UPTAKE OF VOLUNTARY MEDICAL MALE CIRCUMCISON SERVICES AND ASSOCIATED PYSCHOSOCIAL AND KNOWLEDGE BASED FACTORS AMONG MEN IN TURKANA COUNTY, KENYA

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University or for any other award.

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DEDICATION

This project is in honor of my wife, Grace Wangechi Ndegwa, my children Hailey Nakaskou Ateyo and Lokorio Ateyo, my mom and dad, Mr. and Mrs. Lokorio, as well as all my peers, who contributed to the accomplishments of my studies.

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I would especially like to thank the Turkana County Secretary and the Ministry of Health Services and Sanitation for letting me conduct my research in the region. I would also like to express my gratitude to the investigation's respondents and research assistants, both of whom were essential to the study's success.

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ABBREVIATIONS AND ACRONYMS

AIDS:	Acquired Immunodeficiency Syndrome
ARVs:	Antiretroviral
CDC:	Centers for Disease Control and Prevention
CHEW:	Community Health Extension Worker
CHVs:	Community Health Volunteers
HIV:	Human Immunodeficiency Virus
KENPHIA:	Kenya Population Based HIV Impact Assessment
KNBS:	Kenya National bureau of statistics
MC:	Male Circumcision
NACC:	National AIDS Control Council
NACOSTI:	National Commission for Science, Technology, and Innovation
NASCOP:	National AIDS and STI's Control Programme
NGO:	Non-Governmental Organization
PLWHIV:	People living with Human Immunodeficiency Virus
RAQ:	Researcher administered questionnaire.
SPSS:	Statistical Package for the Social Sciences
STIs	Sexually transmitted Infections
TMC:	Traditional Male Circumcision
UNAIDS:	United Nations Programme on HIV/AIDS
USAID:	United States Agency for International Development
UNAIDS:	Joint United Nations Programme on HIV/AIDS
VMMC:	Voluntary Medical Male Circumcision

DEFINITION OF OPERATIONAL TERMS

Male Circumcision (MC):	This is the removal of penis foreskin for religious, health, or cultural reasons.
Voluntary Medical Male Circumcision (VMMC)	Defined as voluntary removal of all or part of foreskin of the penis by trained healthcare professional.
Uptake:	This means the acceptance of VMMC practice by males in Turkana County.
Economic factors:	Factors affecting the financial well-being of an individual, a society, or a community at large.
Psychosocial factors:	These are mental or emotional factors that relate to the perception, attitude, motivation, or belief system of an individual or society.
Knowledge-based factors:	These are factors that are related to acquiring and dissemination of information, knowledge, and ideas amongst a group of people.
Socio-cultural factors:	Factors within a society that affect and influence an individual's feelings, thoughts, and beliefs.

ABSTRACT

Kenya is amongst six high-burden nations in Africa grappling high HIV infections. Approximately 91.2% of Kenyan men have undergone circumcision. However, male circumcision is rarely practiced in Turkana community with male circumcision rates ranging from 5-10%. The study's goals were to identify the influences on consensual medical male circumcision acceptance in Turkana County caused by socio-cultural variables, psychological aspects, social-economic variables, and knowledge-driven factors. Utilizing a researcher-administered survey, KII schedules, and a FGD guide, data was gathered. 434 males made up the sample size. Cross-sectional methodology was used in the investigation. The data was analyzed with SPSS 22. Results showed that of 374 male participants in the study, 79.9% had undergone circumcision, 77.0% were aged 18-35 years, 94.1% were Christians, and 44.7% were unemployed while 54.8% were married. The overall mean scores of responses for socio-cultural factors, psychosocial factors, socio-economic factors, and information sources factors were 3.230 (neutral), 3.602 (positive), 2.894 (negative) and 3.48 (neutral), respectively. The study found that psychological factors, socio-cultural factors, socioeconomic factors, and information sources were significant predictors of embracing VMMC. Sociocultural factors were about 1.522 times more likely to increase uptake of VMMC (AOR= 1.522); p=0.034]. Psychological factors were predicted to increase uptake of VMMC by 1.544 (AOR= 1.554; p=0.028). Social economic factors were predicted to increase uptake of VMMC by 1.068 (AOR = 1.068; p=0.018). Information sources were predicted to increase uptake of VMMC by 1.622 (AOR= 1.622; P=0.013). Thus, this led to the rejection of all the research null hypothesis and the study concluded that socio-cultural, social-economic, psychosocial, and knowledge-based information sources have a positive and significant influence on uptake of VMMC in Turkana County. Additionally, this research recommends that the County Executive Committee members for Health services and sanitation in Turkana County should develop campaigns that respect and integrate local customs, traditions, and religious beliefs, emphasizing how VMMC aligns with these values. They should also train and mobilize peer educators who can relate to the community, sharing accurate information and subjective experiences to dispel myths and misconceptions. The study also advocates for additional educational programs at different educational levels in schools where tailored information about VMMC benefits and HIV/AIDS education will be made easily accessible and comprehensive to all groups of male students. Policymakers in the county government should also advocate for the local leadership to be adequately trained so that they can mobilize communities, sensitize, and educate them about behavioral change and the importance of VMMC.

CHAPTER ONE: INTRODUCTION

1.1 Background to the study

A strategy to slow the rapid spread of HIV and AIDS around the world has been embraced: consensual male medical circumcision (UNAIDS & WHO, 2021). UNAIDS and WHO (2021) report recommends that Voluntary Medical Male Circumcision should also be applied together with other prevention measures for HIV, such as the Provision of female and male condoms, sexually transmitted infection (STI) treatment and screening, tests for HIV and therapy, and the distribution of antiretroviral (ARV) therapy for HIV-positive patients are all important aspects of public health. Accumulating evidence indicates that there is a correlation between circumcisions and reduced HIV infection as stated by UNAIDS & WHO, (2022) that inner foreskin cells are prime targets for HIV entry into the body and its multiplication, as opposed to the cells on the outer exposed skin. Circumcision is a religious ritual practiced by Hermitic and Semitic communities in the Middle East, Aborigines in Central Australia, East, and Northern Africa (Emoit, 2018; Prabhakaran et al., 2018). Globally, about 30% of the male population worldwide who are aged ten years and above are circumcised (Khan et al., 2023).

In the East African region, circumcision is widely regarded as a significant milestone from childhood to adulthood, as per the beliefs of many African communities (NASCOP, 2022). Although most counties in the area follow the cultural practice of Voluntary Medical Male Circumcision, a few exceptions include Turkana, Siaya, Kisumu, Homa Bay, and Migori, as identified by KENPHIA in 2018. Interestingly, the last four counties mentioned also have the highest prevalence of adult HIV infection. Grund et al., (2023) states that approximately 91.2% of Kenyan men have undergone circumcision, the Elective Medical Male Circumcision initiative was launched by the Kenyan Ministry of Health in 2008 utilizing a staged method. The main justifications for circumcision were religious convictions, medical advantages, and cultural rites of passage. The program was initiated after three randomized trials highlighted that male circumcision reduces HIV transmission rate amongst men by 60% (Gao et al., 2021)

According to, Emoit (2018), circumcision is not considered as a cultural rite amongst Turkana men but a negative connotation because most of their traditional archenemies, i.e., Samburu, the Pokots, and the Marakwet's men practice circumcision. Therefore, the acceptance of circumcision amongst their men is seen as cultural infidelity and devaluation of their well-established socio-cultural rites of marking the tribal membership. Instead, Turkana men practice Asapan, an alternative ceremony intended to raise some men's status to be senior elders Nonetheless, for the few Turkana men who accept the practice (circumcision), they acknowledged its advantages of circumcision, such as the reduced HIV infection and increased hygiene, outweigh their traditional socio-cultural practices of shunning circumcision (Sangura Wafula et al., 2021).

Another key driver of consensual medical circumcision for men's adoption is the belief that it enhances sexual performance. That results from males' perceptions of masculinity, which are linked to sexual abilities and high confidence in oneself (Fleming et al., 2021). Age has an impact on the acceptance of Optional Medical Male Circumcision, so it is important to tailor services to meet the needs of various age groups. A study comparing attitudes on consensual surgical circumcision for males among young men (aged 10 to 14) and teenagers (aged 15 to 19) was conducted in Zimbabwe, Tanzania, and South Africa. According to the study, a sizable majority of guys in both age categories indicated an ardent desire to get circumcised. However, compared to older men, young teenagers were less likely to mention the prevention of HIV and STIs as their reason for agreeing to consensual medical circumcision of men. The respondents were more inclined to say that encouragement and advice from others was the only factor in their decision to undergo consensual medical circumcision for males. According to the study, the greatest worry for the male participants in consensual surgical circumcision for men was discomfort. Unemployment and financial concerns like missing income while waiting to heal are cited as the most important socioeconomic barriers to males getting voluntary medical male circumcisions, family survival while recovering period, and the inability to take time off from a job (Mwiinga, 2021; Mangomber & Kule-Sabiti, 2018). This is a crucial concern for males over 18 years likely to be holding jobs, be married, or in sexual relationships with a female

partner. Family support and potential loss of wages are also crucial the adoption of consensual medical circumcision for males is influenced by several factors. World Health Organization, (2021) in their studies, discovered that interpersonal communications that are intensive plus minimal compensation for wage loss ($17 USD, which corresponds to 2 and a half days on minimum wage) lead to a substantial increment in the community adoption of consensual surgical circumcision of males which went up from 57% to over 81%.

Men often look up to the community's council of elders or leaders for guidance on social norms and cultural practices within the social hierarchy. In Zimbabwe, use of role models such as celebrities to advertise Surgical Male Circumcision Done voluntarily programs is cited as a facilitator of Voluntary Medical Male Circumcision uptake amongst young men (Thomas et al., 2020). Consequently, consensual surgical circumcision of male's initiatives by international health agencies like WHO, UNAIDS, the government, and local NGOs in communities ought to engage the tribal or community leaders in their sensitization exercise to shift the social norms of the sub-population so that they can support consensual surgical circumcision of males (Siweya et al., 2018; Mavundla et al., 2020). Therefore, it is prudent for early engagement with local leadership in non-circumcising societies before the implementation process of consensual surgical circumcision of male's strategies (Zulu et al., 2022).

1.2 Problem Statement

Kenya is amongst six nations in Africa grappling with high HIV infections alongside Eswatini, South Africa, Botswana, Lesotho, Mozambique, and Zimbabwe. Compelling epidemiological evidence in Kenya indicates a robust link between the lack of medical circumcision amongst males with a high burden of HIV infections in areas that are traditionally non-circumcising such as Turkana (Masaba et al., 2022; Clement et al., 2022). According to Kenya County HIV Estimates (2020) data extracted from the Turkana County government database, the county had an HIV prevalence of 4%. Turkana Central has a prevalence rate of 6.7%, Turkana North 2.8%, Loima 1.6%, Turkana South 3.5%, Turkana East 1.4 %, Kibish 0.8%, and Turkana West 3.7 %.

Moreover, individuals performing the circumcision though traditionally trained to do this task often do not have medical training, which can lead to errors or complications during the procedure. Thus, such errors or complications or HIV infections have resulted in lifelong conditions that require medical care and management. Additionally, some complications can also lead to physical disabilities or disfigurement such as tissue damage or scarring which affect both appearance and function (Awori et al., 2019). A study by Luseno et al (2019) also highlighted that victim coping with the physical consequences of complications, or an HIV diagnosis can have profound psychological effects like distress, anxiety, depression, trauma, and social stigma. On the other hand, the costs associated with medical treatment, ongoing care, or management of chronic conditions are also a burden for affected individuals and their families.

Spontaneous Surgical Male Circumcision is intended to be part of a comprehensive HIV/AIDS prevention scheme in Kenya due to its cost-effectiveness, coupled with structural and behavioral strategies. Several studies Gilbertson et al (2019); Davis et al (2021); Jindai et al (2022) and including those supported by the World Health Organization (WHO), have shown that surgical male circumcision can reduce the risk of heterosexual transmission of HIV by up to 60%. These findings led to the incorporation of circumcision into HIV prevention strategies, especially in regions where HIV prevalence is high like Turkana and Luo Nyanza.

Nevertheless, these studies have also revealed that there has not been much success in spreading awareness of voluntary medical male circumcision in majority of counties in Kenya, especially marginalized areas like Turkana County. Additionally, the slow the adoption of consensual medical circumcision for males has also been influenced by factors, including cultural beliefs, access to healthcare services, socio-economic conditions, and the overall implementation of prevention programs. Therefore, conducting this study was necessary to address the knowledge gap on uptake of voluntary medical male circumcision services and associated psychosocial and knowledge-based factors among men in Turkana County, Kenya.

1.3 Justification of the Study

There have been many attempts to mitigate HIV & AIDS spread across the country with mixed results. Conducting a study focusing on the uptake of voluntary medical male circumcision (VMMC) services and the associated psychosocial and knowledge-based factors among men in a different county presents a critical opportunity to deepen our understanding of HIV prevention strategies in marginalized areas. This research can also significantly contribute to global health initiatives aimed at reducing HIV transmission. Understanding the factors influencing people's decisions to seek VMMC services is crucial for tailoring effective interventions. Psychosocial factors such as cultural beliefs, perceptions of masculinity, and societal attitudes toward circumcision play a pivotal role in shaping individual choices regarding VMMC.

Moreover, exploring these factors through a comprehensive study can provide insights into how cultural contexts influence health-seeking behaviors. Examining knowledge-based factors, including awareness of the benefits of circumcision in HIV prevention and other sexual health aspects, will shed light on the effectiveness of educational campaigns and the dissemination of accurate information. Additionally, this study can also inform targeted interventions, community engagement strategies, and healthcare policies aimed at increasing the uptake of VMMC services globally, contributing to improved public health outcomes and HIV prevention efforts.

1.4 Research Questions

These issues of inquiry were the focus of this investigation.

1. How does the cultural factors influence the uptake of voluntary medical male circumcision among men in Turkana County, Kenya?
2. In what ways do the psychosocial factors influence the uptake of voluntary medical male circumcision among men in Turkana County, Kenya?
3. How do social-economic factors influence the uptake of voluntary medical male circumcision among men in Turkana County, Kenya?
4. What influence does the knowledge-based factors have on the uptake of voluntary medical male circumcision among men in Turkana County, Kenya?

1.5 Research Hypotheses

1. H_{01}: Socio-cultural factors have no significant influence on the uptake of voluntary medical male circumcision among men in Turkana County.
2. H_{02}: Psychosocial factors have no significant influence on the uptake of voluntary medical male circumcision among men in Turkana County.
3. H_{03}: Socio-economic factors have no significant influence on the uptake of voluntary medical male circumcision among men in Turkana County.
4. H_{04}: Knowledge-based factors have no significant influence on the uptake of voluntary medical male circumcision among men in Turkana County.

1.6 Research objectives

1.6.1 Broad objective

Uptake of voluntary medical male circumcision services and associated psychosocial and knowledge-based factors among men in Turkana County, Kenya

1.6.2 Specific Objective

This study addresses the following specific objectives:

1. To determine the influence of cultural factors on the uptake of voluntary medical male circumcision among men in Turkana County.
2. To establish the influence of psychosocial factors on the uptake of voluntary medical male circumcision among men in Turkana County.

3. To examine the influence of social-economic factors on the uptake of voluntary medical male circumcision among men in Turkana County.
4. To evaluate the influence of knowledge-based factors on the uptake of voluntary medical male circumcision among men in Turkana County.

1.7 Significance of the Study

Examining the variables that influence the willingness of men in Turkana County to undergo voluntary medical male circumcision was the goal of the study. The results of this study will help the government, NASCOP (National AIDS and STI's Control Programme), NACC (National AIDS Control Council), and other Non-Governmental Organizations (NGOs) that deal with Voluntary Medical Male circumcision adoption, to better plan their strategies as they implement the Voluntary Medical Male Circumcision program in Turkana County and throughout Kenya. This study brought out the policies that need to scale up or transform their perspective towards attaining the 80% Voluntary Medical Male Circumcision target by World Health Organization (WHO) that is expected to reduce the cost of HIV treatment and save US$16.5 billion in 14 priority nations by the year 2025 (Monkwe, 2018). Such progress is essential to the Turkana community as an increase in Spontaneous Surgical Male Circumcision Adoption would positively contribute towards the prevention and reduction of the rate of new HIV infections, consequently lessening problems related to HIV/AIDS burden such as low productivity amongst the patients, increment in the number of orphans, poverty, and unemployment which affects socio-economic development. This exposed the areas needing further examination to scale up Voluntary Medical Male Circumcision uptake in combating HIV spread. Moreover, the outcome of the study immensely contributed towards Kenya attaining goal 6 of Millennium Development Goals (MDG) to reverse spread of HIV.

1.8 Limitation and Delimitation

1.8.1 Limitation

The study's sample might not represent the entire male population in Turkana County since the study targeted three sub-counties out of the seven sub-counties in Turkana County. The data collected relied on self-reported information from participants'

willingness to share about their attitudes, beliefs, or experiences regarding Voluntary Medical Male Circumcision. In addition, the nature of data was cross-sectional data, which is data collected at a single point in time thus, it might not capture trends or changes in attitudes or behaviors over time. Findings from Turkana County might also not be directly applicable to other regions or cultures with different socio-cultural contexts, limiting the generalizability of the study's results.

How the Limitations Were Addressed

In addressing the limitations of the study, several steps were taken to mitigate their impact on the interpretation of the findings. Firstly, while the study focused on three out of the seven sub-counties in Turkana County, efforts were made to ensure that the selected sub-counties were representative through random sampling techniques. Secondly, to mitigate the reliance on self-reported data, standardized questionnaires were utilized, participants were assured of confidentiality, and multiple data collection methods were employed for triangulation. Additionally, while the study utilized cross-sectional data, the limitations of this approach were acknowledged, and recommendations for future longitudinal studies were provided. Lastly, to enhance the generalizability of the findings, detailed contextual descriptions were conducted, comparative analyses with other regions were proposed in recommendations, and the study emphasized the importance of considering socio-cultural factors in interpreting the results.

1.8.2 Delimitation

The study focused on Optional Surgical Male Circumcision Adoption in Turkana County; hence, the results were generalized to areas with similar settings.

1.9 Conceptual Framework

In this study, the uptake of voluntary male circumcision was affected by social-cultural factors, psychosocial factors, social-economic factors, and sources of information as shown in the diagram below: Optional Surgical Male Circumcision Adoption by males in Turkana County is the dependent variable in which we hypothesize to be affected by the independent variables, namely socio-cultural, psychosocial, socio-economic factors, and information sources.

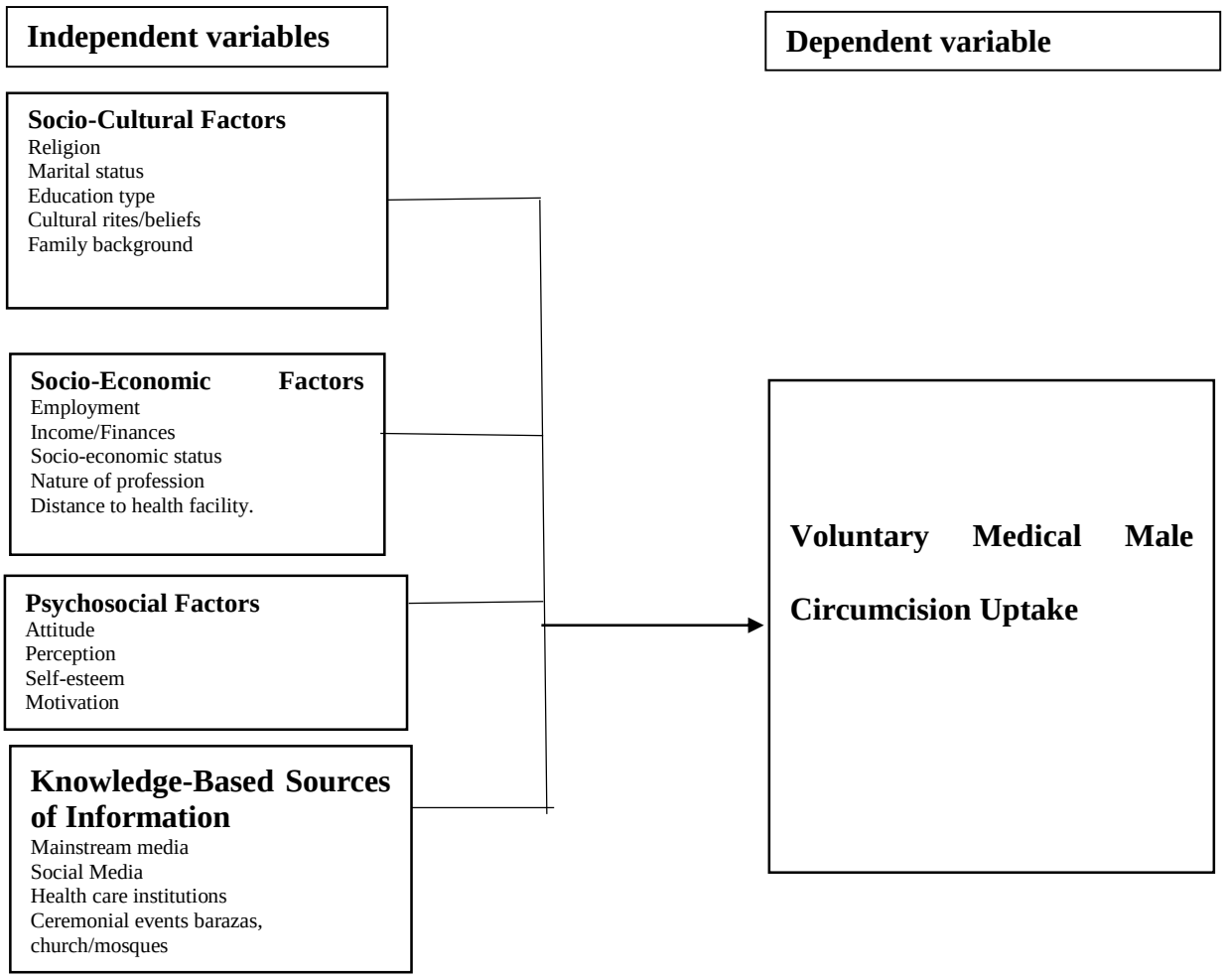

Figure 1.1: Conceptual Framework

Source: Adapted and modified from the Literature review

CHAPTER TWO: LITERATURE REVIEW

2.1 Overview of Voluntary Medical Male Circumcision

Kenya has, on average, a 6% HIV prevalence rate, with 1.6 million Kenyans living with the virus. Siaya, Kisumu, and Homabay, are those who contract HIV at prevalence rates of 23.7%, 19.3%, and 25.7% (UNAIDS, 2018). Kenya County HIV Estimates (2020) data extracted from the Turkana County government database states that the county has an HIV prevalence of 4%. Kenya's Ministry of Health began enacting the phenomenally successful Elective Surgical Male Circumcision program in 2008 with the goal of reducing HIV infections among heterosexual men by around 60%. In Turkana County there have been concerted efforts to popularize Surgical Male Circumcision Done voluntarily among the males, little has been achieved. Currently, the data on Surgical Male Circumcision Done voluntarily in Turkana County shows low uptake amongst males at the rate of 5-10% which is below the global threshold, hence this study tend to investigate the socio-economic, socio-cultural, and psychosocial and information sources influencing uptake of Surgical Male Circumcision Done voluntarily.

2.2 Social-cultural factors on the uptake of Voluntary Medical Male Circumcision

Dinizulu (2019) says that circumcision is a recent invention as a medically rationalized procedure traced back to the 18th century in his historiography review. According to most African communities, as a transition from boyhood to maturity, circumcision is revered: The Bantus. Besides, Nilotic communities, such as Maasai, also practice circumcision. The Maasai classifies uncircumcised men at the same level as boys who are cowards. As a result, the tribe equates circumcision to highly culturally valued traits of masculinity, such as sexual readiness, a prominent level of maturity, and courage, according to Mukimba (2020). Kapumba and King (2019) also discovered that women disregarded men who were not without circumcision because they were unsure whether the illness might have been transmitted by the seminal fluids produced during sex. This was discovered while conducting research on perceptions of optional medical circumcision of males as a means of guarding against infections caused by HIV in Tanzania. Overall, beliefs, knowledge, attitudes, and perceptions do influence the uptake of circumcision in Tanzania.

Kenyan and Uganda programs on Voluntary Medical Male Circumcision had reported similar patterns amongst young males; hence confirming the socio-cultural preferences for Surgical Male Circumcision Done voluntarily at a younger age for boys or young men (Banda, 2021). KAIS (2018) states that approximately 91.2% of except for some ethnic groups like the Luo and Turkana, most Kenyan men opted for circumcision as an indigenous rite of transition as well as for health-related and religious reasons. According to Fish et al., (2021), in an USAID Project research, circumcision is not considered as a cultural rite amongst Turkana men but a negative connotation because most of their traditional archenemies, i.e., Samburu, the Pokots, and the Marakwet's men practice circumcision. Therefore, the acceptance of circumcision amongst their men is seen as cultural infidelity and devaluation of their well-established socio-cultural rites of marking the tribal membership. Instead, Turkana men practice Asapan, an alternative ceremony aimed at elevating some males to the status of senior elders (Kamais, Mwangi & Bor, 2019). Nonetheless, for the few Turkana men who accept the practice (circumcision), they acknowledged its advantages of circumcision, such as the reduced HIV infection and increased hygiene, outweigh their traditional socio-cultural practices of shunning circumcision.

2.3 Psychosocial factors on the uptake of Voluntary Medical Male Circumcision

The circumcision of men is a technique in which the foreskin of the penis is removed for cultural, religious, or medical reasons (Otunga, Jaluo & Mubichakani, 2019). It is a long-standing custom conducted by cultures all over the world as a male purification rite to promote improved mental and physical wellness. Factors that put off adult heterosexual males from voluntarily undergoing surgical male circumcision ran the gamut from fear of the pain associated with the process, the belief that one has a low risk of contracting HIV, the absence of a female companion, the lack of family and social encouragement, and the choice for a traditional method of male circumcision, which has special meaning in some cultures and is seen as a ritual of transition. Another factor is the prolonged healing period (up to six weeks), which demands abstinence from sex. Some participants thought it is too long a period to abstain from sexual (Luseno, Rennie & Gilbertson, 2023).

Male circumcision may be a regular practice in some communities. However, many cultures do not practice it. Some cultures strongly opposed the practice due to cultural perceptions. Studies on non-circumcising tribes or societies have discovered older married people consider themselves not at risk of HIV infection. Their attitude towards the practices is informed by the fact that they think it is inappropriate for them, but it may be more appropriate for younger men (Myers & Earp, 2020). To enhance the uptake of consensual medical circumcision for males in this situation, it is preferable to present it as a contemporary medical practice rather than a cultural ritual.

The perception of male circumcision improving sexual performance is another significant facilitator of absorption of consensual medical circumcision of men. That is due to notions of masculinity amongst men, which is associated with sexual prowess and high self-esteem (Nxumalo et al., 2022). Age also significantly influences how people perceive the uptake of voluntary medical male circumcision, highlighting the necessity of customizing the services to meet the demands of various age groups (Dinizulu, 2019). In Zimbabwe, Tanzania, and South Africa, studies were conducted to examine views toward the acceptance of consensual medical circumcision for men among younger males (aged 10 to 14) and adolescents (aged 15 to 19). Most of the males in both strata who participated in the survey expressed a fervent desire for the adoption of consensual medical male circumcision. Young teenagers were less likely than their older peers to say that consensual medical circumcision of men was done to protect them from STIs and HIV. They were more likely to say that encouragement and advice from others was the only factor in their decision to undergo consensual medical circumcision for males. No of their age, the participants in the study reported that pain during consensual medical circumcision for men was their top concern. (Patel et al., 2018).

Most areas have the view and attitude that consensual medical circumcision of men or ceremonial circumcision is more socially and culturally acceptable for teens as opposed to adults if the exercise is performed before they become sexually active because of long-term benefits for initiates and the wider public. There is a larger chance of

achieving a 90% coverage rate for consensual medical circumcision for men among 10 to 14-year-olds in priority nations coverage of Voluntary Medical Male Circumcision amongst 10 to 29-year-olds by the year 2021 (Bershteyn et al., 2021). Another psychosocial issue existing research data suggests that when circumcision is performed during childhood, it results in fewer complications when compared to the adults.

2.4 Social-economic factors on the uptake of Voluntary Medical Male Circumcision

One of the main obstacles to fully realizing the advantages of circumcision as a population-scale transmission of HIV reduction measure, as well as to realizing the economic feasibility that is evaluated in modeling exercises that are carried out with data from highest priority nations, is the acceptance of optional medical circumcision among men (Kennedy et al., 2020). The strategies that are put in place to improve optional medical circumcision of males must address the bottlenecks and take advantage of the facilitators of acceptance within the framework of the population being studied if they are to fully realize the positive effects of the widespread adoption of optional medical circumcision of males. According to studies by Kabare (2019), Nxumalo and Mchunu (2020) and Palmer (2022), unemployment, financial problems like losing income while recovering, family survival during the recovery period, and not being able to take time away from a job are the most significant socioeconomic barriers to men's uptake of optional medical circumcision for males. This is a crucial concern for males over 18 years likely to be holding jobs, be married, or in sexual relationships with a female partner. Family support and potential loss of wages are also crucial factors that influence the uptake of Voluntary Medical Male Circumcision. Omukule (2019), in their studies, discovered that interpersonal communications that are intensive plus minimal compensation for wage loss ($17 USD, which corresponds to 2 and a half days on minimum wage) lead to a substantial increment in the community's adoption of consensual medical circumcision for males, which increased from 57% to over 81% (Marshall et al., 2017).

2.5 Knowledge-Based Information sources on the uptake of Voluntary Medical Male Circumcision

Rolling out full-scale Surgical Male Circumcision done voluntarily requires the dissemination of national policies, an expanded human resource capacity, and infrastructure coupled with a strategic communication framework to ascertain the delivery of Surgical Male Circumcision Done voluntarily intervention countrywide (Mibei, 2019). To drum up support for the implementation of Surgical Male Circumcision done voluntarily, SUSTAIN/USAID devised two strategies: first, ascertaining that Surgical Male Circumcision done voluntarily services are regularly available within health facilities and that these services are made available to the communities via targeted information sources, outreaches, circumcision camps, massive sensitization programs and provision of Surgical Male Circumcision done voluntarily services at the community level (Emoit, 2018). To successfully increase the uptake of Surgical Male Circumcision done voluntarily amongst communities or groups that traditionally do not practice male circumcision, it is pivotal to lay more emphasis on the health benefits associated with the process if it is done in a health facility of such as improved hygiene, reduced chances of getting STIs and urinary tract infections (UTIs) (Moyo, 2021).

Men often look up to the community's council of elders or leaders for guidance on social norms and cultural practices within the social hierarchy. Therefore, Surgical Male Circumcision done voluntarily interventions by the multinational health organizations such as WHO, UNAIDS, the government, and local NGOs in communities ought to engage the tribal or community leaders in their sensitization exercise, to shift the social norms of the sub-population so that they can support Surgical Male Circumcision done voluntarily (WHO, 2017; Gilbertson et al., 2019). Another serious barrier to Surgical Male Circumcision done voluntarily uptake is the perception of Surgical Male Circumcision done voluntarily not being helpful because of a lack of credibility on existing information on both print and social media promoting the uptake of Surgical Male Circumcision done voluntarily (Okumu, 2019). That has led to males in various nations believing that there exists a hidden agenda or plan behind the services on

Surgical Male Circumcision Done voluntarily uptake, which has led to the development of conspiracy theories and myths about how to remove foreskin is utilized (Juschka, 2020). Tackling such conspiracy theories or myths head-on requires the immediate incorporation of both the national and local governments with the community leaders to promote the acceptance of Surgical Male Circumcision done voluntarily services, so that the targeted community can embrace the program as a locally sanctioned and locally owned HIV prevention stratagem. There is existing proof displaying that several nations which have failed to partner or incorporate the local leadership have experienced significant headwinds reaching the intended population (Juschka 2020; Laar, 2022).

However, Kenya's experience recommends the early engagement of local leadership in communities that do not circumcise before the implementation process of Surgical Male Circumcision done voluntarily strategies (Okumu, 2019). Mathias et al (2023) stated that traditional healers were incorporated in the Surgical Male Circumcision done voluntarily demand-creation strategies and efforts in Tanzania, which led to an increment in uptake of Surgical Male Circumcision Done voluntarily amongst men. In Zimbabwe, use of role models such as celebrities to advertise Surgical Male Circumcision Done voluntarily programs is cited as a facilitator of Surgical Male Circumcision Done voluntarily uptake amongst young men (Shumba, Meyer-Weitz & Asante, 2022). Men who choose to get their male circumcisions surgically are only partially protected from HIV transmission. Hence it is highly recommended that the procedure is included in an exhaustive HIV-prevention strategy. That entails the provision of age-appropriate reproductive and sexual health services alongside, issuance of condoms, HIV counseling, and testing, pre-exposure prophylaxis, testing for STIs coupled with interventions addressing harmful gender norms (World Health Organization, 2019).

2.6 Gaps in the literature review

There have been many attempts to mitigate HIV & AIDS spread across the country with mixed results. circumcision of men performed voluntarily has been adopted as a plan to manage the fast spread of HIV. circumcision of men performed voluntarily is a

biomedical method that has been proven to scale down HIV transmission through sex from women to men by 60%. That has prompted calls for the consideration of circumcision of men performed voluntarily as an intervention strategy to scale down the HIV prevalence in severely regions areas where male circumcision is not culturally practiced, and transmission of HIV is heterosexual such as Turkana County. This study aims at examining how the socio-economic, socio-cultural, psychosocial factors coupled with sources of information and how they influence the uptake of circumcision of men performed voluntarily in Turkana County. This study is unique from other studies in that it takes a comprehensive approach that investigates a raft of factors pertinent to Turkana County that influence circumcision of men performed voluntarily uptake that has been overlooked by other studies, such as psychosocial and socio-economic factors. The study also builds on the study by Macintyre et. al., (2014), who examined how attitudes and perceptions potentially influence circumcision of men performed voluntarily uptake amongst older men in Turkana County by examining adult males, both young and old, who are sexually active

CHAPTER THREE: MATERIALS AND METHODS

3.1 Study Design

Cross sectional study design was used. This design is used to investigate causal relationships, explain why certain events or behaviors occur and understand the underlying reasons behind observed phenomena (Othman, Steen & Fleet, 2020). It also involves exploring the connections between variables and to determine whether changes in one variable led to changes in another (Asenahabi, 2019). In this case, the study sought to examine the connection between socio-cultural, psychosocial, socio-economic, knowledge-based factors and voluntary medical male circumcision uptake. This design also often relies on quantitative methods including surveys and statistical analyses to gather numerical data and identify patterns and relationships. Nevertheless, it does not exclude the incorporation of qualitative data to complement, enrich and provide deeper insights, context, and understanding of the phenomenon under investigation (Seidel & Watson, 2020). Thus, this research sought to incorporate both quantitative and qualitative data to collect adequate data in using elective surgical circumcision procedures from targeted participants in Turkana County. Furthermore, Asenahabi (2019) also highlighted that this design provides a structured approach to test research hypotheses rigorously and obtain valid conclusions.

3.2 Research Variables

3.2.1 Independent variable

Socio-cultural, psychological, socioeconomic, and informational elements that influence the uptake of voluntary medical male circumcision constituted independent variables. The degree in which these factors affect the uptake of voluntary medical male circumcision was measured using a Likert scale. A series of questions that were scored and categorized as agree, neutral, or disagree were used to evaluate the criteria.

3.2.2 Dependent Variable

Uptake of voluntary medical male circumcision was the investigation's dependent study parameter. It was determined by the number of guys in Turkana County who underwent consensual medical circumcision for males.

3.3 Study location

In Kenya's Turkana County, this research was conducted. Six sub-counties, namely Loima, Turkana Central, Turkana North, Turkana South, Turkana East, and Turkana West, make up Turkana County. The following factors led to the selection of Loima, Turkana Central, and Turkana North sub-counties for this study:

1. Turkana Central, with Lodwar as the headquarters for the County, was selected to represent the urban population. Besides, it is also the most populous.
2. Loima was selected because it represented the peri-urban population. It also borders Uganda and South Sudan, which have a high HIV prevalence.
3. Turkana North, being the remotest sub-County, was selected to represent the rural population.

3.4 Target population

The study focused on Turkana men in the Loima, Turkana North, and Turkana Central Sub-counties of Turkana County who were 15 years of age and older. This is due to the high incidence of HIV in these areas and the low prevalence of consensual medical circumcision of men. Along with the parents' or guardians' (legal surrogates) formal consent, the consent of those aged 15 to 17 was also given. After giving their consent, they were permitted to take part in the study by responding to the questionnaire's questions.

3.4.1 Inclusion Criteria

The inclusion criteria involved men of 15 years of age and above from Loima, Turkana North, and Turkana Central Sub-counties of Turkana County.

3.4.2 Exclusion Criteria

The study excluded all males who were not from Turkana tribe. It also excluded all 15-17 years Turkana male respondents capable of understanding but refuse to participate in this research where parents or legal surrogates (guardian) had already given permission.

3.5 Sampling Techniques

With the sole exception of Turkana, Siaya, Kisumu, Homa Bay, and Migori, most counties perform voluntary medical circumcision for men as part of their cultural traditions. These four counties, according to KENPHIA (2018), likewise have among the greatest incidence of HIV rates. KAIS (2012) and KEPHIA (2018). The study chose Turkana County since it is the least covered with HIV/AIDS reduction measures amongst the highlighted Counties. The multistage sampling technique was used in the research to choose a sample that was representative of the full population. This technique was beneficial in this study since it allowed the researcher to gather data from a large population by dividing it into smaller, more manageable stages or clusters. It is also more feasible and helps manage resources and time efficiently.

Out of the six sub-counties in Turkana County, three sub-counties were chosen for the study's initial stage using purposive sampling. In the second stage, the investigation used a random selection method to choose every tenth respondent from the first participant in Turkana Central, Loima, and Turkana North Sub-counties for the research administered questionnaire (RAQ). These three Sub-counties, which constitute urban, peri-urban, and countryside Sub-counties, respectively, were where the participants were chosen. Key informant interviewees who worked as community-based health workers (CHEW) in the medical centers in three Sub-counties were chosen using a purposeful sample technique. Community Health Volunteers (CHVs) were also selected purposively for the focused group discussion.

3.6 Sample Size Determination

3.6.1 Fischer's Formula

The sample size was determined using Fisher's et al. (1998) formula n= z2pq/d2

Where:

n = is the necessary quantity of samples

z = Z-table values with a 95% confidence level for significance, which is 1.96

p = this is the voluntary medical male circumcision prevalence, which is = 50%

d = the investigation's allowed margin of error at a level of confidence of 95%, which is +/- 0.05 interval, which is 1.96.

By changing the variables: (Z=1.96; p=0.5; q=0.5; d=0.05; n=sample)

n = (1.96)2 [0.5x0.5]/0.05x0.05 =385

Target sample size = 385*13% adjustment to cater for errors such as incompletely filled forms.

Therefore, n = 434 respondents

The 13% of adjustments was found appropriate for increasing the sample size and cater for non-response as observed from the pilot study and according to a study by Dolgova and Mueller (2019) which advocated for a percentage error correction of between 10-30%.

Table 3.1 Sampling Frame

Sub-county	**Target Population of men 15 years and above**	**Sample Size**
Turkana Central	6,3145	181
Loima	3,4341	98
Turkana North	5,0641	155
Total	148,127	434

Data Source for Targeted Population: KNBS Census 2019

3.7 Research Instruments

3.7.1 Researcher Administered Questionnaire

Male or female heads of households in the research region were surveyed using a survey that was presented by the researcher (Appendix III). The study collected

information about the respondent's age, marital status, occupation, religion, opinion on Surgical Male Circumcision done voluntarily, and how economic factors, socio-cultural factors, psychosocial factors, and information sources influence the uptake of Surgical Male Circumcision done voluntarily. For the Research Administered Questionnaires (RAQ), the studies expected sample size was 434 respondents. The research administered 181 researcher questionnaires in Turkana central, 98 in Loima and 155 in Turkana North.

Out of the 434 questionnaires used in the study, 374 questionnaires were fully completed; hence used for statistical analysis. Data was collected in three sub-Counties in Turkana County, with each sub-County being sampled as a cluster. Data collected for Research Administered Questionnaires (RAQ) is shown in Table 3.1 for each cluster. Males who were 15 years old and older and gave their consent to have their data taken. The participant's guardians or legal representatives (surrogates) were asked for their signed consent if they were under the age of 18.

3.7.2 Key Informant Interview (KII) guide

The medical staff in the research region were surveyed using the framework for key interviewing of informants (KII) guide (Appendix IV) to get their perspectives and knowledge. The study collected information about the health personnel's education level, work experience, role in Surgical Male Circumcision Done voluntarily implementation, challenges in Surgical Male Circumcision Done voluntarily implementation, their views on demand for Surgical Male Circumcision Done voluntarily amongst the teenager, youths, and older males, their views on how socio-cultural factors, economic factors, psychosocial factors, and knowledge-based information sources influence the uptake of Surgical Male Circumcision Done voluntarily in Turkana County via face to face interviews using physical questionnaires. The key informants interviewed were Community Health Extension Workers (CHEWs) from different cadres, facility in charges, county officers and subcounty officers in the study areas.

3.7.3 Focus Group Discussion (FGD)

The Focused Group Discussions selected a group for an organized discussion to gain information about the individual's views and experiences about a Surgical Male Circumcision Done voluntarily (VMMC). An FGD guide (Appendix V) was utilized to collect information for this study. The FGDS was composed of 8-12 members from the population under study. The FGD interviewed community members (both males and females) and local administration representatives.

3.8 Pre-Testing

In Turkana West Sub-County, which has many traits with the research area, a pretest was conducted. Mugenda and Mugenda (1999) states that 1% - 10% of the sample size suffices for a pretesting study. In this case, therefore, pre-testing made for the questionnaire test was on forty sample sizes selected randomly. The instruments were pre-tested in Kakuma ward. That helped to reveal the discrepancies and ambiguities in the questionnaire that needed to be corrected. Following the feedback process, minor changes were made to the questionnaires.

3.8.1 Validity

First, the surveys sufficiently covered the goals of the study. To avoid inconsistency, the questions were created to be explicit and direct. My academic supervisors' professional opinion was used to validate the investigation's instruments. The use of appropriate sample methods was then ensured to prevent selection bias.

3.8.2 Reliability

The test-retest method was used to establish reliability. Tools were given to a subsection of the overall population and then given again after a period of two weeks to the exact same sample. The findings were then subjected to Karl Pearson's test to look for a positive correlation between the two data sets. Because identical findings were attained, the tool was found dependable.

3.9 Data Analysis

The surveys underwent a data cleaning audit after the data was collected to ensure that the answers were accurate. Following data coding, SPSS version 23 was used to conduct the analysis.

3.9.1 Quantitative data

Descriptive statistics were summarized into categorical data to generate frequencies and percentages. To investigate the psychological and knowledge-driven aspects that affect men's uptake of medical circumcision for males' services in Turkana County, the study used the independent sample t-test technique, Pearson's correlation, and ordinal regression analysis. The independent sample t-test is a statistical method used to determine if there is a significant difference between the means of two independent groups. It involved calculating the mean, standard deviation, and sample size for each group, then the researcher compares the calculated t-value obtained from the software output with the critical t-value from a t-distribution table and p-values. This helped in understanding the basic characteristics of each group's data.

Furthermore, the Pearson correlation test involved assessing the strength and direction of the linear relationship between the independent and dependent variables. Then examine the calculated p-value associated with the correlation coefficient (r) which ranges from -1 to 1. The research used a 5% significance level in its analysis. The findings were presented either in figures or in tabular form.

3.9.2 Qualitative data

Data from FGDs notes included verbatim, which was written down on notebooks. Then it was organized into information sets. The emerging themes were cultural practices, myths, misconceptions, feelings and beliefs amongst men and women community on the uptake of surgical male circumcision done voluntarily, and the role of local leaders and health professionals in creating public awareness about Surgical Male Circumcision done voluntarily. The raw data and text were interpreted, and then ordered about study variables. The responses were put into meaningful data to complement the quantitative findings.

3.10 Logistical and Ethical Considerations

The Kenyatta University Ethics and Research Committee gave their approval for this study, and the Kenyatta University Graduate School also gave their seal of approval (Ref No. PKU/2341/11480). Data collection was authorized by the National Council of Science and Technology (Ref No. 590822 NACOSTI). Turkana. Further clearance was given by County MOH.

The significance of the study as stated in the consent form was explained to the participants: purpose, benefits of voluntary participating, respecting local culture and tradition, no penalty if they refuse to consent. Confidentiality was maintained by interviewing in a private place. Assurances were given and their answers were treated with utmost confidentiality. Their names were also not written on the questionnaire or linked with the information they gave to the interviewer. Additionally, during the interview process, they were free to choose not to respond to any questions. Each of the participants who took part in the investigation were treated anonymously, privately, and confidentially.

CHAPTER FOUR: RESULTS

4.1 Response Rate

The researcher administered 434 questionnaires to the selected sample of 434 respondents. The findings from figure 4.1 below revealed that the number of returned questionnaires was 374 which stood for a response rate of 86.18% while the number of unreturned questionnaires was 60 (13.82%). According to Mugenda and Mugenda (2008), a response rate of above 70% in any data collection is said to be excellent for data analysis. Therefore, the response rate of 86.18% was also found to be satisfactory for further analysis in this study.

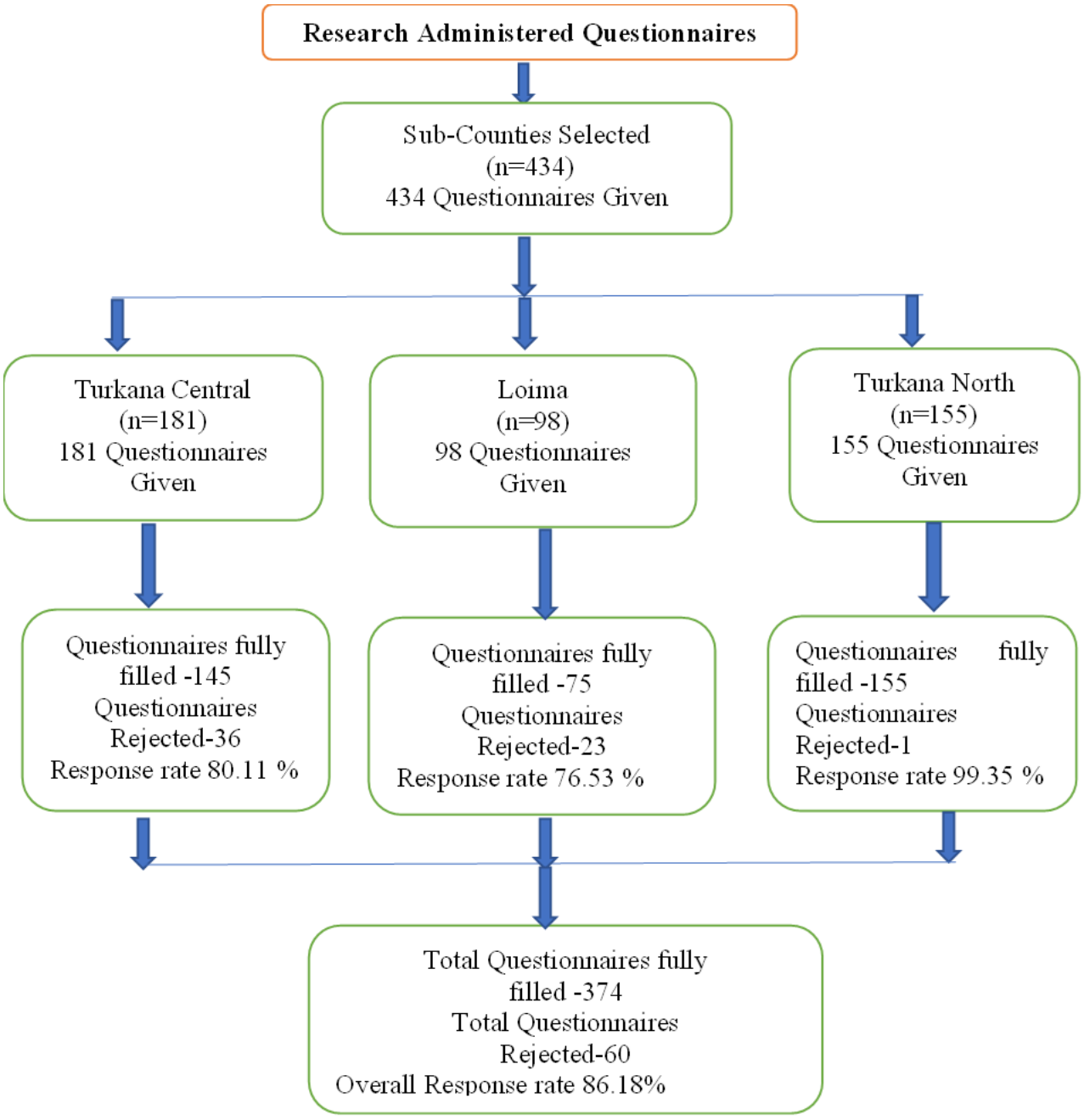

Figure 4.1 Response Rate

Prevalence of VMMC

Figure 4.2 provides data on the frequency and percentage distribution of individuals who have undergone Voluntary Medical Male Circumcision (VMMC). According to the findings, out of a total of 374 individuals surveyed, 32 (8.6%) reported that they have not undergone VMMC, while the majority, 342 (91.4%), indicated that they have undergone the procedure.

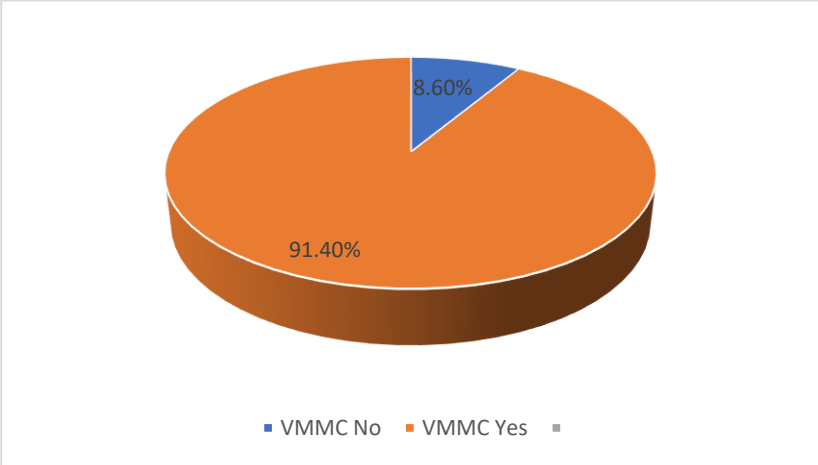

Figure 4.2 Prevalence of Voluntary Medical Male Circumcision Uptake

The FGDs was composed of 8-12 members from the population under study. However, the study managed to do only five FGDs, four in Turkana Central and one in Loima.

Table 4.1 Focus Group Discussion Response Rate

Sub-county	**FGDs Targeted**	**FGDs done**	**Response rate %**
Turkana Central	1	4	400%
Loima	1	1	100%
Turkana North	1	0	0
Total	**3**	**5**	**100%**

4.2 Socio-demographic characteristics

The results show that a high proportion of the respondents (77%) were within the age brackets 19-35 years. About 11.4 % were over 35 years of age while 11.8% were below

18 years of age. Several of the respondents attained secondary education 39.3%, followed by primary education 19.8%, diploma education 14.4%, certificate 9.6%, university graduates 8.8%, and no formal schooling 5.1%, while 2.9% had post-graduate education. About 44.7% were unemployed. More details are presented in table.

Table 4.2 Demographic characteristics of research respondents

Characteristics	**Category**	**Frequency (n=374)**	**Proportion (100%)**
Age	Below 18 years	44	11.8
	18-35 years	288	77.0
	Over 35 years	42	11.2
Level of Education			
	Did not attend school	19	5.3
	Primary	74	19.5
	Secondary	147	39.3
	Certificate	36	9.6
	Diploma	54	14.5
	Graduate	33	8.8
	Post-graduate	11	3.0
	Christian	352	94.1
Religion	Muslim	16	4.3
	Traditionalist	5	1.3
	Other	1	0.3
Occupation	Agriculture	11	2.9
	Business	93	24.9
	Civil servant	51	13.6
	Private sector/NGO	20	5.3
	Unemployed	167	44.7
	Other	32	8.6
Marital Status			
	Married	205	54.8
	Single	164	43.9
	Widowed	1	0.3
	Divorced/separated	4	1.0

4.3 Socio-Cultural Factors and Voluntary Medical Male Circumcision Uptake

4.3.1 Descriptive Results for Social- Cultural Factors and VMMC

Among the socio-cultural factors that influence the level of uptake of Voluntary Medical Male Circumcision, most (53.2%) respondents strongly agree or agreed that religion has an influence on the level of uptake of Voluntary Medical Male Circumcision (out of the 53.2% that agreed, 29.7% agreed while 23.5% strongly agreed). Most (42.2%) of the respondents also strongly agreed or agreed that marital status has an influence on the level of uptake of Voluntary Medical Male Circumcision (25.9% agreed while 16.3% strongly agreed). Most (43.6%) of the respondents also strongly agreed or agreed that family background had influence on Voluntary Medical Male Circumcision (20.3% agreed while 23.3% strongly agreed).

Type of education also had strong (56.9%) influence on Voluntary Medical Male Circumcision with most of the respondents strongly in agreement or agreeing that it influences Voluntary Medical Male Circumcision (with 27% agreed while 29.9% strongly agreed). Lastly Cultural and beliefs had a sizeable (44.4%) influence with most of the respondents strongly agreeing or agreeing that it influences that it influences Voluntary Medical Male Circumcision (with 20.6% agreed while 23.8% strongly agreed). Overall, the study proved that religion and type of education does influence uptake of voluntary male medical circumcision at 53.2% and 56.9% respectively (Table 4.3).

Table 4.3 Descriptive Results for Socio-Cultural Factors on Level of Voluntary Medical Male Circumcision

Socio-cultural factors	Strongly Disagree/Disagree	Neutral	Strongly Agree/Agree
Religion does influence the uptake of Voluntary Medical Male Circumcision	100 (26.7%)	75 (20.1%)	199 (53.2%)
Marital status influences the uptake of Voluntary Medical Male Circumcision	139 (37.2%)	77 (20.6%)	158 (42.2%)
Family background has a strong influence on the uptake of Voluntary Medical Male Circumcision	133 (35.6%)	78 (20.8%)	163 (43.6%)
The type of education (formal, informal, or non-formal) does influence the uptake of Voluntary Medical Male Circumcision	77 (20.6%)	84 (22.5%)	213 (56.9%)
Cultural rights and beliefs have a robust influence on the uptake of Voluntary Medical Male Circumcision	146 (39.3%)	61 (16.3%)	166 (44.4%)

4.3.2 Test of hypothesis

4.3.2.1 Chi-Square test for association between socio-cultural factors and uptake of voluntary medical male circumcision (VMMC)

A chi-square-test was conducted to assess the relationship between the uptake of VMMC and socio-cultural factors. The findings in Table 4.4 indicated that that religion significantly influences VMMC uptake ($\chi2=13.302$, $p=0.010$). Individuals who responded positively to the influence of religion on VMMC had a notably higher rate of acceptance (83.3%) compared to those who did not (16.7%). This suggests that religious beliefs play a substantial role in shaping attitudes towards VMMC. Similarly, marital status appeared to strongly influence VMMC uptake ($\chi2=32.349$, $p<0.001$).

Family background emerged as another influential factor affecting VMMC uptake ($\chi2=23.493$, $p<0.001$). Many of the respondents (62.76%) agreed to the statement that family background has a strong influence on VMMC. The type of education also plays a significant role in influencing VMMC uptake ($\chi2=23.393$, $p<0.001$). Additionally, cultural rights and beliefs were found to robustly influence VMMC uptake ($\chi2=18.438$,

p=0.001). Individuals who valued cultural rights and beliefs tended to have higher acceptance rates (ranging from 80% to 97.4%) compared to those who did not emphasize these aspects. Overall, these findings underscore the importance of various socio-cultural factors in promoting VMMC uptake.

Ho: There is no significant influence between uptake of VMMC and socio-cultural factors

Based on the results, null hypothesis was rejected. A few uncircumcised men mentioned the influence of cultural beliefs as the main inspiring factor in their reasons to avoid circumcision. They considered their culture as an issue that could influence their decision to embrace VMMC. Some of them believed that culture discouraged them from embracing the VMMC.

> *"Our cultural beliefs and family background have a strong influence on whether the males can undertake Voluntary Medical Male Circumcision."* (FGD 1)
> *"Our tradition does not support circumcision.*" (FGD 1)
> *"Persons who are keen to retain their cultural identity do not consider circumcision as one of the options they are willing to undergo."* (FGD 2)
> *"Male circumcision seems like a good idea from what I have learnt from the local leaders"* (FGD 2)

Table 4.4 Chi-Square analysis for association between uptake of VMMC and socio-cultural factors

Question	Response	No	Yes	Total	Chi-square (P-value)
Religion does influence the uptake of Voluntary Medical Male Circumcision	SD	10(16.7%)	50 (83.3%)	60 (100%)	
	D	7(17.5%)	33(82.5%)	40 (100%)	
	U	6(8%)	106 (92%)	112 (100%)	
	A	5 (4.5%)	106 (95.5%)	111 (100%)	χ^2=13.302 (0.010)
	SA	4 (4.5%)	84 (95.5%)	88 (100%)	
	T	**32 (8.6%)**	**342 (91.4%)**	**374 (100%)**	
Marital status influences the uptake of Voluntary Medical Male Circumcision	SD	15 (26.8%)	41 (73.2%)	56 (100%)	
	D	9 (10.8%)	74 (89.2%)	83 (100%)	
	U	3 (3.9%)	74 (96.1%)	77 (100%)	
	A	3 (3.1%)	94 (96.9%)	97 (100%)	χ^2=32.349 (<0.001)
	SA	2 (3.3%)	59 (96.7%)	61 (100%)	
	T	**32 (8.6%)**	**342 (91.4%)**	**374 (100%)**	
Family background has a strong influence on the uptake of Voluntary Medical Male Circumcision	SD	14 (21.5%)	51 (78.5%)	65 (100%)	
	D	9 (13.2%)	59 (86.8%)	68 (100%)	
	U	4 (5.1%)	74 (94.9%)	78 (100%)	
	A	3 (3.9%)	73 (96.1%)	76 (100%)	χ^2=23.493 (<0.001)
	SA	2(2.3%)	85 (97.7%)	87 (100%)	
	T	**32 (8.6%)**	**342 (91.4%)**	**372 (100%)**	
The type of education (formal, informal, or non-formal) does influence the uptake of Voluntary Medical Male Circumcision	SD	9 (24.3%)	28(75.7%)	37 (100%)	
	D	7 (17.5%)	33 (82.5%)	40 (100%	
	U	8 (9.5%)	76 (90.5%)	84(100%)	
	A	6 (5.9%)	95 (94.1%)	101 (100%	χ^2=23.393 (<0.001)
	SA	2 (1.8%)	110 (98.2%)	112 (100%)	
	T	**32 (8.8%)**	**342 (91.4%)**	**374 (100%)**	
Cultural rights and beliefs have a robust influence on the uptake of Voluntary Medical Male Circumcision	SD	12 (13%)	80 (87%)	92 (100%)	
	D	11 (20%)	44 (80%)	55 (100%)	
	U	4 (6.6%)	57 (93.4%)	61 (100%)	
	A	2 (2.6%)	75 (97.4%)	77 (100%)	χ^2=18.438 (0.001)
	SA	3 (3.4%)	86 (96.6%)	89 (100%)	
	T	**32 (8.6%)**	**342 (91.4%)**	**374 (100%)**	

Key

SD- Strongly Disagree, D - Disagree, U – uncertain, A-Agree, SA-Strongly Agree

4.3.2.2 Bivariate Analysis for Social Cultural Factors against VMMC

Results in table 4.5 indicate that marital status and type of education significantly influence the likelihood of VMMC uptake, as evidenced by their statistically significant values p= 0.015 and p=0.035 respectively. This implies that the odds of VMMC are increased significantly by marital status and type of education (1.615 and 1.407) respectively.

Table 4.5 Bivariate Analysis of association between Socio-Cultural Factors and Voluntary Medical Male Circumcision

Variable	**OR**	**95% C.I.**		**P-value**
		Lower	**Upper**	
Religion	1.134	.845	1.521	0.402
Marital status	1.615	1.098	2.376	0.015
Family background	1.346	.947	1.915	0.098
The type of education (formal, informal, or non-formal)	1.407	1.025	1.931	0.035
Cultural rights and beliefs	1.308	.982	1.741	0.066

Further, some of the key informants interviewed stated that circumcision was not a cultural tradition of Turkana. Therefore, it functioned as barrier towards uptake of Voluntary Medical Male Circumcision.

> "*Cultural traditions pose as a barrier to VMMC adoption in the county because the majority of the men believe it is against the customs and traditional practices of the community."* (Key Informant 1, Turkana Central)
>
> *"There is a lot of resistance on VMMC from typical Turkana men as it is viewed to be contrary to their customs."* (Key informant 4, Turkana North)

"Culture runs deep here, and no one wants to go against it, so it is hard for men to undergo VMMC" (Key informant, Loima)

"It may take some time before our culture accepts male circumcision which most people perceive as foreign" (Key Informant 2, Turkana Central)

"There is some resistance among the elderly and uneducated people" (Key informant from the county)

"Myths and misconceptions from the community hinder uptake of VMMC in the area" (Key informant, Turkana Central subcounty)

The acceptance of consensual surgical circumcision for males was said to be influenced by cultural customs (25%), myths and beliefs (25%), and other factors (25%) in focus group discussions. Others concurred, stating that local leadership, perceptions, the procedure's nature, and the stigma associated with male circumcision all had an impact on the acceptance of consensual surgical circumcision for males.

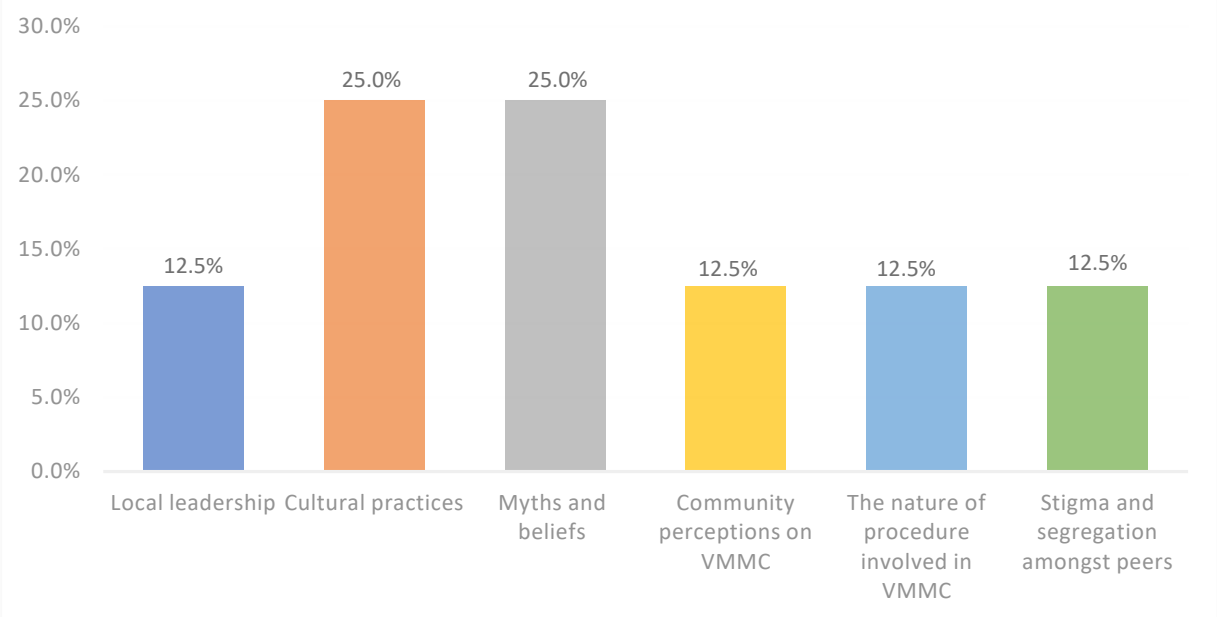

Figure 4.3: Socio-cultural factors influencing Voluntary Medical Male Circumcision uptake.

The respondents in the focus group discussion also put several myths forward in the Turkana community about Voluntary Medical Male Circumcision. The most prevalent

myth was that Voluntary Medical Male Circumcision reduces sexual pleasure as it affects the erection of the penis (25%).

> *"Our people are still adamant to embrace circumcision because of the myths surrounding it.* (FGD1, Turkana Central)
>
> *"Some men believe that once they are circumcised, it is going to lower their sexual pleasure.* (FGD 1, Turkana Central)
>
> *Some men feared that circumcision reduces the sexual power among men.*" (FGD 2, Loima)
>
> *"A good number of men believe that VMMC will make them unattractive to women."* (FGD 1, Turkana Central)
>
> *"Our men perceive that circumcision reduces sexual pleasure later in life"* (FGD 3, Turkana Central)

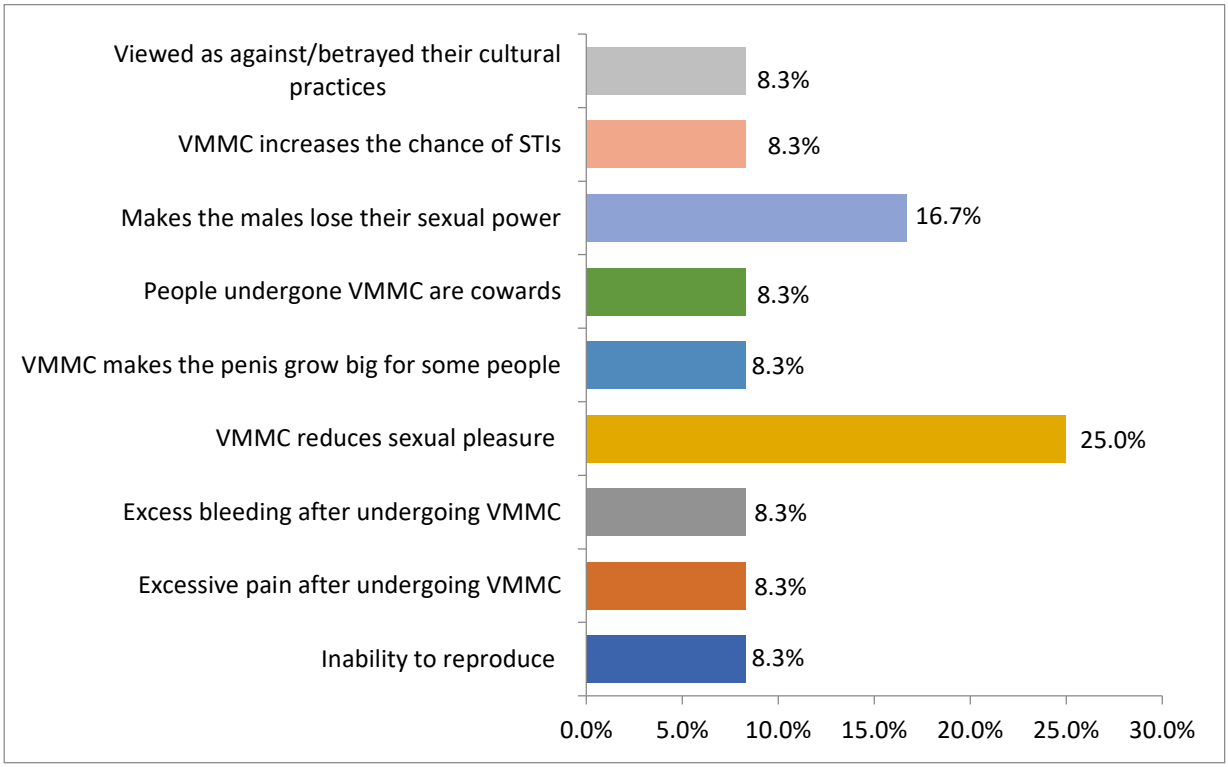

Figure 4.4 Myths on Voluntary Medical Male Circumcision

4.4 Psychosocial Factors on the Uptake of Voluntary Medical Male Circumcision

4.4.1 Descriptive Results for Psychosocial Factors and VMMC

Among the psychosocial factors that influence the uptake of Voluntary Medical Male Circumcision in a health facility, most of the respondents agreed (67.6%) that a person's attitude towards circumcision has the most influence on the level of uptake of Voluntary Medical Male Circumcision (31.8% agreed while 35.8% strongly agreed). Also, most respondents agreed (53.2%) that self-esteem has an influence on the level of uptake of Voluntary Medical Male Circumcision (30.5% agreed while 22.7% strongly agreed.

Overall, the study established that majority of the respondents were in agreement that a person's attitude towards circumcision (67.6%) had the most influence on the level of Voluntary Medical Male Circumcision uptake followed by spouse and communal support (62.8%), that the perception of people who have undergone circumcision (57.7%) and the level of self-esteem (53.2%) respectively (Table 4.6).

Table 4.6 Psychological Factors on Level of Voluntary Medical Male Circumcision Uptake

Psychological factors	**Strongly Disagree/Disagree**	**Neutral**	**Strongly Agree/Agree**
A person's attitude towards circumcision influences Voluntary Medical Male Circumcision uptake	63 (16.9%)	58 (15.5%)	253 (67.6%)
The level of self-esteem in a person has a strong influence on whether he chooses to undergo Voluntary Medical Male Circumcision	77 (20.6%)	98 (26.2%)	199 (53.2%)
The belief of people who have undergone circumcision by the community has a strong influence on the uptake of Voluntary Medical Male Circumcision	68 (22.6%)	71 (19.7%)	235 (57.7%)
The motivation by males to undertake Voluntary Medical Male Circumcision is strongly influenced by their spouses and communal support	132 (18.2%)	66 (19.0%)	216 (62.8%)

The process of embracing male circumcision can have a negative status on the life of persons circumcised in Turkana society. VMMC is viewed by most of the Turkana's as a foreign practice which is common among other tribes. For instance, Turkana men who have embraced circumcision are often viewed as outcasts amongst the traditionalists.

"Cultural beliefs and traditions run deep. This means that those who go against our traditions may be considered as outcasts." (Male respondent aged 27, Loima)

"The perception and attitude of those who have undergone Voluntary Medical Male Circumcision by the community has a significant effect on their standing in society." (Male respondent aged 30, Turkana Central)

"The level of self-esteem in a person is an important factor in influencing whether or a man chooses to undergo Voluntary Medical Male Circumcision." (Male respondent aged 45, Turkana North).

4.4.2 Test of hypothesis 2

4.4.2.1 Chi-Square Analysis for association between psycho-social factors and VMMC

A chi-square analysis test was used to assess the relationship between uptake of VMMC and psychosocial factors. The findings in Table 4.7 indicated that there are significant associations between psychosocial factors and the uptake of VMMC. The chi-square test shows a strong association between attitude towards circumcision and VMMC uptake ($\chi2=34.954$, $p<0.001$). Most individuals (83.16%) agreed that self-esteem had a significant influence on the choice of VMMC. This was further a significant association between self-esteem and VMMC uptake through chi-square test ($\chi2=32.187$, $p<0.001$). The perception of individuals who have undergone circumcision by the community strongly influences VMMC uptake. The chi-square test revealed a strong association between community perception and VMMC uptake ($\chi2=45.171$, $p<0.001$). Lastly, the motivation for males to undertake VMMC was strongly influenced by support from their spouses and the community as shown by ($\chi2=35.316$, $p<0.001$).

Ho: There is no significant influence between uptake of VMMC and psychosocial factors.

Based on the results, null hypothesis was rejected.

Table 4.7 Chi-Square analysis of the association between psychosocial factors and Voluntary Medical Male Circumcision

Question	Response	No	Yes	Total	Chi-square (P-value)
A person's attitude towards circumcision influences VMMC	SD	11(27.5%)	29 (72.5%)	40 (100%)	
	D	3(13%)	20(87%)	23 (100%)	
	U	10(17.2%)	48 (82.8%)	58 (100%)	
	A	6 (5%)	113(95%)	119 (100%)	$\chi 2$=34.954
	SA	2 (1.5%)	132 (98.5%)	134 (100%)	(<0.001)
			342		
	T	**32 (8.6%)**	**(91.4%)**	**374 (100%)**	
The level of self-esteem in a person has a strong influence on whether he chooses to undergo VMMC	SD	7 (24.1%)	22 (75.9%)	29 (100%)	
	D	11 (22.9%)	37 (77.1%)	48 (100%)	
	U	9 (9.2%)	89 (90.8%)	98 (100%)	
	A	5(4.4%)	109 (95.6%)	114 (100%)	$\chi 2$=32.187
	SA	0 (0%)	85 (100%)	85(100%)	(<0.001)
			342		
	T	**32 (8.6%)**	**(91.4%)**	**374 (100%)**	
The perception of people who have undergone circumcision by the community has a strong influence on the uptake of VMMC	SD	10 (27.8%)	26 (72.2%)	36 (100%)	
	D	8 (25%)	24 (75%)	32 (100%)	
	U	10 (14.1%)	61 (85.9%)	71 (100%)	
	A	3 (2.6%)	113 (97.4%)	116 (100%)	$\chi 2$=45.171
	SA	1(0.8%)	118 (99.2%)	119 (100%)	(<0.001)
			342		
	T	**32 (8.6%)**	**(91.4%)**	**372 (100%)**	
The motivation by males to undertake VMMC is strongly influenced by their spouses and communal support	SD	12 (25%)	36 (75%)	48 (100%)	
	D	9 (20.5%)	35 (79.5%)	44 (100%	
	U	7 (10.6%)	59 (89.4%)	66(100%)	
	A	2 (1.9%)	101 (98.1%)	103 (100%	$\chi 2$=35.316
	SA	2 (1.8%)	111 (98.2%)	113 (100%)	(<0.001)
			342		
	T	**32 (8.8%)**	**(91.4%)**	**374 (100%)**	

4.4.2.2 Bivariate Analysis for Psycho-social Factors against VMMC

The odds ratio of 1.341 suggests that for every one-unit increase in attitude towards circumcision, the odds of opting for VMMC increase by 34.1%, though this increase is not statistically significant (p = 0.064). The odds ratio of 1.848 suggests that for every one-unit increase in self-esteem, the odds of opting for VMMC increase by 84.8%. This also indicated that self-esteem had a significant influence on the uptake of VMMC (p = 0.002). The participants also agreed that perceptions had a significant impact on the VMMC uptake as indicated by a p-value of 0.003. The odds ratio of 1.703 suggests that for every one-unit increase in community perception, the odds of opting for VMMC increase by 70.3%. Finally, findings indicated that individuals who receive support from their spouses and the community are significantly more likely to choose VMMC (p = 0.013). The odds ratio of 1.535 suggests that for every one-unit increase in spousal and communal support, the odds of opting for VMMC increase by 53.5%. The results are summarized in Table 4.8 below.

Table 4.8 Bivariate Analysis of Association between Psycho-social Factors and Voluntary Medical Male Circumcision

	OR	**95% C.I.**		
Variable		**Low**	**Upper**	**P-value**
A person's attitude	1.341	0.983	1.83	0.064
The level of self-esteem	1.848	1.254	2.722	0.002
The perception of people	1.703	1.2	2.417	0.003
The motivation by males	1.535	1.093	2.156	0.013

The process of embracing male circumcision can have a negative status on the life of persons circumcised in Turkana society. VMMC is viewed by most of the Turkana's as a foreign practice which is common among other tribes. For instance, Turkana men who have embraced circumcision are often viewed as outcasts amongst the traditionalists.

> *"Cultural beliefs and traditions run deep. This means that those who go against our traditions may be considered as outcasts."* (Male respondent aged 27, Loima)

"The perception and attitude of those who have undergone consensual medical circumcision for males by the community has a significant effect on their standing in society." (Male respondent aged 30, Turkana Central)

"The level of self-esteem in a person is an important factor in influencing whether or a man chooses to undergo Voluntary Medical Male Circumcision." (Male respondent aged 45, Turkana North)

Moreover, three out of the six key informants interviewed (50%) stated that one of the barriers towards the uptake of Surgical Male Circumcision done voluntarily was a negative perception by the community of those who have undergone Surgical Male Circumcision done voluntarily (Figure 4.5 below).

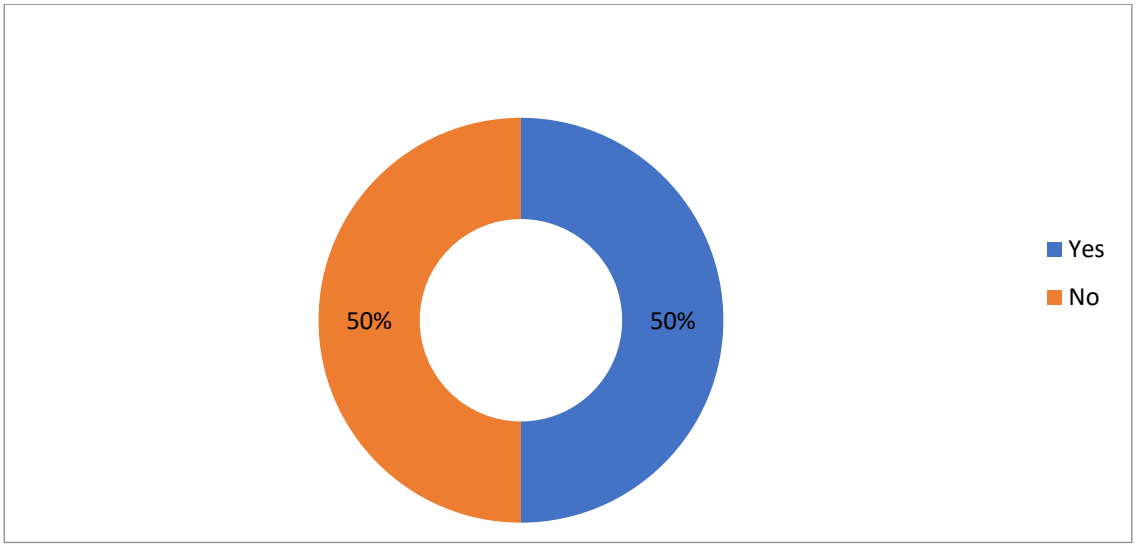

Figure 4.5: Negative Voluntary Medical Male Circumcision Perceptions

Some of the key informant's interviewed also stated that fear of complications after undergoing Surgical Male Circumcision done voluntarily was one of the barriers towards uptake of Surgical Male Circumcision Done voluntarily.

Some of the Turkana males are very much concerned if complications may arise after they have undergone Surgical Male Circumcision Done voluntarily which may cause permanent deformity to their penis. (Key informant, Loima)

> *"Due to lack of well-equipped hospitals a good number of men are afraid complications arising from VMMC procedure will not be well taken care of."* (Key Informant, Turkana Central)
>
> *"What will happen if complications arise during the VMMC procedure. Will it affect erection?"* (Male respondent aged 56 from Turkana Central)
>
> *"I have heard about complications arising from VMMC procedure though rate. This is a risk that I am not willing to take."* (Turkana North make respondent aged 40)
>
> *"Some men fear pain and stigma associated especially when found to be HIV positive" (Key informant, County).*

Additionally, some of the key informant's interviewed stated that fear of having an injection in the penis by men was a barrier in the uptake of Surgical Male Circumcision Done voluntarily. Fear of pain significantly emerged as an issue that discourages men from embracing in the procedure. All of them failed to acknowledge the fact that the VMMC procedure also applies drugs which eliminate pain.

> *"Some of the Turkana men are afraid that the whole circumcision procedure would inflict pain particularly to the penis."* (Key Informant 1, Turkana Central)
>
> *"The fear of pain to the penis works as a barrier to their ability to embrace VMMC."* (Key Informant 1, Loima)
>
> *"I have heard that it is painful to undergo the VMMC procedure, so I stray away from it."* (Turkana man aged 35)
>
> *"I have personally met men who are apprehensive that they cannot withstand the pain associated with VMMC procedure."* (Key Informant 3, Loima)

Furthermore, one of the challenges to the acceptance of consensual surgical circumcision among men, according to some key participants interviewed, is the worry that circumcision may impair the sexual performance of men.

> *Many of the Turkana men that I have come across have expressed their fear that circumcision would hamper their sexual performance meaning that they would not be able to enjoy their conjugal rights* (Key Informant 2, Turkana North).

Some of the Turkana males are concerned if complications may arise after they have undergone Voluntary Medical Male Circumcision which may affect their sexual performance (Key informant 1, Loima).

"I have heard than I won't be able to have good sex with my wife after undergoing VMMC." (Key Informant 3, Loima)

"There are some men who say that undergoing VMMC may reduce my sexual performance and as a man I cannot accept that." (Key informant, Loima subcounty)

The study also found that several of the key informant's interviewed (67%) stated that lack of moral support by the partner was one of the barriers towards uptake of Surgical Male Circumcision done voluntarily by men in Turkana County. This is as shown in figure 4.5 below.

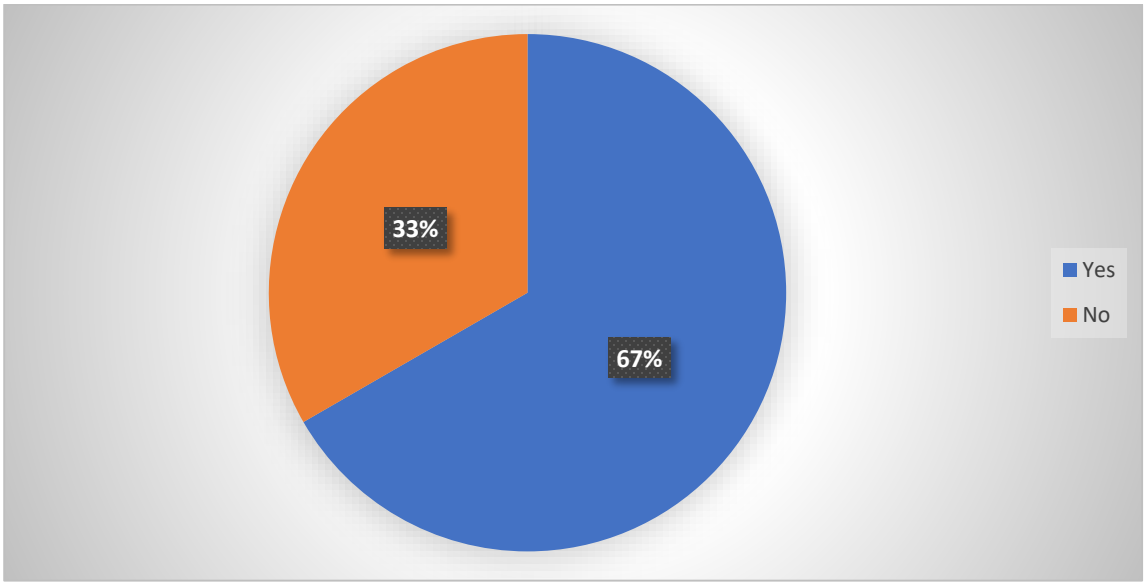

Figure 4.6: Lack of Moral Support by Partners

"The Turkana community's culture does not support circumcision. This means that it is exceedingly difficult to convince the males to undergo Surgical Male Circumcision Done voluntarily if their spouse/partners do not support the move as they will be deemed to have gone against." (Key Informant 3, Loima)

"My wife encouraged me to undergo VMMC as a measure to reduce HIV/AIDS transmission." (Key Informant 1, Turkana Central).

"It is one of my spouses who, though her encouragement, made me to undergo VMMC procedure after having doubts about it." (Key Informant 2, Turkana Central).

*"Moral support is important if men are to embrace the VMMC procedure because it a foreign culture to us." (*Turkana male elder aged 62)

Some of the key informant's interviewed also stated that the fact that men take some time of sex to recuperate after undergoing as one of the barriers towards uptake of Surgical Male Circumcision done voluntarily.

"Some of the Turkana men avoid circumcision because they believe that after the surgical procedure, it would take long to before they are able to have sex again." (Key Informant 2, Turkana Central).

"Some Turkana men consider the healing period after undergoing VMMC as long to endure it." (Key Informant, Turkana North).

"Some men are sexually active and are put off by the long healing period after undergoing VMMC procedure." (Key Informant 1, Turkana North).

*"As a polygamous man it is difficult to undergo VMMC because I cannot take care of my wives." (*An elderly man from Loima)

In FGDs, many interviewees cited HIV prevention as the main appealing factor in their decision to adopt VMMC. Most argue that due to emerging diseases such as HIV/AIDS, the community must embrace new preventive measures to control these diseases. They viewed HIV/AIDS as a new disease in the community which called for novel approaches in dealing with it. In the focus group discussion involving a group of men, most of them agreed that Surgical Male Circumcision Done voluntarily plays a significant role in reducing HIV risks.

"I am aware of the significance of circumcision for males in terms of HIV prevention." (FGD 1, Turkana Central).

"I have heard from the medical experts that VMMC is helpful in reducing the risk of HIV which means that it would improve our health." (FGD 1, Turkana Central).

"New diseases that have come up such as HIV/AIDS have forced people to change their thinking towards male circumcision." (FGD 2, Turkana Loima).

"I have heard that male circumcision is good because it reduces HV/AIDS transmission. Here in Turkana, HIV/AIDS is widespread, and it is important to embrace practices that would reduce the disease transmission. It also improves hygiene of the men." (Male elder, FGD 2, Loima).

4.5 Socio-Economic Factors on the Uptake of Voluntary Medical Male Circumcision

4.5.1 Descriptive Results for Social Economic Factors

Among the socio-economic factors that influence the uptake of Voluntary Medical Male Circumcision, the study established that majority of the respondents agreed or strongly agreed that a person's income (59.1%) was the most influential socio-economic factor on the uptake Voluntary Medical Male Circumcision uptake followed by employment or lack thereof (57.5%), nature of profession or career (50%), distance to a health facility (47.8%) and socio-economic status (43.1%), respectively. The summary of the findings is presented in the (Table 4.9 below).

Table 4.9 Socio-economic Factors on Level of Voluntary Medical Male Circumcision Uptake

Socio-economic factors	Strongly Disagree/Disagree	Neutral	Strongly Agree/Agree
Employment or lack thereof does influence the uptake of Voluntary Medical Male Circumcision	215 (57.5%)	67 (17.9%)	92 (24.6%)
The level of income/finances does influence the uptake of VMMC	221 (59.1%)	61 (16.3%)	92 (24.6%)
The size of the distance to a health facility does influence the uptake of Voluntary Medical Male Circumcision	121 (32.4%)	74 (19.8%)	179 (47.8%)
The nature of the profession/career does influence the uptake of Voluntary Medical Male Circumcision	156 (41.7%)	95 (25.5%)	123 (32.8%)
Socio-economic status (SES) does influence the uptake of Voluntary Medical Male Circumcision	122 (32.6%)	91 (24.3%)	161 (43.1%)

There were the barriers of low-income levels and lack of infrastructures nearby to facilitate male circumcision. Since Turkana is a nomadic pastoralist community where men take the role of herders, they migrant with animals for long distance, VMMC was a challenge because they could not continue with their livelihood at that time.

> *"Income and distance to a health facility are important determinants of Voluntary Medical Male Circumcision because of the cost involved."* (A Turkana man aged 23 from Turkana Central)

> *"Most men in Turkana are herders who move over great distances in search of water and pasture for their livestock. Circumcision will force them to stay in one place until they heal which means that if they do not have another source of income, they will not be able to take care of the family."* (Turkana male elder, FGD 1, Turkana Central).

"Health facilities are located far away the cost of travel and admission is high which most men in the area cannot afford." (Turkana male elder, FGD 2, Loima).

"Most of the residents here are poor hence cannot afford to undergo VMMC procedure without compromising their families' livelihoods." (Turkana male elder, FGD 1, Turkana Central)

Further, the fact that circumcision interferes with the work of men during recuperation was one of the barriers towards uptake of Surgical Male Circumcision Done voluntarily. Being in a pastoralist community, men have a responsibility to take care of livestock and hence they have limited time to stay in the homestead to recuperate.

"I have interacted with men who have confessed to be against VMMC because of the fact that it interferes with their work during the recuperation period." (Key Informant 1 Turkana Central)

"I heard livestock so VMMC will interfere with my work." (Turkana male elder)
"I frequently travel great miles on foot seeking out forage for my animals. That may not be the case immediately after undergoing VMMC." (Turkana male herder)

Some of the men fear that by undergoing the VMMC, throughout their recovery, they will not be able to take care of their households' requirements. (Key Informant 1, Turkana Central)

In FGDs, Lack of money was one of the barriers towards uptake of Voluntary Medical Male Circumcision. Several of the men from Turkana community fail to undergo circumcision because the procedure is expensive while they live in poverty.

*"The majority of men is from humble background and cannot be afford the cost to undertake." (*Turkana male elder, FGD 2, Loima)

The money involved is quite high for an ordinary Turkana to afford coupled by the fact that others have children to take to school and families to feed. (Key Informant 3, Turkana Central)

"I don't have the money to undergo VMMC." (Turkana male youth)

"I am an unemployed youth hence unable to get money to undergo VMMC." (Turkana male youth)

4.5.2 Test of hypothesis 3

4.5.2.1 Chi-Square Analysis for the association between socio-economic factors and uptake of VMMC

The Chi-square test in Table 4.10 revealed a non-significant association ($\chi2$=3.721, p=0.445) between employment status and the uptake of VMMC. Similarly, the Chi-square test showed no significant association ($\chi2$=5.431, p=0.246) between income/finances and VMMC uptake. Participants' responses appeared unaffected by variations in income levels. In contrast, there was a significant association ($\chi2$=12.339, p=0.015) between the distance to a health facility and VMMC uptake. This suggests that distance plays a role in influencing participants' decisions regarding VMMC, with those closer to health facilities showing higher uptake rates. The Chi-square test indicated a significant association ($\chi2$=9.703, p=0.046) between profession/career and VMMC uptake. The participants agreed that different professions or careers influenced their decisions regarding VMMC. Education level also emerged as a significant factor influencing attitudes towards VMMC uptake ($\chi2$=13.997, p=0.007). Lastly, the data did not support a significant association between socioeconomic status and VMMC uptake ($\chi2$=5.312, p=0.257). Participants indicated that socioeconomic status did not have an influence on the participants' choice towards VMMC uptake.

Table 4.10 Chi-Square Analysis for the association between socio-economic factors and uptake of Voluntary Medical Male Circumcision

Question	Response	No	Yes	Total	Chi-square (P-value)
Employment or lack thereof does influence the uptake of VMCC	SD	15 (11.6%)	114 (88.4%)	129 (100%)	
	D	8 (9.3%)	78 (90.7%)	86 (100%)	
	U	4 (6%)	63 (94%)	67 (100%)	
	A	2 (3.8%)	50 (96.2%)	52 (100%)	$\chi2$=3.721
	SA	3 (7.5%)	37 (92.5%)	40 (100%)	(0.445)
	T	**32 (8.6%)**	**342 (91.4%)**	**374 (100%)**	
The level of income/finances does influence the uptake of VMMC	SD	14 (11.2%)	111 (88.8%)	125 (100%)	
	D	10 (10.4%)	86 (89.6%)	96 (100%)	
	U	4 (6.6%)	57 (93.4%)	61 (100%)	
	A	4 (7.3%)	51 (92.7%)	55 (100%)	$\chi2$=5.431
	SA	0 (%)	37 (100%)	37 (100%)	(0.246)
	T	**32 (8.6%)**	**342 (91.4%)**	**374 (100%)**	
The size of the distance to a health facility does influence the uptake of VMMC	SD	9 (14.3%)	54 (85.7%)	63 (100%)	
	D	8 (13.8%)	50 (86.2%)	58 (100%)	
	U	8 (10.8%)	66 (89.2%)	74 (100%)	
	A	1 (1.0%)	96 (99%)	97 (100%)	$\chi2$=12.339
	SA	6 (7.3%)	76 (92.7%)	82 (100%)	(0.015)
	T	**32 (8.6%)**	**342 (91.4%)**	**372 (100%)**	
The nature of the profession/career does influence the uptake of VMMC	SD	9 (12.7%)	62 (87.3%)	71 (100%)	
	D	11 (12.9%)	74 (87.1%)	85 (100%	
	U	9 (9.5%)	86 (90.5%)	95 (100%)	
	A	2 (3.2%)	61 (96.8%)	63 (100%	$\chi2$=9.703
	SA	1 (1.7%)	59 (98.3%)	60 (100%)	(0.046)
	T	**32 (8.6%)**	**342 (91.4%)**	**374 (100%)**	
The level of education does influence the uptake of VMMC	SD	9 (15.8%)	48 (84.2%)	57 (100%)	
	D	7 (10.9%)	57 (89.1%)	64 (100%)	
	U	9 (13.6%)	57 (84.6%)	66 (100%)	
	A	6 (6.8%)	82 (93.2%)	88 (100%)	$\chi2$=13.997
	SA	1 (1.0%)	98 (99%)	99 (100%)	(0.007)
	T	**32 (8.6%)**	**342 (91.4%)**	**374 (100%)**	
Socio-economic status (SES) does influence the uptake of VMMC	SD	6 (9.2%)	59 (90.8%)	65 (100%)	
	D	9 (15.8%)	48 (84.2%)	57 (100%)	
	U	6 (6.6%)	85 (93.4%)	91 (100%)	
	A	7 (8.1%)	79 (91.9%)	86 (100%)	
	SA	4 (5.3%)	71 (94.7%)	75 (100%)	$\chi2$=5.312 (0.257)
	T	**32 (8.6%)**	**342 (91.4%)**	**374 (100%)**	

4.5.2.2 Bivariate Analysis for Socio-Economic Factors against VMMC

The findings in Table 4.11 revealed that for each unit increase in employment, the odds of VMMC uptake increased by a factor of 1.021. However, this change is not statistically significant (p = 0.908), suggesting that employment status does not have a significant effect on VMMC uptake. There was a slight increase in the odds of VMMC uptake for each unit increase in income/financial status. However, this change was not statistically significant (p = 0.633), indicating that income/finances do not significantly influence VMMC uptake. In addition, for each unit increase in the distance to a health facility, the odds of VMMC uptake increase by a factor of 1.194. The change is not statistically significant (p = 0.258), indicating that distance to health facilities does not significantly impact VMMC uptake.

There was a moderate increase in the odds of VMMC uptake associated with different professions or careers. However, this change is not statistically significant (p = 0.188), indicating that profession/career does not have a significant effect on VMMC uptake. Similarly, for each unit increase in education level, the odds of VMMC uptake increase by a factor of 1.386. This change was statistically significant (p = 0.048), suggesting that education level significantly influences VMMC uptake, Lastly, there was a slight decrease in the odds of VMMC uptake associated with higher socioeconomic status. However, this change was not statistically significant (p = 0.420), indicating that socioeconomic status does not significantly impact VMMC uptake.

Table 4.11 Bivariate Analysis of association between Social-Economic Factors and Voluntary Medical Male Circumcision

		95% C.I.		
	OR	**Lower**	**Upper**	**P-value**
Employment or lack thereof	1.021	.720	1.448	.908
The level of income/finances	1.100	.745	1.625	.633
The distance to a health facility	1.194	.878	1.625	.258
The nature of the profession/career	1.278	.887	1.843	.188
The level of education	1.386	1.002	1.918	.048
Socio-economic status	.878	.640	1.205	.420

4.5.3 Socio-Economic Barriers

Work Interference

The fact that circumcision interferes with the work of men during recuperation was one of the barriers towards uptake of Voluntary Medical Male Circumcision. Being in a pastoralist community, men have a responsibility to take care of livestock and hence they have limited time to stay in the homestead to recuperate.

"I have interacted with men who have confessed to be against VMMC because of the fact that it interferes with their work during the recuperation period." (Key Informant 1 Turkana Central)

"I heard livestock so VMMC will interfere with my work." (Turkana male elder aged 50)

"I often walk over long distances in search of pasture for my livestock. That may not be the case immediately after undergoing VMMC." (Turkana male herder aged 26)

Some of the men fear that by undergoing the VMMC, they will not be able to cater for the needs of their families during the recuperation period. (Key Informant 1, Turkana Central)

Money

Lack of money to undertake Voluntary Medical Male Circumcision was one of the barriers towards uptake of Voluntary Medical Male Circumcision. Majority of the men from Turkana community fail to undergo circumcision because the procedure is expensive while they live in poverty.

*"The majority of men is from humble background and cannot be afford the cost to undertake." (*Turkana male elder, FGD 2, Loima)

The money involved is quite high for an ordinary Turkana to afford coupled by the fact that others have children to take to school and families to feed. (Key Informant 3, Turkana Central)

"I don't have the money to undergo VMMC." (Turkana male youth aged 26)

"I am an unemployed youth hence unable to get money to undergo VMMC." (Turkana male youth aged 22)

4.6 Sensitization via different knowledge-based factors that influence voluntary medical male circumcision uptake in Turkana County

4.6.1 Descriptive Findings of Knowledge-Based Information Sources and Uptake of VMMC

Among the sources of information, most respondents strongly agreed or agreed that education by medics about Voluntary Medical Male Circumcision (69.5%) had an influence on the level of uptake of Voluntary Medical Male Circumcision (27% agreed while 42.5% strongly agreed). Most of the respondents also strongly agreed or agreed (51.6%) that social media has an influence on the level of uptake of Voluntary Medical Male Circumcision (25.7% agreed while 25.9% strongly agreed). Most of the respondents also agreed (51.1%) that mainstream media had an influence on the level of uptake of Voluntary Medical Male Circumcision (25.7% agreed while 25.4% strongly agreed). Most respondents also strongly agreed or agreed (55.1%) that dissemination of information by local administration, local and religious leaders about Voluntary Medical Male Circumcision had an influence on the level of uptake of Voluntary Medical Male Circumcision (26.2% agreed while 28.9 % strongly agreed). The summary of the findings is summarised in the (Table 4.12 below)

Table 4.12 Information sources Factors on Level of Voluntary Medical Male Circumcision Uptake

Information sources	**Strongly Disagree/Disagree**	**Neutral**	**Strongly Agree/Agree**
Medics at public health facilities educate us about the importance of Voluntary Medical Male Circumcision	52 (14.0%)	62 (16.5%)	260 (69.5%)
Social media influences the uptake of Voluntary Medical Male Circumcision	88 (23.5%)	93 (24.9%)	193 (51.6%)
Mainstream media influences the uptake of Voluntary Medical Male Circumcision	106 (28.3%)	77 (20.6%)	191 (51.1%)
The challenges with network connectivity deter the dissemination of information about Voluntary Medical Male Circumcision through mainstream and social media	125 (33.3%)	90 (24.1%)	159 (42.6%)
The dissemination of information on the uptake of Voluntary Medical Male Circumcision by the local administration and the local leaders in churches, mosques, and barazas influences the uptake of Voluntary Medical Male Circumcision	90 (24.1%)	78 (20.8%)	206 (55.1%)

Others argued that local leaders play an important role in dissemination of information about the community. Local leaders of the community are respected members of the community and the advice they give to men is usually followed and valued. Some also stated that they followed the advice of medical experts as far as VMMC was concerned.

"As a society, we trust the information disseminated by our local leaders because they have our interest at heart." Turkana male elder, FGD 2, Loima) *"Local leaders are very influential in setting the rules in our society and influencing decisions of the day-to-day activities."* (Turkana man aged 21) *"We trust the elders within our community with any information they give because they are wise and have our interest at heart."* (Turkana man aged 39). *"We trust the information shared by the medical personnel at the hospital because they have been of great assistance to our society." (*FGD 1, Male respondent, aged 34).

4.6.2 Test of hypothesis 4

4.6.2.1 Chi-Square Test Analysis on the association between information sources and uptake of VMMC

A chi-square analysis test was used to assess the relationship between uptake of VMMC and information sources. The findings in Table 4.13 indicated that all information sources factors positively influenced the level of education do influenced uptake of VMMC. The Chi-square test revealed a highly significant association ($\chi2=80.935$, $p<0.000$) between the statement and participants' responses, suggesting that the education provided by medics significantly influences the uptake of VMMC. The Chi-square test also revealed a highly significant association ($\chi2=27.310$, $p<0.001$), indicating that social media significantly influences the uptake of VMMC according to participants' responses. Similarly, a significant majority of participants (86.6) agreed that mainstream media influences the uptake of VMMC.

The Chi-square test indicated a highly significant association ($\chi2=31.137$, $p<0.001$) between mainstream media influence and VMMC uptake. The Chi-square test revealed a highly significant association ($\chi2=40.059$, $p<0.001$) between network connectivity challenges and the dissemination of information about VMMC. Besides, the Chi-square test showed a significant association ($\chi2=18.438$, $p=0.001$) between the statement and VMMC uptake, indicating that such dissemination significantly influences VMMC uptake according to participants' responses.

Ho: There is no significant influence between uptake of VMMC and sources of information factors.

Based on the results, null hypothesis was rejected.

Table 4.13 Chi-Square analysis of information sources and Voluntary Medical Male Circumcision

Question	Response	No	Yes	Total	Chi-square (P-value)
Medics at public health facilities educate us about the importance of VMCC	SD	11(42.3%)	15 (57.7%)	26 (100%)	
	D	10 (38.5%)	16 (61.5%)	26 (100%)	
	U	5 (8.9%)	57 (91.9%)	62 (100%)	
	A	1 (1%)	100 (99%)	101 (100%)	$\chi2$=80.935
	SA	5 (3.1%)	154 (96.9%)	159 (100%)	(<0.000)
	T	32 (8.6%)	342 (91.4%)	374 (100%)	
Social media influences the uptake of VMMC	SD	8 (21.6%)	29 (78.4%)	37 (100%)	
	D	11 (21.6%)	40 (78.4%)	51 (100%)	
	U	6 (6.5%)	87 (93.5%)	93 (100%)	
	A	6 (6.3%)	90 (93.8%)	96 (100%)	$\chi2$=27.310
	SA	1 (1%)	96 (99%)	97 (100%)	(<0.001)
	T	32 (8.6%)	342 (91.4%)	374 (100%)	
Mainstream media influences the uptake of VMMC	SD	11 (26.2%)	31 (73.8%)	42 (100%)	
	D	10 (15.6%)	54 (84.4%)	64 (100%)	
	U	6 (7.8%)	71 (92.2%)	77 (100%)	
	A	0 (0%)	96 (100%)	96 (100%)	$\chi2$=31.137
	SA	5 (5.3%)	90 (94.7%)	95 (100%)	(<0.001)
	T	32 (8.6%)	342 (91.4%)	372 (100%)	
The challenges with network connectivity deter the dissemination of information about VMMC	SD	15 (26.3%)	42 (73.7%)	57 (100%)	
	D	11 (16.2%)	57 (83.8%)	68 (100%)	
	U	2 (2.2%)	88 (97.8%)	90 (100%)	
	A	2 (2.7%)	73 (97.3%)	75 (100%	$\chi2$=40.059
	SA	2 (2.4%)	82 (97.6%)	84 (100%)	(<0.001)
	T	32 (8.8%)	342 (91.4%)	374 (100%)	
The dissemination of information on the uptake of VMMC by the local administration and the local leaders in churches, mosques, and barazas influences the uptake of VMMC	SD	11 (25%)	33 (75%)	44 (100%)	
	D	10 (21.7%)	38 (78.3%)	48 (100%)	
	U	6 (7.7%)	72 (92.3%)	78 (100%)	
	A	2 (2.0%)	96 (98%)	98 (100%)	$\chi2$=18.438
	SA	3 (2.8%)	105 (97.2%)	108 (100%)	(0.001)
	T	32 (8.6%)	342 (91.4%)	374 (100%)	

4.6.2.2 Bivariate Analysis for Information Sources Factors against VMMC

Bivariate analysis was conducted to determine the association of information sources with VMCC uptake. The findings in Table 4.14 reveal that participants who were educated about the importance of VMMC by medics at public health facilities were 2.131 times more likely to consider VMMC uptake compared to those who were not. The p-value of 0.000 indicates a highly significant association, suggesting that this education significantly influences VMMC uptake. The non-significant OR value of 1.047 (p-value= 0.832) suggests that there is no significant influence of social media on VMMC uptake. Similarly, the OR value of 1.134 and the p-value of 0.533 indicate that mainstream media does not significantly influence VMMC uptake. Participants exposed to mainstream media were not significantly more likely to consider VMMC uptake compared to those who were not.

The significant OR value of 1.602 suggests that participants facing challenges with network connectivity were 1.602 times more likely to be deterred from VMMC uptake due to difficulties in information dissemination through mainstream and social media. The p-value of 0.022 indicates a significant association, highlighting the impact of network connectivity issues on VMMC uptake. Lastly, the significant OR value of 1.517 suggests that participants exposed to information dissemination by local administration and leaders were 1.517 times more likely to consider VMMC uptake. The p-value of 0.028 indicates a significant association, emphasizing the influence of local leaders and administration on VMMC uptake.

Table 4.14 Bivariate Analysis of association between Information Sources and Voluntary Medical Male Circumcision

Variables	OR	95% C.I.		P-Value
		Lower	Upper	
Medics	2.131	1.509	3.009	.000
Social media	1.047	.687	1.594	.832
Mainstream media	1.134	.764	1.682	.533
The challenges with network connectivity	1.602	1.070	2.398	.022
The dissemination of information	1.517	1.047	2.198	.028

4.6.3 Methods used in creating awareness about VMMC.

The most utilized method of creating awareness about Voluntary Medical Male Circumcision was through public Barazas with all the six key informants in stating that it is used in their health facility. Table 4.15 summarizes this information.

Table 4.15 Methods of creating awareness on Voluntary Medical Male Circumcision.

	N
	Valid
Issuance of brochures, posters, and announcement via noticeboards	2
Creation of awareness about Voluntary Medical Male Circumcision program through public Barazas	6
Sensitization through mainstream media, i.e., TV, Radio, Newspapers	2
Sensitization through social media trends on Facebook or and Twitter	0
Incorporating local leaders and council of elders to drum up support and create public awareness about VMMC	4
Sensitization through Community health workers	1

Further, three out of six key informants had performed the role of health education and mobilization (as shown in Figure 4.7)

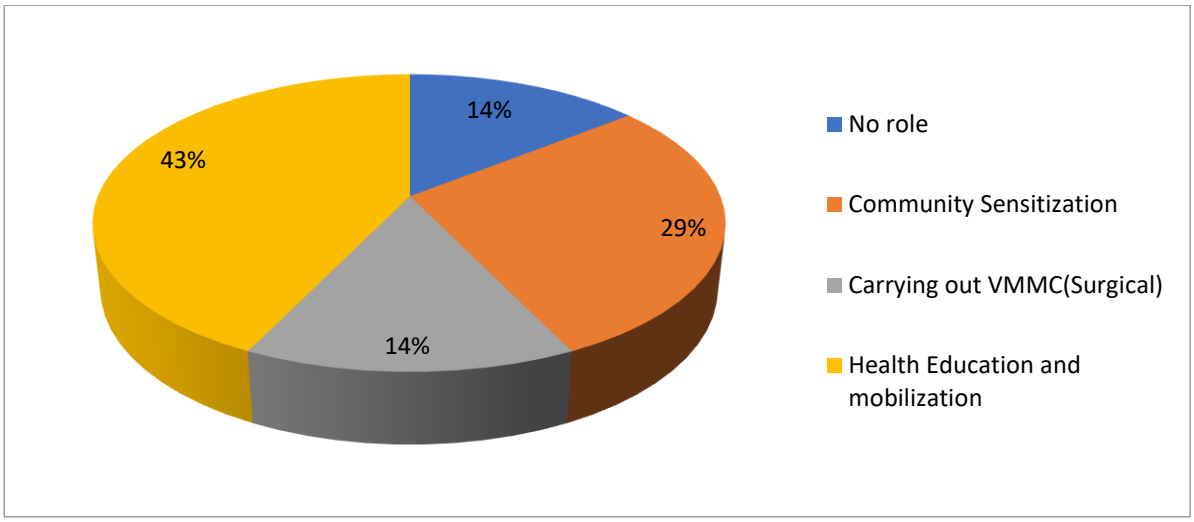

Figure 4.7 Role in Voluntary Medical Male Circumcision implementation

4.6.4 Implementation of Voluntary Medical Male Circumcision program in this Sub-County

Three had worked in their health facility between 1-5 years (as shown in table 4.5 below).

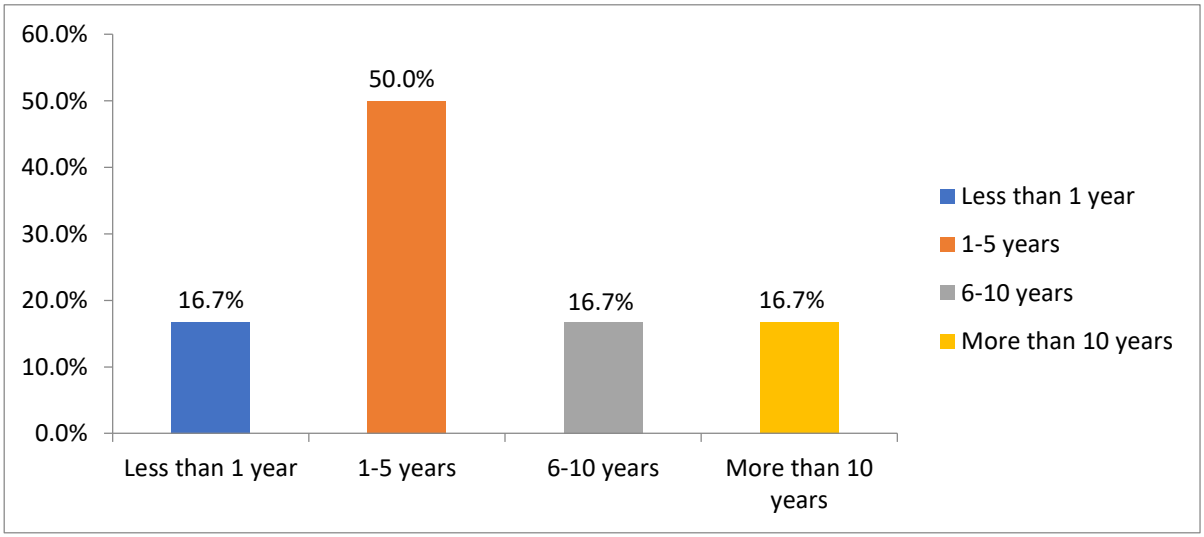

Figure 4.8 Implementation of Voluntary Medical Male Circumcision program in sub-county

4.6.5 Demand for Voluntary Medical Male Circumcision amongst adolescents, youths, and adult males.

According to the key informants, the demand for Voluntary Medical Male Circumcision was highest amongst adolescent males aged 15-18 years, with four out of the six key informants (66.7%) in agreement.

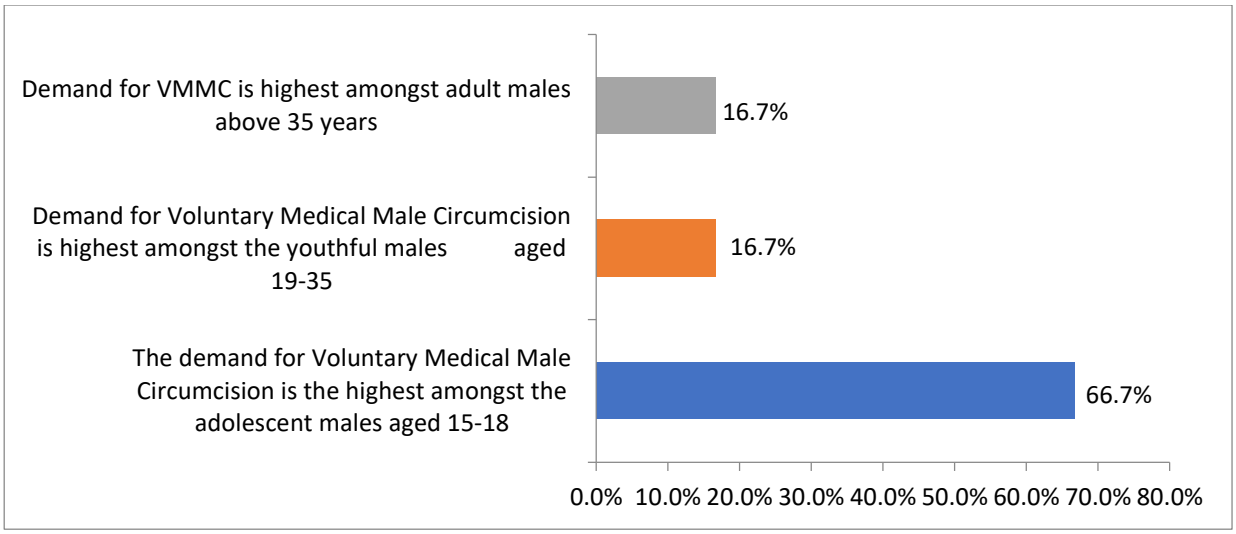

Figure 4.9 Demand of Voluntary Medical Male Circumcision

4.6.6 The results on the Influence of Information Sources on Voluntary Medical Male Circumcision Uptake

The most significant factors influencing the adoption of consensual surgical circumcision for males were instruction on the procedure and mainstream media (radio, TV, and newspapers), each of which had a 25% share (as showed in Figure 4.9 above).

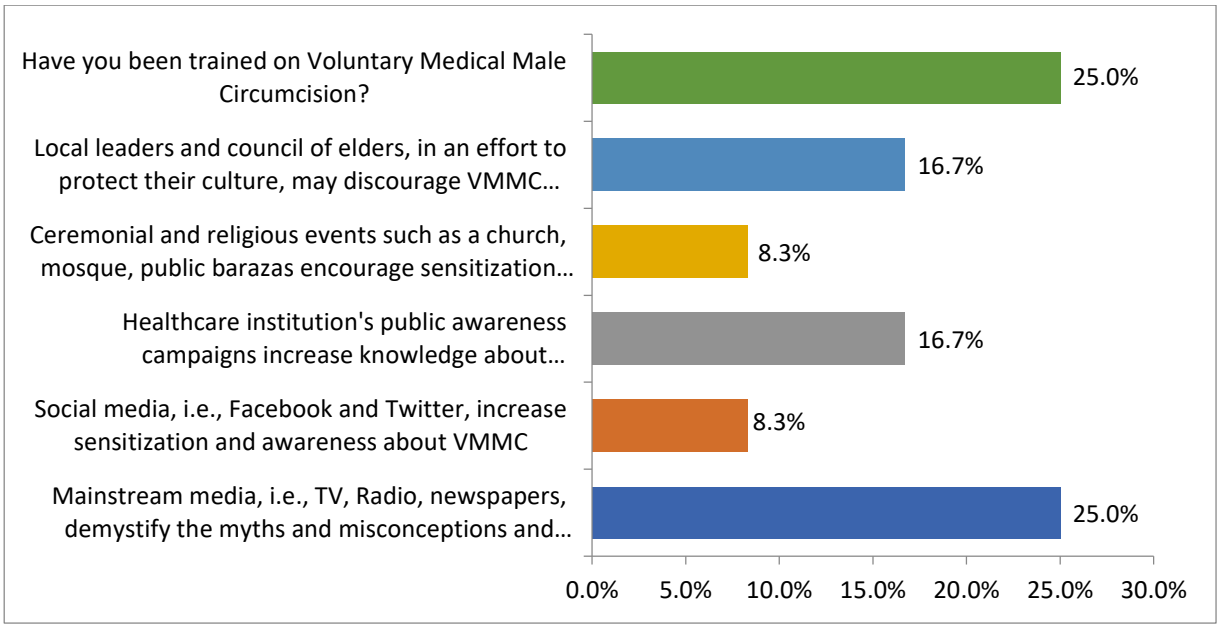

Figure 4.10 Influence of information sources on Voluntary Medical Male Circumcision uptake

In FGDs, over two-thirds (66.7%) of the members said they had received training on Voluntary Medical Male Circumcision (as shown in Figure 4.11 below).

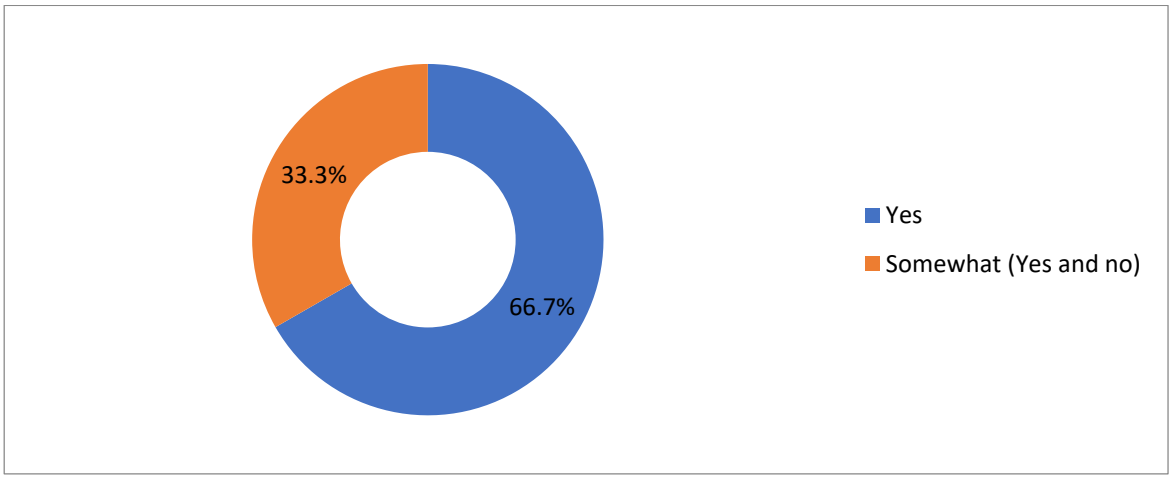

Figure 4.11 Training on Voluntary Medical Male Circumcision

4.6.7 The perception of Voluntary Medical Male Circumcision

In the focus group discussion, many participants (44%) said that consensual surgical circumcision of males lowers the risk of STI and infections with HIV (table 4.16).

Table 4.16 The perception of Voluntary Medical Male Circumcision

Descriptive Statistics	
	Per cent
It helps in the reduction of STI and HIV	44%
It alters the feeling of the community about circumcision hence increasing its uptake	14%
Helps in the prevention of cervical cancer	14%
Increases communities' education on the importance of circumcision in reproductive health	14%
Improves penis hygiene	14%

4.7 Multivariate Regression for Social-Cultural, Psycho-Social, Social-Economic and Sources of Information Factors

The study used multivariate logistic regression to estimate how socio-cultural factors, socio-economic factors, psychosocial factors, and sources of information influence the uptake of Voluntary Medical Male Circumcision in Turkana County. From the results in Table 4.17, social cultural factors have significant influence on the uptake of VMMC. Marital status proved to be statistically significant (AOR) = 1.522, p = 0.034). This suggests that individuals who are married are 1.522 times more likely to undergo VMMC compared to those who are not married. The association between marital status and VMMC uptake is statistically significant (p=0.034). In addition, the study revealed that psycho-social factors influenced the uptake of VMMC. Participants with a positive attitude towards circumcision are 1.554 times more likely to undergo VMMC compared to those with a negative attitude.

The association between attitude towards circumcision and VMMC uptake is statistically significant (AOR) = 1.554, p = 0.028). Information sources also influence the uptake of VMMC among Turkana men. It was proven that individuals who receive education about the importance of VMMC from medics at public health facilities are 1.622 times more likely to undergo VMMC, and the association between receiving education from medics and VMMC uptake is statistically significant (AOR) = 1.622, p = 0.013). Although the (AOR) value is close to 1, indicating a relatively small effect

size, the association between the level of education and VMMC uptake is statistically significant (AOR) = 1.068, p = 0.018). This suggests that individuals with higher education levels are slightly more likely to opt for VMMC.

Hence socio-economic factors such as low income, unemployment and long distance to a health facility have negative influence Voluntary Medical Male Circumcision as most Turkana males cannot afford to undergo the procedure because of the cost.

Table 4.17 Multivariate Regression for Social-Cultural, Psycho-Social, Social-Economic and Sources of Information Factors

		95% C.I.		
Variables	**AOR**	**Lower**	**Upper**	**P-value**
Marital status (SC)	1.522	.976	2.371	.034
The type of education (formal, informal, or non-formal) (SC)	1.415	.923	2.171	.111
The level of education (SE)	1.068	.714	1.597	.018
A person's attitude (PS)	1.554	1.048	2.304	.028
The level of self-esteem (PS)	1.596	.989	2.576	.055
The perception of people (PS)	1.288	.842	1.969	.243
The motivation (PS)	1.397	.937	2.084	.101
Medics (IS)	1.622	1.106	2.380	.013
The challenges with network connectivity (IS)	1.401	.934	2.100	.103
The dissemination of information (IS)	1.450	.970	2.166	.070

KEY
SC- Social Cultural factors,
PS- Psycho-social factors,
SE- Social Economic factors,
IS- Information Sources

CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Discussion

5.1.1 Respondent's Demographic characteristics

The survey's findings, which supported a study by Macintyre et al. (2014) on the factors that ease and hinder consensual surgical male circumcision among men in Turkana, showed that many respondents (77%) were young (19-35 years). The findings of this investigation concur with Nambawarr and Ntaganira (2020) who found out that the willingness to get circumcised amongst males was significantly higher amongst younger males in Rwanda. The study's findings also revealed that many of the participants (39.3%) had completed secondary school, followed by primary education (19.8%), diploma education (14.4%), certificate holders (9.6%), university graduates (8.8%), no formal schooling (5.1%) and post-graduates (2.9%), respectively. These results are consistent with an investigation by Kibel et al. (2019), which found that the acceptability of elective medical circumcision of men was significantly influenced by a person's level of education. This explains why Age and education was a crucial factor in the absorption of surgical circumcision of men on an as-needed schedule in Turkana County with younger and more educated males being more receptive to the procedure.

Christians formed many of the respondents (94.1%), followed by Muslims (4.3%), Traditionalists (1.3 %) and other religious affiliations (0.3%). Christianity and Islam which are the major religious affiliations in Turkana County, had Both religions support male circumcision, which has a substantial impact on the adoption of elective medical procedures for male circumcision. The findings in this study agrees with Masunda, Mbengo & Ngomi (2020) and Marukutira et al (2022) who said that the perceived influence of value systems by Christianity was a significant factor in the rate at which men in Botswana are voluntarily undergoing medical procedures for circumcision and Eswatini, respectively. The study also shows that most of the respondents (44.7%) were unemployed, followed by those involved in business (24.9%), civil servants (13.6%), other occupations (8.6%), and private sector/NGO (5.3%). That explains the challenge with the cost of undergoing the procedure as one of the major barriers since a sizeable

number of the male residents who live far from a health centre could not afford to pay fare to go for the procedure and stay at the hospital to recuperate. Also, those employed or involved in business found it difficult to undergo circumcision because of fear of losing their jobs or income from their businesses while recuperating. The results of the study agree with Mutugi (2017) and Morema (2021) who stated that the nature of work could be a significant barrier of enabler of Surgical Male Circumcision done voluntarily, in Luo Nyanza Kenya, Contrary to the men that had been unemployed, employed men found it difficult to have their male organs circumcised because they feared losing their paychecks and their jobs. The study's findings also show that many respondents (54.8%) were married, followed by singles were (43.9%), divorced/separated, (1.1%) while only 0.3% were widowed which in agrees with study done by Kim et al., (2019) that marriage was a key driver of male circumcision in Tanzania with women rejecting marriage proposals by males who had not undergone circumcision.

The key challenges highlighted by the key informants in the execution of the interview for Elective Surgical Male Circumcision include fear that the wound may take long to heal or that there will be complications a Selective Surgical Male Circumcision has been performed, which interferes with movement during herding activities. According to Okumu (2019), a crucial factor in the acceptance of elective medical circumcision for males in Kenya was the worry about complications. The findings of this study corroborate this assertion. The findings of the study concur with those of Fish et al (2021) and Myers and Earp (2020) who discovered that fear of the pain experienced before, and following circumcision was a key deterrent to the adoption of consensual medical circumcision for men.

According to the results from the FGD, majority of the members said that cultural practices, beliefs, myths, and misconceptions amongst people in the community about male circumcision had a strong influenced the acceptance of surgical circumcision for men that is consensual. The most prevalent myths and beliefs was that Male circumcision performed voluntarily diminishes sexual pleasure as it affects the erection of the penis (25%), it increases the chances of contracting sexually transmitted

infections (16.7%), makes the males lose their sexual power/prowess, penis size, and shape (8.4%), and that it makes the penis grow big for some people (8.3%). The findings of the study are consistent with those of Kamais et al. (2019), who found that cultural customs, notions, myths, and errors concerning male circumcision significantly affected consensual surgical male circumcision in Turkana County.

The focus group participants claimed that the popular press (25%) and health professionals' instruction about consensual medical male circumcision (25%) had the greatest impact on the acceptance of this procedure. Local leaders (16.7%) were the third most effective source for knowledge on the adoption of consensual medical circumcision for men, and healthcare institutions' public awareness campaigns (16.7%). Social media (8.3%) and ceremonial and religious events (8.3%) such as a church, mosque, contributed a paltry 8.3%. Local authorities, vernacular media outlets, and health professionals have a lot of influence in Turkana since the population looks to them for information. The findings of this study concur with those of Luseno, Rennie and Gilbertson (2023) who believed that professional training and information campaigns in the general media were the most efficient means of raising acceptance of optional healthcare circumcision for men in Botswana and South Africa.

5.1.2 Socio-Cultural Factors

This study result implies that social-cultural factors have a positive influence on Optional Medical Men Circumcision Adoption in Turkana County. The multivariate regression results also indicate that there is a fairy strong relationship between socio-cultural the adoption of consensual medical circumcision for men, and considerations in Turkana County (OR = 1.554, p = 0.028), which is statistically significant. According to the study's findings, social and cultural factors like religious convictions, marital status, educational attainment, and peer pressure have a favorable impact on the acceptance of consensual medical circumcision for males. These results agree with Kamais, Mwangi and Bor (2019) and Banda (2021) who opined that social-cultural factors such as cultural rites/beliefs, religion marital status, education level and societal pressure had a positive influence on Optional Surgical Men Circumcision Adoption.

5.1.3 Psychosocial Factors

For every one-unit increase in psychosocial factors, there is a predicted increase of 1.554 in the log odds of increase in the elective medical circumcision of male's adoption in Turkana County and with (OR = 1.554, p = 0.028), which is statistically significant. This implies that psychosocial factors are important and should be taken into consideration when scaling up the elective medical circumcision of male's adoption in Turkana County. The results agree with Dinizulu (2019) and Myers and Earp (2020) who found out that in psychosocial factors such as the attitudes and perceptions about voluntary medical male circumcision on sexual performance and safety of the penis had the use of consensual medical circumcision for males has a substantial impact. Turkana County has a high HIV/AIDS burden hence psychosocial factors such as a person's attitude, perceptions, self-esteem, and beliefs about the importance of reduction of HIV transmission through elective medical circumcision of males and enhancing penis hygiene may serve as incentives for males to undergo consensual medical circumcision for me. The findings are consistent with those made by Otunga, Jaluo and Mubichakani (2019) who discovered that psychosocial factors, such as beliefs and opinions about consensual medical male circumcision and its effects on sexual performance as well as the security of the penis, had a significant impact on the acceptance of unforced medical circumcision of men.

5.1.4 Socio-Economic Factors

In Turkana County, it was discovered that social-economic factors had a detrimental impact on the adoption of consensual medical circumcision for men. The multivariate regression results further demonstrated a positive connection (OR = 1.068, p = 0.018) between socio-economic factors and a rise in the use of consensual medical circumcision for males in Turkana County, which implies that it is statistically significant. According to Palmer (2022), the correlation data support their claim that the price of consensual medical circumcision for males is a barrier to its expansion in Eastern and Southern Africa. The findings concur with Nxumalo and Mchunu (2020) research on elective medical circumcision for men in the South African province of Kwa Zulu Natal, which found that the uptake of the procedure was negatively impacted by the society's poor socioeconomic conditions. The findings agree with Bershteyn et al

(2021), that posit that, a barrier to the expansion of elective medical circumcision for males in Eastern and Southern Africa is its cost.

5.1.5 Knowledge-Based Information Sources

For every one-unit increase in knowledge-based sources of information, there is a predicted increase of 1.622 in the log odds of increase in a rise in the use of consensual medical circumcision for males in Turkana County and (OR = 1.622, p = 0.013), which is statistically significant. This implies that social information sources do have a strong and positive influence on Elective Medical Male Circumcision Adoption in Turkana County. The findings of this study are consistent with those of Emoit (2018) who found that social information sources like the public, medical professionals, public barazas, and local leadership do have a significant and favorable impact on the acceptance of consensual medical circumcision for males.

To introduce a foreign culture in Turkana community such as male circumcision, it is pivotal to use trusted sources such as traditional leaders, local administrator's, medical personnel within the community and vernacular media stations to disseminate information about its benefits. The outcomes are consistent with Moyo (2021) study which found that social information sources such as mainstream media, medical personnel, public barazas and local leadership do have a significant and favorable impact on the adoption of voluntary Medical Male Circumcision.

5.2 Conclusions

The study rejected the null hypothesis that social-cultural factors had no significant influence on uptake of voluntary medical male circumcision in Turkana County and concluded that socio-cultural factors had a fairy positive and statistically significant influence on uptake of voluntary medical male circumcision in Turkana County. In addition, there is also a rejection of null hypothesis for psychosocial factors, and it was concluded that psychosocial factors had a strong positive and statistically significant influence on uptake of voluntary medical male circumcision in Turkana County. Additionally, it can also be concluded that the null hypothesis for socio-economic factors was rejected since it was found that socio-economic factors had a negative and

statistically significant influence on uptake of voluntary medical male circumcision in Turkana County. The study also rejected the null hypothesis that knowledge-based factors have no significant influence on uptake of voluntary medical male circumcision in Turkana County and concluded that knowledge-based sources of information positively and statistically significantly influenced uptake of voluntary medical male circumcision in Turkana County.

5.3 Recommendations

5.3.1 Recommendations for practice

Based on the findings and conclusions of this study, the following recommendations were made.

1. The County Executive Committee members for Health services and sanitation in Turkana County should develop campaigns that respect and integrate local customs, traditions, and religious beliefs, emphasizing how VMMC aligns with these values.
2. They should also engage community leaders, religious figures, and influential members to endorse and promote VMMC as a positive cultural and health practice.
3. They should also train and mobilize peer educators who can relate to the community, sharing accurate information and subjective experiences to dispel myths and misconceptions.
4. The study also advocates for additional educational programs at different educational levels in schools where tailored information about VMMC benefits and HIV/AIDS education will be made easily accessible and comprehensive to all groups of male students.
5. The different hospitals in Turkana County that provide VMMC services should offer pre- and post-VMMC counseling to address fears, misconceptions, and psychological barriers, with the focus of bolstering self-esteem and motivation through these sessions.
6. For bringing VMMC services closer to the public, such hospitals can also establish mobile clinics to reach remote areas, ensuring accessibility to VMMC services, particularly in regions with limited healthcare access.

7. The study also advocates for partnerships and collaborations of the county government with NGOs, private healthcare providers, and international organizations to increase the reach and efficiency of VMMC programs.

5.3.2 Policy Recommendation

1. Policymakers in the county government should develop policies mandating comprehensive sexual and reproductive health education in schools, including information on the benefits of VMMC.
2. The county government should implement subsidies or financial support schemes to make VMMC affordable for individuals from low-income backgrounds.
3. Policymakers should also advocate for the local leadership to be adequately trained so that they can mobilize communities, sensitize, and educate them about behavioral change and the importance of VMMC.

5.4 Suggestion for further research

Since the Turkana community's cultural traditions do not support the practice of circumcision in men, encouraging the adoption of voluntary medical circumcision for males' services through the elders who are the custodians of cultural traditions is essential in achieving cultural perception changes to encourage the acceptance of consensual medical male circumcision alongside a focus on its biomedical advantages such as lowering HIV infections. Also, the study recommends the inclusion of government policy on male circumcision as an intervening variable for subsequent studies since Turkana male do not culturally practice it.

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APPENDICES

Appendix I: Acknowledged Consent Form

I am Ekidor Ateyo Lokorio, and I am currently attending Kenyatta University to get my master's degree. It is the goal of my study project, "Uptake of Voluntary Medical Male Circumcision Services and Associated Psychosocial and Knowledge-Based Factors Among Men in Turkana County, Kenya," to shed light on the beliefs and information that men have about circumcision. The formation of policy pertaining to this topic will be influenced by the outcomes of my investigation.

Procedures to be followed.

I must ask you a few questions for you to take part in the present investigation. I will put the details you give me in a questionnaire.

Voluntarism

You have the option to decline to take part in this study. Whether you decide to participate in the research or not, you will receive similar services and treatment, and your choice will not affect the care you will get. Keep in mind that participation in this survey is entirely voluntary. You are always welcome to ask questions about the study. You have the right to decline any question and to end an interview at any moment. You can leave the research project at any stage without impacting having any impact on the services you get from this organization or any other in the present or future.

Discomforts and Risks

You may feel uncomfortable or embarrassed by some of the private inquiries you will be asked. In such a case, you are free to opt out of responding to these questions. The interview can be ended at any time. You might have to wait an additional 30 minutes or so before receiving normal services after the interview. There may be minor pain or discomfort when the blood is removed, but we will do our best to lessen it by being careful.

Benefits

By taking a role in this research project, you will assist us in figuring out how to offer methods of screening that are efficient and enhance the study.

Reward

The clinic will provide a secluded location for the discussions and examinations. The survey questionnaire will not include your name. At Kenyatta University, the surveys would be stored in a closed cabinet for security. Only the investigation crew will have access to everything, which will be kept secret.

Contact Information

Call Supervisor I. Isaac Mwanzo if you have any inquiries regarding the research project on 0729932026 or. Dr. Gordon Ogweno Supervisor II. On 0725715623, Investigator Ekidor Ateyo Lokorio no 0721928934. Nevertheless, you can contact the Kenyatta University Ethical Review Committee Secretariat at chairman.kuerc@ku.ac.ke and secretary.kuerc@ku.ac.ke if you have any inquiries concerning what you are entitled to as a study volunteer.

Participant's statement

I understand the information mentioned above respecting my involvement in the study. I was explained the study and the opportunity to pose inquiries and my inquiries were satisfactorily addressed. It is up to me whether I take part in this study. I am aware that my data shall be kept confidential and that I have the right to withdraw it at any time. I am aware that regardless of whether I choose to withdraw from the study, I will continue to get the same level of care and medical attention, and that my choice will have no bearing on the level of care I obtain from the clinic today or from another clinic in the future.

Participants name……

Signature or Thumbprint Date

_____ _____

Name of the witness or representative if applicable Connection to Subject

Investigator's statement

I, the person who signed, have described to the participant the processes that need to be performed in the investigation and the dangers and benefits involved in a language they can comprehend.

Name of Interviewer ……

Your Signature _____ Date: _____

Appendix II: Informed Assent for Children

Principal Investigator: Ekidor Ateyo Lokorio. The researchers are conducting a study. We want you to be aware of the following things regarding research studies: You are being asked to participate in a study. New theories can be evaluated through research. We can learn new things thanks to research. You can decide whether you want to participate in this study. Either Yes or No can be used. Whatever you choose is acceptable. We will still look out for you well. About what is the investigation? In plain English, describe the study's goal and ofof the survey along with what it comprises. The reason I am being invited to participate in this study. You are requested to participate in the investigation because (insert participant information here) What will occur throughout this study? List all the steps and what everyone is expected to bring to study. If you consent to participate in this investigation, you.....

What additional details about the research project should I be aware of?

Inform an adult immediately if you feel ill or are concerned the attribute is amiss, you feel sick or are concerned the attribute is amiss with you. You are under no obligation to respond to any questions.

What are the potential advantages or positive outcomes?

People participating in research studies may get favorable outcomes. We refer to these as "benefits." Explain any questions the researchers are trying to respond to with their research if any are present.

What if I decide not to participate in this study?

If you do not want to, you are not required to participate in the study. No care or services will be lost.

In case I have concerns, who can I contact?
Contact Dr. Isaac Mwanzo Supervisor 1 on 0729932026, Dr. Gordon Ogweno Supervisor 2 on 0725715623, or the Kenyatta University Ethical Review with whatever inquiries you may have concerned this project.
Committee Secretariat on chairman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke

Your Signature _____ Date: _____

Signature of the Requester of Consent
_____ Date: _____

Signature of Witness _____

Date: _____

Appendix III: Questionnaire on VMMC Uptake

QUESTIONNAIRE ON CULTURAL, ECONOMICAL, PSYCHOSOCIAL AND KNOWLEDGE-BASED FACTORS DIRECTING MEN IN TURKANA COUNTY, KENYA TO USE VOLUNTARY MEDICAL MALE CIRCUMCISION

Declaration: The answers to these questions in this questionnaire were strictly confidential.

Questionnaire

Sub-County……

Date of Interview *Indicate DD/MM/YYYY* ……/……/……

The interview started……

The interview ended……

Questionnaire Serial Number……....

Section A: Participants' Sociodemographic Information

1. Which is your area of Residence? (Tick one)

a) Turkana Central Sub-County []

b) Loima Sub-County []

c) Turkana North Sub-County []

2. Your gender, please?

Male [] Female []

3. What age are you?

a) Below 18 years []

b) 19-35 years []

c) Over 35 years []

4. Which level of schooling have you attained to the highest? (Mark one.)

Did not attend school [] Primary [] Secondary [] Certificate.

Diploma [] Graduate [] postgraduate []

5. What faith do you practice? (Tick one) _____

Christian [] Muslim [] Traditionalist [] other []

specify……

6. What is your ethnic tribe? .....

Turkana [] Samburu [] Pokot [] Other []

7. What is your occupation?

Agriculture [] Business [] Civil servant [] Private sector/NGO employee []
Unemployed [] In School [] Other []

8. What kind of relationship do you have?

Married [] Single [] Widowed [] divorced/separated [] Minor []

Section B: Prevalence of circumcised males.

1. Are you circumcised?

Yes [] No []

2. Does your culture support male circumcision?

Yes [] No []

3. If yes to question (2), where were you circumcised?

Public Health facility [] Private Health Facility []

At a traditional/religious site, i.e., church, mosque, cultural center []

4. If yes to question (2), at what age were you circumcised?

Below 15 [] 15-18 years [] 19-35 years [] Over 35 years []

5. If yes to question (2), why did you decide to get circumcised?

My leaders/elders encouraged me [] my partner, parents, friends encouraged me [] I was informed that it lowers the risk of HIV infection by medics [] It improves penis hygiene []

6. What is the distance from your nearest public health facility?

Less than 5 KM [] 5-10 KM [] over 10 KM []

Section C: Voluntary Medical Male Circumcision Acceptance

B1: Which of the assertions that follow about the impact of sociocultural variables on the acceptance of consensual surgical male circumcision in a health care institution do you find to be true? Strongly disagree (1), Disagree (2), Uncertain (3), Agree (4), and Strongly Agree (5) are all acceptable responses.

Table 1: Socio-cultural questions on uptake of Voluntary Medical Male Circumcision

	1	2	3	3	5
The acceptance of consensual medical male circumcision is influenced by religion.					
The acceptance of consensual medical male circumcision is influenced by relationship status.					
Family background has a strong influence on the uptake of Surgical Male Circumcision Done voluntarily					
The sort of schooling (formal, informal, or non-formal) influences the adoption of consensual medical male circumcision					
The acceptance of consensual medical male circumcision is strongly influenced by social customs and values.					

B2: Which of the following assertions about how socioeconomic variables affect the acceptance of consensual medical male circumcision at your health facility do you agree with? Strongly disagree (1), Disagree (2), Uncertain (3) Agree (4) strongly agree (5).

Table 2: Socio-economic questions on uptake of Voluntary Medical Male Circumcision

	1	2	3	3	5
Employment or lack thereof does influence Elective Medical Male Circumcision Adoption					
The adoption of VMMC is influenced by the amount of income and money.					
Intentional Medical Male Circumcision adoption is influenced by the length of the travel distance to a medical institution.					
The adoption of consensual medical male circumcision is influenced by the specifics of one's occupation or vocation					
The adoption of consensual medical male circumcision is influenced by educational attainment					
The adoption of consensual medical male circumcision is influenced by socioeconomic position (SES)					

B3: Which of the following assertions about how psychological variables affect the acceptance of elective medical male circumcision in a medical institution do you agree with? Strongly disagree (1), Disagree (2), Uncertain (3) Agree (4) strongly agree (5).

Table 3: Psychosocial issues with consensual medical male circumcision adoption

	1 2 3 3 5
A person's attitude towards circumcision influences Uptake of consensual surgical male circumcision	
A person's degree of self-esteem significantly affects his decision to take part in consensual medical circumcision for males.	
The acceptance of consensual medical circumcision for men is significantly influenced by how the community views those who have had the procedure.	
The motivation by males to undertake Voluntary Medical Male Circumcision is strongly influenced by their spouses and communal support	

B4: Which of the following assertions about the impact of data sources on the adoption of consensual medical circumcision for males in your health institution do you find to be true? Strongly disagree (1), Disagree (2), Uncertain (3) Agree (4) strongly agree (5).

Table 4: Concerns about various sources of data and their impact on the adoption of consensual medical circumcision for males

	1 2 3 3 5
Public health facility doctors inform us of the significance of consensual medical circumcision for males	
The adoption of consensual medical circumcision for males is influenced by online platforms	
The acceptance of consensual medical circumcision for men is influenced by the popular press	
The difficulties with connection to the network prevent the mainstream and social media from disseminating details regarding consensual medical circumcision for males	
The local government and community leaders in churches, mosques, and barazas disseminate data regarding the acceptance of consensual medical male circumcision, which has an impact on that uptake	

Section D: The outcomes of the elective medical circumcision of male's program

C1: Please indicate how much you agree or disagree with each of the subsequent statements. kindly choose (√) the appropriate answer. Use the scale of 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, 5 = strongly agree.

Because of the Uptake of Surgical Male Circumcision Done voluntarily	1 2 3 4 5
The prevalence of HIV along with other infections that are transmitted sexually is decreased by the circumcision of men.	
When executed in a healthcare center with the appropriate tools and by trained medical professionals, circumcision of males is safe.	
Penis hygiene has improved	
There are no complications (sexual dysfunction, loss of penile sensitivity, wound infection, excessive bleeding, delayed healing) after Surgical Male Circumcision Done voluntarily	
There is no stigma associated with males who have undergone medical circumcision	

…… *End of Questionnaire*……

Thank You.

Appendix IV: Questionnaire for Key Informants (CHEWs in Public Health Facilities, Facility In charge, subcounty officers and County officers in the study area)

Sub-County……

Enter the date of the interview as DD/MM/YYYY.

……../……/…….

the interview began at the specified

time.……

The interview ended on

time.……

Questionnaire Serial Number……....

1. Which Sub- County is your workplace? (Tick one)

a) Turkana Central Sub-County []

b) Loima Sub-County []

c) Turkana North Sub-County []

2. Your sex?

Male [] Female []

3. Which stage of formal schooling do you possess? (Mark one.)

Certificate [] Diploma [] Graduate [] Postgraduate []

Other [] ……

1. What position do you have in this hospital for public health? (Mark one.)

Doctor [] Hospital administrator [] Nurse []

Clinician [] Other [] ……..…….

5. For how many years have you been employed by this medical center? _____

a) No more than a year []

b) From 1 to 5 years []

c) Ages 6 to 10 []

d) Greater than ten years []

6. What are the barriers to Voluntary Medical Male Circumcision uptake? (Tick all the reasons you have chosen)

a) The wound may take exceedingly long to heal []

b) A negative perception of those who have undergone VMMC by community []

c) Fear of complications after VMMC []

d) Fear having an injection in my penis []

e) Fear that it may affect my sexual performance []

f) Lack of moral support by my partner []

g) You take longer to have sex []

h) It interferes with my work []

I) It is against my tradition []

j) I do not have the money to undertake Voluntary Medical Male Circumcision []

k) Other……

7. What role do you play in Voluntary Medical Male Circumcision implementation? .....

8. In this Sub-County, when did you start executing the optional medical circumcision of male's program?

a) No more than a year []

b) From 1 to 5 years []

c) Ages 6 to 10 []

d) Greater than ten years []

9. Which methods do your health facility and ministry of health use to create awareness about VMMC?

a) Issuance of brochures, posters, and announcement via noticeboards []

b) Creation of awareness about Voluntary Medical Male Circumcision program through public Barazas []

c) Sensitization through mainstream media, i.e., TV, Radio, Newspapers []

d) Sensitization through social media trends on Facebook or and Twitter []

e) Incorporating local leaders and council of elders to drum up support and create public awareness about Voluntary Medical Male Circumcision Program []

f) Other[]

…….

10. What is the populace's reaction generally?

Particularly good [] Good [] Lukewarm []

Bad [] Very Bad []

11. What are some of the challenges you have met during the implementation of this program?

……

……

……

12. How do the demands for choice medical circumcision among young men, adult men, and adolescents differ from one another?

a) Adolescent males between the ages of 15 and 18 have the largest desire for elective medical circumcision of males []

b) young males aged 19 to 35 have the biggest desire to have elective medical male circumcision []

c) adult males over the age of 35 have the biggest demand for VMMC []

13. Were there any issues with the elective medical circumcision of male's procedures before, during, or after?

Yes [] No []

14. If so, what kinds of complications?

……

……

15. How does socio-cultural, socio-economic, information sources, and psychosocial factors hinder Voluntary Medical Male Circumcision uptake in this area?

Appendix V: Focus Group Discussion (FGD) Questionnaire

Sub-County……

Enter the date of the interview as DD/MM/YYYY

……/……/……

The conversation with the interviewer began

……

Interview concluded ……

Questionnaire Serial Number……....

FGD Questions

1. Which factors influence Voluntary Medical Male Circumcision uptake by Turkana men in this

region?.....

.....

2.Do you believe consensual medical circumcision of males lowers the risk of contracting HIV?

……

……..

3. Why is consensual medical circumcision of males important?

……

……

……

4. What myths are there regarding Voluntary Medical Male Circumcision?

……

……

……

5. How does the following information sources influence Voluntary Medical Male Circumcision uptake?

a) Mainstream media (TV, radio, newspapers)

b) Social media (Facebook, Twitter, etc.)

c) Health care institutions public awareness campaigns

d) Ceremonial and religious events such as public barazas, church/mosques?

e) Local leaders and council of elders

6. Have you been trained on Voluntary Medical Male Circumcision?

……

……..

7. What do you perceive of Voluntary Medical Male Circumcision?

……

……

……

Appendix VI: Turkana County Map

KEY

	Turkana Central Sub-County
	Turkana North Sub-County
	Loima Sub-County

Appendix VII: Approval for Research Proposal

KENYATTA UNIVERSITY
CENTER FOR RESEARCH ETHICS AND SAFETY

Fax: 8711242/8711575 **P. O. Box 43844,**
Email: chairman.kuerc@ku.ac.ke
Nairobi, 00100

Tel: 8710901/12

Website: www.ku.ac.ke
Our Ref: **KU/ERC/APPROVAL/VOL.1** Date: 21/10/2021

Ekidor Ateyo Lokorio
P.O BOX 43844-00100
Nairobi.

Dear Sir,

RE: UPTAKE OF VOLUNTARY MEDICAL MALE CIRCUMCISION SERVICES AND ASSOCIATION PSYCHOSOCIAL AND KNOWLEDGE BASED FACTORS AMONG MEN IN TURKANA COUNTY KENYA

This is to inform you that ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** has reviewed and approved your above research proposal. Your application approval number is ***PKU/2341/I1480.*** The approval period is ***21/10/2021 to 21/10/2022.***

This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE***
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.

Appendix VIII: KUERC Approval

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 020-8704150

Internal Memo

FROM: Dean, Graduate School **DATE:** 26th August, 2021

TO: **Mr. Ekidor Ateyo Lokorio** **REF:** Q57/CTY/PT/37283/2016
C/o Department of Community Health & Epidemiology

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

==========

This is to inform you that Graduate School Board, at its meeting on **25th August, 2021**, approved your Research Proposal for the M.P.H. Degree entitled, **"Uptake of Voluntary Medical Male Circumcision Services and Associated Psychosocial and Knowledge Based Factors among Men in Turkana County, Kenya."**

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation and Ethics Review Committee, Kenyatta University.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and Progress Report Forms per semester. The forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

REUBEN MURIUKI
FOR: DEAN, GRADUATE SCHOOL

CC. Chairman, Community Health & Epidemiology Department

Supervisors:

1. Dr. Mary Muiruri
   C/o Department of Community Health & Epidemiology
   Kenyatta University

2. Dr. Gordon Ogweno
   C/o Department of Medical Physiology
   Kenyatta University

Appendix IX: Nacosti Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **590822**

Date of Issue: **29/October/2021**

RESEARCH LICENSE

This is to Certify that Mr.. Ekidor Ateyo Lokorio of Kenyatta University, has been licensed to conduct research in Turkana on the topic: UPTAKE OF VOLUNTARY MEDICAL MALE CIRCUMCISON SERVICES AND ASSOCIATED PYSCHOSOCIAL AND KNOWLEDGE BASED FACTORS AMONG MEN IN TURKANA COUNTY, KENYA for the period ending : 29/October/2022.

License No: **NACOSTI/P/21/13888**

590822

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

Appendix X: Turkana County Permit

COUNTY GOVERNMENT OF TURKANA

OFFICE OF THE GOVERNOR

Telegraphic address
County Governor,
E-mail: countysecretary@turkana.go.ke
Fax .....
REF: TCG/CS/CORR/VOL.2 (48)

The County Secretary
Turkana County Government
P.O. Box 11-30500
Lodwar
4th November, 2021

The County Chief Officer- Ministry of Health Services and Sanitation

RE: RESEARCH LICENSE NO. NACOSTI/P/21/13888
MR. EDWIN ATEYO EKIDOR

The above named person from Kenyatta University has been granted authority by the National Commission for Science, Technology and Innovation to conduct research in Turkana County on the topic: **Voluntary Medical male circumcision services and associated psychosocial and knowledge based factors among men** in Turkana County.

Please accord him the necessary assistance and ensure that the researcher share a copy of his findings with us for our future reference,

ROBERT LOYELEI
FOR: COUNTY SECRETARY/ HEAD OF COUNTY PUBLIC SERVICE

Copy to:

CECM - Ministry of Health Services and Sanitation