(0.68-0.88)**	**0.76(0.64-0.90)**	0.90(0.72-1.11)
15-18	**0.83(0.76-0.92)**	**0.82(0.72-0.93)**	**0.82(0.70-0.97)**	0.94(0.76-1.16)
19-24	0.92(0.84-1.01)	**0.85(0.75-0.97)**	**0.77(0.65-0.92)**	1.00(0.80-1.25)
≥25 *(Ref)*				
Number of union(s)				
1 *(Ref)*				
≥2	**0.91(0.85-0.96)**	**0.91(0.85-0.97)**	1.01(0.93-1.09)	0.93(0.85-1.01)
Type of union				
Monogyny *(Ref)*				
Polygyny	0.96(0.92-1.01)	0.97(0.93-1.02)	0.99(0.93-1.05)	**0.92(0.86-0.99)**
Perceived ideal fertility				
≤3 *(Ref)*				
4-5	0.98(0.85-1.12)	**0.77(0.65-0.92)**	1.13(0.92-1.40)	0.92(0.71-1.19)
≥6	1.13(0.99-1.29)	0.97(0.82-1.15)	1.12(0.92-1.36)	0.96(0.76-1.20)
Non-numeric response	**1.17(1.01-1.35)**	1.02(0.85-1.22)	1.17(0.95-1.44)	0.97(0.76-1.24)
Partner's fertility preference				
Partner wants same/fewer children *(Ref)*				
Partner wants more children	1.02(0.98-1.07)	1.04(0.99-1.09)	1.02(0.96-1.08)	**0.91(0.85-0.98)**
Unsure	0.97(0.87-1.09)	0.93(0.81-1.07)	1.01(0.84-1.22)	0.91(0.72-1.16)
Inter-birth intervals (IBIs)				
All prior IBIs < 2 years	**1.27(1.19-1.36)**	**1.22(1.09-1.36)**	1.19(1.00-1.41)	**1.37(1.04-1.80)**
Some prior IBIs < 2 years	**1.12(1.08-1.17)**	**1.10(1.04-1.15)**	**1.09(1.01-1.17)**	1.04(0.94-1.15)
All prior IBIs ≥ 2 years *(Ref)*				

The values shown in bold were statistically significant at p<0.05

3.3.6 Relationship between child mortality and CEB

3.3.6.1 Bivariate analysis

To understand the relationship between child mortality experience and CEB by the end of a woman's reproductive career, a bivariate analysis was first undertaken. Table 3.9 summarises the relationship between child mortality and parity attained by women aged 45-49 years old. The table shows that majority of women with child mortality had higher parity (defined as 6 or more children based on the prevailing TFR in Nigeria), and vice versa.

Table 3.9: Bivariate analysis of child mortality and attained parity (women aged 45-49 years)

Parity	**No child mortality**	**1 child mortality**	**≥ 2 child mortality**	***χ^2 test* (*p value*)**
0	5(1.3)	0(0)	0(0)	
1	4(0.7)	0(0)	0(0)	*263.86*
2	8(2.3)	0(0)	0(0)	*(<0.001)*
3	18(7.2)	4(1.3)	0(0)	
4	39(13.4)	6(4.5)	2(0.7)	
5	57(15.7)	19(16.0)	6(1.3)	
6	55(16.7)	22(12.2)	16(5.0)	
7	51(16.0)	28(16.0)	21(7.0)	
8+	81(26.8)	79(50.0)	271(86.1)	

Data presented as n (%). Column add up to 100%.

3.3.6.2 Multivariate analysis

Table 3.10 shows the results from the Poisson regression analysis explaining the relationship between a woman's child mortality experience and CEB by the end of her reproductive career, adjusting for marital and socio-demographic attributes. Alone, there was 48% odds that child mortality could account for higher number in CEB (Model 1). After controlling for reproductive attributes (Model 2), the odds of association reduced to 24%. The change in the magnitude of effect was chiefly explained by the influence of age at first cohabitation and short IBIs on CEB. The model also showed that polygyny and ever-use of contraception

lowers odd of a higher CEB. In Model 3, a further adjustment for socio-demographic characteristics barely altered the magnitude of association between child mortality and CEB. While age at first cohabitation and short IBIs maintained their positive relationship with CEB, polygyny and richest wealth quintile had negative association with the number of CEB by a woman. In the model, ever-use of contraception lost its statistical association with total fertility, suggesting that onset of contraceptive uptake is likely to be concentrated towards older ages. Women are probably unlikely to use any method until they reach their desired fertility or parity attainment. Unfortunately, owing to data limitation it was impossible to ascertain the timing of first uptake of contraceptive method during the reproductive life course.

Although region of residence was not predictive of total number of births, we intuitively examined if the determinants of total fertility or the magnitude of their association can differ with disaggregated data by region – north and south. The analysis showed semblance in the predictors of total parity in the 2 regions. In the final regional models, the magnitude of association of child death with CEB was 22% and 23% for the north and south respectively, which is comparable with the national aggregate. The only exception in the regional results was that wealth status had no influence on CEB in the north, compared to the south where richest wealth status lowered the odds of a higher fertility (AOR: 0.67; 95% CI: 0.48-0.93). This result may not come as a surprise as there is socio-economic disparity between the two regions – northern residents are poorer.

Table 3.10: Poisson regression analysis showing the relationship between child mortality and total fertility among women aged 45-49 years (n=792)

Variables	***Adjusted OR (95% CI)***		
	Model 1	***Model 2***	***Model 3***
Previous child mortalities			
No *(Ref)*			
Yes	**1.48(1.40-1.56)**	**1.24(1.17-1.31)**	**1.23(1.16-1.30)**
Age at first cohabitation (years)			
≤14		**1.46(1.34-1.60)**	**1.40(1.28-1.53)**
15-18		**1.40(1.29-1.52)**	**1.36(1.25-1.48)**
19-24		**1.24(1.14-1.34)**	**1.24(1.14-1.34)**
≥25 *(Ref)*			
Number of union(s)			
1 *(Ref)*			
≥2		**0.93(0.87-0.99)**	**0.93(0.87-0.99)**
Type of union			
Monogyny *(Ref)*			
Polygyny		1.01(0.95-1.06)	1.00(0.94-1.05)
Perceived ideal fertility			
≤3 *(Ref)*			
4-5		0.93(0.80-1.09)	0.94(0.81-1.10)
≥6		1.07(0.93-1.22)	1.05(0.91-1.20)
Non-numeric response		1.10(0.95-1.28)	1.09(0.93-1.26)
Partner's fertility preference			
Partner wants same/fewer children *(Ref)*			
Partner wants more children		1.01(0.96-1.06)	1.00(0.94-1.05)
Unsure		0.98(0.85-1.13)	1.00(0.86-1.15)
Short inter-birth interval(s) (< 2 years)			
Yes		**1.29(1.22-1.37)**	**1.27(1.20-1.36)**
No *(Ref)*			
Ever-used contraception		**0.91(0.85-0.96)**	0.96(0.90-1.03)
Current age			1.01(1.00-1.03)
Educational Status			
No education *(Ref)*			
Primary			1.02(0.94-1.10)
Secondary or higher			0.94(0.85-1.03)
Place of residence			
Urban *(Ref)*			
Rural			0.99(0.93-1.06)
Region of residence			
South *(Ref)*			
North			1.00(0.93-1.06)
Ethnicity			
Other tribes *(Ref)*			
Hausa/Fulani			1.05(0.97-1.14)
Religion			
Christianity & Others *(Ref)*			
Islam			1.01(0.93-1.10)
Wealth status			
Poorest *(Ref)*			
Poorer			0.97(0.90-1.04)
Middle			0.95(0.87-1.04)
Richer			0.92(0.84-1.02)
Richest			**0.87(0.77-0.98)**

The values shown in bold were statistically significant at p<0.05

3.4 DISCUSSION AND CONCLUSION

This paper investigated birth transition among married women of reproductive ages in Nigeria by their child survival experience and socio-demographic attributes. The foregoing analysis demonstrates robust research evidence of replacement behaviour to overcome child mortality, and confirms our hypothesis that recurrent child mortality increases transition to higher parities in Nigerian women. A repeat child mortality involving the IPB was the strongest hazard for higher parity transitions, even after adjusting for other factors. There was a positive association between child mortality experience and total number of CEB at the end of reproductive career. Furthermore, the results show preponderance of child mortality among socially and economically disadvantaged women. Lack of education and poverty remain a major cause of concern to reducing fertility in Nigeria, particularly in rural areas and northern region of Nigeria. There is also clustering of child mortality and high fertility among certain ethnic and religious groups, particularly the most represented Hausa/Fulani ethnicity and among those practising Islam religion.

Indeed, studies have reported differences in rural-urban healthcare access across different geographical regions, and Nigeria is not an exception (Say and Raine, 2007, Awofeso, 2010). The geographical variation in access to health care is known to affect fertility, contraceptive use and child health outcomes. In addition, the rural-urban difference in child mortality can also be explained from disadvantage in household characteristics, such as lack of electricity, safe water deprivation, lack of basic amenities and community-level infrastructure, etc. (Van De Poel et al., 2009).

Poverty usually deter women from seeking antenatal care, childbirth and postnatal care, and can adversely influence the survival outcomes of children. Our findings show that household wealth has a negative effect on parity transition. Better living conditions and access to health facilities can improve survival outcomes of children and aid faster decline in fertility in

Nigeria. Therefore, interventions aimed at reducing fertility in Nigeria should target socio-economically disadvantaged mothers and those experiencing child loss at the start of their reproductive careers to prevent repeat child loss and a tendency to transit to higher parity.

Northern region of Nigeria indeed needs more assertive reproductive health intervention as child mortality is skewed to the region. The explanation for the skewness can be ethnoreligious. The Hausa/Fulani women experiencing more child death live in that region of the country. Similarly, in the predominantly Islamic northern Nigeria, women marry early (often before the age of 15 years), and there is evidence to support that these women deliberately continue to have children to prevent their husbands from practicing polygyny (Izugbara and Ezeh, 2010). On the other hand, socio-economic indices are also worse in the northern part of Nigeria (Wusu, 2015, Lamidi, 2015). The higher rates of mortality related to adolescent childbearing is well known, and was found in this study. By reducing early marriage, child mortality can be lowered. In addition, efforts need to be deployed at economically empowering the northern women – educationally and vocationally, and enhancing their decision to seek and access healthcare services for themselves and their children.

One of the striking findings is that the younger cohorts of reproductive women transited to next parity faster than the older ones when historically compared, and may be attributed to early marriages, desire for large families and low uptake of modern contraceptives. This raises a reproductive health concern and further highlights the need to focus more on younger sub-group of women in order to effectively reduce fertility rates. Granting that the analysis did not show that contraceptive ever-use reduce overall parity attainment among women who are at the end of reproductive career, the inability to measure the timing of the onset of contraceptive ever-use could have been responsible. More importantly, the majority of contraceptive users might have been using the less effective traditional methods to prevent

pregnancy; unfortunately information on the methods adopted by the ever-users was not obtained during the survey. But, insight gained from the information on current contraceptive method uptake shows that more than a third use traditional methods and less than 25% use long-acting reversible contraception.

This study results provide directions for targeted policy and programmatic interventions, especially as it relates to maternal and child health. Long term fertility reduction may be unlikely without strengthening child survival chance, while promoting contraceptive uptake. Apart from providing free child health services across the country which will assist the poorest to access care for an ill child, radical health promotion in the area of child nutrition and hygiene is also needed. It is possible that when child mortality in Nigeria is brought to barest minimum, compensatory reduction in fertility through effective use of long-term contraceptives will occur.

3.5 STRENGTH AND LIMITATION

Our analysis is based on the most recent data from the Nigerian Demographic Health Survey and is one of the first of its kind within the Nigerian context to systematically and critically examine the topic, disaggregating the contribution of child mortality to birth transition across the reproductive life course. This analysis is not exempt from limitations. There is a possibility that the characteristics of the women e.g. place of residence, region of residence, educational attainment, and so on may not have been static over the course of their parity transitions, as we were constrained to use the cross-sectional information as recorded during the survey. It is also possible that more women who have high parity-for-age have been selected for parity transition analysis. Moreover, controlling for the specific influence of contraceptive use/non-use on each parity transition could not be done as the information was not available. However, the adoption of an observation window in the analysis correctly

captured recent trends in parity transition thereby strengthening the inferences made and the findings can be utilized for high impact interventions.

Key messages

- Often, couples aim to achieve the number of children they desire to have.
- If the probability of a child death is high, then a woman may either decide to have more children than she needs as an insurance or wait until the child dies and then have another one to replace him/her.
- In Nigeria, women who have experienced multiple child losses replace dead child by another birth, and have high fertility. Such reproductive behaviour remain as a barrier to long term use of effective contraception.
- Interventions aimed at reducing fertility in Nigeria should target promoting child survival and family planning concurrently.

Chapter 4

Impact of men's perception on family planning demand and uptake in Nigeria*

ABSTRACT

Evidence from the last three Demographic and Health Surveys (DHS) in Nigeria shows slow progress in family planning (FP) uptake, despite programmatic interventions. While socioeconomic and religious barriers continue to exist, psychosocial factors including men's perceptions about FP may influence both contraceptive demand and use. Using the couple dataset from the 2013 NDHS, this research investigates the influence of men's contraceptive perceptions on FP demand and use. One in five men held the perception that contraceptive use is women's business whereas two in five men reported that women who use family planning may become promiscuous, especially older men, those with no formal education, Muslims and residents in rural areas and northern region. Results from regression models, controlling for relevant sociodemographic characteristics, show that men's perception that contraception is women's business did not significantly influence FP demand. However, their fear that women who use family planning may become promiscuous was associated with lower odds of FP demand (AOR: 0.86; 95% CI: 0.76-0.97) and increased the odds of traditional methods use (AOR: 1.34; 95% CI: 1.01-1.79). The findings direct the need to adopt targeted approach focusing on couples, and reorient policy and program efforts for FP counselling and behavioural changes in men.

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4.1 INTRODUCTION

At the forefront of interventions aimed at improving sexual and reproductive health wellbeing in developing countries is the efforts to increase the use of modern contraceptives. This is justified in terms of evidence showing its association with fewer unintended pregnancies, decrease in the incidence of sexually transmitted infections including HIV and reduction in maternal and neonatal morbidity and mortality (Berhane and Tsui, 2006). Post-2015, the Sustainable Development Goals (SDG) have also identified demand for family planning (FP) satisfied by modern contraceptive uptake as a measurable indicator of universal access to sexual and reproductive health care (Choi et al., 2015). The uptake of FP is one of the critical developmental goals for improving maternal and child survival in low and middle-income countries.

Nigeria situated in West Africa, is the most populated country in SSA (National Population Commission, 2014). It has a population of 170 million people, annual growth rate of 2.8% and TFR of 5.5. In 20 years (1990-2013), the use of any method of contraception barely increased in the country from 6% to 15% and modern contraceptive prevalence rate (CPR) from 3% to 10% (National Population Commission, 2014). According to World Population Prospects, if the growth rate continues, Nigeria will be the second most populous nation after India by 2050, where half of the world's population increase is concentrated (National Population Commission, 2014, United Nations, 2015b). In addition, Nigeria has one of the highest maternal mortality rates (MMR) in the world (Hogan et al., 2010, Mandara, 2012, Population Reference Bureau, 2014). Specifically, the country's maternal death accounted for 14% of global maternal mortality in the same year when its population was 2% of that of the world (World Health Organization, 2012). The expanding population and the poor state of maternal health therefore make Nigeria a suitable focus for FP interventions that can improve contraceptive demand and uptake of modern methods.

In less developed nations, although there is a substantial increase in the number of women of reproductive ages desiring to control fertility, there is no proportionate increase in modern contraceptive use (Darroch and Singh, 2013). Given more women wish to avoid pregnancy; the use of contraception might have been expected to increase proportionately. In order to investigate the underlying reason for non-use of modern contraception, research efforts have shifted to the analysis of attitudes and behaviour in health-seeking matters.

A key observation is male partners' resistance to FP that overtly or covertly impedes uptake and/or continuation (Miller et al., 2004, Bankole and Singh, 1998). Beyond the individual decision-making factors, reproductive behaviour is shaped by social and institutional norms and policies, and concentrating only on women at the individual level is insufficient (Price and Hawkins, 2007, Lockwood, 1995). African men are heads of the home and most assume leadership in decision-making in all matters relating to the family, including reproduction (Mesfin, 2002). Their social roles even extend beyond the family to community leadership and political influence (Isiugo-Abanihe, 2003).

There is a widespread social conviction that African women in marital or sexual unions should abide by their partner's decisions and wishes (Mesfin, 2002, Eliason et al., 2013, Palamuleni, 2013), believed to be crucial for ensuring stability in relationships. Like most African countries, Nigeria practices a patriarchal family system (Federal Ministry of Women Affairs & Social Development, 2006). Specifically, male partners in Nigeria tend to be dominant in household reproductive decisions (Isiugo-Abanihe, 1994a, OlaOlorun and Hindin, 2014). A study conducted among mothers with under-five children in southern Nigeria demonstrates evidence that more than one half of women whose partners object to FP discontinued contraceptive use (Nte et al., 2009). Even in instances where the husband is silent about making a reproductive decision or task-shifts the decision, women are culturally bound to wait for their husbands to make up his mind and provide a definitive lead on the

matter. More so, some women fear that they may be forced out of their marital union if their husbands uncover any covert use of contraceptives (Okwor and Olaseha, 2010, Rutenberg and Watkins, 1997). Therefore, ensuring men's support for FP and their willingness to allow spouses to use contraception is critical.

Though increase in knowledge of contraception was considered initially as a way to enlist men's support for FP (Kabagenyi et al., 2014), contraceptive knowledge currently seems not to be the main problem in the Nigerian context. In the last two decades, contraceptive knowledge has improved significantly among men and women in Nigeria through program efforts and campaigns. The 2013 Demographic and Health Survey (DHS) found that 96% of men and 83% of women have heard of at least one method of modern contraception, and regional variation in contraceptive knowledge ranges between 84% and 100% (National Population Commission, 2014, Sanusi et al., 2014).

Improving inter-spousal communication on FP was another way identified to improve contraceptive uptake (Kamal, 2000, Hartmann et al., 2012, Sternberg and Hubley, 2004, Ntshebe, 2011, Islam et al., 2006). Both secondary data analysis and evaluation study observed that improved spousal FP communication and increase in the frequency of communication led to increase in shared decision to use family planning (Hartmann et al., 2012, Islam et al., 2006). In Africa more generally fewer men discuss contraception with their spouses (Gebreselassie and Mishra, 2007, Ijadunola et al., 2010, Izugbara et al., 2010). Though it is not fully clear why, but men's perception of FP is seen as one of the contributory factors for the communication gap (Okwor and Olaseha, 2010).

In Nigeria, some men perceive contraception as solely the business of women while others believe that contraceptive use can make women promiscuous (Okwor and Olaseha, 2010, Ogunjuyigbe et al., 2005, Akinso and Akinso, 2015). For instance, Akinso and Akinso while

investigating factors that hinder men's participation in family planning by a community-based qualitative participatory study involving 300 adult males found that fear of spouse's possible promiscuity with contraceptive use is one of the major issues deterring their support (Akinso and Akinso, 2015). Similarly, Okwor and Olaseha when assessing men's perception in respect to their wife's use of modern contraception through nine focused-group discussions found that although most of them acknowledged that FP is a good way of limiting children, they however unanimously believe that allowing a woman to use modern contraception will give room for infidelity on her part (Okwor and Olaseha, 2010). However, little is known about how men's perceptions of FP influence women's contraceptive demand and uptake of modern methods. We address this evidence gap in the present study. The findings from this study can offer insights into the psychosocial barriers impeding FP progress in Nigeria and contribute to designing targeted behavioural FP interventions.

4.1.1 Research questions and hypothesis

The main research questions are:

1. How do men perceive FP and its use by spouses in Nigeria?
2. To what extent do men's perceptions influence (a) spousal demand for contraception (b) spousal uptake of modern methods?

The research hypothesis is that:

> Men's perception of their role in FP and the fear of female promiscuity deters spousal demand for FP and uptake of modern contraceptive methods.

4.2 METHODS

4.2.1 Data source

The analysis is based on the couple's dataset from the 2013 Nigeria Demographic and Health Survey (NDHS). NDHS was coordinated by the Nigeria Population Commission (NPC), with assistance from ICF Macro and supported through the USAID-funded MEASURE DHS program (NPC [Nigeria] and ICF International, 2014). The survey instrument consists of three sets of questionnaires: household, women and men. NDHS is based on a three-stage stratified design consisting of 904 clusters, which yielded a nationally representative samples of 40,680 households. All women aged 15-49 years who were permanent residents or visitors who were present in the households a night before the survey were interviewed. In a sub-sample of households, all men aged 15-49 years who were permanent resident or a visitor the night before the survey were also interviewed. A total of 38,948 women and 17,359 men were interviewed. From the individual women and men datasets, the couple dataset was generated by linking the data of men and women who were married or reported to be in a union for a total of 8,658 couples.

4.2.2 Operationalising variables

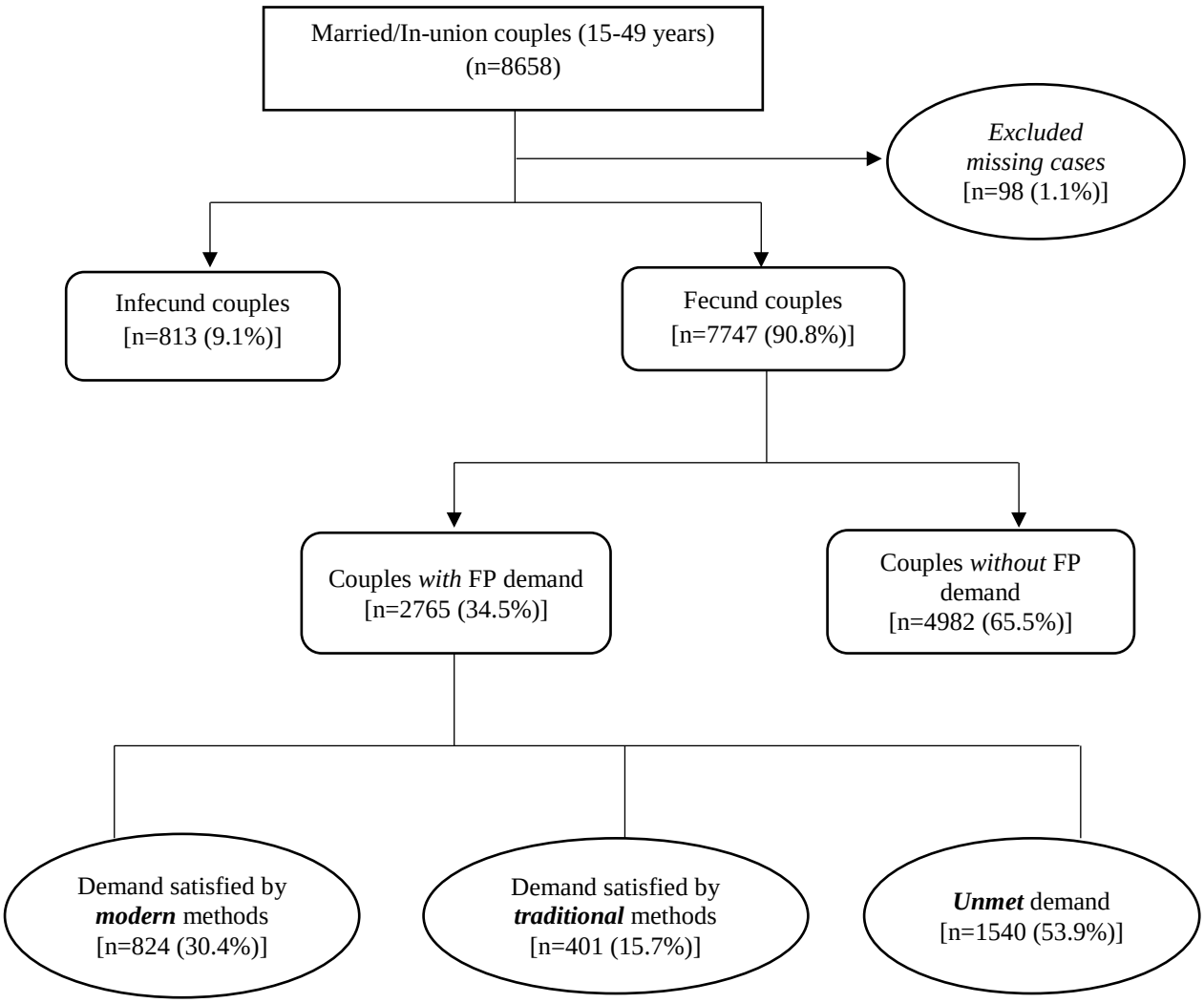
In this study, infecundity was defined by one of any of these three criteria: (1) first married 5 or more years ago, have not had children in the past 5 years, and have never practiced contraception (2) response to time since last period is ≥ 6 months and not postpartum amenorrhea (0-59 months) or, (3) self-report of inability to become pregnant, menopausal or had hysterectomy in response to survey questions (Bradley et al., 2012). Total demand for FP is estimated by considering women of reproductive ages (15-49 years), married or in sexual union, who are fecund, who are currently using or their sexual partner is using at least one

traditional or modern contraceptive method and, those with unmet need for contraception (Ashford, 2003, World Health Organization, 2015). The unmet need for family planning is the proportion of women of reproductive age (15-49 years) either married or in-union, who are fecund and sexually active but are not using any method of contraception (modern or traditional), and report not wanting any more children or wanting to delay the birth of their next child for at least two years. Also included are all pregnant women at the time of interview whose pregnancies were unwanted or mistimed at the time of conception and all postpartum amenorrheic women who are not using FP and whose last birth was unwanted or mistimed (World Health Organization, 2015).

FP demand = Current contraceptive prevalence + Unmet need

For the analysis, 7747 fecund couples were initially considered in the investigation of the association between partner's FP perception and contraceptive demand. Of these, 65.5% had no demand for FP. Then, 2765 (34.5%) fecund couples who reported a demand for FP were further investigated for uptake of modern contraceptive methods. About 30% reported using modern method, 15.7% traditional method and 53.9% had unmet need at the time of survey (Figure 4.1).

Figure 4.1: *Count of cases from the 2013 NDHS Couple's data (% weighted)*



4.2.2.1 Dependent variables

The study considered two primary outcomes –variables: (i) demand for FP and (ii) uptake of modern contraceptive methods among women with FP demand. In order to achieve the objectives, two sets of analysis with different sample size and outcome of interest were undertaken. The population for the first set of analysis was fecund couples (N=7,747) and the outcome was *demand for FP*. In the second analysis, the study population was fecund couples

with FP demand (N=2,765) and the outcome variable was *uptake of modern contraceptive methods*.

A binary variable was constructed to analyse demand for FP, considering respondents using contraception for either spacing or limiting and those with unmet need for spacing or limiting coded as 1 (demand present) and 0 otherwise (demand absent). For the uptake of modern contraceptive methods, a multinomial variable was constructed by recoding current use of contraception as modern methods, traditional (including folkloric) methods and no method. We decided to use the female response in assessing contraceptive uptake, motivated by the literature, specifically a comparative analysis of 23 DHS that reported that wives' response is of higher validity in determining contraceptive use than husbands' (Becker and Costenbader, 2001). Before proceeding with the analysis, we estimated a Kappa coefficient to measure the concordance of couple's response.

The NDHS classified modern contraception as the use of pills, intrauterine device (IUD), injections, diaphragm, condom, female sterilization, implants, female condom, foam/jelly, and lactational amenorrhoea method (LAM). Periodic abstinence and withdrawal methods were regarded as traditional methods while any other methods outside these were grouped as folkloric methods. Though there may be debates as to the classification of LAM as a modern method, in this study LAM has been retained as a temporary modern contraception considering its inhibiting effect on fertility (Kouyaté et al., 2015). Moreover, its mechanism of action and effectiveness of 98% has been scientifically proven through clinical trials and found comparable to other modern methods (Kennedy et al., 1989, Labbok et al., 1997).

4.2.2.2 Explanatory variables

The primary explanatory variable of interest is male partner's perceptions about contraception. In the DHS, the perception of the partner was assessed based on response to two statements: *contraception is a woman's business and a man should not worry about it*; secondly, *women who use contraception may be promiscuous*. The partner's response was recorded as 'agree', 'disagree' or 'don't know'. The research seeks to examine how these perceptions influence FP demand and modern contraceptive uptake.

4.2.2.3 Control variables

Guided by the conceptual framework by Bertrand et al. (1994) and literature on the determinants of family planning use in the African context (Bertrand et al., 1994, Stephenson et al., 2007, Mohammed et al., 2014), the analysis considered a set of individual socio-demographic variables. These include women's characteristics (woman's age, highest educational level, number of living children including current pregnancy, her occupation, domicile, religion and household wealth), male partner's characteristics (male partner's age, educational level and occupation), and woman's decision-making power as a proxy of her social status (Table 4.1).

The NDHS assessed the decision power of women in union based on her response to five separate questions:

- *Who usually decides how the money you earn will be used?*
- *Who usually decides how your (husband's/partner's) earnings will be used?*
- *Who usually makes decisions about health care for yourself?*
- *Who usually makes decisions about making major household purchases?*
- *Who usually makes decisions about visits to your family or relatives?*

The response options included self (woman), her husband or partner, joint decision and others. We recoded the response as 0 if she was not involved in the decision and 1 if she was involved in the decision making. Because of the multidimensional nature of decision-making, to reduce the variables to a single new variable while minimizing information loss, Principal Component Analysis (PCA) was used to create an index score. The PCA is a multivariate technique that analyses a data set in which observations are described by several inter-correlated quantitative dependent variables. The goal of PCA is to reduce the number of variables and avoid multicollinearity. This is done by extracting and compressing the most important information in the data to yield a single factor (index score), called principal component (Abdi and Williams, 2010). We applied the PCA to the 5 questions contributing to woman's decision making power to create an index score. A tertile construct was subsequently applied to the score to measure relative decision making power (OlaOlorun and Hindin, 2014).

4.2.2.4 Missing Variables

Ninety eight cases (<0.5%) with missing primary outcomes of interest were excluded from the analysis. There were twenty one non-response to the questions regarding perceptions of contraception. The lack of a committed response from the respondents assume that they are unsure of what their perception is, therefore the non-response was categorized as 'don't know'. Moreover, it was presumed that 18 women that did not respond to decision-making questions are possibly not having a say on the respective issues. Consequently, the non-response was classified as 'not being involved in decision-making'.

Table 4.1: Definition of variables

Variable name & code	Original variable categories	Recoded variable categories
Dependent variable 1 Need for contraception (v626A)	Unmet need for spacing Unmet need for limiting Using FP for spacing Using FP for limiting Others (No demand)	Demand present (1) Demand absent (0)
Dependent variable 2 Woman's current contraceptive use (v313)	Modern method Folkloric method Traditional method No method	Modern method (2) Traditional/Folkloric (1) No method (0)
Explanatory variable 1 Contraception is women's business (Mv3b25A)	Disagree Agree Don't know	Disagree (0) Agree (1) Don't know (2)
Explanatory variable 2 Women who use contraception becomes promiscuous (Mv3b25B)	Disagree Agree Don't know	Disagree (0) Agree (1) Don't know (2)
CONTROL VARIABLES (woman characteristics)		
Current Age (v012)	Continuous variable	<30 years (0) 30-39 years (1) ≥ 40 years (2)
Highest educational level (v106)	No education Primary Secondary Higher	No education (0) Primary (1) Secondary (2) Higher (3)
Number of living children (including current pregnancy) v219	Continuous variable	No child (0) 1-2 child(ren) (1) 3-4 children (2) 5 or more children (3)

..Continued

Table 4.1: *continued*

Variable name & code	Original variable categories	Recoded variable categories
Religion (v130)	Catholics Other Christians Islam Traditionalists Others	Catholics (0) Protestants (1) Islam (2) Traditional/Others (3)
Place of residence (v025)	Rural Urban	Rural (0) Urban (1)
Region of residence (V024)	North central North east North west South south South east South west	North (1) South (0)
Occupation (v717)	Not working Professional/technical/managerial Agricultural- self employed Agricultural- employee Clerical Sales Etc.	Unemployed (0) Professional/managerial (1) Agricultural-based (2) Others (3)
Wealth index (v190)	Poorest Poorer Middle Richer Richest	Poorest (0) Poorer (1) Middle (2) Richer (3) Richest (4)
Woman's decision-making power (*Principal component analysis*: v739, v743A, v743B, v743D & v743F)		Poor (0) Moderate (1) Good (2)

..*Continued*

Table 4.1: *continued*

Variable name & code	Original variable categories	Recoded variable categories
Male partner's characteristics		
Partner's age (mv012)	Continuous variable	<30 years (0) 30-39 years (1) ≥ 40 years (2)
Partner's highest educational level (mv106)	No education Primary Secondary Higher	No education (0) Primary (1) Secondary (2) Higher (3)
Partner's occupation (mv717)	Not working Professional/technical/managerial Agricultural- self employed Agricultural- employee Clerical Sales Etc.	Unemployed (0) Professional/managerial (1) Agricultural-based (2) Others (3)
Couple's differential characteristics		
Spousal age difference (Compute Mv012-v012)	Continuous variable	Partner older by 1-7 years (0) Partner older by 8-14 years (1) Partner older by ≥ 15 years (2) Partner younger/No age difference (3)
Spousal educational difference (Mv106 & v106)	No education Primary Secondary Higher	Same level of education (0) Partner less educated (1) Partner more educated (2)
Spousal difference in number of living children (Compute Mv218-v218)	Continuous variable	No difference (0) Woman has more living children (1) Male partner has more living children (2)

4.2.3 Statistical analysis

4.2.3.1 Exploratory data analysis

An initial exploratory analysis of the couple's data was conducted in order to gain insight into how male partner's FP perceptions, selected socio-demographic characteristics and the wife's decision-making power influences contraceptive demand and/or uptake. Bivariate associations between the main outcome variables and the independent variables were explored using Pearson's chi-squared tests. The variables were then screened for multicollinearity problems before considering in the regression.

4.2.3.2 Binary logistic regression

To obtain an initial probability estimate of how the male partner's FP perception and other factors could determine a couple's demand for contraception, a logistic regression model was fitted. When the measurement of an outcome variable is binary, logistic regression is appropriate (Stephenson et al., 2008). Therefore, logistic regression was used to model FP demand, as it is a dichotomous variable with the value of 1 for women who reported a need for contraception and 0 when otherwise.

The general equation of a logistic regression model is:

$$\log(odds) = logit\ (probability) = \ \alpha + \ \beta_{1\chi_1} + \ \beta_{2\chi_2} \ldots + \beta_{k\chi_k}, \qquad (4.1)$$

where α is a constant term (intercept), $\beta_{1,}\ \beta_2, \ldots, \beta_k$ are coefficients of the regression equation, $x_1, x_2, \ldots, x_k$ are explanatory variables, including dummies for categorical variables, and k is the number of explanatory variables in the model.

Univariate and multivariate logit models were fitted to the dataset. Four successive logistic regression predicting the demand for contraception were fitted. Specifically, Model 1 included partner's FP perceptions, controlling for woman's socio-demographic

characteristics. Model 2 added household economic status and Model 3 included woman's decision-making power. The final model (Model 4) controlled for the influence of men's characteristics. We then tested for interactions between place of residence and wealth, and women's educational and household wealth status. The Statistical Package for Social Sciences (SPSS) version 22 was used for the modelling.

4.2.3.3 Multinomial logistic regression

Multinomial logistic regression can be used to model associations between factors and an outcome when the dependent variable is nominal with more than two possible discrete outcomes (Starkweather and Moske, 2011). For the second part of the analysis, since there are more than two possible outcomes – 'non-uptake of any method' coded as 0, 'uptake of traditional/folkloric methods' coded as 1 and 'modern contraceptive uptake' with a coded value of 2, multinomial logistic model was considered.

The simplest approach to multinomial data is to nominate one of the response categories as the baseline and calculate log-odds for all other categories relative to it and then, let the log-odds be a linear function of the predictors (Rodriguez, 2007). For this paper, 'non-uptake of any method' was the reference category. In multinomial logit model, it is assumed that the log-odds of each response follow linear model:

$$\eta ij = \log \frac{\pi ij}{\pi ij} = \alpha j + \chi_i' \beta j, \qquad (4.2)$$

where πij is the probability the i-th falls in the j-th category, αj is a constant, χi is a vector of covariates and βj is a vector of regression coefficients, for $j = 1, 2, \ldots, J - 1$.

Four multinomial logit model that controlled for the woman's socio-demographic, economic and decision-making attributes and, the male partner's characteristics were fitted to the dataset using SPSS version 22.

4.3 RESULTS

4.3.1 Sample characteristics

The mean age of the women in sexual union was 28.0±6.9 years and that of their male partners was 36.3±7.3 years. Whereas 39% of the men were 40 years or older, only 6.1% of the women were 40 years or above. A third of the men were uneducated and just 14% had a higher education. For the women, 45% were uneducated and 7% had a higher education. About 96% of the couple practices the same religion. The majority (63%) of the men were Muslims and 34.8% were Catholic/Protestants. As at the time of the survey, all couples resided in the same place and region of residence. About 65% of couples lived in rural areas and 70% resided in the northern region. The overall demand for FP was 34.5%: among these 30.4% used a modern contraceptive method and 53.9% had unmet need. FP demand varied between 56.7% and 25.2% respectively in the southern and northern Nigeria. The couple's concordance of contraceptive use reporting was Kappa coefficient 0.33.

4.3.2 Partner's contraceptive perception

Table 4.2 presents male partners' characteristics by perception of their role in FP. Although 23% agreed that contraception is women's business only, majority disagreed. The positive disposition to men's involvement in FP was stronger with increasing age, higher educational status, professional employment and urban residency. When compared to those who are Catholics/Protestants, more men practicing Islam/other religions felt that contraception is women's business only and that a man need not worry about it. The perception was commoner in the north than the southern part of the country.

Table 4.2: Partner's response concerning contraception as women's business by selected socio-demographic characteristics

Background characteristics	Total	Disagree (%)	Agree (%)	Don't know (%)
Total	7747	73.1	22.8	4.1
Husband's age (years)*				
<30	1402	69.7	24.3	6.0
30-39	3362	73.4	22.4	4.2
≥40	2983	74.4	22.7	3.0
Highest educational level*				
No education	2433	65.4	28.0	6.7
Primary	1727	71.7	24.4	3.9
Secondary	2453	77.5	19.5	3.0
Higher	1134	84.3	15.3	0.5
Occupation				
Unemployed	100	75.5	21.7	2.8
Professional/Managerial	962	81.6	17.5	0.8
Agricultural-based	2893	67.6	25.1	7.2
Others	3792	75.1	22.4	2.5
Place of residence*				
Urban	2565	77.6	20.1	2.3
Rural	5182	70.7	24.3	5.0
Religion*				
Catholic	606	77.2	19.6	3.2
Protestant	2376	81.1	15.5	3.3
Islam	4623	69.3	26.3	4.4
Traditional/Others	142	69.2	24.0	6.8
Region of residence*				
South	2407	81.1	16.3	2.6
North	5340	69.7	25.6	4.7

The percentage is adjusted for sample weight
Row sum up to 100%
*p<0.05

In contrast, 3112 (42%) felt that female using contraceptives may become promiscuous (Table 4.3). Mostly, men who are 40 years or more, uneducated, living in rural areas, from Northern Nigeria and/or practicing Islam believed contraception can make a woman promiscuous. But, men with higher education, who are resident in Southern Nigeria and are Catholic/Protestant did not feel their wives would be promiscuous with the use of FP.

Table 4.3: Partner's response concerning female becoming promiscuous with the use of contraception by selected socio-demographic characteristics

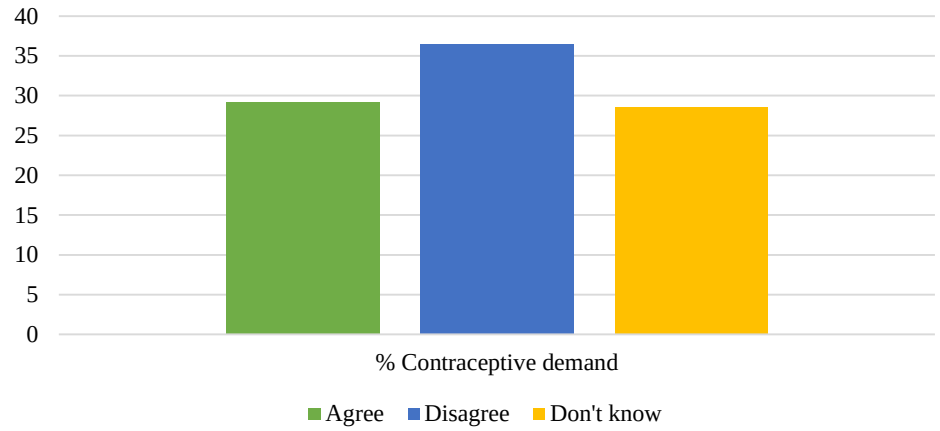
Background characteristics	Total	Disagree (%)	Agree (%)	Don't know (%)
Total	7747	50.4	41.6	8.0
Male partner's age (years)*				
<30	1402	47.9	41.9	10.2
30-39	3362	51.6	40.5	7.9
≥40	2983	50.1	42.8	7.1
Highest educational level*				
No education	2433	39.3	48.5	12.3
Primary	1727	49.5	43.1	7.4
Secondary	2453	56.7	37.1	6.2
Higher	1134	64.6	32.8	2.6
Occupation				
Unemployed	100	62.5	28.8	8.7
Professional/Managerial	962	60.9	36.4	2.7
Agricultural-based	2893	46.6	42.0	11.4
Others	3792	50.4	42.9	6.7
Place of residence*				
Urban	2565	57.8	37.7	4.6
Rural	5182	46.4	43.7	9.9
Religion*				
Catholic	606	62.6	32.0	5.4
Protestant	2376	64.1	29.4	6.5
Islam	4623	42.9	48.1	9.0
Traditional/Others	142	54.1	39.0	6.8
Region of residence*				
South	2407	67.8	27.1	5.1
North	5340	43.1	47.7	9.2

The percentage is adjusted for sample weight
Row sum up to 100%
*p<0.05

4.3.3 Perception and demand for FP

Figure 4.2 shows men's perception of their role in FP and spousal demand for contraception. Evidently, women's demand for contraception was affected by male partner's perception. There was an 8 percent statistically significant increase in contraceptive demand based on men's perception of their role in FP.

Figure 4.2: Partner's perception that contraception is women's business and contraceptive demand (p<0.001)



Demand for contraception was also affected by the perception that the use of FP by women will promote promiscuity (Figure 4.3). While 40 percent of women whose partners have no fear of female promiscuity had a demand for FP, in those with such opinion, only 28.2 percent of their wives had a FP demand. The difference was significant at p<0.001.

Figure 4.3: Partner's perception of female promiscuity with use of FP and contraceptive demand (p<0.001)

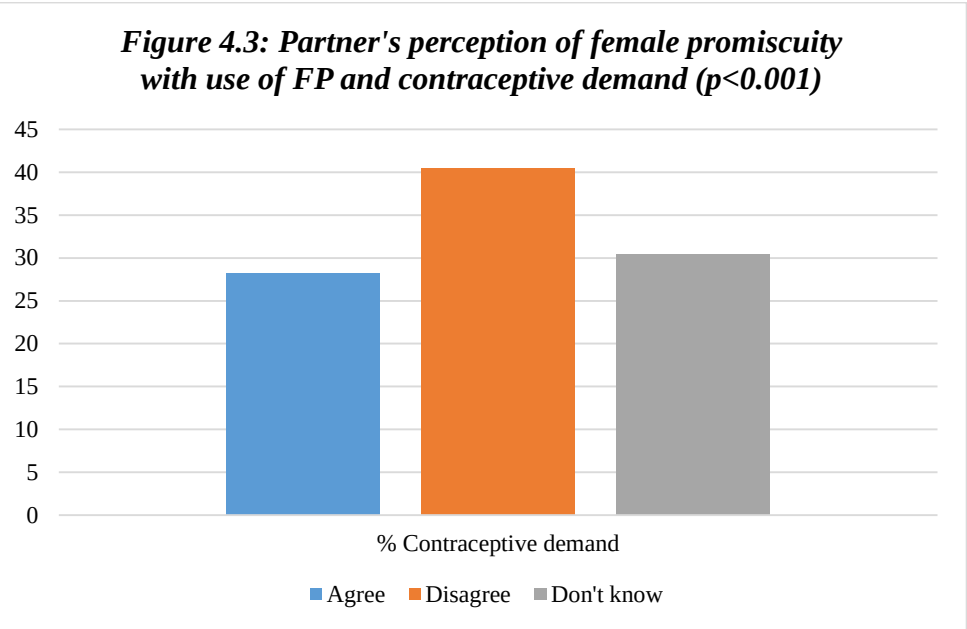


Table 4.4 shows the bivariate analysis of shared couples' attributes and relationship with contraceptive demand. Only in 3% of the couples are the spouses of the same age or that the

male partner is younger. In about 14% of them, the partner is older than the wife by 15 or more years. Most spouses (65%) shared similar level of education but in 8% the wife is more educated. Though shared number of living children was the same in 61% of the couples, in another 34% the male partner had more numbers of living children. Demand for contraception was highest when there is no difference in spousal age or the partner is not more than 7 years older than the wife, when the husband is less educated than the wife and when the woman has more living children. The bivariate analysis showed association between the difference in spousal age, educational status, the number of living children and contraceptive demand.

Table 4.4: Shared couples' characteristics and demand for contraception

Variables	n[1] (%)	Contraceptive demand (%)	P value (χ^2)
Total	7747	34.5	
Age difference (years)			<0.001
No age difference/husband younger	252(3.3)	42.2	
Husband older 1-7yrs	3552(45.1)	39.4	
Husband older 8-14yrs	2896(37.9)	32.4	
Husband older ≥ 15yrs	1047(13.7)	22.4	
Educational differences			<0.001
Husband less educated	636(8.0)	41.4	
Same level of education	5042(65.4)	35.7	
Husband more educated	2069(26.6)	29.5	
Differences in number of living children			<0.001
Woman has more living children	391(4.9)	40.8	
No difference	4677(61.7)	38.1	
Male partner has more living children	2679(34.0)	27.3	

[1]is the total number of observations (unweighted)
[2]the percentage is adjusted for sample weight

Table 4.5 reports the univariate and multivariate logistics regression of the influence of male partner's perception on FP demand. In the absence of controlling factors, partner's perception

that contraception is a business only for women (p<0.001) and/or that it promotes female promiscuity (p<0.001) was associated with lower odds of the wife having a FP demand – the table shows the OR estimates and 95% CI. However, when the two variables were in the same model (model 0), only the indicator of fear that women will become promiscuous with the use of FP remained statistically associated with contraceptive demand. The odds of contraceptive demand was significantly lower where the male partners agreed with the perception (AOR 0.64, 95% CI 0.59-0.72). Similarly, contraceptive demand was significantly lower among couples where the male partner answered '*don't know*' compared to those who disagreed with the perception, (AOR 0.69, 95% CI 0.55-0.86).

With demographic characteristics of the woman, the effect of the fear of female promiscuity on FP demand decreased to 0.84 relative to when the perception was absent, though it remained statistically significant (Model 1). The change in the magnitude of effect was explained by woman's level of education and number of living children. In other words, the more educated a woman is and the more the number of surviving children, the odds are less likely that men's negative perception of FP influences partner's FP need.

When the women's demographic characteristics and household economic status were considered (Model 2), the association between the male partner's fear of female promiscuity and FP demand was attenuated to AOR 0.86, 95% CI (0.76-0.97) for those who agreed with the statement compared to those who disagreed. There was no longer a significant difference in the odds of FP demand between those who answered '*don't know*' and those who disagreed with the perception. Addition of the woman's decision-making power (Model 3) did not alter the direction and magnitude of the explanatory variables. Even with further data exploration, the decision-making power remained non-significant, therefore it was excluded from the final model.

Two separate models were considered for the final model – the first adjusting for the individual male partner's characteristics and the second controlling for the couple's differential characteristics. Adjustment for partner's characteristics did not alter how the perception of female promiscuity with the use of contraception was associated with FP demand (shown as Model 4). Similarly, adjusting for differences in couple's age, educational level and number of living children did not change the magnitude or direction of the perception variables (result shown as Table 4.6). In the two formats of the final model, the woman's age, her educational status, involvement in agricultural-related jobs and higher wealth index were consistent in improving contraceptive demand. Table showing average marginal effects is presented in Appendix B. Test for interaction effects between place of residence and wealth, and women's educational and household wealth status were not significant.

Table 4.5: Univariate and multivariate logistic regression assessing the influence of male partner's contraceptive perception on FP demand

Variable	Unadjusted OR(95% CI)	Adjusted OR (95% CI)				
		Model 0	Model 1	Model 2	Model 3	Model 4
PARTNER'S FP PERCEPTION						
Contraception is woman's business, man shouldn't worry						
Disagree *(Ref)*						
Agree	**0.77(0.68-0.86)**	0.95(0.83-1.08)	1.04(0.90-1.19)	1.06(0.92-1.22)	1.06(0.92-1.22)	1.05(0.92-1.22)
Don't know	**0.70(0.55-0.89)**	0.87(0.64-1.18)	0.92(0.67-1.28)	0.94(0.68-1.30)	0.93(0.67-1.29)	0.94(0.68-1.30)
Women who use contraception becomes promiscuous						
Disagree *(Ref)*						
Agree	**0.63(0.57-0.70)**	**0.64(0.59-0.72)**	**0.84(0.74-0.94)**	**0.86(0.76-0.97)**	**0.86(0.76-0.97)**	**0.86(0.76-0.97)**
Don't know	**0.6(40.53-0.78)**	**0.69(0.55-0.86)**	1.04(0.81-1.34)	1.09(0.85-1.41)	1.10(0.86-1.42)	1.09(0.85-1.41)
WOMAN'S CHARACTERISTICS						
Age (years)						
<30 *(Ref)*						
30-39	**1.98(1.79-2.19)**		**1.22(1.36-1.83)**	**1.19(1.05-1.36)**	**1.18(1.04-1.35)**	**1.24(1.07-1.43)**
≥40	**4.36(3.60-5.29)**		**2.56(2.27-3.15)**	**2.49(1.99-3.13)**	**2.45(1.95-3.08)**	**2.61(2.05-3.34)**
Highest educational level						
No education *(Ref)*						
Primary	**2.90(2.55-3.31)**		**1.75(1.07-1.39)**	**1.54(1.31-1.80)**	**1.53(1.30-1.79)**	**1.56(1.32-1.84)**
Secondary	**4.15(3.68-4.67)**		**2.41(2.05-3.22)**	**1.93(1.62-2.30)**	**1.91(1.60-2.28)**	**1.91(1.58-2.30)**
Higher	**4.94(4.11-5.95)**		**2.53(2.01-3.19)**	**2.02(1.53-2.67)**	**1.20(1.51-2.64)**	**1.90(1.41-2.55)**
Number of living children incl. current pregnancy						
No child *(Ref)*						
1-2	**2.97(2.25-3.92)**		**2.75(2.06-3.68)**	**2.75(2.05-3.68)**	**2.76(2.06-3.69)**	**2.81(2.09-3.76)**
3-4	**4.68(3.55-6.17)**		**4.17(3.10-5.60)**	**4.15(3.08-5.57)**	**4.15(3.09-5.59)**	**4.29(3.18-5.79)**
5 or more	**5.05(3.82-6.67)**		**4.73(3.47-6.47)**	**4.74(3.46-6.49)**	**4.78(3.49-6.54)**	**4.93(3.59-6.78)**

..Continued

Table 4.5: *continued*

Variable	Unadjusted OR(95% CI)	Adjusted OR (95% CI)				
		Model 0	Model 1	Model 2	Model 3	Model 4
Religion						
Catholic *(Ref)*						
Protestant	1.12(0.93-1.35)		1.02(0.84-1.24)	0.99(0.81-1.20)	0.99(0.82-1.21)	0.98(0.80-1.19)
Islam	**0.30(0.25-0.36)**		**0.59(0.48-0.73)**	**0.58(0.47-0.72)**	**0.60(0.48-0.74)**	**0.58(0.46-0.71)**
Traditional/Others	**0.31(0.20-0.48)**		**0.52(0.32-0.83)**	**0.51(0.32-0.81)**	**0.51(0.32-0.82)**	**0.49(0.31-0.79)**
Place of residence						
Urban *(Ref)*						
Rural	**0.48(0.43-0.53)**		**0.80(0.71-0.90)**	0.95(0.83-1.08)	0.95(0.83-1.09)	0.94(0.82-1.08)
Region of residence						
South *(Ref)*						
North	**0.28(0.26-0.31)**		**0.69(0.61-0.80)**	**0.76(0.66-0.88)**	**0.76(0.66-0.88)**	**0.75(0.65-0.86)**
Occupation						
Unemployed *(Ref)*						
Professional/Managerial	**3.41(2.71-4.28)**			0.96(0.75-1.27)	0.95(0.71-1.26)	0.97(0.73-1.28)
Agricultural-based	**2.36(2.00-2.77)**			**1.25(1.03-1.51)**	**1.24(1.01-1.51)**	**1.25(1.03-1.52)**
Others	**1.80(1.61-2.01)**			1.10(0.97-1.24)	1.10(0.95-1.27)	1.10(0.97-1.25)
Household wealth index						
Poorest *(Ref)*						
Poorer	1.16(0.99-1.37)			0.90(0.75-1.07)	0.89(0.75-1.06)	0.90(0.76-1.08)
Middle	**2.31(1.97-2.71)**			**1.34(1.12-1.61)**	**1.33(1.11-1.60)**	**1.35(1.11-1.64)**
Richer	**3.55(3.04-4.15)**			**1.60(1.28-1.93)**	**1.56(1.27-1.91)**	**1.58(1.26-1.97)**
Richest	**4.63(3.96-5.41)**			**1.75(1.37-2.23)**	**1.72(1.35-2.19)**	**1.73(1.33-2.25)**
Decision making power						
Poor *(Ref)*						
Moderate	**1.40(1.24-1.59)**				0.97(0.82-1.14)	
Good	**2.95(2.60-3.34)**				1.10(0.93-1.30)	

..*Continued*

Table 4.5: *continued*

Variable	Unadjusted OR (95% CI)	Adjusted OR (95% CI) Model 4
MALE PARTNER'S CHARACTERISTICS		
Partner's age (years)		
<30 *(Ref)*		
30-39	**1.53(1.33-1.76)**	0.96(0.82-1.12)
≥40	**2.03(1.77-2.34)**	0.91(0.75-1.10)
Partner's highest educational level		
No education *(Ref)*		
Primary	**2.18(1.89-2.50)**	0.93(0.78-1.10)
Secondary	**3.10(2.73-3.51)**	0.96(0.80-1.15)
Higher	**3.84(3.30-4.47)**	1.14(0.90-1.45)
Partner's occupation		
Unemployed *(Ref)*		
Professional/Managerial	1.14(0.75-1.73)	**0.59(0.37-0.94)**
Agricultural-related	**0.55(0.37-0.82)**	0.66(0.42-1.03)
Others	0.80(0.54-1.20)	0.65(0.42-1.01)

n is 7747 for all model
FP: family planning
Data presented as Odd Ratio (95% CI)
BOLD (statistically significant at p<0.05)

***Table 4.6:** *Final model which considered adjustment for couples' differential characteristics*

Variable	Adjusted OR (95% CI)
	Final Model
PARTNER'S FP PERCEPTION	
Contraception is woman's business, man shouldn't worry	
Disagree *(Ref)*	
Agree	1.05(0.91-1.21)
Don't know	0.93(0.67-1.29)
Women who use contraception becomes promiscuous	
Disagree *(Ref)*	
Agree	**0.85(0.76-0.96)**
Don't know	1.07(0.83-1.38)
WOMAN'S CHARACTERISTICS	
Age (years)	
<30 *(Ref)*	
30-39	**1.61(1.44-1.81)**
≥40	**3.55(2.86-4.41)**
Highest educational level	
No education *(Ref)*	
Primary	**1.55(1.32-1.82)**
Secondary	**1.82(1.49-2.24)**
Higher	**1.68(1.25-2.25)**
Religion	
Catholic *(Ref)*	
Protestant	1.00(0.83-1.22)
Islam	**0.62(0.50-0.77)**
Traditional/Others	**0.53(0.33-0.84)**
Place of residence	
Urban *(Ref)*	
Rural	0.95(0.83-1.08)
Region of residence	
South *(Ref)*	
North	**0.77(0.67-0.89)**
Occupation	
Unemployed *(Ref)*	
Professional/Managerial	0.98(0.75-1.30)
Agricultural-related	**1.36(1.12-1.64)**
Others	**1.18(1.05-1.34)**
Household wealth index	
Poorest *(Ref)*	
Poorer	0.89(0.75-1.06)
Middle	**1.34(1.11-1.62)**
Richer	**1.56(1.26-1.93)**
Richest	**1.60(1.25-2.06)**
COUPLE'S DIFFERENTIAL FACTORS	
Age difference (years)	
Husband older 1-7yrs *(Ref)*	
Husband older 8-14yrs	0.97(0.87-1.09)
Husband older ≥ 15yrs	0.83(0.69-1.00)
No age difference/husband younger	0.80(0.60-1.06)
Educational differences	
Same level of education *(Ref)*	
Husband less educated	0.95(0.79-1.15)
Husband more educated	0.97(0.85-1.12)
Differences in number of living children	
No difference *(Ref)*	
Woman has more living children	1.06(0.84-1.33)
Male partner has more living children	0.90(0.80-1.01)

n is 7747 for all model
FP: family planning
Data presented as Odd Ratio (95% CI)
BOLD (statistically significant at p<0.05)

Overall, the multivariate analysis shows changes in influence of variables after adjusting for other factors. Though perceptions regarding the role of men in FP and the fear of female promiscuity had influence on contraceptive demand in the univariate analysis, in the final multivariate regression, only the fear of female promiscuity lowered FP demand. Also, the results showed that the magnitude of effect of some strong drivers of contraceptive demand in the unadjusted analysis such as age, education status, number of living children, occupation and wealth index reduced with multivariate modelling which further buttress the negative impact of partner's perception on FP demand.

4.3.4 Perception and uptake of modern methods among women with FP demand

For the outcome of uptake of modern methods, the focus was on women with established contraceptive needs. About 35% of fecund couples had contraceptive demand. The women's mean age was 30.33 ± 6.91 years and that of their male partners was 37.65 ± 6.98 years. A total of 49.8% of the women and 59.5% of the men had either a secondary or tertiary education. About 55% of them are Catholic/Protestant Christians and 44% practice Islam. More of the couples (53%) reside in rural areas.

Table 4.7 shows couple's shared attributes by uptake of modern contraceptive methods. Highest percentage uptake was observed among spouses with no age difference or in which the husband is younger. Similarly, couples in which the woman was more educated had higher uptake of modern methods. The percentage uptake of modern methods was least when it is the man that has more living children.

Table 4.7: Shared couples' characteristics and uptake of modern contraception

Variables	n[1] (%)	Modern contraceptive uptake (%)	P value (χ^2)
Age difference (years)			<0.001
No age difference/husband younger	112(4.1)	37.7	
Husband older 1-7yrs	1451(51.5)	34.3	
Husband older 8-14yrs	961(35.6)	35.8	
Husband older ≥ 15yrs	241(8.9)	23.1	
Educational differences			<0.001
Husband less educated	275(9.6)	28.4	
Same level of education	1872(67.7)	32.4	
Husband more educated	618(22.7)	25.4	
Differences in number of living children			<0.001
Woman has more living children	162(5.7)	28.0	
No difference	1827(67.4)	34.4	
Male partner has more living children	776(26.8)	21.0	

[1]is the total number of observations (unweighted)
[2]the percentage is adjusted for sample weight

Figure 4.4: Partner's perception that FP is women's business and uptake of contraception (p<0.001)

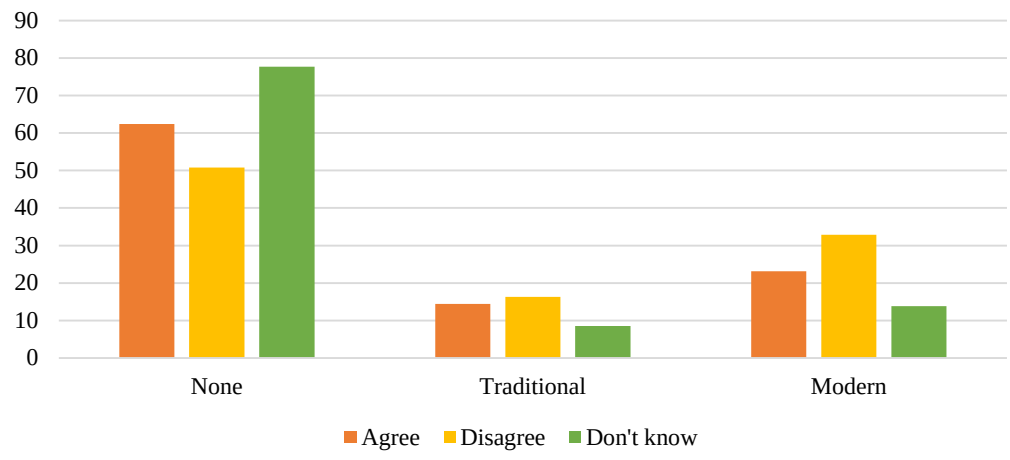
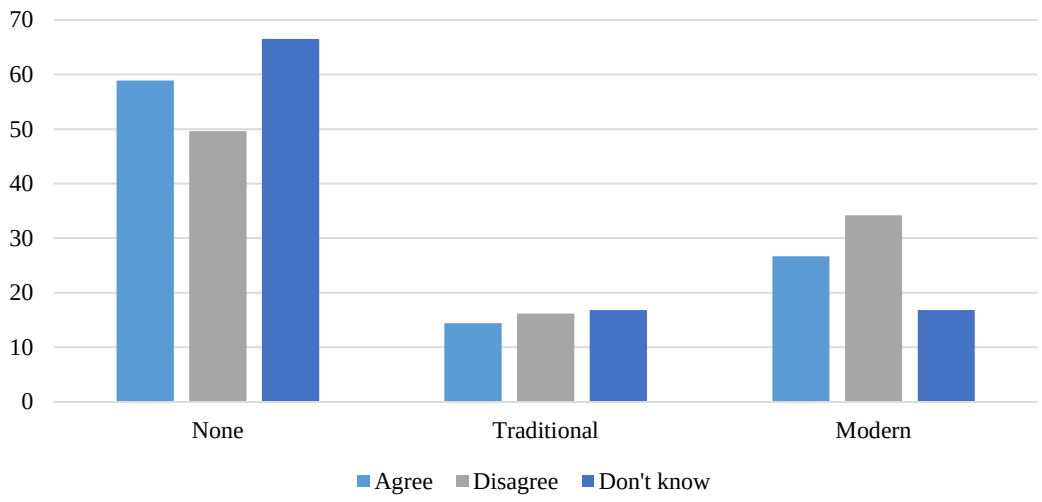


Figure 4.4 illustrates the relationship between male partner's perception of men's role in FP and spousal uptake of contraception. When a man acknowledges that contraception is not a woman's responsibility alone, the spousal use of modern methods is 10 percentage point

more than to women whose partners perceive otherwise (p<0.001). The result also showed a significant increase in spousal uptake of traditional methods compared to no contraceptive use at all.

Figure 4.5: Partner's perception of female promiscuity with use of FP and uptake of contraception (p<0.001)



Similarly, the result in Figure 4.5 shows that the wives of those who did not share in the opinion that contraception will increase female promiscuity had the highest uptake of modern method of contraception. They had a 7.5 percent increase in the uptake of modern methods compared to colleagues whose partners did believe that contraception will promote female promiscuity (p<0.001).

Figure 4.6 shows male partner's FP perception and spousal method choice. Where the male partner felt that contraception is business for women only, 9.4% of spouses reported using injectable, 5.7% oral pills and 4.6% male condoms. For the spouses whose husbands believe that using FP can make them become promiscuous, 11.6% had injectable, 4.9% used male condom and 4.5% relied on oral pills.

Figure 4.6: Male partner's FP perception and spousal method choice

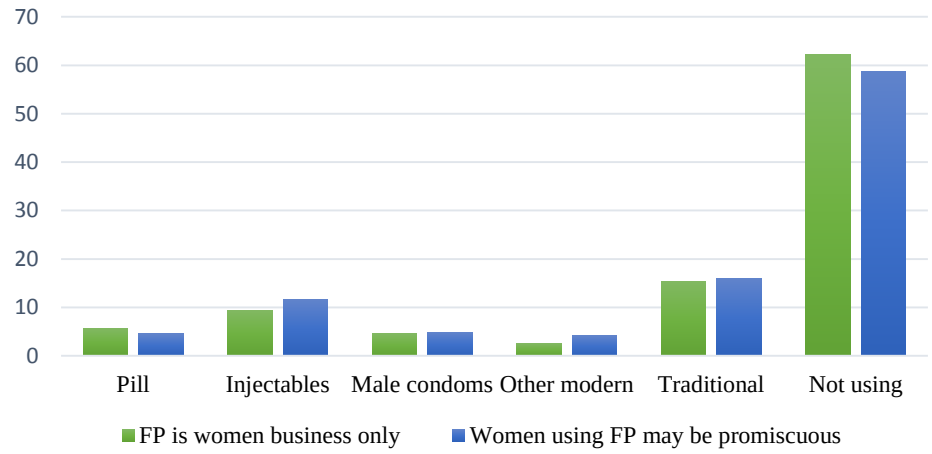


Table 4.8 presents univariate analysis of predictors of contraceptive uptake among women in union with FP demand, and shows that when unadjusted for any other attributes, though a need for contraception exists, partner's agreement that contraception is women's business only and the fear that contraception will increase female promiscuity were significantly associated with reduced odds in taking up modern contraceptive methods reference to non-uptake of any method. There was also a decrease in odds of using modern contraception when resident in rural areas, northern Nigeria and when practicing Islamic or traditional religion. However, increase in age, higher educational status, occupation, good decision-making power and higher wealth index increased modern contraceptive uptake.

Table 4.8: Univariate analysis of predictors of contraceptive uptake among women in union with FP demand

Variables	Unadjusted OR (95% CI)	
	Traditional	**Modern**
PARTNER'S FP PERCEPTION		
Contraception is woman's business, man shouldn't worry		
Disagree *(Ref)*		
Agree	0.79(0.59-1.05)	**0.66(0.53-0.83)**
Don't know	**0.29(0.12-0.67)**	**0.32(0.18-0.57)**
Women who use contraception becomes promiscuous		
Disagree *(Ref)*		
Agree	0.79(0.62-1.00)	**0.64(0.53-0.77)**
Don't know	0.84(0.55-1.30)	**0.38(0.25-0.58)**
WOMAN'S CHARACTERISTICS		
Age (years)		
<30 *(Ref)*		
30-39	**1.56(1.23-1.97)**	**1.92(1.60-2.31)**
≥40	**1.63(1.14-2.34)**	**2.15(1.63-2.83)**
Highest educational level		
No education *(Ref)*		
Primary	**4.41(2.86-6.81)**	**6.51(4.73-8.95)**
Secondary	**8.64(5.81-12.83)**	**9.10(6.73-12.31)**
Higher	**19.4(12.14-31.12)**	**18.98(12.97-27.75)**
Number of living children incl. current pregnancy		
No child *(Ref)*		
1-2	1.79(0.79-4.06)	**2.08(1.06-4.10)**
3-4	2.11(0.94-4.78)	**2.68(1.37-5.26)**
5 or more	1.18(0.51-2.69)	1.90(0.96-3.73)
Religion		
Catholic *(Ref)*		
Protestant	0.78(0.56-1.09)	0.96(0.72-1.27)
Islam	**0.19(0.13-0.28)**	**0.30(0.23-0.40)**
Traditional/Others	**0.40(0.17-0.96)**	**0.35(0.17-0.75)**
Place of residence		
Urban *(Ref)*		
Rural	**0.30(0.24-0.37)**	**0.31(0.26-0.37)**
Region of residence		
South *(Ref)*		
North	**0.09(0.07-0.12)**	**0.29(0.24-0.35)**
Occupation		
Unemployed *(Ref)*		
Professional/Managerial	**3.76(2.33-6.07)**	**5.05(3.46-7.38)**
Agricultural-related	1.36(0.91-2.02)	**1.56(1.15-2.12)**
Others	**1.95(1.46-2.62)**	2.23(1.77-2.80)
Household wealth index		
Poorest *(Ref)*		
Poorer	**2.24(1.07-4.69)**	**5.30(2.97-9.45)**
Middle	**4.82(2.47-9.39)**	**9.67(5.56-16.81)**
Richer	**12.60(6.99-23.72)**	**15.55(9.03-26.79)**
Richest	**20.40(10.86-38.33)**	**30.52(17.76-52.46)**
Decision making power		
Poor *(Ref)*		
Moderate	**2.87(2.05-4.02)**	**2.93(2.31-3.71)**
Good	**6.18(4.54-8.40)**	**4.93(3.93-6.17)**

….continued

Table 4.8: *continued*

Variables	Unadjusted OR (95% CI)	
	Traditional	**Modern**
MALE PARTNER'S CHARACTERISTICS		
Partner's age (years)		
<30 *(Ref)*		
30-39	1.45(1.00-2.10)	**1.45(1.09-1.92)**
≥40	**1.66(1.15-2.40)**	**1.81(1.37-2.39)**
Partner's highest educational level		
No education *(Ref)*		
Primary	**5.48(3.27-9.19)**	**6.61(4.45-9.83)**
Secondary	**9.04(5.55-14.72)**	**9.86(6.76-14.38)**
Higher	**10.50(6.27-17.60)**	**14.51(9.75-21.60)**
Partner's occupation		
Unemployed *(Ref)*		
Professional/Managerial	**3.96(1.36-11.54)**	**6.18(2.53-15.10)**
Agricultural-related	1.17(0.41-3.39)	1.68(0.69-4.07)
Others	2.55(0.89-7.26)	**3.28(1.36-7.88)**
COUPLE'S DIFFERENTIAL FACTORS		
Age difference (years)		
Husband older 1-7yrs *(Ref)*		
Husband older 8-14yrs	**0.68(0.53-0.87)**	**0.66(0.54-0.79)**
Husband older ≥ 15yrs	**0.43(0.27-0.69)**	**0.45(0.32-0.63)**
No age difference/husband younger	1.26(0.74-2.13)	1.09(0.71-1.68)
Spousal educational differences		
Same level of education *(Ref)*		
Husband less educated	1.19(0.84-1.68)	0.96(0.71-1.28)
Husband more educated	**0.51(0.38-0.69)**	**0.67(0.54-0.82)**
Differences in number of living children		
No difference *(Ref)*		
Woman has more living children	0.71(0.44-1.15)	0.74(0.51-1.07)
Male partner has more living children	**0.45(0.34-0.58)**	**0.50(0.41-0.61)**

FP: family planning
Reference for dependent variable - *No contraceptive uptake*
BOLD statistically significant at p<0.05

The multinomial regression in Table 4.9 shows the relationship between partner's perception of contraception and the uptake of modern methods among women with FP demand. Although in the null model the perception of female promiscuity with the use of contraception was associated with reduced likelihood in uptake of modern contraception, the effect became non-significant in the model that controlled for woman's demographic characteristics (Model 1). Further data exploration showed evidence that woman's educational level mediated the effect of perception variables on contraceptive use. However, when household economic status was added, there was a change in the direction of effect (shown as Model 2). Men's fear of female promiscuity increased the odds of use of

traditional methods by women with FP demand and the effect was statistically significant (AOR: 1.34; 95% CI: 1.01-1.78). The inclusion of women's decision-making (Model 3) and then men's sociodemographic characteristics (Model 4) did not alter the effect. Woman's level of education, decision-making power and household wealth were strong predictors of modern contraceptive uptake though the odds in enhancing the uptake was lowered in the full regression model compared to the unadjusted effect. Partner's level of education and employment status had positive and significant effect on women's uptake of modern methods. It was also observed that the response '*don't know*' to the perception questions had opposite effect in the models. While a *'don't know'* answer to the question that contraception is women's business significantly lowered the odds of traditional method uptake (AOR: 0.20, 95% CI: 0.07-0.55), the same response to contraception promoting female promiscuity significantly increased the odds of traditional method use (AOR: 3.84; 95% CI: 2.11-7.02). This possibly reflects that men who are uncertain about their involvement with contraception somewhat oppose its use. However, those unsure about contraception promoting female promiscuity may particularly have concerns with women using modern methods and would rather favour traditional method use.

The inclusion of couples' shared characteristics had no effect on method use – spousal age difference (p =0.882), differences in couple's educational status (p =0.249) and differences in number of living children (p =0.758); and did not also alter magnitude and direction of effects of the perception variables (results not shown separately). A flip in the data analysis by directly relating the choice between traditional and modern contraceptive methods showed consistency in statistical inference - men's perception of their role in FP had no influence on method choice, however, men's fear that FP will promote female promiscuity reduced the odds of using modern methods (AOR: 0.73; 95% CI: 0.54-0.97) compared to uptake of traditional methods. Adjusted predictions of spousal contraceptive uptake based on male

partner's FP perception, given that the rest of predictors are set to their mean values is presented in Appendix C.

Table 4.9: Adjusted multinomial regression model of partner's perception of contraception and the uptake of modern methods among women with a demand, (n=2765)

Variables	Model 0		Model 1		Model 2		Model 3		Model 4	
	Traditional	Modern	Traditional	Modern	Traditional	Modern	Traditional	Modern	Traditional	Modern
PARTNER'S FP PERCEPTION										
Contraception is woman's business, man shouldn't worry										
Disagree *(Ref)*										
Agree	0.84(0.62-1.14)	0.79(0.62-1.01)	0.86(0.61-1.21)	0.84(0.64-1.10)	0.87(0.62-1.22)	0.87(0.66-1.14)	0.84(0.59-1.18)	0.86(0.65-1.13)	0.85(0.60-1.20)	0.86(0.66-1.14)
Don't know	**0.21(0.08-0.52)**	0.50(0.25-1.00)	**0.21(0.08-0.58)**	0.56(0.26-1.19)	**0.22(0.08-0.62)**	0.61(0.28-1.31)	**0.19(0.07-0.53)**	0.54(0.25-1.17)	**0.20(0.07-0.55)**	0.58(0.27-1.26)
Women who use contraception becomes promiscuous										
Disagree *(Ref)*										
Agree	0.84(0.65-1.09)	**0.69(0.57-0.84)**	1.28(0.97-1.70)	0.92(0.74-1.15)	**1.34(1.01-1.78)**	0.98(0.78-1.22)	**1.34(1.01-1.77)**	0.97(0.77-1.21)	**1.34(1.01-1.79)**	0.97(0.78-1.22)
Don't know	1.46(0.89-2.39)	**0.53(0.32-0.87)**	**3.14(1.76-5.60)**	0.90(0.51-1.56)	**3.45(1.92-6.21)**	0.95(0.54-1.67)	**3.75(2.07-6.81)**	1.03(0.58-1.81)	**3.84(2.11-7.02)**	1.09(0.62-1.93)
WOMAN'S CHARACTERISTICS										
Age (years)										
<30 *(Ref)*										
30-39			**1.39(1.02-1.88)**	**1.80(1.41-2.30)**	1.34(0.98-1.840	**1.68(1.31-2.16)**	1.24(0.91-1.71)	**1.60(1.24-2.06)**	1.10(0.78-1.55)	**1.51(1.14-1.99)**
≥40			**1.63(1.03-2.57)**	**2.29(1.61-3.27)**	1.58(1.00-2.51)	**2.12(1.48-3.04)**	1.45(0.91-2.31)	**1.99(1.39-2.87)**	1.15(0.68-1.92)	**1.77(1.18-2.65)**
Highest educational level										
No education *(Ref)*										
Primary			**1.86(1.15-3.01)**	**4.22(2.99-5.94)**	1.41(0.85-2.34)	**3.13(2.19-4.47)**	1.31(0.79-2.18)	**2.86(1.99-4.10)**	1.23(0.72-2.10)	**2.43(1.66-3.54)**
Secondary			**2.61(1.64-4.17)**	**5.03(3.56-7.12)**	**1.78(1.07-2.95)**	**3.27(2.26-4.74)**	**1.73(1.04-2.87)**	**3.06(2.11-4.45)**	1.61(0.93-2.78)	**2.55(1.72-3.80)**
Higher			**4.90(2.82-8.52)**	**7.45(4.83-11.47)**	**3.63(1.93-6.82)**	**4.62(2.81-7.60)**	**3.46(1.84-6.52)**	**4.28(2.59-7.06)**	**3.16(1.60-6.27)**	**3.32(1.95-5.66)**
Number of living children incl. current pregnancy										
No child *(Ref)*										
1-2			1.51(0.59-3.89)	1.30(0.60-2.79)	1.47(0.57-3.81)	1.27(0.59-2.77)	1.31(0.51-3.40)	1.24(0.57-2.69)	1.14(0.44-2.97)	1.15(0.53-2.52)
3-4			1.76(0.68-4.58)	1.41(0.65-3.04)	1.69(0.65-4.45)	1.35(0.62-2.95)	1.53(0.58-4.00)	1.31(0.60-2.87)	1.28(0.48-3.39)	1.22(0.55-2.70)
5 or more			1.13(0.42-3.02)	1.10(0.50-2.43)	1.11(0.41-3.00)	1.13(0.51-2.53)	1.02(0.38-2.76)	1.13(0.50-2.52)	0.82(0.30-2.25)	1.01(0.45-2.30)
Religion										
Catholic *(Ref)*										
Protestant			**0.55(0.38-0.78)**	0.81(0.60-1.09)	**0.54(0.37-0.77)**	0.81(0.60-1.10)	**0.53(0.37-0.76)**	0.81(0.60-1.09)	**0.53(0.37-0.76)**	0.80(0.59-1.09)
Islam			**0.41(0.27-0.62)**	**0.54(0.39-0.75)**	**0.39(0.26-0.60)**	**0.52(0.37-0.73)**	**0.44(0.29-0.67)**	**0.58(0.41-0.81)**	**0.44(0.29-0.68)**	**0.59(0.42-0.83)**
Traditional/Others			0.44(0.17-1.11)	**0.43(0.19-0.97)**	0.52(0.20-1.33)	0.50(0.22-1.12)	0.53(0.21-1.35)	0.50(0.22-1.14)	0.50(0.19-1.29)	0.49(0.22-1.11)

….continued

Table 4.9: *continued*

Variables	Model 0		Model 1		Model 2		Model 3		Model 4	
	Traditional	Modern	Traditional	Modern	Traditional	Modern	Traditional	Modern	Traditional	Modern
Place of residence										
Urban *(Ref)*										
Rural			**0.53(0.41-0.69)**	**0.46(0.38-0.57)**	**0.67(0.51-0.90)**	**0.60(0.48-0.76)**	**0.71(0.53-0.95)**	**0.62(0.49-0.78)**	**0.69(0.52-0.93)**	**0.59(0.47-0.75)**
Region of residence										
South *(Ref)*										
North			**0.23(0.17-0.32)**	0.85(0.68-1.05)	**0.28(0.20-0.38)**	0.98(0.78-1.23)	**0.30(0.21-0.41)**	1.05(0.83-1.32)	**0.29(0.20-0.40)**	1.01(0.80-1.28)
Occupation										
Unemployed *(Ref)*										
Professional/Managerial					0.79(0.45-1.40)	1.20(0.76-1.88)	0.61(0.34-1.09)	1.02(0.64-1.61)	0.57(0.31-1.02)	0.96(0.60-1.52)
Agricultural-related					1.38(0.86-2.22)	1.25(0.87-1.78)	1.17(0.73-1.90)	1.07(0.75-1.54)	1.11(0.68-1.82)	1.00(0.69-1.44)
Others					1.22(0.87-1.72)	**1.38(1.06-1.80)**	1.00(0.70-1.42)	1.20(0.92-1.58)	0.99(0.70-1.41)	1.20(0.91-1.57)
Household wealth index										
Poorest *(Ref)*										
Poorer					1.28(0.59-2.79)	**3.31(1.81-6.03)**	1.21(0.55-2.64)	**3.18(1.74-5.81)**	1.17(0.53-2.58)	**2.95(1.60-5.43)**
Middle					1.65(0.79-3.44)	**3.98(2.21-7.14)**	1.57(0.75-3.28)	**3.79(2.11-6.82)**	1.44(0.67-3.10)	**3.29(1.80-6.01)**
Richer					**2.89(1.39-6.01)**	**4.44(2.45-8.08)**	**2.79(1.34-5.82)**	**4.23(2.32-7.72)**	**2.56(1.17-5.58)**	**3.70(1.98-6.91)**
Richest					**3.08(1.42-6.65)**	**6.01(3.20-11.28)**	**2.87(1.32-6.23)**	**5.58(2.97-10.51)**	**2.57(1.12-5.89)**	**4.73(2.44-9.18)**
Decision making power										
Poor *(Ref)*										
Moderate							1.19(0.81-1.74)	**1.51(1.15-1.98)**	1.09(0.71-1.75)	**1.51(1.14-1.98)**
Good							**2.23(1.55-3.20)**	**1.95(1.49-2.55)**	**2.24(1.56-3.23)**	**1.96(1.49-5.57)**
Partner's age (years)										
<30 *(Ref)*										
30-39									1.09(0.71-1.68)	0.98(0.70-1.37)
≥40									1.44(0.87-2.39)	1.11(0.75-1.65)
Partner's highest educational level										
No education *(Ref)*										
Primary									1.18(0.62-2.24)	**1.67(1.05-2.68)**
Secondary									1.36(0.71-2.58)	**1.82(1.14-2.91)**
Higher									1.27(0.62-2.59)	**2.02(1.20-3.40)**
Partner's occupation										
Unemployed *(Ref)*										
Professional/Managerial									2.84(0.85-9.51)	**2.79(1.05-7.39)**
Agricultural-related									2.47(0.74-8.21)	**2.81(1.07-7.35)**
Others									2.16(0.67-6.98)	2.29(0.89-5.89)

FP: family planning; Data presented as Odd Ratio (95% CI)
BOLD (statistically significant at p<0.05)

4.4 DISCUSSION AND CONCLUSION

This paper examined the association between men's FP perception and spousal demand and use of contraceptives. Two indicators of men's perception toward FP were considered: those who believe that contraception is women's business only and those who feared that contraceptive use may lead to women becoming promiscuous. The foregoing analysis found evidence that one in five men in Nigeria held the perception that contraception is women's business whereas two in five men reported that women who use family planning may become promiscuous. Negative perception about FP was more among uneducated men, rural dwellers, those from northern part of the country and men practicing Islam. Although the opinion about men's role had no significant impact on FP demand and uptake, male partner's fear that contraceptive use will increase female promiscuity was associated with lower demand for contraception, after controlling for other important factors, and rather promoted the use of traditional methods among women with FP demand.

This research confirms our hypothesis that men's negative perceptions about FP influence women's contraceptive demand in Nigeria. The belief that contraceptive use promotes promiscuity is popular among men and deeply rooted in their psyche. This behaviour is more pronounced among men from socially disadvantaged background, rural residents and those practicing Islam. Lutalo *et al* noted that cultural norms in rural areas could be barriers to contraceptive use (Lutalo et al., 2000). It is possible that the ability of a woman to control her fertility is seen as key to her autonomy, which contradicts existing patriarchal system. It could make some men uncomfortable and inferior (Okwor and Olaseha, 2010). Therefore, the excuse female become promiscuous with the use of FP may be mere insinuation to curtail her autonomy regarding fertility.

Religion is considered to influence on attitudes towards FP (Agadjanian et al., 2009). Islamic tenet stipulates that a woman's consultation with her husband is necessary for any

reproductive decision (Cook and Maine, 1987). It means men's perception could translate to a veto regarding the use of contraception. In Nigeria there is evidence that knowledge of contraceptive methods has been subverted by Muslim religious rights on the grounds that it promote immorality (Iman, 2003). Thus, it may not be a surprise that in this analysis a considerable proportion of Muslim men reported that the use of FP would promote female promiscuity. Furthermore, the observed discordance in couple's reporting of contraceptive use could suggest possible covert contraceptive uptake by some women.

Women's decision-making power and social position have been cited as important determinants of modern contraceptive use (Woldemicael, 2009, Tadesse et al., 2013). This study found that a woman's decision-making power did not enhance her demand for FP especially when the partner held the belief that contraception can make her promiscuous. However, for those with an existing FP demand, good decision power promoted the uptake of modern contraception.

This study is the first of its kind in the Nigerian context to control for the effect of women's decision-making power while studying the relationship between men's FP perceptions and women's FP demand and use. Previously, Desai and Johnson had noted that in different scenario, historical and cultural peculiarities can superimpose on the resultant health benefit of a woman's autonomy to make decision (Desai and Johnson, 2005). Therefore, the research observation that a woman's involvement in decision-making did not enhance her demand for FP in Nigeria may be due to overriding socio-cultural influence.

Since more men acknowledge their role in FP, changing their perception that contraception will promote promiscuity is pertinent. Specifically, this research demonstrates the need for policy interventions that will correct men's opinion about contraception promoting female promiscuity if FP demand will improve in Nigeria. The findings direct the need to adopt a targeted approach focusing on couples, and reorient policy and program efforts for FP

counselling and behavioural changes in men. Indeed locally directed, content specific behavioural interventions focusing on sub-groups of men with negative perceptions about FP are imperative. FP interventions should consider generating culturally appropriate and gender-sensitive health promotion programmes aimed at demystifying the myth and negative perceptions about FP, exclusively targeting men of different age cohorts, rural residents, poorly educated and specific religious groups, e.g. Muslims. The targeted audience will need to be aware that contraception is neither designed to nor does it promote promiscuity, instead, it is a key for a planned future. That nothing is inherent in modern contraceptive methods to motivate a woman to be promiscuous. Such interventions are usually effective when led by community and religious leaders in community forum events held in town hall meetings, farmers' union gathering, churches and mosques, and by mass media (Mwaikambo et al., 2011).

Policy makers will need to go beyond promoting mere knowledge of contraception to enhancing positive perceptions about the value and economic returns of family planning. These interventions can be promoted early at the school and college levels so that future sexual and marital unions can be salvaged from negative notions that impact FP demand and use. More importantly, as shown in the analysis, female education and economic empowerment remain consistent in predicting FP demand and uptake of modern contraception. Targeting females for quality education and empowering them socially and economically is likely to reduce the effect of men's negative contraceptive perception over time.

4.5 STRENGTH AND LIMITATION

This research contributes to building the evidence base of policy relevant factors influencing low modern contraceptive uptake in Nigeria. It brings a novelty to the sequence of its analysis in understanding some of the factors responsible for low modern contraceptive uptake in the country. This is about the first study to consider this subject and it provides an objective insight into the impact of partner's perception of contraception on women's demand for FP and use of modern methods. As with most cross-sectional data, the extent of information available for the analysis were restricted. We could not measure other FP perceptions that could affect contraceptive use, such as, male perception about side effects, convenience and comfort factors that disrupts sexual intimacy and enjoyment and fear of infertility. Also, panel data is needed to understand how these perceptions change over time. The survey responses on perceptions could likely be under-estimated because of cultural inhibitions and social desirability biases. Notwithstanding, the findings presented in this study provide clues for policy and programme interventions for improving FP demand and modern contraceptive uptake in Nigeria.

Key messages

- Contraceptive prevalence in Nigeria has stagnated at 10% for over a decade.
- Being a patriarchal society, men make most of the reproductive health decisions. However, some men have negative perception of contraception with the fear that contraceptive use promotes female promiscuity.
- Men's fear of female promiscuity when spouses use contraception affects wives' demand for family planning, and increases traditional methods use.
- There is need to reorient policy and programmes to enhance behavioural change towards family planning among men in Nigeria.

Chapter 5

Couples' contraceptive decision-making and women's empowerment to adopt family planning methods in Nigeria: a qualitative study

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ABSTRACT

Family planning (FP) uptake in Nigeria has remained at low levels for two decades, despite many interventional efforts. Although studies have identified male partner's negative FP perception as one of the factors militating against contraceptive use in the country, it remains unknown the extent of a woman's empowerment to adopt FP when opposed by her partner. Using vignette interviews (n=30), this qualitative study investigated couples' contraceptive decision-making process and wife's empowerment to adopt FP in situations when her husband opposed family planning. We employed thematic analysis to identify relevant themes from the transcribed data using NVivo 11 software. The findings demonstrate imbalance in power relation and decision-making within marital relationships, although a woman can get her wish fulfilled by initially complying with the husband's wish as a 'sign of honour', then making further attempts at convincing him about FP use; or through the involvement of a third party. Women are poorly empowered to overtly use FP when opposed by their partners. The findings highlight the need for scale-up in reproductive health interventions aimed at promoting reproductive health rights in Nigeria and improving women's status.

5.1 INTRODUCTION

Contraceptive decision making is described as a journey, a complex process with varying components and considerations (Downey et al., 2017, Hossain et al., 2014). It is a process that could be iterative, converging with other decisions and priorities including marital commitments, and sometimes reflective of personal values (Downey et al., 2017). In contrast to other health decision-making, contraceptive decision within a marital union is far from being individualistic (Price and Hawkins, 2007). This is because it is often subject to the influence of social relations and male partner's endorsement especially when the setting is conservative (Hossain et al., 2014, De Gita, 2007).

For instance in Nigeria, men dominate reproductive health decisions within marriage and their support could determine spousal desire to use contraception or not (Federal Ministry of Women Affairs & Social Development, 2006, OlaOlorun and Hindin, 2014, Ezeanolue et al., 2015, Nte et al., 2009, Omideyi et al., 2011). Indeed, lack of male partner's support and negative FP perceptions such as the notion that contraception would promote female promiscuity were identified as part of the factors accounting for low uptake of modern contraceptive methods by women in the country (Omideyi et al., 2011, Adanikin et al., 2017). The overall use of modern methods of contraception in Nigeria remains at 10% and with an annual growth rate of 2.8%, the country's population is projected to be the third largest in the world by the middle of the century (NPC [Nigeria] and ICF International, 2014, United Nations, 2017).

To improve women's contraceptive uptake, there has been suggestion that when spouses discuss fertility-related matters they can discern each other's attitude to FP, thereby leading to shared decision-making about FP (Mason and Smith, 2000, Kamal and Islam, 2012). The household discussion on fertility was also seen as an avenue for partners to discuss in general

issues relating to reproductive health (Rakhshani et al., 2005). The notion is that approval to adopt FP was likely when an open line of communication about FP exists between couples.

Another consideration to enhancing contraceptive uptake was women's empowerment. Women's place in the society has been measured by her status - educational, economic, legal and political position, and her empowerment (Blackstone, 2017, Malhotra et al., 2002, Na et al., 2015). Empowerment is the ability of an individual to make strategic life choices in a setting where it was previously restricted or denied (Kabeer, 2001). By proxy, a woman's empowerment can be determined by – her economic freedom, involvement in household decision-making and perceived gender norms, though most studies have mainly used decision-making ability as the measure of empowerment (Corroon et al., 2014, Upadhyay et al., 2014). Reason for this is that a woman's power to make household decision is regarded as the first indicator of independence over other autonomy indices, and research found that decision power is considerably linked to sexual and reproductive behaviour (Biswas et al., 2017, Rahman et al., 2014). Moreover, women with low decision making power have limited access to reproductive health services and are at risk of experiencing adverse reproductive health outcomes (Blackstone, 2017, Grown et al., 2005, Ahmed et al., 2010). However, a woman's autonomy to make decision was associated with contraceptive use (León, 2013, Blackstone, 2017).

In the case of Nigeria, lack of male participation in spousal contraceptive discussion remains a major barrier for shared contraceptive decision-making (Okigbo et al., 2014, Aransiola et al., 2014, Izugbara et al., 2010). Men are also less likely to initiate family planning discussions with spouse (Aransiola et al., 2014). Furthermore, more than a third of Nigerian men negatively perceive FP and/or oppose its use (Adanikin et al., 2017, Okwor and Olaseha, 2010, Akinso and Akinso, 2015). But, it remains unclear how women negotiate FP uptake in the presence of poor spousal contraceptive communication and partner's opposition to use.

To gain insight, this study explores marital contraceptive decision-making process in Nigeria, and a woman's decision-power to adopt FP in the scenario that the use is opposed by her husband because of a negative perception.

5.1.1 Research questions

1. How do couples make decisions regarding the use of contraception? More specifically, what factors act as motivators/barriers to reaching the decision to adopt the use of contraceptive methods?
2. To what extent can a woman independently adopt a family planning method when her husband is opposed to its uptake because of a negative perception?

5.1.2 Research objectives

1. To assess contraceptive decision-making process among couples and associated motivators/barriers to the uptake of modern contraceptive methods.
2. To determine a woman's ability to adopt a family planning method in the instance that her husband oppose its use because of a negative perception

5.2 METHODS

5.2.1 Study setting

The present study was conducted in a semi-urban setting in Ekiti State, Nigeria. Ekiti state is in southern Nigeria (Figure 5.1). The state is located between longitudes 40°51′ and 50°451′ east of the Greenwich meridian and latitudes 70°151′ and 80°51′ north of the Equator. It occupies a total land area of 5887.890sq km. The indigenous residents in Ekiti State are

Yoruba ethnic group, majority of whom are engaged in farming. The 2006 population census by the National Population Commission put the population of the State at 2,384,212 people (Ekiti State of Nigeria, 2016).

Conducting field research in northern Nigeria and in some parts in the southern region attends with significant security risk, including terrorist attack and kidnapping. In contrast, Ekiti State has good safety record and was considered an appropriate setting for the fieldwork.

Figure 5.1: Map of Nigeria showing Ekiti State

*Ekiti State in red
Source: https://en.wikipedia.org/wiki/Ekiti_State

The qualitative survey was conducted at *Ido*, a semi-urban residential area in Ekiti State. *Ido* is situated to the north of Ekiti State and serves as the headquarters of Ido-Osi Local Government Council (Figure 5.2). It is bounded in the east by *Ipere* and *Iludun*, in the south by *Igbole* and *Ifinsin*, and in the northwest by *Usi* and *Ilogbo*. Most of the residents in *Ido* do farming however since the town also have a School of Nursing and Midwifery and a Federal Medical Centre (tertiary hospital), some of its dwellers are public servants including

professionals such as nurses and doctors (Ekiti State of Nigeria, 2016). Therefore, *Ido* presents a blend of both rural and urban setting, and was chosen by convenience as study site.

Figure 5.2: The map of Ekiti State

Source: http://www.google.com

5.2.2 Study design

This was a cross-sectional qualitative study conducted between August and September, 2017 using a vignette. Vignette are short stories about a hypothetical person, presented to participants during qualitative (e.g. within an interview) or quantitative research, to obtain information about their own set of beliefs. They are developed by drawing from examples of situations which reflect the local context, creating a story that participants can relate to (Gourlay et al., 2014). Often, participants are requested to comment on how the character in the story or they would have acted given the situation portrayed. Vignette method is applauded as advantageous for information gathering, as the focus is on a third person, in any research that deals with sensitive behavioural issues, where respondents could be

uncomfortable and may conceal the truth about their own actions and beliefs (Gourlay et al., 2014, Barter and Renold, 1999).

The vignette used for this research was developed by the Principal investigator. The development reflects local cultural context and evidences from literature. Specifically, a woman's age and reproductive potential, place of residence, differential in spousal educational status and occupation, son preference, and male partners negative FP perception and opposition were considered while developing the vignette. The vignette relates the story of a 31 year old woman from a village in southwest Nigeria with four children (a boy and three girls). She had thought it would be good not to have another child anymore, but she was however unsure how her partner would feel about it and what to do (see the vignette attached overleaf).

The story seeks to obtain information on household contraceptive decision-making process, and a woman's empowerment to use family planning methods in the instance that the male partner forbids contraceptive uptake because of a negative perception. The vignette was developed in English and translated to Yoruba (the local language) by linguistic experts, and then back-translated to English to ensure content validity.

The Vignette

I want to tell you of a story about a woman called [Abike] and her experience in trying to use family planning. I will first narrate a part of her story in this instance and I will be delighted to get your inputs:

Narrative: Abike is a 31 year old primary school teacher, married to *Gbenga* an automobile mechanic. Together with their 4 children, they live in a village near Esa-Oke, Osun-State, Nigeria. Their first child is a 6 year old boy while the remaining children are girls aged 4 years, 2 years and 9 months old respectively. Abike had thought it would be good not to have another child anymore she's however unsure how her partner would feel about this and what to do.

What can *Abike* do in this circumstance?

Do you think it is important for *Abike* to inform her partner before using any family planning method?

Probe – why?

Narrative: One morning, *Abike* raised the issue of limiting childbearing with *Gbenga* but he vehemently declined that *Abike* should use any family planning methods.

What should *Abike* do?

What are the reasons that could have made Gbenga to decline *Abike's* access to family planning?

Narrative: With further discussion, *Abike's* husband stated that the use of family planning can make a woman to become promiscuous, hence his reason for resisting the use.

Do you think *Abike's* husband is right that family planning could make a woman promiscuous?

If in spite of her husband's opposition, *Abike* goes ahead to use a family planning method, what can happen?

Are there other ways Abike could have convinced the partner about the use of family planning?

5.2.3 Study participants and recruitment

The eligible study participants were fecund couples. A total of 30 interviews – 15 couples (men and women), were conducted. The determination of the sample size was by convenience. The selection of research participants was guided by contraceptive status – *current modern contraceptive users*, *former modern contraceptive users*, and *modern contraceptive never users*, so as to capture diversity of opinions. Five couples were interviewed in each category of contraceptive status.

A couple was considered as *current modern contraceptive user* if one of the spouse currently use a modern contraception. They were classified as *former modern contraceptive users* if at least a spouse had previously used a modern contraceptive method within the relationship. On other hand, couples were categorized as *modern contraceptive never-users* if neither of the spouse ever used a modern family planning method.

The current modern contraceptive users were recruited through the family planning (FP) clinic of the tertiary hospital (Federal Medical Centre) located in *Ido*. After due permission from the hospital authority, the Principal investigator approached the FP clinic attendees who just completed their clinic and introduced himself as a researcher who is not working for the clinic. Subsequently, he sought to ascertain their contraceptive status and eligibility for the study. Those deemed eligible were informed about the study and, since mostly FP clinic attenders are women, the recruitment of male partners was through their spouses. The researcher sought to get an initial verbal consent from the woman and also from her partner (on the phone) before an appointment for the study interview was scheduled.

In contrast, *former users* and *never-users* of modern contraception were identified and recruited from the outpatient clinic of the tertiary hospital and through snowball recruitment (Vogt, 1999). It was arranged with the medical staff that fecund in-union women attending

the outpatient clinic and identified as contraceptive *former users* or *never-users* from clinical consultations on the days of recruitment be referred to the Principal investigator who was seated in a designated place. The Principal investigator introduced himself to each patient as a researcher who is not working for the clinic, briefly discussed the purpose of the research and sought to recruit eligible participants for the research. As earlier described, initial verbal consent were obtained from eligible couples and they were invited to attend the vignette interview. To encourage interview attendance, participants were given liberty to choose the day and time for the interview. Also, they were reimbursed their transportation fare with pre-determined standard rate based on distance from interview location.

5.2.4 Data collection

The vignette interviews were conducted in a designated place (such as vacant classrooms/offices) away from the participants' home to make them relaxed and be able to share their views freely. The study team consisted of the Principal investigator (myself) and three research assistants (with background in social science and experience in qualitative research, and are native language speakers). For the purpose of data collection, the team split into 2 groups – each group having an interviewer and a note-taker. The Principal investigator led the training of the research team members and, a role play as to how the process should go was done before the commencement of actual data collection.

Couples were considered as successfully recruited when both spouses came for and participated in the vignette interview. Before starting the interview, participants were administered the study information sheet (see Appendix E), allowed time to read through and ask any questions. Thereafter, written consent was obtained. Consenting couples were given a study code to preserve anonymity and, to allow for matching of the category of their

contraceptive status. The interview was conducted separately but simultaneously for the spouses. It was also ensured that the interview rooms were distant apart to prevent spouses from over-hearing each other's responses to the vignette. The interviews were conducted in English/Yoruba, depending on the choice of the study participants. Each of the interview sessions was audio-taped. Prior to the commencement of the interview, personal details of each respondent were collected. The vignette (short story) was then read to the respondent and s/he was prompted on the interview questions. The interviews lasted about 20-30 minutes.

While collecting data, research team members had regular debriefing sessions and listened to the interviews to monitor quality of interview skills, and feedback was given as necessary. Data collection process continued until saturation level appeared to be reached and the targeted sample size completed. The approval for the study protocol was granted by the University of Southampton Institutional Ethics Review Board, United Kingdom, and local permission for the study also obtained in Nigeria.

5.2.5 Field experience and challenges

The experience on the field could be described as exciting though not without challenges. The ability of the principal investigator (myself) and the research assistants to communicate in indigenous language worked for the research's benefit as we were perceived a part of the community. Similarly, the knowledge that the principal investigator is also a medical doctor somewhat encouraged participants to talk more intimately. For some FP clinic attendees who had spent long consultation time during their clinic appointment, engaging their interest in the study was quite difficult as some declined introduction to any research. There were two instances in which although the wife verbally consented to participating in the study, the

husband refused participation. We also experienced scheduling conflicts (i.e. timing and venue of interview) with some study participants albeit, in all the situations the conflicts were successfully resolved. Four couples were recruited through snowballing, and so there was no familiar sample profile.

As a postgraduate researcher from the United Kingdom, for some potential participants it signalled access to financial resources. Some people therefore asked if they would receive monetary compensation for participation in the study but they were politely told that they will only receive standard rate transport fare re-imbursement based on distance from interview location and, they did not press further on this. No eligible study participant rejected participation because of a demand for monetary compensation.

Working with research assistants inherently has its challenge posed by differences in wealth of research experience and data collection skills. However, the regularity of team debriefing sessions as the fieldwork progressed allowed for bridging the differences in research experience and interview skills of team members.

5.2.6 Data Analysis

The audio-recordings of the interviews were transcribed verbatim and translated to English as appropriate, and stored in a University of Southampton password-protected computer. Data transcripts were managed and coded using NVivo 11 software. Thematic analysis was employed in which themes were derived from the research questions and as emerging from the discussion of the vignette (Braun and Clarke, 2013). Specifically, inductive thematic approach was adopted to generate an analysis from the data (bottom) up, and not dictated by existing theory. The strength of the approach is in its flexibility, ease of use and ease for non-expert audience to understand the result (Braun and Clarke, 2013).

Firstly, the principal investigator became familiar with the data by listening to the audio-recordings and reading through the transcripts and field notes. Thereafter, all the interviews were coded. The codes were then organized to reflect prominent themes within the data set in line with the objectives of the study. Next, thematic map was generated while reviewing the themes in relation to the coded extract and the overall data set. And finally, refining of themes was done leading to the emergence of a unified story of the data and capturing of a concept (Braun and Clarke, 2013, Braun and Clarke, 2006).

5.3 RESULTS

5.3.1 Sample descriptive data

The vignette respondents, consisting of 15 couples, have age ranging from 23 to 52 years. The men's ages were between 27 to 52 years old with a median age of 42 years and, women's age ranged from 23 to 43 years old with a median age of 35 years. Shared spousal characteristics is presented in Table 5.1. For each couple, the husband was older than the wife. While seven couples have cohabited for one to seven years, five couples have lived together for a minimum of fifteen years. Majority of spouses had same level of education but among two couples the wife was more educated. Only in a couple was the husband unemployed.

Table 5.1: Shared spousal characteristics, n=15 couples

Characteristics	***Frequency***	***Percent (%)***
Spousal age difference (years)		
1-5	8	43.3
≥ 6	7	56.7
Duration of cohabitation (years)		
1-7	7	46.7
8-14	3	20.0
≥15	5	33.3
Type of marriage		
Monogamous	14	93.3
Polygamous	1	6.7
Shared number of living children		
1-3	8	53.3
≥ 4	7	46.7
Differential in educational status		
No difference	12	80.0
Husband more educated	1	6.7
Wife more educated	2	13.3
Occupational status		
Both are public servants	5	33.3
Both self-employed (farming/trading/artisan)	8	53.3
Wife unemployed	1	6.7
Husband unemployed	1	6.7

5.3.2 Motivation to limit childbearing

One of the themes arising from vignette interview was the motivation for *Abike* to desire to limit childbearing. Participants suggested that this could be because having many children is no longer in vogue. About a third of those interviewed stated that having many children is becoming less popular:

"…the lives that our parents or grandparents lived is no longer in vogue. They kept a lot of children then because of the type of job they were doing. Most of them were peasant farmers. They took these children to the farm…..but now such things are no longer in vogue." ***(Male, 38 years, higher education, current-user).***

"If you see how some children are suffering nowadays, a sensible person will know it is no longer fashionable to have many children and make them suffer. ***(Male, 32 years, secondary education, current user)***

Participants shared further insights that prevailing adverse economic situation in the country, and the rising cost of living and educating children could have motivated the desire to use contraception. It re-echoed during the discussions that the cost of living and schooling for children has hugely increased and it is in a way impacting on the desire for many children:

"Abike may be considering the current economic situation in the country, their family income, and the liability of having many children they can't cater for." ***(Male, 35 years, secondary education, never-user).***

"Nowadays couples don't have many children anymore because of expensive school fees" ***(Female, 35 years, primary education, never-user).***

"You said she has four children? It is not even easy to feed four children…, and then to send them to school." ***(Female, 28 years, secondary education, never-user)***

More male respondents felt having many children is no longer in vogue whereas more female respondents suggested that economic hardship, especially the rising cost of school fees, could have motivated *Abike's* request.

5.3.3 Initiating contraceptive discussion

There was a strong consensus that spousal discussion about FP is important. It was viewed that partners should talk and agree on the use of contraceptives before its adoption as engagement in FP should be carefully planned:

"They should discuss and ask each other about what they could do to limit childbearing. Each person will bring suggestions and they will agree on the approach to use." ***(Female, 38 years, primary education, never-user)***

"…..Decision on family planning between a husband and a wife requires that both of them dialogue and agree on limiting childbearing." ***(Female, 35 years, primary education, former user)***

"It is important that both of them should agree on the use of family planning." ***(Male, 52 years, secondary education, never user)***

Some respondents posited that the ideal is for spouses to have discussed and agreed on the number of children they would have before marriage as it safeguards disagreement later on regarding the use of FP:

"The best thing to do is that when couples are about to start their lives together, they should discuss and agree on things like this…..spouses should agree on the number of children they want to have – maybe two, three, four, five or six and, they should honour the agreement." ***(Male, 42 years, primary, former user)***

"Assuming before they got married they have agreed on the number of children they plan to have, matters like this will not arise." ***(Male, 30 years, higher education, never user)***

The responses to the vignette presents a pattern on spousal initiation of FP discussion. It was mostly perceived that since the desire to limit childbearing stems from *Abike*, she should be the one to initiate the contraceptive discussion:

"Since she has known that she does not want to have another child again, it is her duty to call her husband for a discussion on it." ***(Female, 43 years, secondary education, current user)***

"Assuming I am the one in Abike's position, I will call my husband. I will table before him the facts that – we have four children which we need to send to school and, we need to feed ourselves as a family. I will discuss with him and request for his opinion about how to plan our future." ***(Female, 38 years, secondary education, former user)***

There were few occasions in which participants were surprised that *Abike* could be unsure about how her husband would feel regarding the use of contraception. Reflections by interviewees were that *Abike* being unsure means the couple were not close or there could be existing domestic violence that makes her scared. Respondents identified that a pre-existing platform of communication between couples is vital to discussing issues relating to FP:

"She shouldn't be unsure. If they have been so close, I don't think there should be anything scary for a spouse to disclose to the other partner touching on bearing and bringing up children. They must have a meeting point where he can hear her view. If she is scared, then definitely she is not free at home. Perhaps, maybe there is battery, I want to perceive it that way." ***(Male, 38 years, higher education, current user)***

However, a participant took exception to why the initiative to use FP never came from the man in the first instance:

"I would have expected that it is the man that would voice out first about the number of their children but since it was the lady that did, she should call the husband for a discussion. They should then deliberate. ***(Male, 32 years, secondary education, current user)***

The interviewees provided insights that *Abike's* ability to achieve her aim can be determined by her communication skills and the timing of initiation of the discussion:

"….she supposed to speak to her husband – kneel down and say, "My husband, we shouldn't venture into what is beyond our capability. We should only have the number of children we can take good care of; let's limit our childbearing maybe by using a family planning method". When the husband is not crazy, he should accept. How an issue is presented matters, it determines the outcome." ***(Male, 48 years, secondary education, current user)***

"This thing is a mutual agreement between couples, she needs to sit her husband down and explain things to him." ***(Female, 35 years, higher education, former user)***

"She should call her husband when it remains both of them alone in the house and everywhere is quiet. They should then discuss as a couple." ***(Male, 27 years, higher education, former user)***

"It is when they are together on bed that they will discuss….." ***(Female, 38 years, secondary education, current user)***

5.3.4 Importance of spousal FP communication

The reasons with excerpts why it is important for *Abike* to inform the husband of her desire to use FP is shown in Table 5.2. These reasons ranged from the view that informing the husband ahead of any FP use is a marital obligation to the opinion that unforeseen side effects can ensue from FP use and the husband could let her alone to handle the complication if he had no prior knowledge of the FP use.

While responding to the vignette some participants frequently referenced that a married woman has statutory obligations to the marital union and it forms the basis upon which the husband must be informed before any contraceptive use. It was opined that marriage removes personal autonomy, establishes the man as the authority over the woman and eschew space for individual secrecy between the parties involved. Some respondents cited religious injunction to back up their stance:

"It is not possible for her to single-handedly decide to use family planning because she is under a man's roof. If she is not married, that's another thing." ***(Male, 32 years, secondary education, current user)***

"It is important and compulsory. The reason is because the Bible tells us that the husband is the head of the wife; secondly, the Bible also tells us that a woman does not have authority over herself…." ***(Male, 42 years, primary education, former user)***

"The Bible even said that a man will cleave unto his wife and they shall become one flesh, there is nothing she should do without the husband's knowledge." ***(Female, 23 years, secondary education, current user)***

"No matter how highly placed a woman is, the husband is still the head. That is what the Bible says." ***(Male, 30 years, higher education, never user)***

Table 5.2: Reasons women should inform partner before using FP

Reasons	*Excerpts*
It's a marital obligation	*…..Since she lives with the husband, she should inform him about everything she wants to do.* ***(Female, 30yrs, higher, never user)***
	Since she is married, duty behoves her to brief the husband. ***(Male, 32yrs, secondary, current user)***
Depicts oneness & love in marriage	*As spouses who love each other, she supposed to inform her husband.* ***(Female, 37yrs, secondary, never users)***
To avoid misconstrued intention	*Yes it is important. If she does family planning without her husband's consent, he may think that she has done it for the purpose of promiscuity.* ***(Female, 43yrs, secondary, current user)***
	If a woman wants to go for family planning without informing the husband, maybe she wants to be having extramarital affairs….. ***(Female, 38yrs, secondary, current user)***
Could reveal difference in reproductive interest	*It is important…..the husband may still want more children. You know that the couple only have one male child out of four children, therefore the husband may desire to have additional male child.* ***(Male, 42yrs, secondary, former user)***
To safeguard marital misunderstanding	*The reason is that if she goes on to use a family planning method without the husband's knowledge it can cause disharmony in the home.* ***(Male, 52yrs, no education, never user)***
Complications can follow the FP procedure	*Ah, she is supposed to inform her husband. This is because I have seen someone who did family planning and when she got home, she started bleeding.* ***(Female, 38yrs, secondary, former user)***
	*…..anything can happen in the future as a result of the use of the family planning. In that case, it will legitimize the husband's query that, "Did you carry me along in your decision to use the family planning?"****(Male, 52yrs, secondary, never user)***
	It is important that she informs the husband because if complication occur from undertaking the family planning, the husband will let her alone to handle it. However, if it was a step that was mutually agreed upon by both of them, they can jointly face any arising challenge. ***(Female, 40yrs, higher, former user)***
Could prevent the husband from marrying another wife	*….Maybe the husband is interested in having more children and realising that the wife has used family planning, he may look outside of the home to actualize his interest.* ***(Male, 42yrs, primary, former use)***
Nothing can be hidden forever	*It is good that she informs her husband. You know, there is no secret that will not be revealed later.* ***(Male, 30yrs, higher, never user)***

5.3.5 Power relation in contraceptive decision-making

Another theme that emerged from interviewing participants was power relation in contraceptive decision-making. Although spousal discussion and agreement on the use of FP was considered important, when opinion differ, the balance of power regarding whose view should prevail was not equal. Majority of participants expressed that the man's opinion on contraception is superior to what the wife thinks, and that he owns the final approval:

"She will have call her husband and explain to him. Whatever the husband tells her that is what she will accept…….Abike should respect Gbenga's wishes until it is time when he says - take the step of using family planning". ***(Female, 38 years, primary education, never user)***

"…….After deliberating on the issue, the husband will be able to tell her if she should do it or not." ***(Male, 27 years, higher education, former user)***

"My submission is that the husband can command that the wife should not use family planning and the wife will agree." ***(Female, 35 years, primary education, former user)***

"……The husband has the final say, not her." ***(Male, 37 years, higher education, former user)***

Allowing the husband's wish to prevail was regarded as a mark of honour and, as a way to prevent him from adultery or marrying another wife:

Respondent: *If Gbenga does not approve that the wife should take such step, she should give him honour.*

Interviewer: *What kind of honour?*

Respondent: *The 'honour' is that as Gbenga has said he does not want it, she will dismiss the idea and not do the family planning. Using myself as an example, after my fourth child I was the one that called my husband and told him that I want to do family planning. My husband asked, what can we do? He is a Pastor, and I don't want him to be tempted to commit adultery.....If at that time he said he was not interested in family planning and that I should wait a little more, I will wait.* ***(Female, 35 years, primary education, former user)***

Moreover, participants expressed that it is justified for the man to have the final say since he is the 'provider' for the family. Some believed that as long as the man feels he could still financially cater for more children, his wish should be binding:

"If Gbenga (the husband) has the financial capacity and wants the wife to have more children, she can give birth to more. The father owns the children in the home. If he has the fund to care for the children, she can give birth to more." ***(Female, 38 years, primary education, never user)***

"If the husband thinks he has the capacity to take care of the children, then carry on. He is the owner of both the wife and the children." ***(Male, 51 years, higher education, current user)***

It was suggested that for the wife to have her way in using contraceptives when the husband opposed it, then she may have to beg/plead with him for permission:

"….she still has to continue to plead. I think she has to plead with the husband because she can't do the family planning on her own. As for me, I don't think she can just go ahead and do this kind of thing. She will plead and, continue to plead…." ***(Female, 38 years, secondary education, former user)***

5.3.6 Men's reasons for opposing FP

In response to the vignette, participants provided a variety of reasons why men could oppose FP use. The reasons mentioned include illiteracy, lack of family planning knowledge, desire for additional child, male preference, fear of side effects, fear of the wife becoming promiscuous, unforeseeable event that existing child/children die(s), desire to perpetuate large family size tradition, and so on (Table 5.3). The reason most frequently given why a man may resist spousal adoption of contraception is a desire for another child, followed by fear of side effects and the fear that the wife could become promiscuous (Table 5.4).

Table 5.3: Why men could oppose family planning

Reasons	*Excerpts*
Illiteracy	*…..his level of education, since he is a mechanic, may affect his thinking. It may be the reason for saying that he does not want family planning in this house.* ***(Male, 37yrs, higher, former user)***
	Those who are uneducated believe a woman should deliver all the children in her body or else it will affect her health. ***(Female, 30yrs, higher, current user)***
Lack of family planning knowledge	*I think the husband did not have knowledge of family planning….* ***(Male, 35yrs, higher, current users)***
Desire for another child/male preference	*He may be having some money and so, he feels it is fine they continue with childbearing.* ***(Female, 23yrs, secondary, current user)***
	He may think that the number of children they have is not enough. Such opinion could account for why he opposed the use of family planning. ***(Male, 42yrs, secondary, former user)***
	He has a boy and three girls? Perhaps, he may want more male children. ***(Male, 38yrs, higher, current user)***
Fear of side effects	*Some believe that using family planning is a risk, that it causes cancer and can be inconvenient for the woman. Some men don't like this condom of a thing, they prefer 'flesh to flesh'. It might be those reasons.* ***(Female, 35yrs, higher, former user)***
	It can be because of the fear of complications. People talk about different side effects. For example, the method they put in the womb (IUD) - that it can puncture the womb and get into the tommy. ***(Female, 43yrs, secondary, current user)***
Fear of wife becoming promiscuous	*You know, men are often more analytical than women. He could have thought far-ahead about the possible implication of the wife getting to use family planning. He would consider the likelihood that the wife will become promiscuous.* ***(Male, 50yrs, higher, former user)***
Adverse future event causing death of existing child[ren]	*….he could be thinking of life tragedies that could cut-short the lives of their current children.* ***(Male, 32yrs, secondary, current user)***
Perpetuity of large family size tradition	*He may be from a polygamous setting in which the father had many wives…. and he too has targeted that at least he would give birth to as many children like his father or mother. So, the idea of family planning from any woman will be a taboo to him.* ***(Female, 33yrs, higher, current user)***
	His parent may not be having many children and he feels he could make up for that by bearing many children. ***(Female, 23yrs, secondary, current user)***
Mere irresponsibility	*…..some men are irresponsible. They just want to see a lot of children around without even supporting them.* ***(Male, 38yrs, higher, current use)***
	… Some people believe that if they have 20 children it is God that will take care of them. But often we shift the responsibility of many things to God, even when we have caused the problem…. ***(Male, 42yrs, primary, former user)***

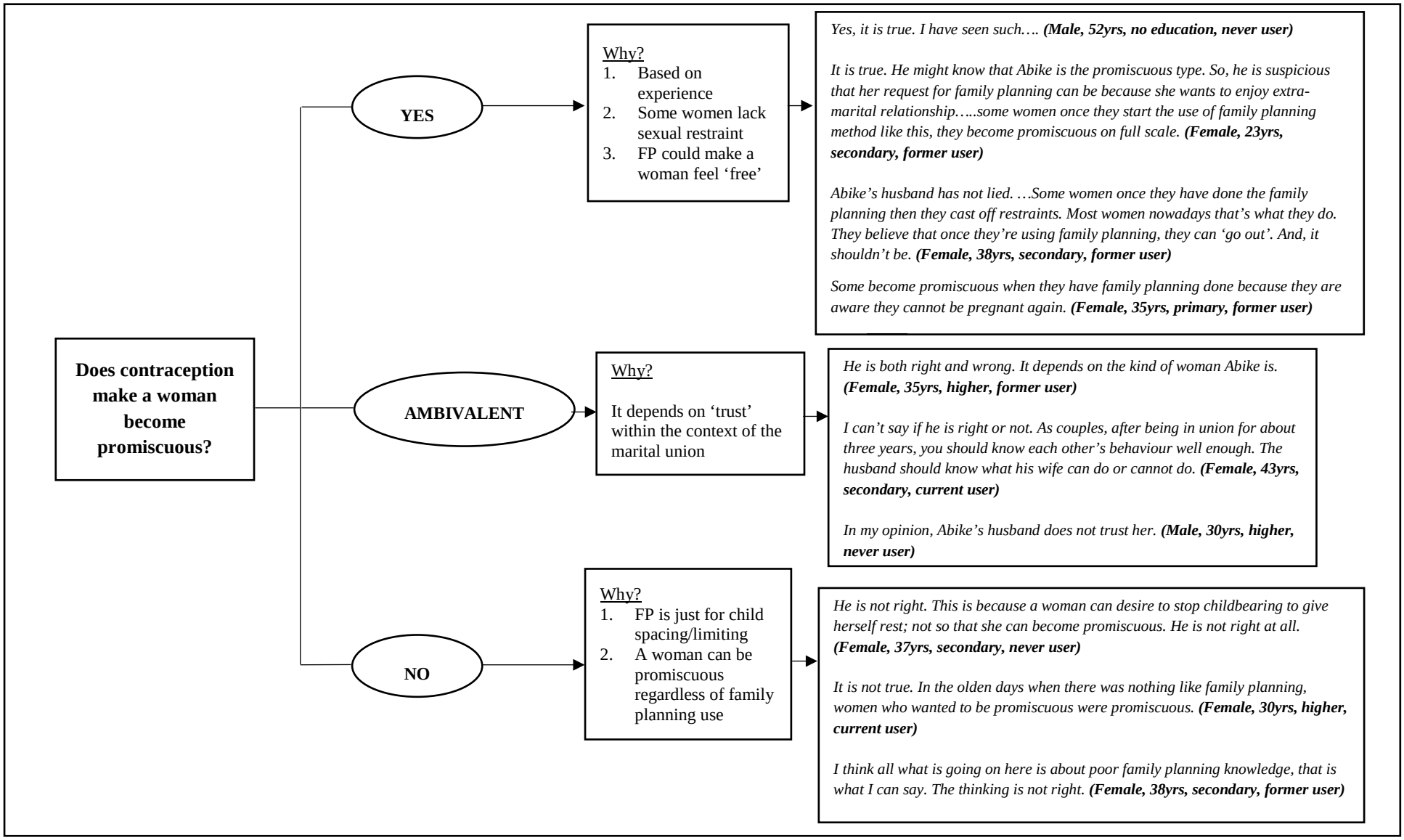
Table 5.4: Frequency of reasons given why men may oppose FP use, n=30

Reasons	*Male Respondent*	*Female Respondent*	**Total*
Illiteracy	*1*	*2*	*3*
Lack of family planning knowledge	*3*	*0*	*3*
Desire for another child/male preference	*7*	*8*	*15*
Fear of side effects	3	6	9
Fear of wife becoming promiscuous	*2*	*4*	*6*
Adverse future event causing death of existing child[ren]	*2*	*0*	*2*
Perpetuity of large family size tradition	*2*	*2*	*4*
Mere irresponsibility	*2*	*0*	*2*

*multiple reasons permitted

When participants were probed if contraception could make a woman promiscuous, there were conflicting opinions, but majority believed it is true. While some cited having seen such happening, others motioned that the use of contraception can fuel a woman's hidden desire for extra-marital relationship. However, some refuted the claim stating that it is possible for a woman to be promiscuous regardless of contraceptive use. Details of perspectives of respondents on the subject is presented in Figure 5.3.

Figure 5.3: Perspectives about females becoming promiscuous with the use of family planning



A careful examination of matched responses by the couples revealed that just two out of the fifteen couples concur in refuting that contraception could make a woman become promiscuous (Table 5.5). But, a third of couples interviewed (mainly *never* and *former* contraceptive users) had concordance that contraception could make a woman promiscuous. When there was discordance between couples who are *never* or *former* users, mostly the wife holds that the perception is untrue while the husband was ambivalent.

Table 5.5: Matched couples' response on perception that contraception makes women become promiscuous

Couple ID	***Contraceptive status***	***Husband***	***Wife***
01	Current	*Not true*	*Not true*
02	Current	*True*	*True*
03	Former	*Not true*	*Ambivalent*
04	Current	*Ambivalent*	*Not true*
05	Current	*True*	*Ambivalent*
06	Former	*Ambivalent*	*True*
07	Current	*Not true*	*Ambivalent*
08	Former	*True*	*True*
09	Never	*Ambivalent*	*Not true*
10	Never	*True*	*Not true*
11	Never	*True*	*True*
12	Former	*True*	*True*
13	Former	*Ambivalent*	*Not true*
14	Never	*True*	*True*
15	Never	*Not true*	*Not true*

Some interviewees considered it acceptable for a woman not to use family planning especially in the setting where she is not residing with the husband as non-use of contraceptive method could be a proxy for detecting if she is promiscuous:

"….if they live distance apart, even me I will approve it that there is no need for the wife to use family planning. If she conceives at a time when we have not met together, then I will know that I am not responsible for the pregnancy" ***(Male, 51 years, higher education, current user)***

Overall, existing *'trust'* between individual couple was considered pivotal when assessing the perception that contraception could make a woman become promiscuous:

"Trust between couple is the cornerstone, it makes the debate about family planning leading to promiscuity trivial." ***(Male, 48 years, secondary education, current user)***

5.3.7 Perseverance

The issue of perseverance was prominent in participants' responses. It was noted that a man's initial stance on contraception can be subject to a change after due reflections:

"He may not be convinced that she uses family planning just by one discussion, she needs to talk to him again – patiently and calmly. Though it may take her time to persuade him…" ***(Male, 30 years, higher education, never user)***

"Normally the husband cannot just give approval at a go. He too needs to reflect on the pro and cons of the wife using family planning before he gives the approval." ***(Male, 35 years, secondary, never user)***

"….. A man can change his mind on a thing anytime." ***(Male, 32 years, secondary education, current user)***

Study participants provided some perseverance strategies that can be adopted within marital union with the aim of getting the male partner to change his mind and grant the wife approval to use FP. The suggested strategies are summarised in Figure 5.4. Of a particular note is the role of healthcare providers in providing contraceptive counselling and information to couples which could facilitate getting the male partner convinced. Health provider's role was

also acknowledged in resolving spousal conflicts in relation to contraceptive decision-making:

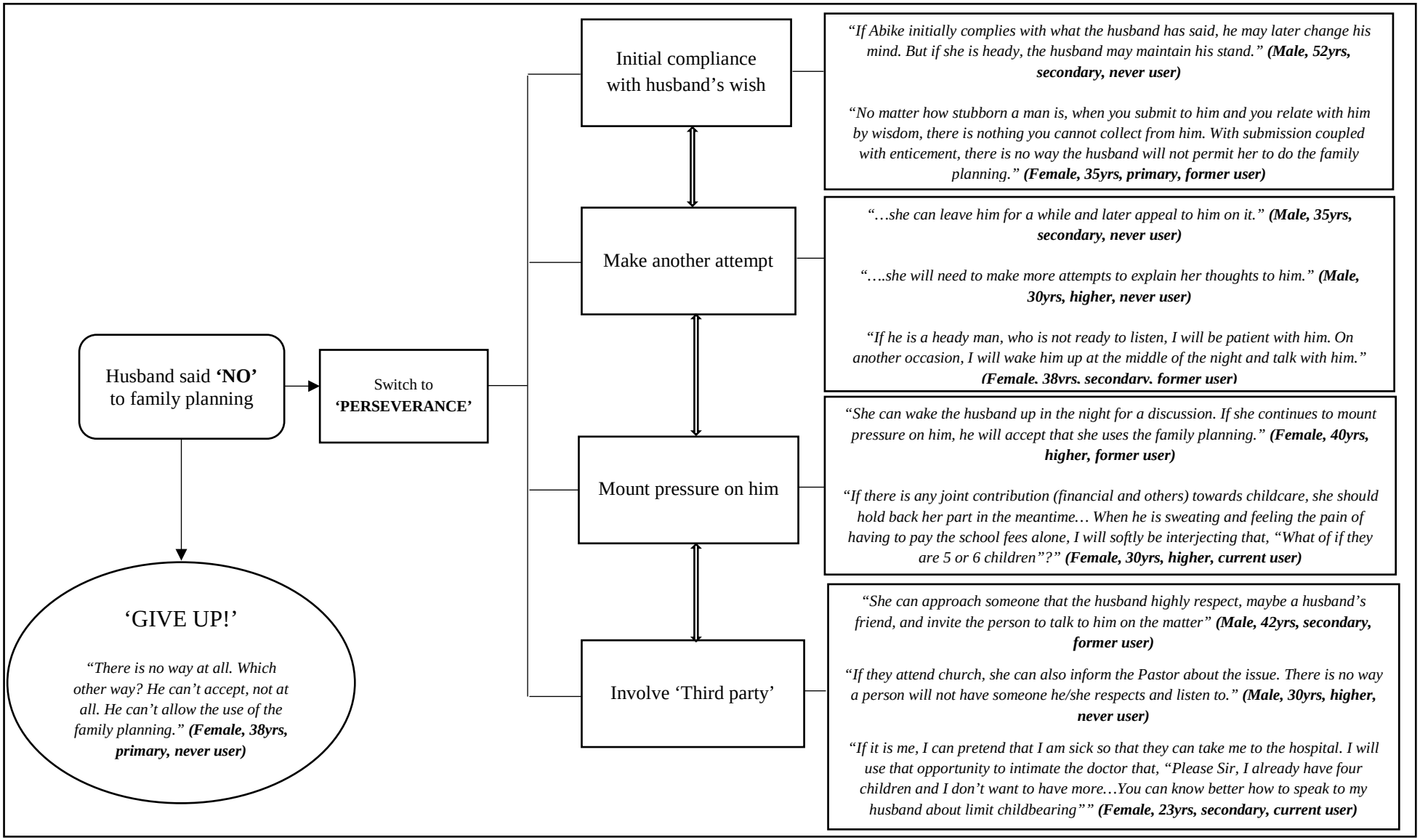
"I think Abike could meet a doctor and asked him/her to invite the husband for further information on family planning." ***(Male, 35 years, higher education, current user)***

"She will use wisdom to entice him to the hospital. There, the doctor can educate him on why it is good to limit childbearing. It is possible that if doctors do that he can listen." ***(Female, 43 years, secondary education, current user)***

In general, patience on the part of the wife was highlighted as essential to getting the matter amicably resolved:

"*She will have to be patient until her wish comes to pass. If the husband has asked her not to use any family planning method, she will need to exercise patience on the matter. She will need to be soft-spoken so that peace can prevail and for the husband to be convinced about the issue."* ***(Female, 37 years, secondary education, never user)***

Figure 5.4: Woman's perseverance strategies for contraceptive adoption



5.3.8 Women's empowerment to use contraception when opposed by husband

Based on the opinion of all participants interviewed, a woman cannot overtly use contraception without prior knowledge and/or approval of the husband. To do so implicitly means that the husband has lost headship over the home and in order for him to exert his authority, it may result in domestic violence, a decision to marry another wife or divorce:

Interviewer: *If in spite of her husband's opposition, Abike goes ahead to use a family planning method, what can happen?*
Respondent: *(Sighs). It can crash that family. The marriage may not hold anymore....The only thing she can do is to seek his consent and let him know that she will not be promiscuous.…..No matter what, she will have to wait and seek his consent.*
(Interviewer cuts in)
Interviewer: *So, she can't just go ahead?*
Respondent: *No, she can't just go. As far as I am concerned, she can't. It is not even advisable for her to do it without his consent.*

(Female, 35 years, higher education, former user)

Another participant said:

Respondent: *There is nothing that Abike can do than to accept her husband's wish to continue to bear children.*
(Interviewer cuts in)
Interviewer: *So it is what the husband says that she must do?*
Respondent: *That is the final*
Interviewer: *So she should continue to bear children?*
Respondent: *Yes Sir.*
Interviewer: *She's had four children?*
Respondent: *(Scoffs) Since the husband has said no to family planning, if she doesn't want her home to be scattered.*

(Male, 42 years, primary education, former user)

For some respondents, the options available to a woman is to either proceed directly to covert contraceptive use without engaging the husband in any discussion at all on contraception if

she anticipates that he would oppose it, or she may initially discuss FP with him and then covertly use it after he might have opposed it. However, no study participant felt a woman can overtly use FP when opposed by the husband:

"The only other way I could think of is – to keep the husband in the dark from onset about the option of going for family planning while she goes ahead to just use it." ***(Male, 50 years, higher education, former)***

"There are exceptional cases where she might not have to inform him before she goes ahead…. If she had been prone to battery, if the husband has been beating her, and she knows that if she attempt to talk on family planning she might end up being beaten, then, I think it is wise for her just to begin to use pills." ***(Male, 38 years, higher education, current user)***

"If the husband does not agree, she can secretly use it." ***(Female, 23 years, secondary education, former user)***

5.3.9 Justification and implication of covert contraceptive use

Discussing the vignette, most participants highlighted scenarios in which a decision by a woman to use FP covertly, in the presence of male partner's opposition, can be considered justifiable. Although the possibility that such action could have detrimental effect on marital stability when uncovered by the husband cannot be completely ruled out, generally, in those circumstances covert use is still welcomed. Example of these circumstances include where there may be health concerns, evidence of insufficient family income to sustain having additional child, when the husband has not been financially committed to the family, and when there has been failed attempts at convincing him about FP:

"If she dies in the process of childbirth, definitely, the man will go ahead and re-marry and the dead person would have been gone then. So, I think she can go ahead with family planning…..she could make it secret. Her health is at stake and the future of the children." ***(Male, 38 years, higher education, current user)***

"If I am a woman, I will consider the financial capacity of my husband that is saying I shouldn't have a family planning done. You know some men are irresponsible, they will only

be pushing the woman towards doom. If the woman considers that the man is irresponsible, she should wisely find solution to her matter." ***(Male, 32 years, secondary education, current user)***

"..if she wants to stop having child birth, and she realises the family's income is insufficient to take care of the children, I will advise she goes ahead with it secretly." ***(Male, 44 years, higher education, never user)***

Another participant added:

"Since she has had discussions with the husband and he has declined giving her permission, my advice is that, she should secretly go for the family planning." ***(Female, 40 years, higher education, former user)***

Other considerations that could justify covert contraceptive use include the burden of childcare and, situations in which the wife cannot find a third party to intervene in convincing the husband:

"You know that mostly the burden of responsibility to care for a child rests with the woman. If the husband has refused that she should use family planning, she can go and use on her own." ***(Female, 40 years, higher education, former user)***

"If there are none (third parties) or, if informing a third party will cause more problems for her, I want to say at this point in time…..she can go ahead and just take the pills secretly" ***(Male, 38 years, higher education, current user)***

Going forward, participants highlighted possible implications in the event that the husband realises that the wife has secretly used family planning. The most likely outcome is marital quarrel which can lead to separation/divorce:

"…. the husband will be angry. It is not all men that can restrain their emotions, some are hot tempered. They can start beating each other." ***(Female, 38 years, primary education, never user)***

"It can lead to a separated home since the husband has said she shouldn't use it, that union can be scattered." ***(Female, 38 years, secondary education, former user)***

Other possibilities are that the husband can accuse her of infidelity, he could force her to discontinue the FP method, subject her to neglect – sexually, financially and health wise, or he can decide to marry another wife:

"The result won't be good. He would allege that the reason for seeking his approval initially was to get a formal licence for promiscuity. But since she couldn't trick him to get that approval and has secretly gone ahead to use family planning method, it means she was determined to be promiscuous." ***(Male, 35 years, secondary education, never user)***

"The husband won't be happy about it and there won't be peace in that home. The resultant effect of lack of peace in a home is diverse. The husband may decide not to take care of the children anymore, he may not give the wife appropriate attention again" ***(Male, 52 years, no education, never user)***

"He may decide not to have sex with her again, that will serve as punishment." ***(Male, 35 years, higher education, current user)***

However, few respondents feel there may be no marital implication for the covert use:

"She may be lucky that nothing will happen." ***(Male, 52 years, secondary education, never user)***

"Nothing will happen, in as much as she doesn't become promiscuous with it…. If she has used it secretly and he gets to know, she will gently talk to him to calm him down. But if she uses it and then becomes promiscuous, trouble may ensue." ***(Female, 30 years, higher education, never user)***

A summary of respondents' perception on implications of covert FP use by gender, educational status and contraceptive status is presented in Table 5.6, 5.7 and 5.8 respectively. Evidently, more male respondents see the discovery of a woman's covert use of contraception as a potential for marital separation/divorce, a basis to accuse her of infidelity, neglect her sexually or financially, or a reason for polygamy (Table 5.6). Across all educational cadre respondents recognized that an uncovered covert FP use would have a marital consequence. Having secondary or higher education did not exempt such acknowledgment (Table 5.7).

Table 5.6: Respondents' gender and stated implications if female covertly use FP, n=30

Implication of covert use	*Male*	*Female*	**Total*
Quarrel	*4*	*6*	*10*
Separation/Divorce	*9*	*6*	*14*
Accusation of infidelity	*4*	*2*	*6*
Neglect (sexually, financially, etc.)	3	0	3
Forced discontinuation	*1*	*0*	*1*
Can make husband decide to marry another wife	*2*	*0*	*2*
Possibility that nothing happens with the discovery of covert use	*1*	*2*	*3*

*multiple reasons permitted

Table 5.7: Respondents' educational status and stated implications if female covertly use FP, n=30

Implication of covert use	*None*	*Primary*	*Secondary*	*Tertiary*	**Total*
Quarrel	*1*	*2*	*3*	*4*	*10*
Separation/Divorce	*0*	*1*	*6*	*7*	*14*
Accusation of infidelity	*0*	*0*	*2*	*4*	*6*
Neglect (sexually, financially, etc.)	1	0	1	1	3
Forced discontinuation	*0*	*0*	*0*	*1*	*1*
Can make husband decide to marry another wife	*0*	*1*	*0*	*1*	*2*
Possibility that nothing happens with the discovery of covert use	*0*	*0*	*1*	*2*	*3*

*multiple reasons permitted

Exploring respondents' opinion based on their contraceptive status, more *current* contraceptive users felt that covert FP use could fuel accusation of marital infidelity and/or make the husband to neglect his wife sexually, financially, and so on. In contrast, more *never* and *former* contraceptive users suggested that it could lead to marital quarrel and divorce (Table 5.8).

Table 5.8: Respondents' contraceptive status and stated implications if female covertly use FP, n=30

Implication of covert use	*Current user*	*Former user*	*Never user*	**Total*
Quarrel	*4*	*1*	*5*	*10*
Separation/Divorce	*3*	*8*	*3*	*14*
Accusation of infidelity	*4*	*0*	*2*	*6*
Neglect (sexually, financially, etc.)	2	0	1	3
Forced discontinuation	*0*	*0*	*1*	*1*
Can make husband decide to marry another wife	*0*	*2*	*0*	*2*
Possibility that nothing happens with the discovery of covert use	*0*	*1*	*2*	*3*

*multiple reasons permitted

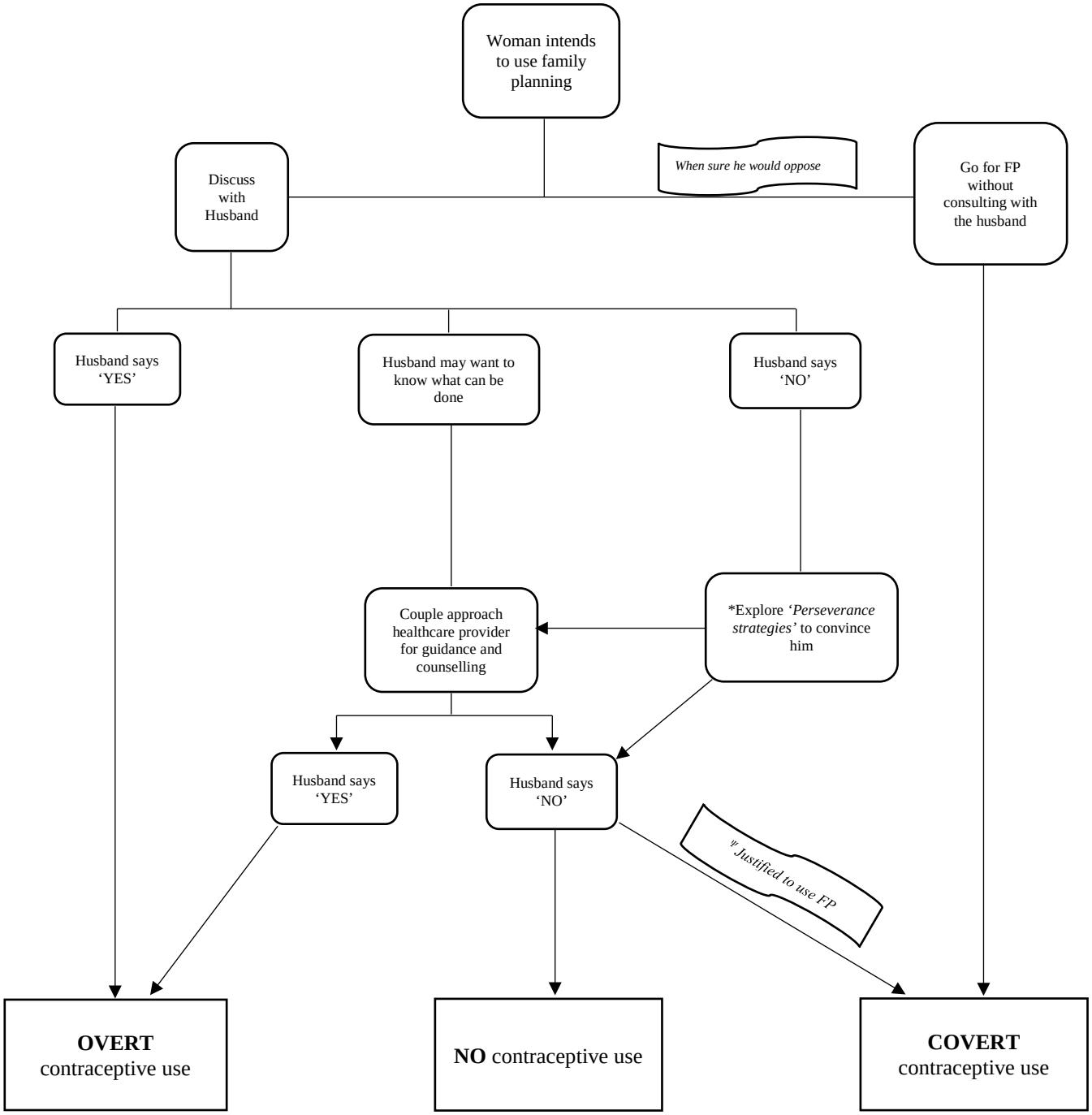
Couples who are former contraceptive users had good concordance in their opinion of possible marital implication if covert FP use is uncovered by the husband (Table 5.9). Least concordance between spousal responses was among *never* users.

Table 5.9: Matched couples' response on possible consequence of a discovered secret FP use

Couple ID	***Contraceptive status***	***Husband***	***Wife***
01	Current	*She can be neglected sexually*	*She can be accused of infidelity*
02	Current	*She can be accused of infidelity*	*Marital quarrel*
03	Former	*Marital separation/divorce*	*Marital separation/divorce*
04	Current	*Neglect her – health wise*	*Marital quarrel*
05	Current	*Marital quarrel, separation and divorce*	*Marital separation/divorce*
06	Former	*Marital separation/divorce*	*Marital separation/divorce*
07	Current	*She can be accused of infidelity*	*She can be accused of infidelity; cause marital quarrel and separation/divorce*
08	Former	*Lead to polygamy , or marital separation/divorce*	*Marital separation/divorce*
09	Never	*Marital quarrel; accusation of infidelity*	*Marital separation/divorce*
10	Never	*She may be luck that nothing happens*	*Marital quarrel*
11	Never	*She can be neglected – sexually, financially, etc. by the husband*	*Marital quarrel including domestic violence*
12	Former	*Lead to polygamy*	*Cause marital quarrel; separation/divorce*
13	Former	*Marital separation/divorce*	*Nothing may happen*
14	Never	*She can be accused of infidelity; marital quarrel and separation*	*Nothing may happen*
15	Never	*Forced discontinuation; Marital separation*	*Cause Marital quarrel*

Stemming from the overall participants' inputs, a summative contraceptive decision-making pathway for a woman in-union was evident. This is presented in Figure 5.5.

Figure 5.5: Summative contraceptive decision-making pathway for a woman in-union



**Perseverance strategies* – initial compliance with husband's wish, make other attempts to discuss contraception with him, mount pressure and involving third party (friends, relatives, health practitioners)
Ψ *Justified reasons for covert use* – health concerns, overwhelming burden of childcare, evidence of insufficient family income, husband financially irresponsible or failed multiple attempts at convincing him

5.4 DISCUSSION AND CONCLUSION

This research examines couples' contraceptive decision-making in Nigeria and considered women's empowerment to act on using contraception when opposed by the partner. In the study, we found a gradual shift away from the desire to have large family size which was conferred by adverse economic situation in the country and rising cost of educating children. Respondents placed premium on spousal FP discussion prior to any contraceptive use, referencing shared decision-making as good. It was expected that the spouse who first considered using FP should initiate the discussion on it. However, on balance of power within the marital relationship, man's opinion was considered weightier and his wish binding, especially when he is the responsible type who caters for his family. Women's ability to overtly use contraception in the face of husband's opposition was a near impossibility as it can trigger domestic violence, polygamy, marital separation and/or divorce. Nonetheless, there were generally acceptable reasons for covert contraceptive use by women.

Our findings provides insight into shift in desire towards a smaller family size. Although it remains indisputable that extended family ties continue to exist, the strength of family connections for child fostering and spreading of childbearing cost is gradually fading out (Wusu and Isiugo-Abanihe, 2006). Unlike before, parents now increasingly bear the direct cost of child upbringing, since there is also no social welfare arrangement in place. Furthermore, it is becoming evident that in departure from the past where one essence of having many children was to get deployable hands for farming, more parents now desire their children are educated, as this is viewed a potent means for social mobility. Unfortunately, public (free) education is mostly sub-standard in Nigeria and private school fees are expensive. What is happening therefore is that for couples to compete favourably in educating their children, they have to think of limiting the number they would have. Hence, it

would be appropriate that future research systematically examine the impact of rising cost of child's education on fertility desire in Nigeria.

We found a positive disposition to spousal contraceptive discussion, justified by the fact that openness within a marital union is an obligation. Previous studies in Nigeria have also found a high motivation for spousal contraceptive discussion (Izugbara et al., 2010, Duze and Mohammed, 2006). In addition, our finding elucidates the impact of ethno-religious beliefs on practises within marital union especially as it pertains to gender role, and that educational status produced no change in perception of gender role. Though interventions to promote improved spousal discussion will be a right step to ensuring that women access contraception, addressing imbalance in power relation will be critical for desired outcome. As it stands, a woman could not use contraception overtly when opposed by the partner.

It should be appreciated that changing the dynamics of power relation within marital union may not be easy. There is wide spread social conviction that African women in marital unions should abide by their partner decisions and wishes – a key to ensuring marital stability (Eliason et al., 2013, Mesfin, 2002). Marital institution is highly valued in Nigeria and a woman can be culturally deemed a *'failure'* when separated/divorced. To keep home therefore, she needs to yield to her husband's wishes to safeguard against divorce or polygamy (Izugbara and Ezeh, 2010). Besides, intimacy in relationship has been identified a major pathway to having a successful healthy behavioural change among couples (Karney et al., 2010, Lewis et al., 2006). Consequently, if any intervention is designed only to promote women as autonomous decision-makers in marriage, it may interfere with couple's ability to achieve or sustain intimacy (Conroy et al., 2016), and can be counter-productive in improving couple's contraceptive uptake. Instead, interventional strategies that addresses power imbalance should seek to enhance egalitarianism while not compromising intimacy and shared contraceptive decision-making.

Since in Nigeria the necessity for a woman to maintain a marriage can be very important, and having marital intimacy is also gainful for couples' healthy behavioural change, priority reproductive health interventions should be to improve women's communication skills in convincing partners about FP. Based on the inputs from study participants, with certain communication skills getting husbands to approve FP use could come easier. The concept of spouses discussing sensitive issues when lying together in bed, *'pillow talk'*, already exists (Hemmings et al., 2008, Pascoe, 2016), and carefully designed communication programme can be built around this. Women can be taught how to create space, initiate discussion, and use appropriate vocabulary for a productive '*pillow talk*' on FP (Hemmings et al., 2008).

Tactic use for social influence is appropriate and likely to yield result in the setting where there is inequality in relationship and when the agent, the person who wants the other person to change, has a strong desire (Lewis et al., 2006). Already, inequality in relationships is obvious from present study, so strategies to create strong contraceptive desire in the agent (often the women) will be needed. Vigorous scale-up in contraceptive campaigns which highlights health, economic and social gains of FP can target both current and would-be mothers with the goal of driving a strong craving for contraception. Then, in addition women would need to be taught how to logically present their reasons for desiring contraception to spouse, learn different bargaining strategies that can be adopted in discussion, persuasion skills and positive expression of emotions, sign-posting of other people (friends/relatives) who already commenced FP, and so on when practising *'pillow talk'*.

Arising from participants' contributions to the vignette, it is clear that men may need some time to reflect before consenting to FP use. It should be appreciated that in some instances allowance for such reflections might be needful for a shared contraceptive decision to be possible and so, women need to learn perseverance. The negative perception that FP could make a woman promiscuous is complexly interwoven with the concept of existing *'trust'*

within the marital union. This study identified that although the perception of FP promoting female promiscuity remains popular especially among *never* and *former* contraceptive users, it is fuelled chiefly by marital distrust. Implicitly, the domain of 'trust' concerns regarding the use of contraception is among *never* and *former* contraceptive users, so this subset of couples can be specifically targeted for spot on intervention.

Men who 'trust' their wife did not see the insinuation that it can promote female promiscuity a barrier to allowing her access FP. In an atmosphere of marital suspicion, winning a man over to agree to spousal use of contraception could indeed be a daunting task. Contraceptive campaigners need to recognize how prevalent and enmeshed the negative perception is within the fabrics of marital relationships in Nigeria, and to devise how best it might be tackled since evidence shows that it is impacting on FP demand (Adanikin et al., 2017). Men would need re-orientation about transforming gender roles and equality in relationships. The well-crafted re-orientation programme can be at community, institutional and individual levels. Aside, with some participants boldly asserting to having seen circumstances where use of FP fuelled female promiscuity, it will be worthwhile, at least for the purpose of holistic counselling, that FP service providers reinforce STI risks to FP clinic attendees and advise against seeing FP in anyway as a licence for promiscuity.

In Nigeria, there is no illegality in administration of contraceptives to women without the husband's consent. In instances where a woman has chosen to covertly use FP methods, service providers are duty bound to ensure appropriate counselling and confidentiality. However, because FP clinics are situated within the locality and usually service providers dwell in the community, women are faced with the crisis of confidentiality. Notwithstanding, training and re-training of FP staff on the ethical requirement of their profession could lessen confidentiality concerns.

In conclusion, spousal FP discussion and shared contraceptive decision-making is highly welcomed by couples in Nigeria though the tilt of final decision power is towards the men. Women are not sufficiently empowered to use contraception overtly when opposed by male partners except she is willing to risk experiencing domestic violence, separation or divorce. However, she can covertly use FP when her health is at risk, the husband has been financially irresponsible or when she feels overwhelmed by the obligation of childcare. The study outcome highlights the need for scale-up in reproductive health interventions aimed at improving women's communication skills and status in Nigeria, and promoting their reproductive health rights while not jeopardizing marital stability and intimacy.

5.5 STRENGTH AND LIMITATION

The strength of this study lies in its originality to examine women's empowerment in using FP in the setting where it was opposed by the partner. The qualitative design enabled appropriate contextual understanding, and the use of vignette allowed elucidation of sensitive behavioural tendencies. More importantly, the research fills pertinent knowledge gap by providing a clear grasp of negotiation pathways employed by women in-union in their efforts at accessing FP. However, the study is not without limitation. Researching into women's empowerment is challenging as there is no strict consensus on its definition though we have used decision power. More specifically, empowerment can be elusive and culturally defined (Prata et al., 2017). As with most qualitative research, it may be difficult to generalise the findings to a wider population with same degree of certainty as participants are not representative and the results are not statistically tested for significance (Atieno, 2009). In spite of these, application of qualitative research methodology remains a potent means to

unravel contextual issues and the findings from this analysis sufficiently mirrors couples' contraceptive decision-making in Nigeria.

Key messages

- Inequality in power-relation exists within marital relationships, and men dominate in household decision-making including contraceptive use.
- Women are poorly empowered to overtly use FP when opposed by their partners, and a covert use when revealed can have marital consequence such as domestic violence and divorce.
- When a woman wants to control her fertility, she may have to give up her wish or try different strategies to convince her husband if he opposes contraceptive use.
- Interventions should focus on educating men about transforming gender roles and equality in relationships, and improving women's communication and negotiation skills in convincing partners about FP.

Chapter 6

Conclusions

This thesis examined the factors underlying resistance to fertility decline in Nigeria, with focus on social and cultural barriers to family planning. It investigated sociocultural factors that could influence a woman's decision to have more children or prevent her from accessing modern fertility control measures. First, the thesis considered how recurrent child mortality risks affect women's reproductive behaviour in Nigeria, particularly the progression to having a high fertility. Second, the thesis investigated the association between male partners' negative contraceptive perception and women's contraceptive use. Third, the thesis investigated the extent of women's empowerment in deciding on the use of modern contraception to control own fertility.

In this concluding chapter, I present the summary and discussion of findings from the three interlinked analysis, highlight the limitations of the present study, and propose policy recommendations and suggestions for future work.

6.1 SUMMARY OF MAIN RESULTS

6.1.1 Recurrent child mortality risks and progression to high fertility

While investigating high fertility in Nigeria, Research Paper 1 (Chapter 3) considered the contribution of recurrent child mortality risks to a woman's decision to have another child. The analysis of the birth records based on the most recent DHS in the country clearly showed that high parity attainment was prevalent, with about four in five women having at least six children by age 45 to 49 years old. More than 80% of women by the end of reproductive life

course made transition from seventh to eighth child or more. Younger cohorts of women were on a faster progression to higher parity than their older counterparts.

The application of survival model offered better understanding on how child mortality risks influence woman's reproductive behaviour in Nigeria. While a single child loss had no consistent predictive effect, multiple child losses increased the rate of parity transition. The relative risk of parity transition is higher when a multiple child loss involved an IPB. However, regardless of child mortality experience, the hazard of replacing a child was lower among women aged 35 years and above, and those from upper wealth strata. Women who were at higher risk of experiencing a child death and therefore transiting to higher fertility were socio-economically disadvantaged women - mostly teenage mothers, those with no formal education, rural dwellers, and resident in Northern Nigeria, of Hausa/Fulani ethnicity, women practicing Islam and those from poorest wealth strata. Overall, the result provided a compelling evidence on *replacement behaviour* among reproductive women in Nigeria and its contribution to occurrence of high fertility by the end of reproductive life course.

6.1.2 Men's perception of FP and impact on spousal contraceptive uptake

The second analysis investigated the association between men's contraceptive perception and spousal contraceptive use (Chapter 4). Whilst majority of men did not see contraception as women's business only, the same could not be said regarding the perception that contraception could make a woman become promiscuous. Precisely, women's demand for FP was negatively influenced by male partners' perception that contraceptive use could make a woman become promiscuous. Fear of female promiscuity increased the use of traditional methods to satisfy FP need. Moreover, where the spouse used a modern contraception, injectable pills was the dominant method choice.

Considering men's characteristics, I found that perception of female promiscuity with contraceptive use was common among older men aged 40 years and above, the uneducated, rural residents, those from the northern region, and those practicing Islam. The more educated a woman is and the more the number of her surviving children, the less likely that her husband's negative FP perception would influence her contraceptive demand. Also, a woman's good decision making power and wealth status strongly predicted the use of modern contraception overriding the effect of partner's negative FP perception.

6.1.3 Women's empowerment to adopt contraception amidst spousal opposition

Quantitative analysis show evidence of sociocultural factors associated with fertility and contraceptive use in Nigeria. To further understand how gender roles shape contraceptive decisions and use, I conducted a field research to examine the influence of women's empowerment on contraceptive use in circumstances when the husband opposed FP. The study made use of vignette which reflects the local context to evaluate the dynamics of contraceptive decision-making among couples. A total of 30 interviews for 15 couples (men and women), were conducted from a semi-urban setting in southern Nigeria. Inductive thematic analysis was then applied to identify emerging themes from the collected data, guided by the study objectives.

I noted a gradual shift in the motivation to having large family size among the respondents – mainly imposed by harsh socioeconomic conditions in the country and rising cost of child schooling. Discussion on contraception between couples was perceived as good, and the spouse who first thought of spacing/limiting childbearing was expected to initiate the discussion. However, it was opined that when spousal position on using contraception differs, the male partner's view is considered superior and that he has the final approval on FP use.

The study respondents believed that a woman cannot overtly use contraception without the husband's permission, as doing so imply that the man has lost his headship and in the bid to assert his authority, it could lead to domestic violence or marital separation/divorce. The leeway proposed is for woman to covertly use the FP method, though hidden use does not exempt a negative marital consequence when discovered. Thus, the qualitative finding reflects poor empowerment status of Nigerian women and constraints being experienced to control own fertility even when the desire to do so is there.

Importantly, respondents highlighted some of the reasons why men might oppose FP use, these including: the desire for more children/male preference, fear of side effects, fear of wife becoming promiscuous, concerns about adverse future events leading to the death of any existing children, etc. Going forward, participants maintained joint decision-making regarding the use of contraception by couples as the most appropriate, and suggested that with appropriate communication skills and perseverance strategies, a woman could still gain husband's confidence and permission to use FP, more so that his initial stance can be subject to change after due reflection. The case for ensuring joint decision-making was further reinforced by the fact that it would minimise the risk of marital instability that may attend the resort to covert use when uncovered.

6.2 CONTRIBUTIONS TO THE LITERATURE

This thesis makes an original contribution to generating new perspectives and knowledge on sociocultural barriers to family planning in Nigeria. Central to sustained fertility decline in Nigeria would be improvement in child survival chances, this is because replacement behaviour would be minimized. As suggested by Wolpin, a family can attempt to satisfy their lifetime fertility goal decided from the beginning – when mortality risk is zero, they would

need no additional births, but when one out of every two children would die, invariably extra births (whether by hoarding or by replacement) are needed to achieve their desired number of surviving children (Wolpin, 1998). Based on the result from this thesis, a further reduction in child mortality risks can contribute to lowering fertility in Nigeria.

Furthermore, there appear to be similarity in attributes of women at risk of experiencing child mortality and men who negatively perceive contraception. These are men and women with no formal education, who reside in rural areas and northern part of Nigeria and are practicing Islam. Basically, they are mostly socio-economically disadvantaged people who have little/no access to healthcare facilities, skilled birth attendants and/or quality health information. It can be deduced that a woman coming from socio-economic setting such as rural, northern Nigeria, would be under immense pressure to continue giving birth as she experiences repeated child mortality coupled with the fact that her husband is likely to be negatively disposed to FP. This is not to mention that the rapidity of conception and delivery in itself worsens her child survival chance thereby resulting in a chain of birth-mortality-birth-mortality.

However, the reverse is the case among women from the upper wealth quintile. They were least likely to have experienced child death and were found to have better chance of using modern contraception even when husbands negatively perceive its use. Hence, it can be outlined that with radical social mobility a change in existing fertility situation in Nigeria is possible because an upgrade in couple's economic status would raise child survival chance through improved option to access quality healthcare services, improved hygiene and nutrition, and increased contraceptive uptake.

The findings that women practising Islam had more child mortality, and that men practising Islam also negatively perceived contraception more than non-Muslims call for a cautious consideration on the influence of religion on fertility in Nigeria. Although debates abound on

the pathway of influence between religion and fertility prevalence, it seems in the case of Nigeria, the *characteristics perspective* is likely i.e. it is the socio-economic and demographic attributes of adherents of a particular religion that determines their fertility and contraceptive practices (Wusu, 2015, Agadjanian et al., 2009). In this case, northern dwellers who happen to be mostly Muslims are also socio-economically disadvantaged.

In Nigeria, the use of modern contraception by reproductive women is skewed towards older women, 35 years and above, who possibly started using modern methods after attaining desired fertility (OlaOlorun and Hindin, 2014). However, the observation in this thesis that current younger cohorts of women are making faster parity transition when compared historically to older women presents a reproductive health challenge. It highlights the problem of early marriage, desire for large family size and low contraceptive use among these women. Besides, the prevalence of child mortality was also noted to be higher among teenage mothers. Therefore, the sequence of fertility dynamics in Nigeria assumes that younger reproductive women generate the fertility momentum and afterwards 'retire' by age 35 or above to take up contraception. Hence, specific fertility control interventions should aim for this younger women.

The deeply-rooted sociocultural value placed on preservation of marital union adds up to the compromise a woman must make in reproductive health decisions. Invariably, any programme intervention designed just to strengthen a woman's self-ability to adopt contraception without attending to how she can secure her partner's approval may not yield the much desired result. Indeed, this is possibly one of the compelling basis why most FP programme have not been very successful in Nigeria – male partner's permission still remains valid and it is difficult for a woman to violate it.

Though overhauling the perception of gender norm and promoting equality in marital relationships can reasonably resolve marital power imbalance and enhance joint contraceptive

decision-making, achieving the cultural revamp will take considerable duration. A finding in this thesis that can be explored by contraceptive campaigners and programme developers is to promote married women's persuasive communication skills and bargaining strategies needed to negotiate FP use with partner. Interventions aimed at securing partner's approval or enhancing joint contraceptive decision-making can be well received and tried by women, as such interventions may be adjudged suitable with their goal of marital preservation.

Given that a substantial proportion of men think that FP will promote female promiscuity, correcting such negative perception should be a priority. Rigorous contraceptive education and re-orientation programme aimed specifically at the dominant sub-group of men who share this opinion can reduce the prevalence of the misconception. But more importantly, it should be considered how much men feel that spousal use of modern contraceptive methods make them (males) lose control of reproductive process. Understandably, modern contraceptive options available to men are limited, except male condom and vasectomy. Vasectomy is generally not practised in Africa (Bunce et al., 2007, Akpamu et al., 2010), and there have been reports of husbands declining condom use with spouse because of disruption in sexual intimacy and enjoyment, let alone its high failure rate when not used correctly (Trussell and Guthrie, 2007). Traditional method, mainly withdrawal, which is within the control of men is similarly fraught with high failure rate and so, promoting it will not reliably contribute to fertility reduction. Instead, advancing modern contraceptive options available to men can both enhance their participation in FP and reduce their opposition to contraception – at least men will have the alternative of using effective FP methods for fertility control even if the wife is not allowed to because of fear that she may become promiscuous.

Findings from this research is in tandem with the adopted the conceptual framework, it reinforces that the desire for children and decision to use contraceptives, among other factors, are influenced by child mortality, cost of raising children, women social status in the society,

individual socio-demographic attributes and psychosocial factors (such as, male partner's FP perception).

6.3 STRENGTHS AND LIMITATIONS

This thesis advance knowledge in understanding sociocultural obstacles to family planning use in Nigeria, in spite of the nation's high fertility situation. It contributes to building the evidence base of policy relevant factors accounting for low modern contraceptive uptake in the country. The thesis has strength in the originality of its research - disaggregating the contribution of recurrent child mortality risks to replacement behaviour and higher fertility transition, and the impact of men's perception on spousal contraceptive demand and use. It is also the first research of its kind in Nigeria to examine women's contraceptive decision-making power in the context of spousal opposition, and the first study to present the summative FP decision-making pathways for married women in the country. Since the qualitative study deals with sensitive behavioural issues, the adoption of vignette for data collection assisted in minimizing social desirability bias.

This research is not exempt from limitations. It was difficult establishing the cause and effect, as the interpretation of results emanating from the cross-sectional data, the Nigeria DHS, could rather be limited to measurement of association between variables, which somewhat may restrict the strength of evidence for policy advocacy. The use of birth history from cross-sectional survey is also inherently prone to reporting errors. The possibility of selection bias i.e. selection of women with high parity-for-age in the analysis of parity progression cannot be completely ruled out. At the same time, the problem of simultaneity during interpretation of relationship between child mortality and fertility advises caution on inferences.

We need panel data for better understanding of how women's attributes might have changed over the reproductive life course and also how men's contraceptive perception might have shifted with time. Though the qualitative study provided a clearer understanding of contextual issues underlying reproductive health and contraceptive behaviours, however, as with most qualitative research, because the sample are not representative it may be difficult to extend the results to a wider population with complete confidence. Conducting field research in northern Nigeria and in some parts in the southern region is challenging with significant security risk such as terrorist attack and kidnaps. This influenced the decision to select the qualitative study site by convenience.

Notwithstanding the highlighted limitations, the strength of evidence provided in this thesis regarding sociocultural barriers to contraceptive uptake in Nigeria is accurate and makes original contribution to the body of knowledge.

6.4 POLICY IMPLICATIONS

Findings from this research have policy implications. There is need to accelerate use of modern contraceptives in Nigeria. It is important to involve men in family planning, owing to the central role they play in household reproductive decision-making. It is possible that men's interest in family planning can be stirred by encouraging their presence during wife's delivery, postnatal clinic attendance, etc. Till date in Nigeria, men are not allowed to be present when the wife is in labour. A shift in this practice can awake a sense of belonging in men about matters relating to fertility control and safeguarding the wellbeing of spouse.

There is a need for comprehensive contraceptive information, which does not only promote contraceptive awareness but also ensure a positive perception of it. The message should target men of different age cohorts and religious affiliations (though not neglecting women too),

stressing that contraception is neither designed to nor does it promote promiscuity, but that it is a key to a planned family. It should be appreciated that community participation in contraceptive services can enhance positive perception, therefore, getting community and religious leaders on board should be considered.

Re-orienting men about transforming gender roles and equality in relationships is pertinent. The traditional African man will need be aware of reproductive health rights and of changing gender norms globally. It can be a policy that reproductive health rights is taught in schools; this way re-orientation of would-be men can come easier. Furthermore, efforts are required to generally improve women's perseverance strategies in convincing partners about the use of family planning. Programme planners should consider teaching women new strategies for contraceptive negotiation with spouses.

It was apparent that younger reproductive women constitute the '*fertility force*' in Nigeria. Besides campaign at discouraging early marriage, it would be appropriate to specifically target these women for family planning interventions. Policy makers should ensure that regular reproductive health and family planning counselling is provided at prenatal, antenatal, postnatal and child welfare clinics – since younger women will represent the bulk of counselling recipients.

The concentration of child mortality among socio-economically disadvantaged women and to a particular region of the country emphasizes the need to address the divide in the level of development and social status in the country. To be precise, northern Nigeria will need more decisive economic and healthcare interventional plan if a sustained decline in fertility would be possible. Aside ensuring widespread availability of comprehensive maternal and child healthcare services in the region (which must be easily accessible to rural dwellers), aiming to financially empower its women is also required. Enabling policy with attendant punitive consequence must be in place, making universal basic female education compulsory. In

addition, multiple vocational training centres can be established to give men and women chance to having skills for a means of livelihood.

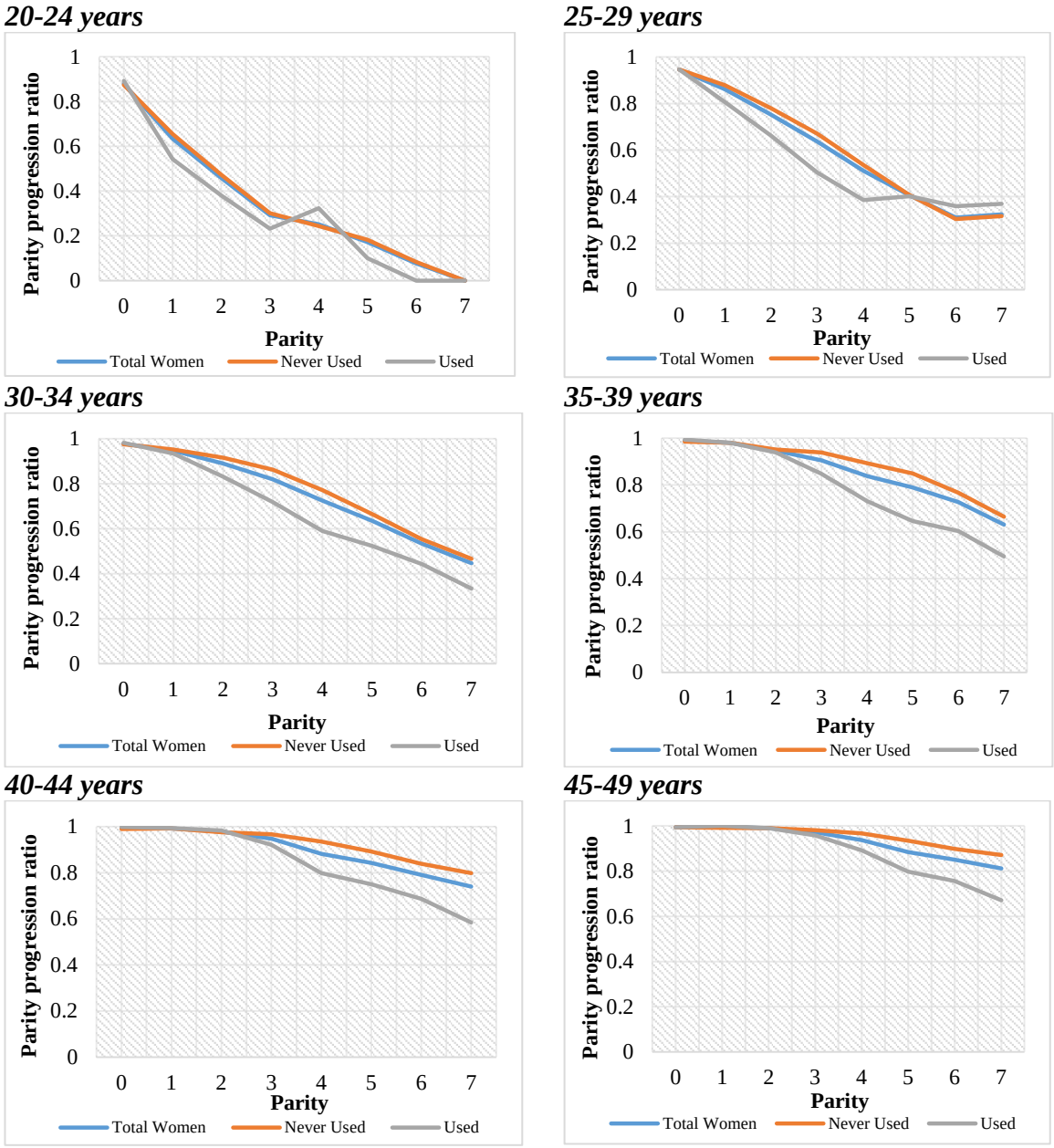
Last but not the least, frontline contraceptive providers will need regular training and re-training to update their contraceptive counselling and administration skills, and importantly they will need constant reminders on the need to follow up and maintain patients' confidentiality.

6.5 PRIORITY FOR FUTURE RESEARCH

Outcome from this research suggests the need for an indepth exploration of couple's perception of societal child mortality risks and how it shapes their decision on the number of children to have (insurance effect). It also highlights the need to examine the impact of rising cost of child education on fertility desire in Nigeria. Furthermore, there is need for a prospective study that explores the relationship between male partner's companionship in labour and subsequent spousal uptake of postpartum contraception. Also, in furtherance to the research findings, there should be collection of panel data to examine how men's perception of contraception change over time with behavioural change interventions. An assessment of impact of '*Pillow talk*' on couples' joint contraceptive decision-making would equally be necessary. And lastly, the findings from this research may not be limited in applicability to Nigeria but can have a wider implication in Africa, especially the West African sub-region where contraceptive uptake is poorest. Therefore, investigating whether sociocultural factors considered have similar influence on fertility and contraceptive use in other African nations should be considered.

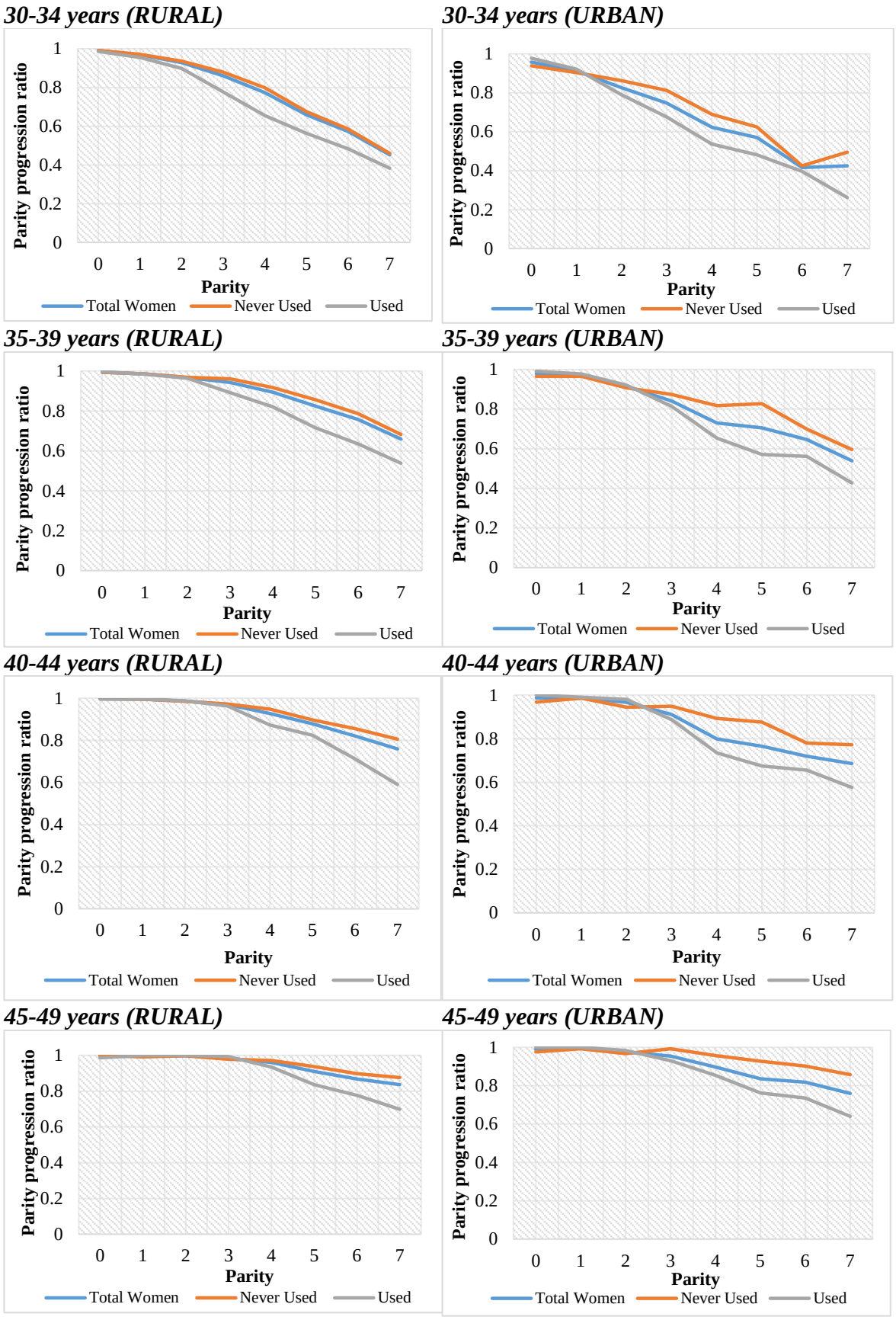
APPENDIX A (*Figures 3.5-3.11*): PPR by women's socio-demographic attributes

Figure 3.5: *Observed PPR by reproductive age cohort and contraceptive use*



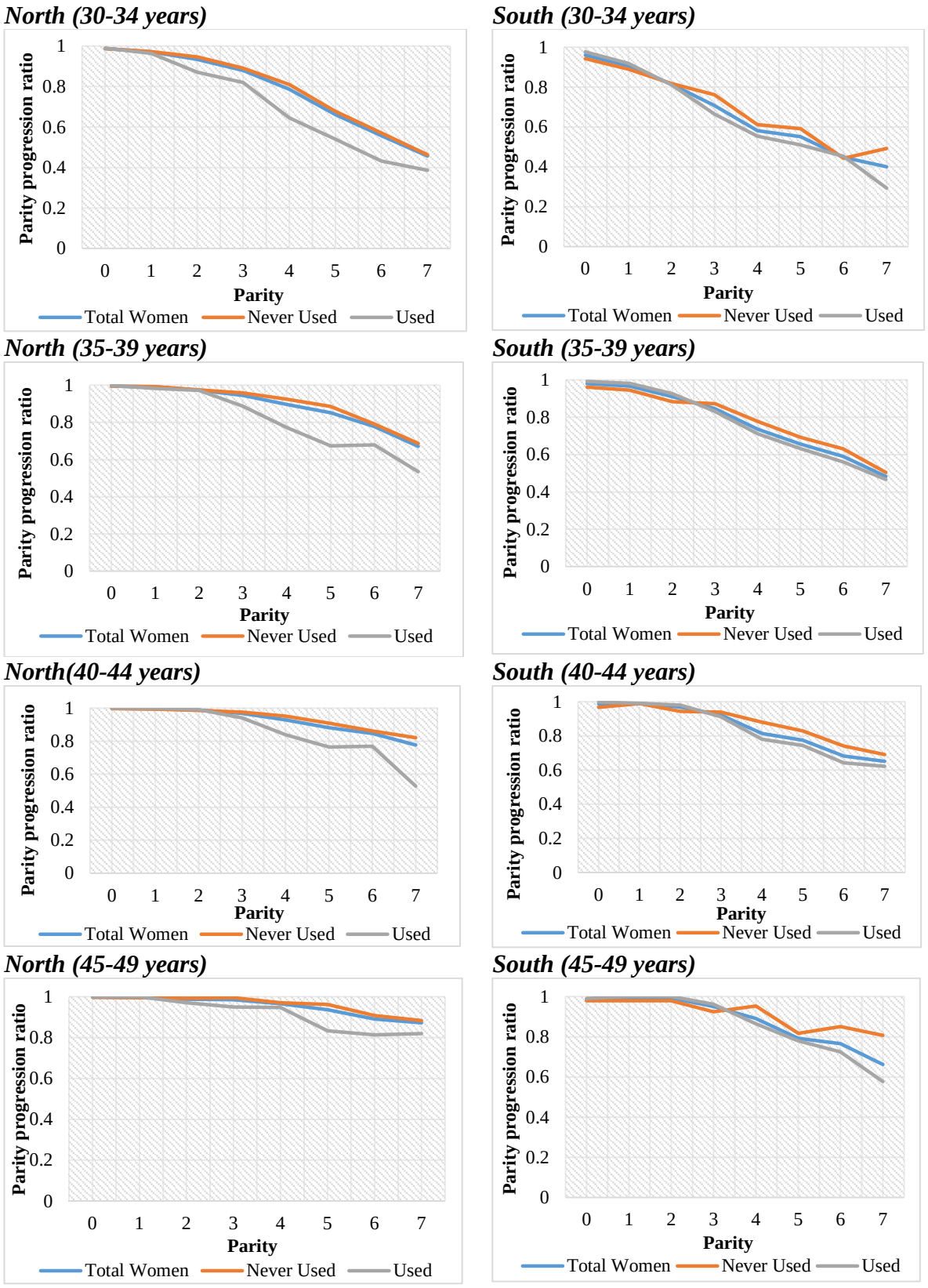
PPR reduces after the birth of the third child, as evidence among women 40-49 years old.
Contraceptive ever-use further reduced PPRs.

Figure 3.6: *Observed PPR by place of residence, contraceptive use and age cohort*



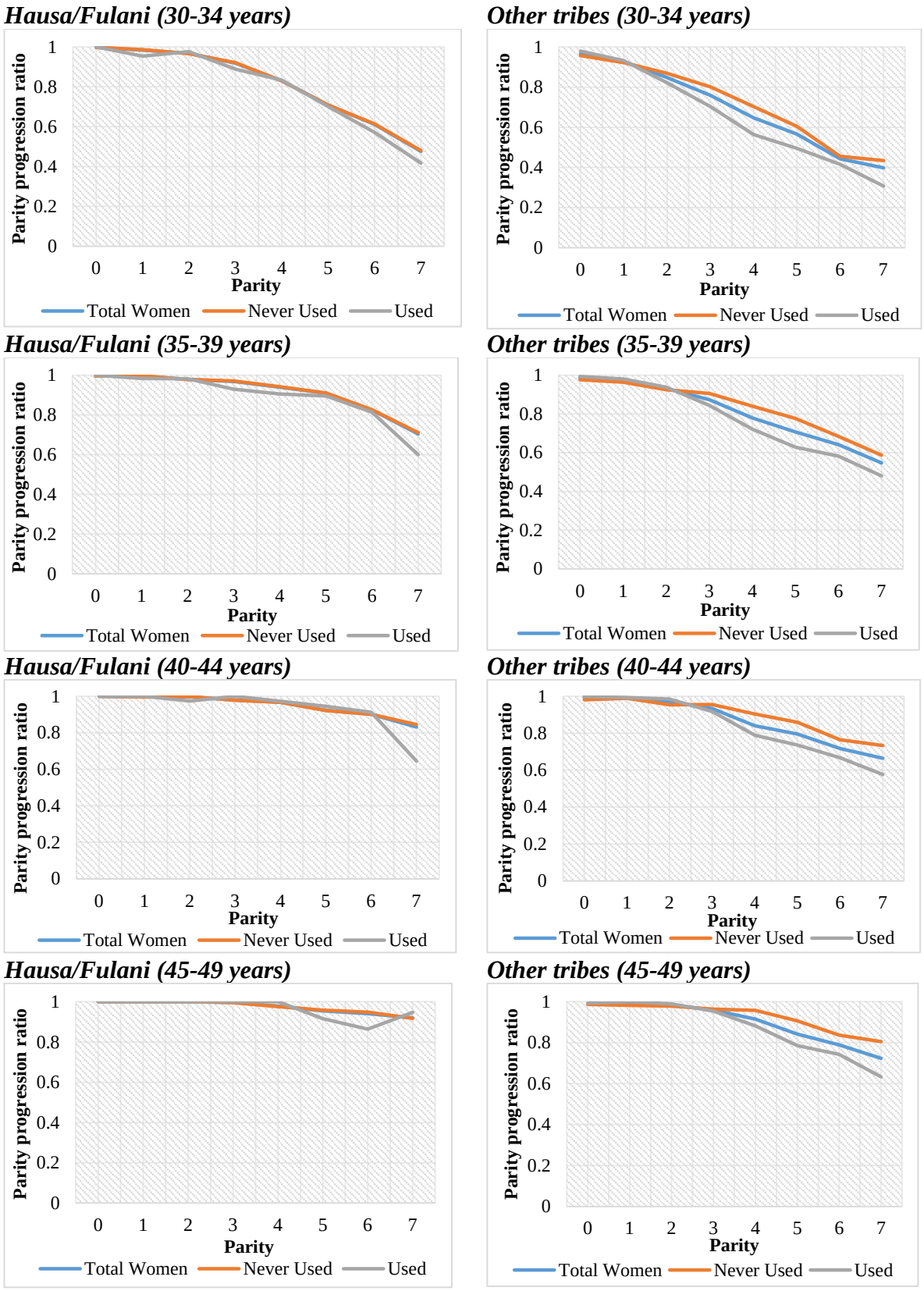
Rural areas demonstrated lag in PPR reduction. Contraceptive ever-use reduced PPR in both residential settings.

Figure 3.7: *Observed PPR by region of residence, contraceptive use and age cohort*



Steeper decline in PPR in the South compared to the North, however, contraceptive-ever use impacted PPR more in the North than in the South.

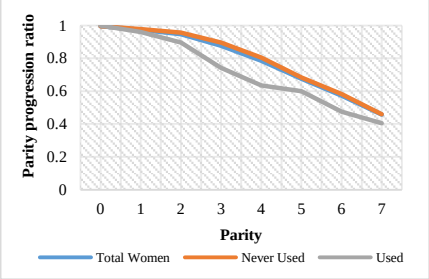
Figure 3.8: *Observed PPR by ethnicity, contraceptive use and age cohort*



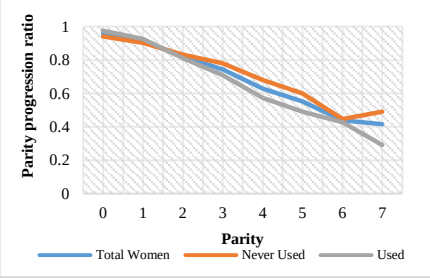
The Hausa/Fulani had higher PPR than other ethnicities.

Figure 3.9: *Observed PPR by religious affiliation, contraceptive use and age cohort*

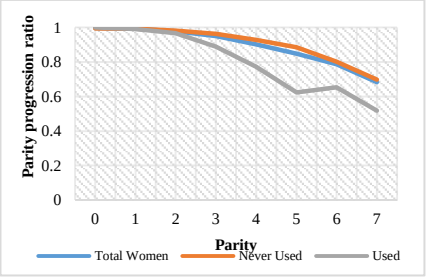
Islam (30-34 years)



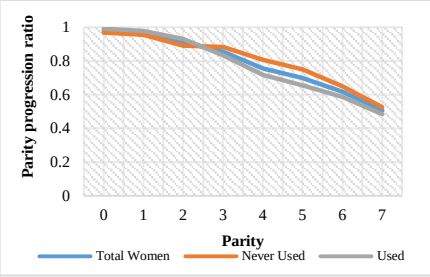
Christianity & Others (30-34 years)



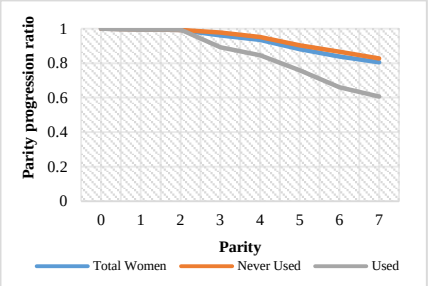
Islam (35-39 years)



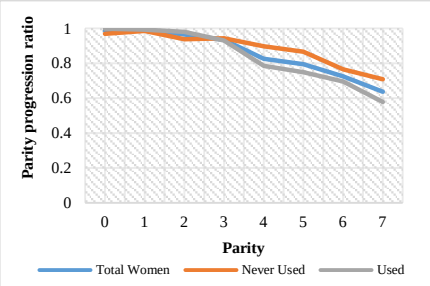
Christianity & Others (35-39 years)



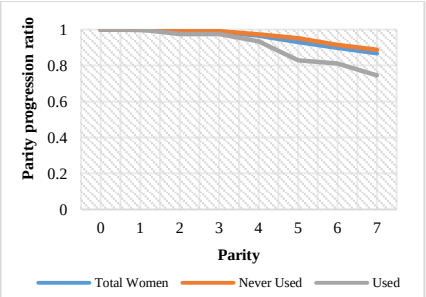
Islam (40-44 years)



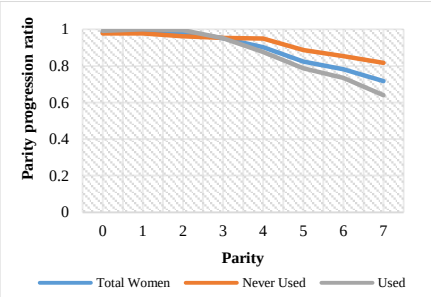
Christianity & Others (40-44 years)



Islam (45-49 years)

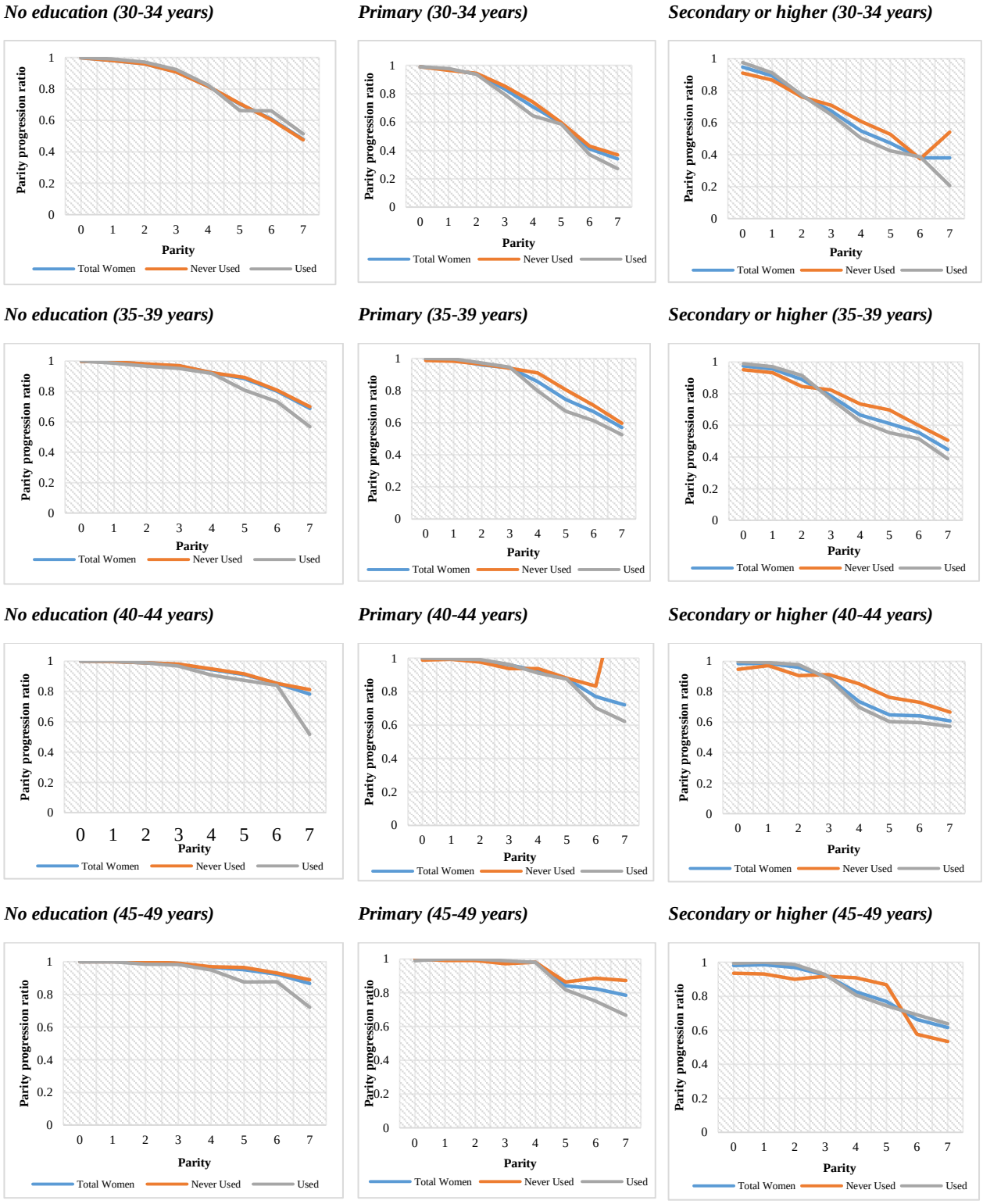


Christianity & Others (45-49 years)



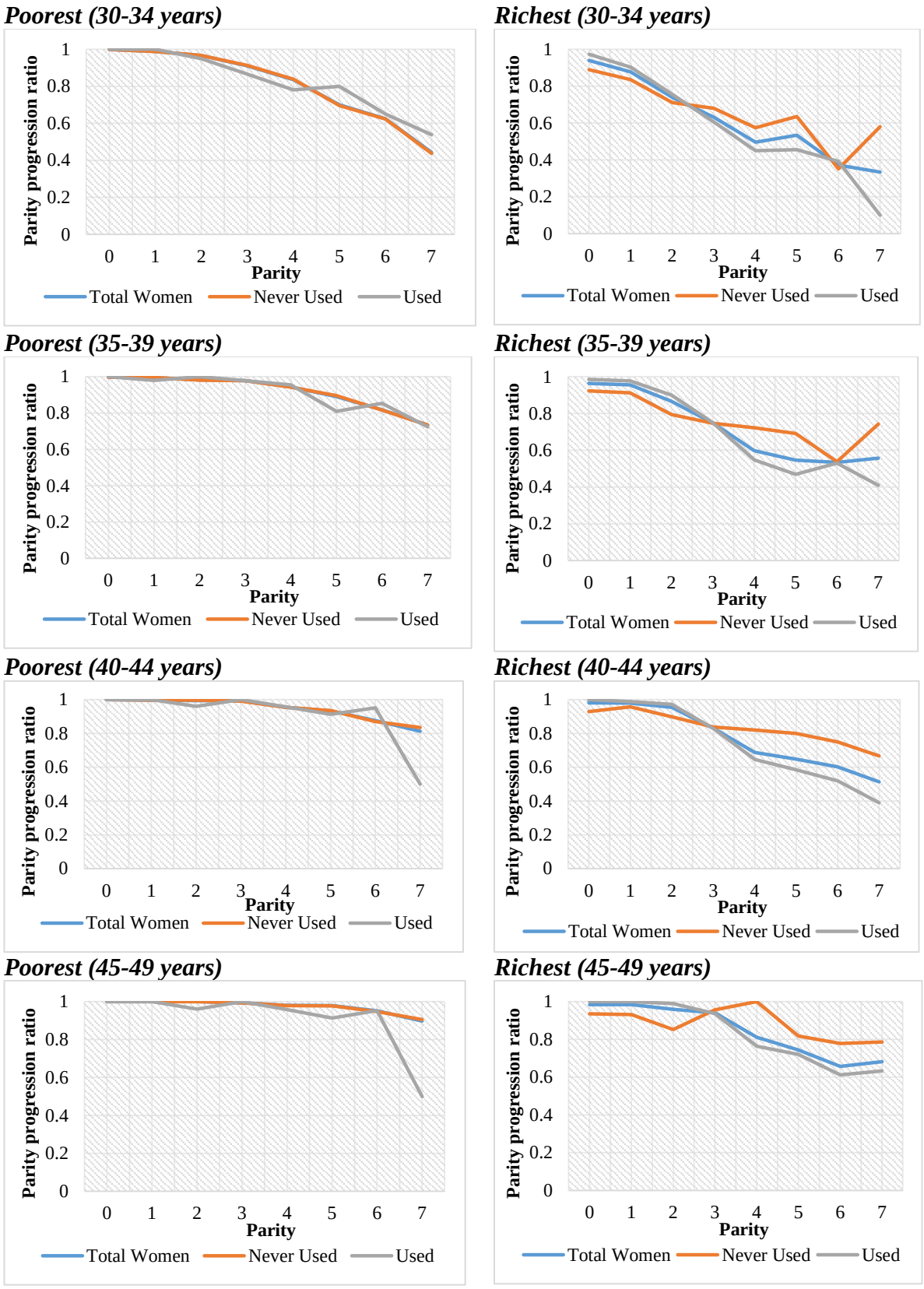
A slightly steeper decline in PPR among 'Christians and other' religion compared to those practising Islam but, contraceptive ever-use had more impact in reducing PPR among the Muslims.

Figure 3.10: *Observed PPR by educational status, contraceptive use and age cohort*



Lag before reduction in PPR observed among women with no formal education. Earlier decline in PPR was evident among women with secondary or higher education

Figure 3.11: *Observed PPR among women in the lowest and highest wealth quintile*



Sustained high PPR among the poorest women, and contraceptive ever-use seem to have impact on PPR among these women only after the sixth birth.

APPENDIX B: Average marginal effects of male perception on spousal FP demand

VARIABLES	Average Marginal effects (95% CI)				
	Model 0	**Model 1**	**Model 2**	**Model 3**	**Model 4**
PARTNER'S FP PERCEPTION					
Contraception is woman's business, man shouldn't worry					
Disagree *(Ref)*					
Agree	-0.0119(0.01)	0.00722(0.01)	0.0108(0.01)	0.0103(0.01)	0.0108(0.01)
Don't know	-0.0311(0.03)	-0.0153(0.03)	-0.0119(0.03)	-0.0134(0.03)	-0.0120 (0.03)
Women who use contraception becomes promiscuous					
Disagree *(Ref)*					
Agree	-0.0999(0.01)***	-0.0339(0.01)***	-0.0295(0.01)**	-0.0292(0.01)**	-0.0284(0.01)**
Don't know	-0.0864(0.03)***	0.00794(0.03)	0.0175(0.03)	0.0185(0.03)	0.0173(0.03)
Age (years)					
<30 *(Ref)*					
30-39		0.0385(0.01)***	0.0342(0.01)***	0.0323(0.01)**	0.0409(0.01)***
≥40		0.194(0.02)***	0.186(0.02)***	0.183(0.02)***	0.196(0.03)***
Highest educational level					
No education *(Ref)*					
Primary		0.110(0.02)***	0.0838(0.02)***	0.0822(0.02)***	0.0866(0.02)***
Secondary		0.179(0.02)***	0.131(0.02)***	0.130(0.02)***	0.129(0.02)***
Higher		0.190(0.03)***	0.141(0.03)***	0.139(0.03)***	0.128(0.03)***
Number of living children incl. current pregnancy					
No child *(Ref)*					
1-2		0.155(0.02)***	0.155(0.02)***	0.155(0.02)***	0.157(0.02)***
3-4		0.237(0.02)***	0.235(0.02)***	0.235(0.02)***	0.239(0.02)***
5 or more		0.263(0.02)***	0.262(0.02)***	0.263(0.02)***	0.267(0.02)***
Religion					
Catholic *(Ref)*					
Protestant		0.00393(0.02)	-0.00238(0.02)	-0.00173(0.02)	-0.00456(0.02)
Islam		-0.107(0.02)***	-0.110(0.02)***	-0.104(0.02)***	-0.112(0.02)***
Traditional/Others		-0.132(0.04)***	-0.135(0.04)***	-0.133(0.04)***	-0.140(0.04)***
Place of residence					
Urban *(Ref)*					
Rural		-0.0447(0.01)***	-0.0105(0.01)	-0.00955(0.01)	-0.0123(0.01)
Region of residence					
South *(Ref)*					
North		-0.0734(0.01)***	-0.0537(0.01)***	-0.0529(0.01)***	-0.0581(0.02)***
Occupation					
Unemployed *(Ref)*					
Professional/Managerial			-0.00773(0.03)	-0.0105(0.03)	-0.00648(0.03)
Agricultural-based			0.0423(0.02)**	0.0406(0.02)**	0.0429(0.02)**
Others			0.0176(0.01)	0.0175(0.01)	0.0187(0.01)
Household wealth index					
Poorest *(Ref)*					
Poorer			-0.0204(0.02)	-0.0212(0.02)	-0.0188(0.02)
Middle			0.0574(0.02)***	0.0555(0.02)***	0.0587(0.02)***
Richer			0.0893(0.02)***	0.0875(0.02)***	0.0899(0.02)***
Richest			0.111(0.03)***	0.108(0.03)***	0.110(0.03)***
Decision making power					
Poor *(Ref)*					
Moderate				-0.00648(0.02)	
Good				0.0180(0.02)	

…Continued

Appendix B contd.

VARIABLES	Average Marginal effects (95% CI)				
	Model 0	**Model 1**	**Model 2**	**Model 3**	**Model 4**
MALE PARTNER'S CHARACTERISTICS					
Partner's age (years)					
<30 *(Ref)*					
30-39					-0.00840(0.02)
≥40					-0.0188(0.02)
Partner's highest educational level					
No education *(Ref)*					
Primary					-0.0146(0.02)
Secondary					-0.00788(0.02)
Higher					0.0259(0.02)
Partner's occupation					
Unemployed *(Ref)*					
Professional/Managerial					-0.103(0.05)**
Agricultural-related					-0.0831(0.05)*
Others					-0.0851(0.05)*

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

APPENDIX C: Adjusted predictions of male partner's perception and spousal contraceptive uptake

Variable	*Adjusted predictions (SE)*		
	None	**Traditional**	**Modern**
PARTNER'S FP PERCEPTION			
Contraception is woman's business, man shouldn't worry			
Disagree	0.6028(0.013)	0.1229(0.009)	0.2744(0.013)
Agree	0.6393(0.027)	0.1086(0.015)	0.2521(0.023)
Don't know	0.7688(0.064)	0.0314(0.016)	0.1998(0.061)
Women who use contraception becomes promiscuous			
Disagree	0.6288(0.016)	0.0972(0.009)	0.2741(0.015)
Agree	0.6120(0.020)	0.1274(0.013)	0.2606(0.018)
Don't know	0.4812(0.057)	0.2888(0.053)	0.2300(0.453)

Standard errors in parentheses
All variables significant at $p<0.05$

APPENDIX D: Fieldwork proforma with vignette

Participant's study code:_____

Date of interview:_____ *Location*:_____

Interview start time:_____

Participant's basic characteristics

Respondent's age…… Sex (Male/Female)……

Years of cohabitation……..

Type of marriage (Monogamous/Polygamous)……

Number of living children……

Occupation……

Level of education (None/Primary/Secondary/Tertiary)……..

Interview end time……..

Name & signature of interviewer …….

The Vignette

I want to tell you of a story about a woman called [Abike] and her experience in trying to use family planning. I will first narrate a part of her story in this instance and I will be delighted to get your inputs:

Narrative: Abike is a 31 year old primary school teacher, married to *Gbenga* an automobile mechanic. Together with their 4 children, they live in a village near Esa-Oke, Osun-State, Nigeria. Their first child is a 6 year old boy while the remaining children are girls aged 4 years, 2 years and 9 months old respectively. Abike had thought it would be good not to have another child anymore she's however unsure how her partner would feel about this and what to do.

What can *Abike* do in this circumstance?

Do you think it is important for *Abike* to inform her partner before using any family planning method?

Probe – why?

Narrative: One morning, *Abike* raised the issue of limiting childbearing with *Gbenga* but he vehemently declined that *Abike* should use any family planning methods.

What should *Abike* do?

What are the reasons that could have made Gbenga to decline *Abike's* access to family planning?

Narrative: With further discussion, *Abike's* husband stated that the use of family planning can make a woman to become promiscuous, hence his reason for resisting the use.

Do you think *Abike's* husband is right that family planning could make a woman promiscuous?

If in spite of her husband's opposition, *Abike* goes ahead to use a family planning method, what can happen?

Are there other ways Abike could have convinced the partner about the use of family planning?

APPENDIX E:

Participants' Information Sheet

Study Title: Couples contraceptive decision-making and women's empowerment to adopt family planning methods: a qualitative study

Researcher: Adanikin, Abiodun Idowu **Ethics number**: 28937

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form.

What is the research about?

Family planning is the means whereby individuals or couples freely determine the number and the spacing of their children and, select the means by which this may be achieved. It is seen as a key for a planned future. However, little is known in Nigeria about how couples decide to use/not to use family planning methods and, the extent of freedom that a married woman has to start the use of family planning on her own. This research aims to explore how couples make decision on family planning and the woman's decision-power to start the use on her own. The research is part of a PhD study at the University of Southampton by Dr Adanikin Abiodun (an Obstetrician and Clinical lecturer at Ekiti State University, Ado Ekiti). The information gained from participants will help in developing strategies towards improving decision- making on the use of contraception in Nigeria.

Why have I been chosen?

The reason you have been chosen is because you are married and **have never used/previously used/currently using** *(delete as appropriate)* a family planning method and, could give us valuable information about contraceptive decision-making in the home.

What will happen to me if I take part?

This study requires that you take part in a 20-30 minutes interview using a case study (vignette) of a couple about decision on using family planning. We will seek your opinion this couple.

Are there any benefits in my taking part?

There may be no direct individual benefit for participating in this research, however, the insight gained from the information you give to us can help in devising ways by which couples can improve their decision-making on the use of family planning methods.

Are there any risks involved?

The only direct risk is sitting for about 30 minutes for the interview. Comfortable chairs will be provided for you during the discussion and you are permitted to stand and walk around in the discussion room if you want to. Direct quotes from answers you provide during the interview may be used in research publication, but since no name will be mentioned it cannot be traced to any of the participants.
It is possible that the issues raised by the interview might trigger differences in opinion between you and your spouse, which might then be discussed following the interview. We advise participants to avoid making the content of the interview a subject of discussion with their spouse, but we are able to offer information on how couples can seek advice / guidance to discuss any arising issues through a local family planning clinic or help them in identifying a local resource for couples counselling. The principal researcher (being a medical doctor) is also able to offer to speak to couples about any issues that come up as a result of their participation in the study - my contact details are provided on this info sheet.

Will my participation be confidential?

Confidentiality can is assured for information given during the interview. The only time your names will be required during the study is when you sign the consent form, and the consent form will not be linked to any information you provide during study.
This study including the data protection aspect was approved by the University of Southampton and the Ethics Committee of Ekiti State University Teaching Hospital. The tapes of the interview with their transcripts will be stored in a password protected computer. It is only the researcher that will have access to the protected computer and will conduct all analysis of the information collected. At the end of the study, the tapes and any paper records will be destroyed and all electronic records securely stored in a very secure University of Southampton repository for at least 15 years.

What happens if I change my mind?

Participation is totally voluntary, as such you are free not to participate. Even after signing the consent form to participate, a participant can withdraw from the study without fear of any consequence and does not need to provide a reason for the action. Also a participant has the right not to answer any question they are not happy with. The information collected from a participants who withdrew during the data collection will not be used in further analysis.

For non-literate FGD participants only

An independent health/social worker who is not connected to the research will attest to the fact that the researcher has read out all the information contained in the information sheet and explained the content of the consent form fully. This health/social worker called a literate independent witness will sit in during the recruitment process until the signing/attestation of the consent where the literate independent witness also signs.

What happens if something goes wrong?

In the event of concern or complaint, participants are encouraged to contact the University of Southampton Research Governance Office (Tel. +44 23 8059 5058, rgoinfo@soton.ac.uk)

Where can I get more information?

The researcher Dr Adanikin Abiodun, +2348034252126, a.i.adanikin@soton.ac.uk will be very happy to answer any question that you, as a potential participant, may have after reading this information sheet.

APPENDIX F:

Participants' Consent Form

Study title: Couples contraceptive decision-making and women's empowerment to adopt family planning methods: a qualitative study

Researcher name: Adanikin, Abiodun I.

Ethics reference: 28937

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (29.06.2017, version 1) and have had the opportunity to ask questions about the study. ☐

I agree to take part in this research project, and for the interview to be tape recorded and the data used for the purpose of this study ☐

I understand that my responses will be anonymised in reports of the research ☐

I understand my participation is voluntary and I may withdraw at any time without my legal ☐

Data Protection

I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of this study.

Name of participant (print name)……

Signature of participant……..

Date……

For non-literate interview participants only.

Name of literate independent witness (print name)……

Signature of Literate independent witness ……

Date……

APPENDIX G:

EKITI STATE UNIVERSITY TEACHING HOSPITAL
ADO-EKITI, NIGERIA.

ETHICS AND RESEARCH COMMITTEE

CLEARANCE CERTIFICATE

***PROTOCOL NUMBER*:** **EKSUTH /A67/2017/07/004**

PROJECT TITLE **: COUPLES CONTRACEPTIVE DECISION-MAKING AND WOMEN'S EMPOWERMENT TO ADOPT FAMILY PLANNING METHODS: A QUALITATIVE STUDY .**

INVESTIGATOR(S) **:DR. ADANIKIN A . I .**

DEPARTMENTS : SOCIAL STATISTICS AND DEMOGRAPHY

INSTITUTION : UNIVERSITY OF SOUTHAMPTON , UNITED KINGDOM

MEDICAL DIRECTOR
EKSUTH

DATE CONSIDERED: 17/07/2017 .

20 JUL 2017

DECISION OF COMMITTEE: APPROVED

CHAIRMAN: **Dr. J.O FADARE** ***SIGNATURE & DATE:*** J.O Fadare 19/7/17.

DECLARATION BY INVESTIGATOR/PRINCIPAL INVESTIGATOR

PROTOCOL NUMBER (Please quote in all enquires) EKSUTH /A67/2017/07/004

To be completed in three copies and two copies returned to the Secretary; Ethics and Research Committee, University Teaching Hospital, Ado-Ekiti, Nigeria.

I/we fully understand the conditions under which I am/we are authorise to conduct the above-mentioned research and I/we guarantee that I/we will ensure compliance with these conditions. Should any departure be contemplated from the research procedure as approved, I/we undertake to resubmit the protocol to the Ethics and Research Committee.

Signature _____ Date: 20-7-2017

NB: Any erasure, cancellation or alteration renders this certificate invalid.

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