DETERMINANTS OF CONTRACEPTIVE USE AMONG WOMEN OF REPRODUCTIVE AGE IN ISIOLO COUNTY, KENYA

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ABSTRACT

Unplanned pregnancy is serious concern not only in public health but also in public policy and development. This study sought to examine reproductive-age women's probability of using contraceptives relative to policy, social, economic, and cultural determinants age in Isiolo County, Kenya. Despite significant effort made by the government of Kenya to increase CPR (contraceptive prevalence rate) while reducing TFR (Total Fertility Rate) over the years, Isiolo county CPR is far below the national average, including what is stipulated as a target in the county's Integrated Development Plan 2018 to 2022. This study's objectives were to; establish family planning (FP) and population policies, identify FP services available for use, and examine the demographics, socio-cultural, and socio-economic elements that impact on contraceptive uptake by adult females in Isiolo County. The project used descriptive cross-sectional research design to collect and analyse both quantitative and qualitative data from a cross-section of respondents including women visiting health facilities, health official, administrative and spiritual leaders within the community. One hundred and ten women were successfully interviewed using computer assistant personal interview (CAPI) and ten Key Informant Interviews conducted. Key informants were engaged in in-depth interviews owing to their vast understanding of community's social life, beliefs, and practices. Before data collection exercise, ethical clearance was sought and research permission was acquired from NACOSTI (the National Commission for Science, Research and Technology). Respondents were accorded sufficient background information about the project and assured of the confidentiality of the information they would provide and made aware that participation was voluntary and once would out without any consequences. The data collected was then sorted into qualitative and quantitative datasets. Qualitative dataset was analysed thematically using a theoretically established thematic analysis (TA) model while statistical methods such as mean, standard deviation, percentages, p-values, and binary regression analysis models were used for the quantitative data. Triangulation of qualitative and quantitative data was done during final preparation of the research report. The study established that place of residence ($p=0.025<0.05$), woman's age ($p=0.000<0.05$), educational attainment ($p=0.021<0.05$), income level ($p=0.033<0.05$) and exposure to current news ($p=0.001<0.05$) are strongest determinants of use of contraceptive among communities in Isiolo county. The study concludes that awareness of FP programs and services and utilization of these services are completely different constructs. High levels of awareness of FP programs and services in Isiolo County did not necessarily amount to high utilization. The study recommends development of culturally responsive family planning policies and implementation guidelines that include men as family planning users and key actors in the family planning decision makers

and having deliberate efforts made to provide contraceptive acceptability among the male members of the community.

INTRODUCTION

Unplanned pregnancy couples as a public health issue and a policy and development concern across the world. The WHO (World Health Organization) report of 2013 estimated that globally, about 40% of women report unplanned pregnancies in their lifetime (WHO, 2013). The rapid global population growth was increasingly hindering development. This made the UN create UNFPA (the United Nations Fund for Population Activities) to offer support in Family Planning (FP) programs globally (May, 2017). While contraceptive use remains effective in controlling pregnancy rates (Apanga et al., 2015), statistics indicate low uptake of contraceptives with increasing number of unwanted pregnancies globally, both in developed and developing economies (Apanga et al., 2015; May, 2017).

The WHO (2020) report on family planning/contraception methods indicates that 1.1 billion women out of the 1.9 billion of reproductive age globally (15-49 years) require appropriate contraception plans, yet up to 270 million do not have access to a contraception plan while 842 million use contraceptives (WHO, 2020). According to this report, it can be deduced that at least 58% of women aged between 15 and 49 years need FP, yet 1 in every 4 of these women have unmet FP needs. Assuming the statistics did not change significantly between 2017 and 2020, this implies that 79% of women with unmet FP needs live in developing regions, which includes SSA (Sub-Saharan Africa).

Globally, the importance of family planning to economic growth and fertility management is recognized. Evidence from literature show that FP programs are vital in poverty eradication procedures (Muttreja & Singh, 2018; Kwete et al., 2018). For instance, in India, it is reported that smaller families and longer lives lead to fewer dependents supported by more working age people (Muttreja & Singh, 2018). FP is considered to be a part of the broader concept of reproductive health and UNFPA was committed to ensuring that by 2015, all people had access to family planning (Muttreja & Singh, 2018), the issue is still featuring prominently in the UNFPA's 2022-2025 strategic plan.

Research evidence have consistently pointed out low uptake of modern family planning methods in Africa, particularly in SSA; (Rono, 2017; Mahande et al., 2020), which leads to high prevalence of unwanted pregnancies, deadly abortions, and maternal deaths as described by Johnson (2017). Poor use of contraceptive has mortality and clinical negative implications. For instance, the United Nations (UN) report (2019) on contraceptive use by method shows that data from underdeveloped

countries confirm that after every eight minutes, a woman dies from unsafe abortion resulting from unwanted pregnancy (UN, 2019).

Regional empirical research from Africa has found that the most common outcomes of not using contraceptives are iinduced abortions that lead to complications (Polis, 2017; Edietah et al. 2018; Lyon et al., 2019). For example, induced abortions are responsible for approximately 12% of maternal deaths in Ghana, coming in the third place among the causes of pregnancy related deaths (Eliason et al. 2014).

In Kenya, fertility went down from 4.9 births per woman in 2003 to 4.6 in 2008-09 and further to 3.9 in 2014, a one-child decrease over the decade and the lowest TFR ever recorded in the country. This is explained by the marked increase in the CPR (Contraceptive Prevalent Rate) from 46% reported in the 2008-09 KDHS to 58% in 2014 KDHS. The rapid increase was attributed to increased economic growth, increased availability of contraceptive services, and improved female education (KDHS, 2014). Other scholars like Chen et al. (2020) attribute increased uptake of contraceptives to multi-pronged intervention such as training of clinical staff, counsellors, involvement of male partners, and provision of free contraceptive services on-site (Chen et al., 2020). Although, disparities are seen across counties with some counties like Makueni having a high CPR of 80.3% while others have a low CPR, for instance Mandera with 1.9% (KDHS, 2014). Disparities in health and education as well as cultural barriers specific to different counties could be reasons for the difference in this achievement. For instance, Isiolo county's CPR is 27% which is lower that the country's level of 58%. Also, another research done in Ethiopia discovered that there were massive regional differences in contraceptive use within the country (Kistiana et al., 2020). In Kenya, numerous investigations have been done to determine various aspects affecting contraceptive use, however, these investigations have bore no fruits and there are no specific reasons as to why Isiolo has a low CPR rate.

Statement of the problem

Kenya is a signatory to the UN's SDGs in whom goal 3 is on promoting health and well-being for all. SDG indicator 3.7.1 on contraceptive use states that “By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes.” Hence, the country has heavily invested in family planning programs to ensure that it manages its population growth effectively. Kenya has seen a notable increase in use of modern family planning methods from a CPR of 32% in 1998 to 58% reported by KDHS in 2014. The increasing use of modern plans notwithstanding, there remains areas in the country, especially Arid and Semi-Arid Lands (ASAL), where uptake of contraceptive is below the national average, for instance Isiolo County with 27% CPR despite awareness of contraceptive methods reported at 97.8%. Isiolo County Integrated Development Plan 2018 to 2022 targets to increase the CPR to 50% by 2022

which will still be below the national average of 58%. In the scenario described above, it may be important to examine determinants of uptake of contraceptives among women in Isiolo that warrant comprehension by policy makers. In this context, formulation of new policies by the county government to enhance uptake of contraceptives should be anchored on rigorous empirical evidence. Therefore, this study comes in to provide answers to existing knowledge gaps by providing pragmatic context-specific factors and dynamics that determine uptake of contraceptives in Isiolo County.

Objectives of the study

This study's objectives were;

(1) Investigate what type of contraceptives available for use by women of reproductive age in Isiolo County.
(2) Identify the social-economic factors that impact the use of contraceptives by women of reproductive age in Isiolo County.
(3) Examine policy factors that influence adoption of contraceptive services by women of reproductive age in Isiolo County.

LITERATURE REVIEW

Theoretical framework

This project founds on Andersen's behavioral model (ABM) of health services theoretical framework (Andersen, 1995). Anderson's model is a three-stage cycle that helps in determine the best strategy in case of one is considering policy options. In stage 1, the model evaluates the current policy status against strategic policy priorities. In stage 2, the model offers an opportunity to weigh policy options while in stage 3, the model allows for establishment of the most relevant approach. The aim of developing the framework was to understand why people consume certain healthcare products and enabling the determination of levels of reasonable access to healthcare services. Therefore, the insights that derive from the using the framework has high value in informing policy formulation and implementation in healthcare (Andersen & Aday, 1978). Key deductions from the model include the relationship between health requirements and enabling factors. In effect, the public make decisions around seeking healthcare services based on their perception of presence or absence of the enabling factors. It then follows that every population and individuals within the population have distinct characteristics that influence the degree of healthcare availability.

The population unique predispositions include socio-cultural factors of the people such as the social structure. Demographic aspects include the education level, attitude, gender, age, marital status, spatial location, religion, job, and culture. The enabling elements include community, family and personal resources such as stable healthcare systems, health insurance, proximity to a health facility, income, waiting time, value of social relationships, psychological factors and the

genetics if the individual. In a nutshell, heath care need is the primary factor in health care utilization while the ultimate factor is availability of resources at the personal, family, communal, and national levels.

The ABM model has been widely adopted in practice and research in the past four decades to investigate which factors affect the adoption of various health services. For example, Fortin, Bamvita and Fleury (2018) carried out a research on how patients were satisfied with mental health services they received neared on the ABM model (Fortin et al., 2018). The study by Nowotny (2017) on A multi-level behavioral model of utilization of health care services in prison was based on ABM model, same to the study by Hirshfield et al. (2018) in the USA in which ABM was used in analyzing hypertension risk factors. Based on the posits of ABM theoretical model and its successful application in previous research studies, this research project adopted the ABM model to guide the theoretical and analytical inquiry in describing determinants of contraceptive use among adult females within the fertility bracket in Isiolo county, Kenya.

Family Planning and Population Policies

Garenne (2018) states massive literature examines the history of FP programs and population policiess in the world since 1950. However, there is limited evidence in Africa since Europe, Asia and Latin America developed these policies ahead of African countries (Garenne, 2018) A survey of literature on population policies and legal framework shows that India was the leading nation in developing NFPP (the National Family Planning Programme) in 1952. The goal was to stabilize the population by reducing birth rates (Choudhary et al., 2020). Choudhary et al. (2020) carried out research in India on women practices and attitude in rural area of central India, towards the use of contraceptives. In this study, 400 women were interviewed, and the study found that being knowledgeable about contraceptives and using them in their daily lives were two separate factors affected by different socio-demographic and cultural factors (Choudhary et al., 2020). It was determined that religion and education had particularly important role in the uptake of contraceptives. Since India is a patriarchal society, the husband's role was also significant.

In China, the first and serious birth limitation campaign began in early 1970s (White, 2019). This campaign to have only child proved to be difficult over the years with village leaders tasked with reporting births giving false information to the government to avoid fines and punishment. According to White (2019), “shock drive” approach to enforce FP did not work for China until March 1990 when the State Family Planning Commission issued a circular to enforce one-child policy. However, the effect was soon observed as reported by Wu (2020) that recent years have seen significant decrease in China’s demographic dividends. China realised that its one-child policy is not a sustainable approach to stabilize its population and adopted two-child family planning policy (Wu, 2020). However, according to Wu, China’s family planning policies require

further adjustment because the study's simulation suggests that with the policy in place, demographic dividends will deteriorate before 2050 (Wu, 2020).

In Africa, the need for space between births begun in Cameroon in 1971. The need was determined following family planning programmes in the nation by the Institute of Public Affairs in Washington (Edietah et al., 2018). While such initiatives have been on the African continent for over half a century, the African continent accounts for over 79% of women with unmet FP needs across the world. A recent study in Tanzania conducted by Schaffnit et al. (2021) to uncover issues of low uptake of contraceptive show that early marriages are rampant in the Africa increasing adolescents' vulnerability to unplanned pregnancies (Schaffnit et al., 2021).

Countries such as Uganda have attempted to be innovative with ways to enhance uptake of contraceptive Such innovative initiatives include training community health workers to offer FP services with an assumption they are in more close contact with the people. Such initiatives are aimed at reducing the unmet FP needs from 30.4% in 2016 to 25% in 2021 (Ssewanyana, S., & Kasirye, 2018). In Malawi, the government fronts a slogan "no parenthood before adulthood," in running her FP programs. Self et al. (2018) reported that the government of Malawi was committed to attaining CPR of 60% by 2020.

In Kenya, previous scholars like Benson et al. (2017) highlight that Kenya present complexities for FP programmes (Benson et al., 2017). Benson et al observe that levels of contraceptive uptake and fertility have rapidly changed in Kenya from eight births per woman in 1970s, to 4.7 in 1998, to 4.9 in 2003 3.5 in 2019 as of the recent census report. Kenya become the first Sub Saharan Africa Country in 1967 to create a formal policy framework towards family planning programs. The policy would later result into the establishment of the National Council for Population and Development (NCPD), to oversee seeking reprieve for health and development issues.

The NCPD later developed the National Population Advocacy and strategy for Sustainable Development with an aim of improving the uptake of modern family planning commodities among marginalized populations. In 2012, the NCPD designed a national policy succeeding the one designed in 2000 to guide and support population management programs within the country. NCPD Policy Brief No. 28 of December 2012 determined that collaboration between the MoH, NCPD, County Governments, and other stakeholders and intensification of family planning services were crucial in achieving population policy objectives. Through government agencies, policy framework, and other stakeholders, the country is committed to popularize and drive adoption of modern family planning techniques among its population to 64% by 2025 (National Council for Population and Development, 2012). As a result of this commitment, the Isiolo County government has set a goal to attain a CPR of 50% by 2022 from 27% as reported in the KDHS 2014.

Synthesis of evidence on historical development of policy formulation and implementation from India, China, Cameroon, Tanzania, and Uganda as presented above, one gets an impression that effective policy design could still be futile unless implemented in full consideration of context specific to population demographics. Further still, it seems like general FP policies and initiatives may fail unless implementors have paid attention to specific drivers of uptake of contraceptives for a given population demographic. Nonetheless, attempting to implement FP program or initiative without a grounded guiding principle in policy may not yield expected results like it was the case in China between 1970s and 1980s. The findings of this study seek to spur such a context specific FP policy dialogue for the ASAL communities in Kenya.

Major factors hindering the provision of FP services in Kenya are; rumors and misconception, religion, provider bias, culture, distance, and medical and legal regulations (Kermode et al., 2017). The National Family Planning Guidelines for Service Providers emphasizes on enhancing access to quality and timely family planning services and other related services such as reduction in unmet FP need, expansion of method mix, increasing the of new users, and ensuring that there are no missed opportunities; thereby sustaining the gains made. Furthermore, the guidelines have it clear that reproductive health and family planning education and services are vital in improving the health children, women, and men, and is also a fundamental human right. All human beings have a right to choose, access, and the fruits of scientific advancements in selection of family planning methods.

Availability of family planning services

95% of developing countries (Eighty-five countries) now provide relative public access to family planning programs (Barden, 2017). Research shows a wide variation in availability and use of contraceptives among developing countries. In Philippines, Thailand, and Jamaica for instance, nearly two-thirds of the married women in that age group access FP services (Nagai et al., 2019; Schwartz et al., 2019). In China, Singapore and the USA, the proportion is over 70% (Starrs, 2017; Yap & Gee, 2018; White, 2019). Availability and use of contraceptive are lowest in SSA at less than 10% of married women (May 2017; Ba et al. 2019). The disparities reported could be attributed to individual countries economic development. There seems to be a trend that more developed countries have more FP programs and services while less developed countries are associated with inadequate FP programs and facilities.

Away from countries development as a driver of availability of FP programs and services, a lot of literature suggests that FP services and programs are readily available in the urban area compared to rural areas. For instance, In the Ivory Coast (Eugène et al., 2018), Kenya (Cohen et al., 2017), and Mexico (Dansereau et al., 2017), presence of contraceptive in rural areas is almost half the rate in urban areas, and in Egypt (Elweshahi et al., 2018) it is less than a third. Such evidence

provides an opportunity for policy makers to examine the philosophies that guide future policy reforms to enhance availability and use of contraceptives in rural areas.

Despite Kenya having been among the first SSA countries to launch FP programme in launched in 1967 the country still grapples with inadequacy of effective FP programmes and services especially in the ASAL region among the nomadic communities. It is crucial that family planning products are accessible to ensure that FP is highly accepted and used in communities. Also, having various types of family planning products and services is likely to increase the uptake of a contraceptive method (Kermode et al., 2017). Availability also an assumption that the health care providers are comfortable offering the services to the community. There are numerous occasions where women have waited in line to get contraceptives but get turned away later because their preferred methods of family planning are not available (Henok & Takele, 2017). Many scholars have discovered that usage of community-based health planning and services delivery of different nature has the potential to increase the supply and usage of family planning products and enhance other health indicators (Achana, et al., 2015; Mochache et al., 2018).

Social-economic factors influencing uptake of contraceptives.

Earlier researchers have pointed out there factors affecting uptake and type of family planning products. They are; behavioral factors, socio-demographic factors, and socio-economic factors (Ochako et al., 2016; Ochako, et al., 2015; Kimani et al., 2012; Agbo et al., 2013; Gebeyehu et al., 2014; Ashimi et al., 2016). In essence, the cost of the products plays a significant role in uptake of contraceptives. In Bangladesh, a study by Haq et al., (2017) determined that women's places of residence, educational achievements, exposure to information about family planning, religious differences, wealth status, ideal number of fertility preferences and children, age during the first marriage, and working status were labeled as the most vital elements that determine the use of family planning.

In Uganda, another study found out that primary and post-primary education experience, women with substantial wealth status, those residing in urban centers, and those with many children were registered with a high probability to use modern FP techniques whereas married women and cohabiting registered lower probability. Consequently, family planning methods security, awareness of various methods of family planning and their side effects, educational level, and competency of health care service providers are the key determinants contraceptive uptake in Ethiopia (Mekonnen & Worku, 2011). In Burundi, a study unveiled factors hindering the usage of contraceptives and they were; myths and misconception, lack of health care providers dealing with family planning products, and lack of alignment between preferred and obtainable family planning products (Ndayizigiye, Fawzi, Lively, & Ware, 2017). In Ethiopia, contemporary contraceptive technique is common among those with meaningful employment, those who have attired higher

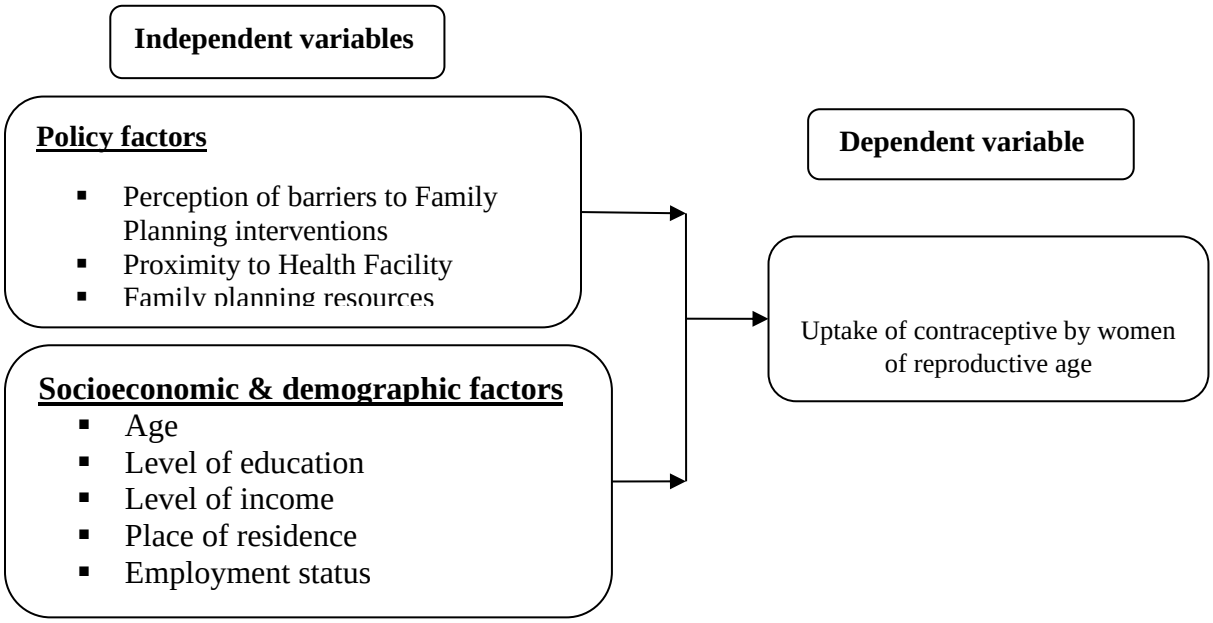
educational achievements, the wealthy, those in monogamous relationships, those living with many children, and those who receive health care services from health workers.

From a different angle, people residing in rural areas, those who have lost a child, those in polygamous relationships, and those who are older have negative opinions about new family planning methods (Lakew et al., 2013; Gebru et al., 2015). In areas where the cost of accessing FP services is high and considered a hindrance, numerous health financial solutions have been provided on the demand side through vouchers (Aung et al., 2017) and community financing (Karra, Canning, Hu, Ali, & Lissner, 2016).

Tobin- West et, al (2016), investigated the factors underlying contraceptive usage females in child bearing age in semi urban people of Rivers State, Nigeria using a cross sectional data collection design from 772 women age between 15 -49 years. The analysis was done using logistic regression. The findings highlighted that age, marital status, and awareness about contraceptives were all statistically vital in explaining the use of modern family planning methods among women in the reproductive age in this region. Specifically, women who were young (15-34 years) and were single had higher odds ratio for family planning than those who were older (35-44 years) and were married who had lower odds in adopting the contemporary family planning methods.

Ochako et, al (2017) studied what determined adopting contemporary contraceptives in men in Kenya using the 2014 Kenya Demographic and Health Survey Data including a sample of 9514 from the previous year. Multinational logistic regression and bivariate were used to analyze the data. The outcome was that wealth index, religion, place of residence, desire for more births, access to media, number of sexual partners, and interaction with health care professionals were all vital elements affecting the use of contemporary contraceptives by men. Further, working class and rich men had frequent interactions with health care providers, had primary and above education, had more than one sexual partner, and desired no more births registered higher use of modern contraceptives than those residing in rural areas and with no regular partners.

Conceptual Framework



RESEARCH METHODOLOGY

The design used in the study is a descriptive cross-sectional research design. This study was done by using a mixed approach that included the use of qualitative as well as quantitative research methods. According to Groves et al. (2011), mixed research approach is useful when the need is to examine key attributes, and dynamics of a certain phenomenon within a population. This focused on collecting analysing data on aspects affecting the utilization of contraceptives among females in fertility age bracket of 18-49 in the county of Isiolo. The study was carried out across all healthcare facilities of the Sub County of Isiolo, in Kenya. The subcounty is the most populous of the three sub counties in Isiolo County. It comprises of the county's 47% of the population. The remaining two sub counties are Garbatula and Merti. Isiolo Sub-County sits on 3260 square kms of land and has five wards which are; Burat, Pesa, Oldonyiro, Bulla, and Ngaremara.

According to Kenya Economic Survey, more than 41% of the county's population are monads (KNBS, 2020). In isiolo subcounty, there are 26 healthcare facilities, 8 private sectors, 10 public sectors, and 8 religions (Isiolo County, 2017). Regarding Family planning services, the Eastern region in which Isiolo County is located, 77% of health facilities offer an at least one contemporary family planning method which is slightly above the national average of 75% (DHS, 2014). According to DHS (2014) report, contemporary techniques of family planning include male condoms, emergency contraceptives, spermicides, implants, contraceptive pills (combined or progestin-only), diaphragm, injections (combined or progestin-only), and intrauterine devices (IUDs) (DHS, 2014).

The target population comprised of 25,797 women aged between 18 and 49 years as reported by Kenya Population and Housing Census (2019). The sample size of at least 100 randomly selected women produces statistics which are approximately equal to the actual population parameters. Women aged between 18 and 49 years were sampled at each health facility as they came seeking different medical services. Semi-structured questionnaire combining open ended and closed-ended questions was developed and used to gather information from women of reproductive age using health facilities in Isiolo County. Closed-ended questions were utilized in collecting quantitative data where limited responses such as Likert Scale type of questions were used while open ended questions were adopted to gathering qualitative data, where participants were free to express their views on uptake of contraceptives. The questionnaire was structured into sections with socio-demographic data and objective specific areas in line with the research questions in this study.

Key Informant Interview (KII) Guidewas a schedule with open ended questions. The questions were structured in line with the thematic areas in the study's research questions. The framing of the interview questions was done in a straightforward manner for simplicity and elimination of bias. The KII guides were uutilized in collection of information from community leaders such as village elders, political and administrative leaders such as member of county assembly and the chief, health service providers and religious learners such as priests and Imams.

To pin point optimal underlying elements in contraceptive use by adult females in their child bearing age in Isiolo County, descriptive statistics involving cross-tabulation between each of the independent variable (factors) and dependent variable (use or non-use of contraceptive), analysis of frequency, and their accompanying chi-square statistics were used. Cross-tabulation with percentages and frequencies of every factor was conducted and Person Chi-Square statistics was applied in finding out presence of divergence between the observed and expected frequencies in the two groups use and non-use of contraceptive. It was determined that all background variables (residence, age, education attainment, women's income level, and exposure to current information) were significantly different among women who used and those who did not use contraceptives ($p<0.05$). Consequently, marital status, religion, and spouse's income level were statistically insignificant factors among women who use and those who do not use contraceptives ($p>0.05$).

The qualitative data on the other hand was analysed through thematic analysis (TA) according to the objectives and research questions as guided by the 6-step thematic analysis model proposed by Clarke and Braun (2014). TA is a method for identifying, analysing, and interpreting patterns of meaning ('themes') within qualitative data. TA was a widely used methodology in qualitative analysis yet poorly defined until 2006 when Clarke and Braun proposed an analysis framework. Clarke and Braun (2014) provide a more refined and flexible model proposes that the 6 steps in thematic analysis: (1) contextualising the data, (2) generating initial codes, (3) deriving themes, (4) reviewing themes, (5) defining and naming themes and finally (6) producing the report. After key informant interviews, a summary was prepared based on the above-described Clarke and

Braun (2014) model. Triangulation of qualitative and quantitative data was done while compiling the final research report.

RESULTS AND FINDINGS

In this study, the minimum sample size required was 100 respondents with a 10% (10) provision to cater for attrition and recording errors. Thus, 110 respondents were targeted and successfully interviewed, giving a response rate of 100%. The distribution of of the respondents by sub-county was 63.6% from Isiolo sub-county, 19.1% from Merti and 17.3% from Garbatulla.

Social-Economic factors

Place of residence and uptake of contraceptive

The study found that 56.4% of participants were from urban areas while 43.6% were from rural areas. The study found that 72.9% of those respondents who reside in rural areas reported adoption FP compared to 71% of participants residing in urban areas. This result is at variance with studies such as by (Kamuyango, Hou, & Li, 2020) study that found that urban resident women of reproductive age are more likely to use the contraceptive compared to those living in rural areas. The variance could be because the study was a facility based one where health seeking behaviour of the respondents is already positive compared to general public.

Religion and its effects of contraceptive uptake

The results show that, Protestants, Muslims and Catholics were major categories of religious association at 42.7%, 36.4% and 20% respectively while only 0.9% were not aligned to specific religious belief. The results show that protestants lead in uptake of contraceptive at 76.6% with Muslims reporting least uptake at 67.5%. Recent studies in other parts of the world such as India (Choudhary et al., 2020) on determinants of use of contraceptive also accounted for religious affiliation as a possible socio-cultural demographic that influences awareness of and use of contraceptives.

The KII who was a Muslim cleric also said:

> *"In Islam a child is a blessing and they come with their divine provision therefore we do not support use of contraceptives." He also added that "The holy teachings have provision for child spacing and ensuring one only brings forth children they can fully take care of"*

The variance may be explained by higher education as reported below which manifests as a key determinant of contraceptive use.

Marital status and Contraceptive Uptake

The results on Table 4.4 show that majority of women interviewed (80%) were married, 1.8% were divorced or separated, 16.4% were single (never married) and 1.8% were widowed. The study found that single women had lowest uptake of contraceptive at 50% while divorced and widowed had highest contraceptive uptake at 100% respectively. This in line with findings by Tobin- West et, al (2016) that marital status is a key determinant of contraceptive uptake. The above findings were also supported by the Key Informants interviewed with the Key Informant who was a health care provider stating *"We have noticed a clear pattern where unmarried single women are hesitant to use family planning with feedback that they are not sexually active hence no need for use of contraceptives".*

Level of education and contraceptive uptake

Most respondents had at least primary education (88.2%) with Tertiary (College & University). education at 16.4%, Secondary education at 29.1% and Primary education at 42.7%). The results from this study show a direct correlation between the higher level of education and uptake of contraceptives. Tertiary educated and Secondary educated respondents had 77.8 and 75% uptake respectively while primary education and no formal schooling reported 68.1% and 69.2% respectively.

Income level and uptake of contraceptives

The women earning between Ksh 20,000 and Ksh 30,000 had contraceptive uptake at 90% and 100% of the women earning above Ksh 30,000 were using contraceptives. This indicates a direct relationship between a participant's monthly income and uptake of contraceptive services i.e. as a woman's income rises so does the uptake of contraceptive and vice versa. This is in line with other studies like Nethery Etal (2019) which reports that higher income is associated with higher uptake of contraceptive use.

Exposure to current news and contraceptive uptake

it was found out that a total of 97.3% of the total respondents had access to current news of which 72.9% of them were using contraceptive services while those who did not have access to news were 2.7% and only 33.3 % of this population were using contraceptive services. This shows that access news has positive effect on contraceptive uptake. The above findings align with recent findings from a study in Afghanistan that reported that informed women are more likely to start using contraceptive services (Noormal, 2022).

Policy factors affecting uptake of family planning

This research considers factors such as availability of family planning commodities, perception on the barriers such as cost and proximity to the health facility.

Family planning Services available for women of reproductive age

frequently mentioned services included pill by 95.1%, injectables by 81.6%, implants by 79.6%, and male condoms by 73.8% of respondents, intrauterine device (IUD) was identified by 42.7%, female condoms were mentioned by 21.4%, female and male sterilization was mentioned by 3.9% and 1.9% of respondents, respectively. These results imply that pills, injectables, implants and male condoms are readily available in most health facilities in Isiolo county. On the other hand, IUD, female condoms, female, and male sterilization are least available modern contraceptive services in the county. Respondents were then asked if they had ever sought family planning services from a health facility, and if they received the desired service

80% of women interviewed had ever sought FP services, out of which 96.6% of them they received appropriate services while the remaining 20% had never sought FP services. The study established that 71.8% of women interviewed were using some form of FP method while the rest, 28.2% were not using any contraceptives. There seems to be a significant difference between knowledge on availability of a particular method and actual uptake. Use of implants, injectables, pills, IUD and male condoms were some of FP methods adopted by women in Isiolo County.

Perception on the cost of FP and uptake characteristics

The uptake of FP services was not significantly affected by individual perception of the cost. For instance, 75% of those who said the service is very cheap use family planning and 25% did not use, 71% of those who said the service is cheap used it and 29% did not, 69% of those who said the cost of FP services is fair used them while 31% did not. Similarly, 67% of those who perceived family planning services as expensive used them and only 33% did not use the products. This result suggests that with proper interventions, the uptake of family planning services can be increased without a significant cost related barrier. As such, it can be thought that once women appreciate the importance of family planning, uptake can be enhanced significantly. As systematic review targeting 14 databases that had four eligible studies deduced that demand for contraception does not depend on cost. Another study found that perceived high cost for contraceptives was a barrier to the uptake of contraceptive services (Ontiri, et al., 2021)

Distance to the Nearest Health Facility

Majority of the respondents (43.6%) spent 20-40 minutes walking time to access the closest health facility and this accounted for 72.9% of those who reported uptake of contraceptives. The percentage of respondents who spent less than 20 minutes to the facility were 13.63% of which 73.3% percent of them reported uptake of contraceptives. The study found that the highest proportion of those using contraceptives (85.6%) took approximately 40-60 minutes to get to the closest health facility. This refers to the average walking time taken to access the health facility. Studies have had varying finding regarding how nearness to a health facility contributes to uptake of contraceptive services.

Binary Logistic Regression Analysis

The results show that urban women were more likely to use contraceptive compared to women in rural *(p=0.019<0.05)* as evidenced by 63.6% of women in urban compared to 36.4% in rural who used contraceptives. Further, the use of contraceptive increases with age from about 20 years at 27.3% and by 40 years, usage reduces to about 5.2%. Use and non-use of contraceptives did not vary significantly with a woman's religion *(p=0.567>0.05)* with slightly higher prevalence among protestant Christians compared to Muslims, Catholics, and those without religious affiliation.

Marital status *(p=0.494>0.05)* and spouse's income level *(p=0.126>0.05)* were found to be statistically insignificant with respect to use or non-use of contraceptives among women of reproductive age in Isiolo County. Further, high literacy women *(p=0.000<0.05),* higher income level *(p=0.000<0.05)* and/or exposure to current news *(p=0.007<0.05)* were associated more with use of contraceptives compared to their counterparts with lower educational attainment, lower income levels or lack of frequent exposure to current news. Table 4.11 presents the final logistic regression model results with statistically significant determinants of contraceptive use; residence *(p=0.025<0.05),* age (*p=0.000<0.05*), educational attainment *(p=0.021<0.05*), income level (*p=0.033<0.05*) and exposure to current news (*p=0.001<0.05*).

The probability to use family planning increases by factor of 4.380 for urban women compared to rural women of Isiolo County. The odd of contraceptive use increase by factor of 1.203 for women aged 20-24 years, a factor of 2.446 for women aged 25 – 30 years, a factor of 1.433 for women aged 31 – 34 years, a factor of 1.567 for women aged 35 – 39 and factor of 0.774 for women aged 40 – 44 years compared to those aged 18 – 19 years

Increase in education attainment increases the probability of contraceptive use. This is shown by an increase in family planning use by 7.493 among women with primary education compared to those without formal education. The odds of contraceptive use increase further by a factor of 21.767 and by a factor of 21.786 for those with up to secondary and tertiary education respectively

compared to those without formal education. Additionally, the odds of contraceptive use increase by a factor of 11.597 among women with income above Ksh. 5,000 compared to those whose income is less than Ksh. 5,000 per month. It follows suit that the use of contraceptives increases by factor of 0.525 for women whose income was above Ksh. 20,000 and further by factor of 1.670 among women whose income was above Ksh. 30,000 compared to those whose income was below Ksh. 5,000. Finally, the odds for contraceptive use increase by a factor of 88.815 among women who had access to current news compared to those who did not have access to current news.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Based on empirical evidence on determinants of contraceptive uptake among women of reproductive age discovered in this study, the researcher made several conclusions which relate to available family planning services, socio-economic drivers of contraceptives, and population policies influencing uptake of contraceptives. First, majority of women were knowledgeable about family planning services provided in health centres in Isiolo County. Women who share with their spouses and female friends were more likely to use contraceptives compared to those who did not share regardless of the socio-demographic, economic or behavioural status. Awareness creation of contraceptives can be enhanced through internet and leverage on mobile devices such as phone, which are more effective compared to social approaches such as women empowerment groups. While previous studies identified location of residence (rural and urban) as a driver for contraceptive uptake, technology and changing trends in access to information had outdone this barrier. Women education outcome and income levels still remain significant drivers of use of contraceptives among women of reproductive age. While religion do not explicitly approve the use of contraceptive, uptake of contraceptives remains indifferent regardless of one's religious believes. However, cultural believes and practices especially among pastoralist communities remained the greatest barriers to uptake of modern family planning services.

Recommendations

This part of the report outlines recommendations to policy makers, MoH, and researchers based on the evidence presented by the research in line with the contemporary literature on determinants of contraceptive use among women of child bearing age in Kenya.

Recommendations given in this subsection are for policy implication for action to the MoH and other stakeholders in the health and education sectors.

1) Develop and implement national policies guidelines and programs for promoting men involvement in contraceptive uptake and family planning.
2) Deliberate effort should be made to provide have more health facilities closest to the members of the community while considering quality and confidentiality.

3) Develop policies that enable increased access to education by girls to impact positively on contraceptive uptake and family planning.

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