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Research Report

Perceptions of, and factors influencing, VMMC decision making among active duty men in Malawi

A research report submitted in partial fulfilment of the requirements for a
Master of Public Health, Social and Behaviour Change Communication

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Declaration

I, Chimwemwe Cece Chirembo, declare that this thesis is my own, unaided work and that I have acknowledged all source documents. It is being submitted for the Degree of Master of Public Health, Social and Behaviour Change Communication at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.

(Signature of candidate)

6 September 2024

Dedication

I dedicate my Masters thesis to my late Dad, Dr Anderson M. Chirembo, and my late brother, Sheshe A. Chirembo. Moments shared, memories created. You will always and forever be in my heart, my guardian angels!

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First, I thank God. I am grateful for the divine guidance, blessings, and grace that have illuminated my path during this journey. Blessed beyond measure!

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Abstract

Background

Voluntary Medical Male Circumcision (VMMC) plays a vital role in HIV prevention, especially in high-burden regions like sub-Saharan Africa. Despite efforts to promote VMMC uptake, understanding the experiences and factors influencing decision-making, particularly among active duty men in Malawi, remains essential due to persistently low uptake rates. This qualitative study explores the perceptions, understandings and experiences of men regarding VMMC and the factors influencing their decisions to undergo the procedure.

Methodology

This qualitative study, conducted at the Unique military base* in Lilongwe, Malawi, involved both circumcised and uncircumcised active-duty men. Purposive sampling ensured diversity across marital status, rank, years of service, and age groups. In-depth interviews, conducted in English or Chichewa, explored perceptions and decision-making factors. Thematic analysis, guided by health behaviour theories and inductive coding, was employed to analyse the data.

Results

Participants were diverse in age, marital status, rank, and years of service. Among the circumcised group, participants ranged in age from 18 to over 50 years old, with varying ranks and years of service. There was a complex interplay of factors influencing VMMC decision-making, including cultural beliefs, peer influence, access to healthcare services, and individual perceptions of risk and benefit. Notably, participants from both circumcised and non-circumcised groups expressed valuable insights into their decision-making processes, highlighting the importance of considering a range of perspectives when designing interventions to promote VMMC uptake. Additionally, the study identified the role of military culture and organizational factors in shaping attitudes towards VMMC, suggesting the need for targeted approaches that address the unique dynamics within military settings. Overall, the findings contribute to a deeper understanding of VMMC decision-making among active duty men in Malawi and provide valuable insights for the development of tailored interventions to increase VMMC uptake in this population. By addressing the diverse needs and preferences of military personnel, public health initiatives can effectively promote VMMC as a key component of HIV prevention efforts, ultimately contributing to improved health outcomes within the military and broader communities.

Conclusion

In conclusion, this study sheds light on the factors influencing decision-making processes regarding VMMC among active duty men in Malawi. Through a qualitative approach, the research captured diverse perspectives from both circumcised and non-circumcised participants, providing a nuanced understanding of the motivations, perceptions, and barriers related to VMMC uptake within the military context.

*A pseudonym used to protect the identity of the study site

Definition of Terms

FGD	Focus Group Discussion
HIV	Human Immunodeficiency Virus
HREC	Human Research Ethics Committee
MDF	Malawi Defence Force
MoH	Ministry of Health
NHSRC	National Health Sciences Research Committee
SBCC	Social and Behaviour Change Communication
SSA	Sub-Saharan Africa
STI	Sexually Transmitted Infection
VMMC	Voluntary Medical Male Circumcision
WHO	World Health Organization

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CHAPTER 1: Introduction

1.1 Background

Malawi has been severely affected by the Human Immunodeficiency Virus (HIV) pandemic (1). In 2019, the HIV prevalence rate in Malawi was 8.9% among the population aged 15 and 49 years. UNAIDS data for 2020 indicates that the prevalence rate has plateaued at 9.2% (1,2). Untreated HIV infection weakens the immune system which predisposes individuals to a wide range of infectious diseases (3). Therefore, HIV places a burden on the health system, as well as a demand for HIV treatment. Treatment coverage is limited in many Sub-Saharan Africa (4,5). In the case of active duty personnel, HIV infection can have a significant impact on military force preparedness and strength, which impacts national security (6). The expense of care and the time lost by infected soldiers seeking medical attention also have a negative effect on the military workforce.

HIV prevention services are essential to respond effectively to the national disease burden. In an effort to lower the rate of HIV infection and transmission, the Malawian government, through the Ministry of Health (MoH), is implementing a wide range of HIV preventive services and programs (2,7). Voluntary male medical circumcision (VMMC) is implemented as a key strategy to the national HIV prevention strategy (2).

VMMC is an HIV prevention strategy that has been shown to contribute to the reduction of HIV incidence, is once-off and can be accessed by men from childhood to adulthood (8). Randomized controlled trials have demonstrated that VMMC is a safe and effective method of reducing female-to-male HIV transmission by about 60% (1,9) and VMMC has been shown to significantly reduce prevalence of HIV at a community level (8). VMMC can be done with minimal resources to provide long-term effect of safeguarding the person by lowering their chance of contracting HIV (10). This shows that high VMMC coverage of 80% or higher among men aged 15-49 years could have significant impact on reducing HIV (8).

Active duty men face a multitude of risk factors for HIV infection due to the nature of their profession. Aside from their high mobility, active duty men experience prolonged periods away from home often resulting in separation from long-term partners, potentially leading to engagement in casual or transactional sex, thus increasing the risk of HIV transmission (11).

Additionally, active duty men operating in conflict zones or areas with a significant military presence may be susceptible to sexual violence and exploitation, placing them at risk of acquiring HIV through non-consensual encounters (12).

Limited access to healthcare services, including HIV testing and treatment, further worsens active duty men's vulnerability to infection, particularly in remote or conflict-affected areas (13). Moreover, stigma surrounding HIV/AIDS within military settings may deter soldiers from seeking essential services, including testing and treatment, due to fear of discrimination or negative repercussions (14). This fear can lead to delayed diagnosis and increased transmission risk. Furthermore, factors such as injection drug use, inadequate HIV education and prevention programs, interactions with migrant or displaced populations, inconsistent condom use, substance abuse, and mental health issues further compound the risk of HIV transmission among soldiers (15–17). Increasing the number of men who undertake VMMC would contribute to HIV prevention efforts that Malawi is making towards achieving the 95-95-95 goals of the HIV/AIDs cascade to reach epidemic control (10,18). This makes VMMC a compelling strategy for preventing the spread of HIV infection among soldiers and the broader population.

Malawi is one of the fourteen priority countries for VMMC programming (1,19). The country officially launched this program in 2012 (9). The uptake of VMMC remains low in Malawi despite evidence of its effectiveness and cost-effectiveness, and its availability and accessibility (2,5). This poses challenges by placing an increasing burden on the already resource-constrained country. The prevalence of HIV/AIDS in Malawi has profound implications for family dynamics and well-being. Individuals living with HIV often face stigma and discrimination within their families, leading to social isolation and psychological distress (14,16). This stigma can have detrimental effects on mental health and overall quality of life. Additionally, the financial strain of managing HIV-related healthcare costs can impact family finances, potentially resulting in economic instability and reduced access to essential resources (20). Families may struggle to afford medication, healthcare services, and other basic needs, further exacerbating the challenges associated with living with HIV.

At the community level, the low uptake of VMMC undermines efforts to control the HIV epidemic, perpetuating the cycle of transmission and hindering progress toward epidemic

control goals (12,17). This places increased burdens on healthcare systems, limiting resources for social services and reducing productivity due to illness and mortality associated with HIV/AIDS (16). Addressing the barriers to VMMC uptake requires comprehensive interventions targeting individual-level and systemic challenges. Increasing awareness about the benefits of VMMC, addressing cultural norms that may discourage circumcision, improving access to services, and integrating VMMC into existing healthcare platforms are crucial steps in enhancing uptake (15,16). By overcoming these challenges and bolstering VMMC uptake, Malawi can mitigate the impact of HIV/AIDS, ultimately contributing to improved quality of life and sustainable development.

The scaling up of VMMC in Malawi has increased the availability of services across the country (1). However, efforts to increase VMMC uptake among men were not adequate as the coverage has not reached the optimal level typically set at 80% or higher in high HIV prevalence populations which is crucial for realizing substantial reductions in HIV transmission rates at the population level (1,9). Attaining and sustaining such elevated coverage rates poses considerable challenges and demands persistent endeavors in promoting VMMC services, mitigating barriers to uptake, and ensuring unhindered access to quality healthcare services (5,14). Numerous factors, including individual characteristics and attitudes as well as the environment in which people live, influence the uptake of VMMC (1,21). Perceptions of potential service users partly determine their willingness to undergo the VMMC and their perceived benefits (17). Similarly, structural factors in the environment have influenced or derailed availability and/or accessibility of VMMC to specific populations that require it (1,9). The study explored the factors that motivate active duty men in Malawi to undergo VMMC. Understanding the motives and constraints faced by this specific demographic was critical for understanding the dynamics of VMMC adoption among active duty men. By addressing this study question, we wanted to provide useful insights that can be used to inform targeted interventions and strategies to encourage the adoption of VMMC among active duty men in Malawi. By delving into this research topic, we hoped to unearth subtle insights that could serve as the foundation for individualized interventions and policies aimed at boosting acceptability and use of VMMC among active duty men in Malawi.

Despite the wealth of studies exploring VMMC uptake in various demographics, there remains a glaring gap in our understanding of how public servants, particularly in Southern Africa,

engage with VMMC services. Limited information exists on the specific challenges, motivators, and barriers faced by active duty men. This gap accentuates the need for targeted studies dedicated to unraveling the intricacies of VMMC uptake within the public sector service populations.

The study explored the factors that motivate active duty men in Malawi to undergo VMMC. Understanding the motives and constraints faced by this specific demographic was critical for understanding the dynamics of VMMC adoption among public sector service providers. By addressing this study question, we wanted to provide useful insights that can be used to inform targeted interventions and strategies to encourage the adoption of VMMC among active duty men in Malawi.

1.1.1 Research Assumptions

Together with other enablers or inhibitors, these various factors have shaped the uptake of VMMC among active duty men in Malawi. This assumption posits that the decision-making process regarding VMMC uptake is complex and multifaceted in relation to active duty men's roles, responsibilities, and status, influenced by a range of social, cultural, and personal determinants. By acknowledging the interplay of these factors, the research aims to explore the nuanced dynamics shaping VMMC uptake among active duty men. This hypothesis aligns with previous studies highlighting the importance of socio-cultural factors, access to healthcare services, and individual beliefs in shaping VMMC uptake (11,14,17).

1.2 Literature Review

This literature review seeks to comprehensively examine the literature related to VMMC, delving into factors that influence its uptake, ranging from age-related patterns and socio-cultural barriers to perceptions and recovery period concerns. By synthesizing existing knowledge, this review aims to identify gaps in the literature, providing a foundation for future research and contributing to the development of targeted strategies to enhance VMMC acceptance.

In SSA, where HIV prevalence is still high, VMMC has become an essential aspect of comprehensive HIV prevention programs. The effectiveness of VMMC in lowering the risk of

HIV transmission among heterosexual men has been highlighted by studies (8,22–24). The "Orange Farm, Rakai, and Kisumu" (ORANGE) trial, a well-known randomized controlled trial conducted in South Africa, Uganda, and Kenya, showed that circumcised men had a significantly lower risk of contracting HIV than their uncircumcised counterparts, with the reduction ranging from 50% to 60% (8,22). This crucial research offered strong support for the expansion of VMMC programs as an affordable HIV prevention strategy.

Further evidence supporting the epidemiological influence of VMMC on lowering HIV incidence at the population level has come from observational research and mathematical models conducted afterward. According to research, a significant drop in HIV incidence over a 15-year period may occur if men aged 15-49 had VMMC coverage of 80% or greater (24). Similarly, Gray et al. (2007) discovered that in nations with high HIV incidence, expanding VMMC coverage could prevent a considerable number of new HIV infections, highlighting the significance of VMMC as a public health intervention (25).

Apart from its immediate effect on HIV transmission, VMMC has been linked to a number of secondary advantages, such as reduction in sexually transmitted infections (STIs), genital ulcer disease, and penile cancer. Weiss et al. (2006) conducted a comprehensive review and meta-analysis and discovered that circumcision was linked to a decreased risk of STIs, specifically herpes simplex virus type 2 (HSV-2) and human papillomavirus (HPV) infection. Additionally, it has been demonstrated that VMMC improves genital cleanliness and lowers the incidence of urinary tract infections, two outcomes related to sexual health (26).

Though VMMC has been shown to have benefits, its acceptance is still not ideal in many high-prevalence areas, such as Malawi. The decisions men make about circumcision are influenced by social, cultural, and personal variables; therefore, specific interventions are necessary to encourage the uptake of VMMC (23,27,28). For example, in some communities, circumcision is deeply rooted in tradition and perceived as a rite of passage to manhood (28). Conversely, in other cultural contexts, circumcision may be stigmatized or viewed with suspicion, leading to resistance or reluctance to undergo the procedure (23). In addition, social factors such as peer influence, family expectations, and community perceptions can also impact circumcision decisions, with social approval or disapproval influencing willingness to undergo the procedure (27). According to studies, there are a number of obstacles to VMMC, such as fear of pain,

worries about sexual function, ignorance, or disinformation. To maximize the impact of VMMC on HIV prevention efforts in Malawi, it is imperative to understand these obstacles and implement focused strategies to mitigate them (29,30).

Through this research, we aim to underscore the critical importance of VMMC as an effective HIV prevention strategy while highlighting the multitude of factors that shape men's decisions regarding circumcision. By identifying and understanding these factors, our research seeks to inform targeted public health initiatives aimed at enhancing VMMC coverage and reducing HIV incidence in Malawi. Specifically, we aspire to identify and address barriers to VMMC uptake, leveraging the secondary benefits of circumcision, in order to optimize the impact of HIV prevention efforts in the region.

1.2.1 Limited Information on active duty men's Uptake in Southern Africa

Limited information regarding VMMC uptake among specific occupational groups exists, highlighting a gap in understanding the nuances of decision-making processes within these populations. The study revealed a notable uptake of VMMC, reaching 69% among male soldiers, indicating a high level of acceptability within this occupational group (31). This suggests that interventions designed to address the unique needs and circumstances of public servants, including those related to their work environment, social dynamics, and time constraints, could be instrumental in increasing VMMC uptake within these demographics.

The findings from the Rwandan study emphasize the importance of understanding the factors driving VMMC uptake among occupational groups such as public servants. Tailored interventions that take into account the specific challenges and barriers faced by these individuals are essential for promoting VMMC as a viable HIV prevention strategy within diverse occupational settings (32,33). By recognizing the unique contexts and needs of different professional groups, public health programs can develop more targeted and effective approaches to VMMC promotion. Additionally, further research exploring VMMC uptake among various occupational groups is warranted to deepen our understanding of decision-making processes and inform the development of evidence-based interventions aimed at increasing VMMC uptake and reducing HIV transmission risk.

1.2.2 Barriers to and Facilitating Factors for VMMC Decision-Making Among Active Duty Men

Despite being recognized as a vital component of HIV prevention programs, several barriers influence the decision-making process of active duty men regarding VMMC adoption. In high HIV prevalence regions like sub-Saharan Africa, VMMC is deemed essential for comprehensive HIV prevention efforts (34). Understanding the barriers to VMMC adoption among active duty men in Malawi is crucial for designing successful interventions aimed at promoting VMMC uptake within military populations. Therefore, comprehending both the barriers and facilitating factors that impact VMMC decision-making among active duty men is imperative to encourage uptake and ensure accessibility to VMMC services within this population.

1.2.2.1 Stigma and Misconceptions

Research has indicated that negative perceptions of VMMC in military populations are influenced by false beliefs about pain, sexual pleasure, and problems following surgery (31,35). Active duty men may be discouraged from considering circumcision if they have preconceived notions about the procedure's efficacy, safety, or effects on sexual function. Investigating negative perceptions of VMMC among active duty men in Malawi is crucial, given the high HIV prevalence rates in sub-Saharan Africa (SSA) and the critical role of VMMC in HIV prevention (36). However, existing studies primarily focus on perceptions within general populations, overlooking the unique context of military environments in SSA, including Malawi.

1.2.2.2 Cultural and Religious Beliefs and Confidentiality

Within military communities, attitudes regarding circumcision are influenced by cultural norms and religious beliefs, which often shape views on masculinity, sexuality, and health-seeking behaviours (9,37). These factors can lead to hesitation or reluctance among military personnel to undergo VMMC. Understanding the distinct perceptions and beliefs of VMMC among active duty men is essential due to the unique social structures within military settings (34). Addressing misconceptions is vital for improving VMMC uptake and reducing HIV transmission rates in high-prevalence regions like SSA and Malawi.

Active duty personnel often influence broader social norms, making their attitudes towards

VMMC significant (31,35). Investigating their negative perceptions can provide valuable insights into specific barriers and challenges, informing targeted interventions and educational campaigns tailored to their needs. Engaging military populations effectively requires respecting their circumcision-related cultural beliefs and practices related to circumcision (9). Maintaining confidentiality during VMMC counselling and service delivery is essential for building trust and ensuring privacy, though further research is needed to understand how these factors specifically impact active-duty men in Malawi (38).

1.2.2.3 Access to Healthcare Services

The demands of military service, such as deployments, training schedules, and operation-related duties, may reduce the amount of time that military personnel have to seek information about VMMC and make informed decisions (28). For employees stationed in rural or conflict-affected locations with limited access to healthcare facilities, time constraints can be a major obstacle to accessing VMMC services (28). While individual-level barriers to VMMC decision-making are often discussed in the literature, there may be limited exploration of structural and systemic factors that impede access to VMMC services within military healthcare systems in Malawi. Further research could examine issues such as limited service availability, long waiting times, and logistical challenges that may deter active duty men from seeking VMMC.

For active duty men, having access to VMMC services is crucial when making decisions. Studies have shown how important it is to have easy access to medical services on military bases or in neighbouring communities (35). Active duty men are more likely to seek circumcision services if they live close to VMMC facilities since it lowers logistical constraints (37). While there is acknowledgement of the importance of access to healthcare services in facilitating VMMC uptake, there may be a lack of in-depth exploration of the barriers and facilitators specific to military environments in Malawi.

Although health education and access to healthcare services are acknowledged as independent facilitating factors, there may not be much research on how they interact and work together to increase the uptake of VMMC among active duty men in Malawi.

Examining the relationship between healthcare service accessibility and the success of health education programs and vice versa may yield insightful information.

1.2.2.4 Fear of Pain and Complications

Military members may choose not to undergo VMMC due to fears of pain during the procedure, possible complications, and post-operative recovery thereafter (39). Uptake of VMMC can often be hindered by people's fear of pain and complications, especially those with little prior healthcare experience or negative views of medical procedures (39).

1.2.2.5 Social Dynamics: Peer Influence and Leadership Support

According to studies, circumcision uptake is facilitated by positive social support, whereas negative peer views act as roadblocks to decision-making (29,40). The absence of support for VMMC uptake from both peers and leadership within military environments presents a significant barrier to promoting circumcision among active duty personnel. lack of support from peers or senior leadership can hinder the acceptance and adoption of circumcision. When considering circumcision, military people may feel more alone or discouraged due to a lack of support from their peers or unfavourable opinions against VMMC in the community. This may significantly hinder their decision-making for VMMC. Peer pressure has a big impact on how people feel and behave with VMMC. When support from peers and leadership is lacking, individuals may feel discouraged or uncertain about undergoing VMMC, leading to reduced uptake rates. Therefore, addressing the absence of support from both peers and leadership is crucial for overcoming barriers to VMMC uptake and within military units, various factors play a significant role in shaping decision-making regarding VMMC research suggests that the endorsement of VMMC by influential figures within the military hierarchy, including prominent military leaders, can serve as a potent motivator for the uptake of circumcision among active duty personnel (39). The support and advocacy of senior military officials not only validate the importance of VMMC but also contribute to creating a supportive environment where individuals feel encouraged to consider circumcision as a preventive health measure. Additionally, peer influence within military settings has been identified as a crucial determinant of VMMC acceptance. Peer-led programs, characterized by group discussions on VMMC and testimonials from individuals who have undergone the procedure, have been found to effectively promote positive social norms surrounding circumcision (39).

Military environments are characterized by distinct social structures and hierarchies, which can significantly influence individual attitudes and behaviours. Research has indicated that peer networks and leadership endorsement play a significant role in shaping health-related decisions, including the uptake of VMMC (39).

In Malawi, military units foster strong bonds among members, creating an environment where peer influence is particularly salient. The endorsement of VMMC by influential figures within the Malawi military hierarchy, such as senior leaders, serves as a powerful motivator for active duty men to consider circumcision as a preventive health measure (41). Understanding the perspectives of active duty men regarding peer influence and leadership support informs the development of targeted interventions and strategies aimed at promoting circumcision within this population (39).

While some studies highlight the importance of peer influence in promoting VMMC uptake, there may be limited exploration of the specific mechanisms through which peer networks operate within military contexts. Further research is needed to shed light on how peer influence functions within military units and its impact on decision-making regarding VMMC. Similarly, although literature acknowledges the role of leadership support in influencing health-related behaviours, including VMMC uptake, there may be a lack of detailed examination regarding leadership dynamics within military hierarchies. Investigating the extent of leadership support and endorsement for VMMC among military commanders and senior officials could provide valuable insights into its influence on VMMC decision making among active duty men.

By gaining insights into how peer networks and leadership endorsement influence VMMC decision-making among active duty men in Malawi, researchers can develop targeted interventions that resonate with the sociocultural realities of this population. This understanding will inform the design of effective strategies aimed at promoting circumcision within the Malawian military, ultimately contributing to improved HIV prevention efforts and overall public health outcomes enhancing HIV prevention efforts within military populations.

Within military units, various factors play a significant role in shaping decision-making

regarding VMMC research suggests that the endorsement of VMMC by influential figures within the military hierarchy, including prominent military leaders, can serve as a potent motivator for the uptake of circumcision among active duty personnel (39). The support and advocacy of senior military officials not only validate the importance of VMMC but also contribute to creating a supportive environment where individuals feel encouraged to consider circumcision as a preventive health measure. Additionally, peer influence within military settings has been identified as a crucial determinant of VMMC acceptance. Peer-led programs, characterized by group discussions on VMMC and testimonials from individuals who have undergone the procedure, have been found to effectively promote positive social norms surrounding circumcision (39,41). Military environments are characterized by distinct social structures and hierarchies, which can significantly influence individual attitudes and behaviours. Research has indicated that peer networks and leadership endorsement play a significant role in shaping health-related decisions, including the uptake of VMMC (39).

By gaining insights into how peer networks and leadership endorsement influence VMMC decision-making among active duty men in Malawi, researchers can develop targeted interventions that resonate with the sociocultural realities of this population. This understanding will inform the design of effective strategies aimed at promoting circumcision within the Malawian military, ultimately contributing to improved HIV prevention efforts and overall public health outcomes.

1.2.2.6 Age

Age can act as a barrier to VMMC decision-making among active duty men in Malawi. Older men may face distinct barriers or skepticism towards VMMC uptake as a preventive measure, including fear of pain, low perception of HIV risk, complications, perceived changes in sexual function post-circumcision and economic considerations (9,31,42). Older men may also have deeply rooted cultural or religious beliefs that influence their attitudes towards circumcision, leading to resistance or reluctance to undergo the procedure (43). Additionally, older men may face competing priorities or time constraints related to their military duties and family responsibilities, which can impede their ability to engage with VMMC information and make informed decisions about circumcision uptake. Addressing age-related barriers requires tailored interventions that account for the

diverse needs and preferences of different age cohorts within the military population.

Among active duty men in Malawi, age is also an enabling factor when making decisions on VMMC. Age plays a crucial role in VMMC uptake and decision-making processes, as highlighted in various studies. Studies consistently indicate that younger men, particularly those under 20, are more receptive to VMMC (42,43). According to studies, younger men are more likely to be receptive to circumcision and to seek out VMMC services since they consider it as a preventive step against HIV and other STIs (28,35). Younger men are more likely to be responsive because they are more likely to be aware of HIV prevention strategies and to be willing to adopt preventive health behaviours, such as getting circumcised. Additionally, younger age groups are prone to stronger peer influence and social support, which might aid in the adoption and decision-making of VMMC in military settings.

The contrast in VMMC uptake across different age groups is evident in studies comparing findings across countries. For instance, while South Africa has reported low uptake rates among both adolescents and men aged 18 to 49, Kenya has achieved success in achieving high VMMC uptake across age cohorts (8,44). This disparity underscores the significance of contextual factors, including cultural norms, healthcare infrastructure, and policy interventions, in shaping VMMC uptake among diverse populations. The contrast in VMMC uptake across different age groups is evident in studies comparing findings across countries. For instance, while South Africa has reported low uptake rates among both adolescents and men aged 18 to 49, Kenya has achieved success in achieving high VMMC uptake across age cohorts (8,44). This disparity underscores the significance of contextual factors, including cultural norms, healthcare infrastructure, and policy interventions, in shaping VMMC uptake among diverse populations. Addressing age-specific barriers and tailoring VMMC promotion strategies to meet the needs of different age groups are essential for enhancing VMMC uptake and maximizing its impact on HIV prevention efforts.

1.2.2.7 Health Education and Awareness

Among military populations, health education and awareness efforts have been successful in encouraging VMMC uptake. Increased knowledge and positive attitudes towards

circumcision can be attributed to interventions that effectively communicate the advantages of VMMC, including its role in HIV prevention (28). The success of these campaigns is further increased by tailoring educational materials to target specific issues and misunderstandings among active duty personnel (29).

Sensitization initiatives such as the "Ndife Otsogola" campaign in Malawi which evolved from its initial inception as part of a broader initiative into a well-established and sustained brand. This transformation reflects the campaign's enduring efforts to maintain visibility and foster positive attitudes towards VMMC (19,45). The strategic deployment of the slogan "Ndife Otsogola," meaning "We are forward thinkers," embodies the campaign's core message of promoting VMMC as a proactive and health-conscious decision (46). This approach underscores the significance of not only launching targeted campaigns but also ensuring a continuous presence in the public consciousness. By sustaining branding efforts over time, trust is cultivated, perceptions are altered, and a cultural shift occurs wherein VMMC is not solely perceived as a health intervention but rather embraced as a positive and forward-thinking lifestyle choice. While there is recognition of the role of health education and awareness in promoting VMMC uptake, there may be gaps in understanding the specific educational needs and preferences of active duty personnel in Malawi. Further research could explore the effectiveness of tailored educational interventions within military settings.

1.2.3 Implications for Tailored Interventions

Given the scarcity of information on the adoption of VMMC among Southern African public officials and the positive outcomes seen in Rwandan male soldiers, it appears that occupational considerations may influence the acceptance of VMMC (47). Focused research on active duty population may provide insightful information that will enable the creation of tailored approaches to meet the specific challenges that people in this profession encounter.

This suggestion is in line with the increasing understanding of the influence of work environments on health-related behaviours, including HIV preventive strategies like VMMC (48). Adapting interventions to the workplace recognizes the variety of environmental and socioeconomic elements that affect people's ability to make decisions. Thus, targeted study on

active duty men may greatly aid in the creation of VMMC promotion plans that are more suited to the requirements of this particular occupational group.

In summary, this literature review has provided a comprehensive examination of barriers to and facilitating factors for VMMC decision-making among active duty men. From age-related patterns to cultural influences, each aspect contributes to the complex landscape of VMMC acceptance. Identified gaps underscore the need for further research, particularly in understanding active duty men's adoption of VMMC. These findings have implications for the development of targeted interventions, enhancing the promotion of VMMC uptake and its crucial role in HIV prevention.

1.2.4 Theoretical Frameworks for Understanding VMMC Decision-Making

In public health research, several theoretical frameworks provide valuable insights into understanding and predicting health behaviors. Among these, the Social Cognitive Theory (SCT) (49,50), the Theory of Planned Behavior (TPB) (51), and the Health Belief Model (HBM) (52,53) are widely recognized for their applicability to a range of health-related decision-making processes, including those surrounding VMMC.

The SCT emphasizes the role of observational learning, social influence, and self-efficacy in shaping health behaviors (49). According to SCT, individuals are not only influenced by their own experiences but also by observing the behaviors of others and the consequences that follow (49,54). This theory suggests that for behaviors like VMMC to be adopted, individuals must perceive themselves as capable of successfully performing the behavior (self-efficacy) and must-see positive outcomes associated with it (outcome expectations) (50,54). SCT is particularly relevant in military settings, where peer influence and social modelling play significant roles in shaping health behaviors.

The TPB posits that an individual's intention to engage in a behaviour is the most important predictor of whether they will actually do so (51). This intention is influenced by three key factors: attitudes toward the behavior, subjective norms, and perceived behavioral control (51). In the context of VMMC, TPB suggests that a man's decision to undergo circumcision is shaped by his personal beliefs about the procedure, the perceived social pressures or expectations from peers and superiors, and his confidence in his ability to undergo and recover

from the procedure (55). This theory is particularly useful in understanding how external and internal factors combine to influence health decisions in structured environments like the military.

The HBM is centered around the idea that health-related behaviors are influenced by individual perceptions of the threat posed by a health problem and the benefits of taking a particular health action to reduce that threat (52). HBM identifies several key components that drive health behaviors: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (52,53). When applied to VMMC, HBM helps explain how military personnel assess the risks of HIV/AIDS, weigh the benefits of circumcision as a preventive measure, and consider the barriers and facilitators that influence their decision to undergo the procedure (53,56).

Using a single theoretical framework would offer a narrow view of the factors influencing VMMC decision-making. By integrating the HBM, the TPB, and SCT, this study is able to provide a more comprehensive examination of the individual, social, and cognitive influences that shape these decisions. The rationale for employing all three frameworks lies in their complementary strengths, each addressing different aspects of health behaviour and, when combined, offering a more holistic understanding of the complexities involved in VMMC decision-making among active duty men in Malawi.

The HBM is valuable for exploring individuals' perceptions of health risks, benefits, and barriers to action (52). While the HBM provides insights into how active duty men may view the health risks associated with HIV and the perceived benefits and barriers of undergoing VMMC, it does not fully account for the social and normative influences that are critical in a military setting. This is where the TPB becomes relevant, as it incorporates subjective norms and perceived behavioural control (51). These are crucial in understanding how social pressures, peer influence, and the perceived ease or difficulty of undergoing VMMC impact decision-making. Military environments are often characterized by strong hierarchical structures and social norms, making TPB an essential framework for capturing these dynamics.

SCT highlights the importance of self-efficacy—one’s belief in their ability to carry out a behaviour—and the influence of observing others in their decision-making process (49,50).

Neither HBM nor TPB alone can adequately explain the role of self-efficacy and observational learning in shaping health behaviour, a gap that is addressed by SCT. In military settings, where camaraderie and modelling behaviours are significant, SCT provides insights into how active duty men might be influenced by the experiences of their peers who have undergone VMMC (9,57).

Together, these theories provide a comprehensive framework for analyzing the factors that influence the decision-making process related to VMMC. By applying SCT, TPB, and HBM, researchers can better understand the complex interplay of individual, social, and environmental factors that shape health behaviors, particularly in the unique context of military populations (57).

1.3 Statement of the Problem

In Malawi, among people aged 15-49 years, the national prevalence rate of HIV/AIDS which is a major public health issue, is at approximately 9.2% (45). Public services like the military workforce is a mobile population whose scope of work often leaves them with long stays away from home. This predisposes them to high sexual risk behaviors that increase their vulnerability to HIV infection such as increased exposure to casual sexual encounters (6,58). VMMC uptake among men in Malawi is low despite national efforts to scale up the interventions. Active duty men are no exception to the low VMMC uptake and acceptance. Low uptake of VMMC renders the intervention ineffective in reduction of HIV infection. The uptake of VMMC is associated with individual attributes, beliefs and environmental factors. Exploring the perceptions of active duty men towards VMMC and environment-related factors could provide insight into the uptake of VMMC among active duty men and subsequently help in redesigning the VMMC model in Malawian Health Services.

1.4 Justification

Some public service populations are highly mobile like the military and policemen and this increases their risk of contracting HIV (6). HIV prevention measures and the uptake of VMMC services can contribute to the reduction of the risk of HIV acquisition among this vulnerable group. Despite VMMC services being provided, uptake of VMMC remains low among active duty men (59). Low uptake of VMMC is contributed by poor perceptions and negative attitudes that men have toward VMMC, coupled with a lack of environmental influence (60). There is

limited literature that has explored low VMMC uptake in active duty men populations hence specific evidence-based interventions could be designed to address low uptake for VMMC in active duty men.

1.5 Aims and Objectives

Research Question:

What factors influence the decision-making of active-duty men in Malawi to undergo VMMC? What are the experiences of those who undergo VMMC?

Aim:

To explore factors influencing the decision-making of active-duty men in Malawi to undergo VMMC, perceptions of both circumcised and uncircumcised men in 2023. The experiences of men who underwent VMMC were also explored.

Specific Objectives

1. To explore factors that influence the decision-making among active duty men to undergo VMMC by the end of November.
2. To explore perceptions of active duty men toward VMMC by the end of November.
3. To explore experiences with VMMC of active duty men who have undergone VMMC by the end of November.

CHAPTER 2: Methodology

2.1 Introduction

This chapter presents the methodology used in investigating the experiences, perceptions, and factors influencing decision-making among active duty men in Malawi regarding VMMC. The methodology chapter encompasses the research design, participant selection criteria, data collection methods, and data analysis procedures utilized to achieve the study's objectives. Understanding the decision-making processes surrounding VMMC among military personnel is crucial for informing targeted interventions aimed at enhancing VMMC uptake and promoting HIV prevention strategies within this population.

2.2 Study design

A qualitative, exploratory study was conducted to explore the perceptions, experiences, and feelings of active duty men regarding VMMC and the factors influencing their decision-making process, aiming for an in-depth inquiry (61). This approach was selected as it would provide a platform where participants (men) could freely express their perceptions and the decision-making process to undergo VMMC.

2.3 Study setting

The study was conducted at one military base, Unique[1], situated in the central region of Malawi in the urban district of Lilongwe. Lilongwe has one of the highest HIV prevalence of districts in Malawi. HIV prevalence is 2.2 times greater compared to the rural districts (2,62).

Unique is the second battalion (2 Malawi Rifle), established and commissioned in 1975 (63). Unique is one of five bases with dedicated space (known as VMMC clinic) within the camp hospital for VMMC services and is classified as a VMMC static site. The VMMC program, funded by the PEPFAR Department of Defence HIV/AIDS Prevention Program, commenced in fiscal year 2012 (64).

Unique has a population of approximately 2250 active duty personnel of which 1882 are men with 1416 in the 18-49 age group. Unique comprises of three departments, Administration, Frontline Service, and a nearly established National Service unit, each having parallel

[1] Real name not used for security reasons to the information provided in this research report.

independent but coordinated operating structures. Having three departments within one base, there was diversity in the ranks of active duty personnel where the lowest rank and highest awarded ranked personnel were part of the population at Unique. This wide range of ranks allowed me access to a more diverse population group for the purposes of the study.

Unique base caters to the diverse needs of active duty personnel and their families, embodying the essence of a thriving community within a military setting. Its infrastructure encompasses essential facilities such as administration and operation blocks, pivotal for the smooth functioning and coordination of military operations. Training fields provide opportunity and space for continuous skill development and readiness among active duty personnel. The base has provision for staff housing, tailored for both junior and senior ranks, ensures comfortable living arrangements conducive to family life. The presence of a camp hospital underscores the commitment to ensuring the health and well-being of military personnel and their dependents. Further to this, Unique has educational facilities, including primary and secondary schools, which provide quality education for the children of military families. Churches offer spaces for spiritual reflection and communal gatherings, fostering a sense of unity and support among active duty personnel. Mess halls and hostels cater to the dining and accommodation needs of active duty personnel, promoting camaraderie and social interaction. Recreation areas provide opportunities for leisure and relaxation, contributing to the overall morale and welfare of the military community. In essence, Unique Base represents more than just a military base for military specific activities; it embodies a vibrant and cohesive community where service members and their families thrive together.

2.4 Study Population

The study population comprised active duty men who have undergone VMMC and active duty men who have not undergone VMMC, all of whom had served for not less than 12 months at Unique in terms of their location and operational characteristics.

Inclusion and exclusion criteria

The study included men who had undergone VMMC at other VMMC sites than Unique VMMC clinic but had accessed VMMC post-operative care services from Unique VMMC site. Additionally, men who had not undergone VMMC and/or were considering to undergo VMMC were included in the study regardless of their sexual orientation.

The study excluded men who underwent VMMC as a medical treatment such as clients who had phimosis, paraphimosis, hypospadias or hyperspadias, and those that had traditional circumcision. Additionally, the study excluded men who were pending VMMC procedures and who were currently on STI treatment.

2.5 Study Sample

Participant selection was purposive. This method of sampling was appropriate for this study because it was a more targeted approach to selecting participants for the study (61).The study recruited active duty men with diverse characteristics in order to collect rich data for the study. In order to obtain active duty participants, participants were purposively selected based on their marital status, ranking, years of service, and age to ensure that there was diversity. Participants were selected from the following age groups: 18-24 years, 25-29 years, 30-34 years, 35-39 years, 40-44 years, and 50 above years age categories. During selection, characteristics that were not yet represented in the selection were used to guide the selection of subsequent participants. Participant recruitment was stopped when data saturation was reached where no new themes were identified and the researcher felt the information collected was adequate to understand the study objectives. The study recruited sixteen participants that had undergone VMMC and seven participants that had not undergone VMMC by the end of November 2023. The researcher made sure that all traits were represented in the sample, some of the selected participants met more than one of the criteria mentioned above to ensure diversity.

Men who underwent VMMC were given follow up appointment dates at 48 hours, seven days, and six weeks for post-operative review. The researcher recruited participants who had undergone VMMC when they returned to the clinic for post-operative care at a seven-day review appointment date or later. In this study, participants who had undergone VMMC were identified through collaboration with the Unique VMMC clinic's data clerk, who serves as the primary contact point for clients accessing VMMC services.

Participants who had not undergone VMMC were identified and recruited through sensitization health talks conducted by the social behavior change team at Unique. The researcher attended sensitization health talks targeting active duty men.

2.6 Pilot Study

Pilot studies are crucial in refining research protocols and identifying challenges before undertaking larger investigations. Previous studies examining VMMC decision-making have utilized pilot studies to test recruitment strategies, assess data collection instruments, and refine interview protocols (39,43). By conducting a pilot study, researchers can enhance the validity and reliability of subsequent data collection efforts while minimizing logistical and methodological obstacles. Prior to embarking on the main study, a pilot study was conducted to assess the data collection tools and make amendments where necessary.

The pilot study employed a qualitative approach to ensure the rigor and relevance of the data collection process, the researcher developed a comprehensive interview guide, the data collection instrument, tailored specifically to the study's objectives. The instrument was not adapted from other similar studies but was designed to address the specific research context. The instrument was meticulously designed to explore key themes surrounding the experiences, perceptions, and decision-making processes related to VMMC among military personnel in Malawi. The interview guide includes a series of open-ended questions that were crafted to elicit detailed and nuanced responses from participants, whether they had undergone VMMC or not. By developing this interview guide, the researcher ensured that the data collection instrument was specifically aligned with the study's context and goals. This approach allowed for a thorough examination of the research questions, ensuring that the data collected would be rich, relevant, and capable of providing deep insights into the phenomena under study.

Two participants were selected from Unique: one participant who had undergone VMMC and one who had not undergone VMMC. For participants who had undergone VMMC, the questions focused on their experiences with the procedure, the influence of pre-VMMC education, and the factors that led to their decision to undergo circumcision. The guide also probed their perceptions of others' views and the impact of social influences on their decision-making. For those who had not undergone VMMC, the guide explored their understanding of circumcision, perceived risks and benefits, and the social and cultural factors influencing their decision-making.

The pilot study allowed the research team to pretest the sampling process described, pretest the tools and thereafter appropriate alterations were made to the data collection tools and approach

where necessary to ensure that the study was conducted smoothly, such clarifying question number one of the 'Participants who have undergone VMMC' interview guide as well as probe 'a'. On the same question in probe 'b', this was removed as it did not bring about responses that aligned with the study objectives. Feedback from participants highlighted the need for clarity and specificity in certain interview prompts, particularly regarding the perceived benefits and risks of VMMC. These insights informed the need to probe more on why men who had not undergone VMMC felt that VMMC is for the younger men and boys as opposed to those that are older. Revisions to the data collection tool facilitated the collection of rich information in the main study.

In addition to testing whether the interview guide was understood by participants, the pilot study assisted in other ways:

1. ***Estimation of Interview Length*:** The researcher was able to determine approximately how long each interview would take by using the pilot interviews. By ensuring that enough time was set aside for interview sessions, this estimation helped with the main study's interview scheduling.

2. ***Improvement of Qualitative Interviewing Techniques*:** The researcher was able to hone their qualitative interviewing techniques by conducting the pilot interviews. Through participant interaction and interview process navigation, the researcher acquired invaluable expertise and insights on conducting successful interviews. For instance, the researcher learned to pick on cues in participants' responses where more in-depth information can be obtained by asking probes as follow up questions to encourage participants to elaborate their responses further.

2.7 Data collection

In order to fully capture the wide range of the diverse perspectives and experiences that participants had in relation to VMMC the data gathering procedure for this study was carefully thought out. Data was collected by the PI using in-depth interviews with active duty men who underwent VMMC and who had not undergone VMMC. All participant interviews were recorded with their consent. This approach was employed to ensure the accuracy and completeness of the data, allowing for detailed transcription and analysis. Recording the

interviews also enabled the researcher to focus fully on the conversation, facilitating a more natural and in-depth dialogue with participants. The PI initially engaged an independent research assistant to conduct interviews for this study who attained a research ethics training certificate and was trained by the PI on the research objectives and data collection tools for the study. The researcher was identified through recommendations from personnel working with the NHSRC as a recognized research assistant. Due to delays and failure to meet agreed milestones, the PI completed data collection.

Additionally, a follow-up interview was conducted with a sergeant major, aimed at delving deeper into the power dynamics within the military population and their influence on VMMC decision-making. This qualitative approach provided valuable insights into the social context surrounding VMMC uptake among active-duty men. Demographic data, including age groups, ranks, marital status, and years of service, were systematically collected to provide a comprehensive understanding of participant characteristics and potential correlations with VMMC adoption.

Participants 001 and 005 participated in a pilot study during the investigation's early phases, and the information gathered from them was not included in the final analysis. This decision was taken in order to improve the data collection tools used for gathering data and guarantee the accuracy and dependability of later procedures used for gathering data. However, participants 006 and 007 made the decision to withdraw from the study during the main study phase because they felt uncomfortable with their data being used for the purposes of the study. Their reasons for withdrawing were that they had changed their minds and were uncomfortable participating. As a result, their data were not included in the analysis, and their confidentiality and autonomy were respected in accordance with ethical guidelines. These instances underscore the importance of informed consent and the ethical treatment of participants throughout the research process.

A comprehensive interview guide, comprising a combination of open-ended questions and targeted probes tailored to the study objectives, allowed for a thorough in-depth exploration of participants' perspectives on VMMC. Face-to-face interviews were conducted on the post-operative review date (particularly those who had undergone VMMC), at a scheduled date, time, and venue suitable (e.g. at the VMMC clinic and other times at a private location within

or outside Unique premises). The Unique VMMC clinic was selected for in-person interviews and participants were given the option of a private location within or outside Unique premises. The latter was preferred by participants primarily for the reason of providing a private, intimate environment that encouraged candid conversation. This setting was essential in establishing a safe environment where participants felt free to express themselves and knew that their opinions would be heard without restraint. The interview guide for men who had undergone VMMC is in Appendix 4 and the interview guide for men who had not undergone VMMC is in Appendix 5. The two interview guides were developed in English and were translated into Chichewa by a qualified language translator. Participants had a choice of their language preference (English or Chichewa) for the interviews.

2.8 Data Management and Quality Assurance

Data management and quality assurance procedures for this study involved meticulous oversight to maintain data integrity and accuracy. Audio-recorded interviews were transcribed verbatim. Chichewa interviews were translated into English and transcribed. All transcriptions were de-identified so that the identity of the participants was kept confidential.

Rigorous data management protocols were implemented to organize and securely store collected data, while quality assurance measures were employed to validate the accuracy and reliability of the findings. To ensure the accuracy and reliability of the data collected, the researcher implemented a robust system of checks and balances throughout the data management process to identify and address any discrepancies or errors, ensuring the robustness of the research outcomes. These checks were conducted at multiple stages, including data entry, transcription, and analysis. Specifically, the researcher regularly reviewed the data to identify any discrepancies or errors. For instance, cross-checks were performed between the original interview recordings and the transcribed text to ensure consistency and accuracy. Any identified inconsistencies or errors were promptly corrected, and the data was re-verified to maintain the highest standards of data quality. These procedures were essential to minimize bias and ensure that the findings of the study accurately reflected the participants' responses.

2.9 Data Analysis

Deductive and inductive codes were derived from the transcripts supported by MAXQDA24 (65). Deductive coding took into consideration the study objectives and was guided by literature. Deductive coding gives rich detail in particular aspects of interest of the data collected (66). Inductive coding does not use a pre-existing code frame nor stems from the researcher's perception rather it is data driven (66).

Thematic analysis of the data was conducted by identifying, analyzing, and reporting patterns in the data for it to be described in detail (66). Among the identified themes, the PI selected those of interest and reported on the study findings using these themes. The themes of interest were those themes that captured important aspects of data related to the research question (66).

The PI and research supervisors had access to the recorded audio files. Audio files collected from the study have been stored on the PI's computer with a backup folder in google drive folder under WITS students' email. These will be stored for a period of two years post-publication of the study or six years. The PI's computer and WITS student email are both password- protected and only known by the PI.

2.10 Analysis of Demographic Data

The interview's demographic data underwent meticulous analysis to understand the participants' characteristics and their influence on VMMC decision-making. We stratified participants by age to identify trends across different generational cohorts regarding VMMC attitudes. Additionally, we examined participants' ranks to gauge how hierarchical positions within the military correlated with VMMC acceptability. Marital status shed light on how family dynamics intersected with VMMC decision-making. Furthermore, years of service were analysed to ensure participants were integrated into military systems. This comprehensive examination aimed to uncover underlying dynamics shaping VMMC uptake among Malawi's active duty men, informing tailored interventions and policies.

Thematic Analysis

In order to guide the thematic analysis process, well-established qualitative research methodologies (67) and theoretical frameworks like the Social Cognitive Theory (54), the Theory of Planned Behaviour (51), and the Health Belief Model (56) are referred to. Since

thematic analysis is iterative, it was used to explore complex phenomena related to VMMC (68).

An overview of the thematic analysis procedure and how it fits into relevant theoretical frameworks and qualitative research approaches is given in Figure 1 below.

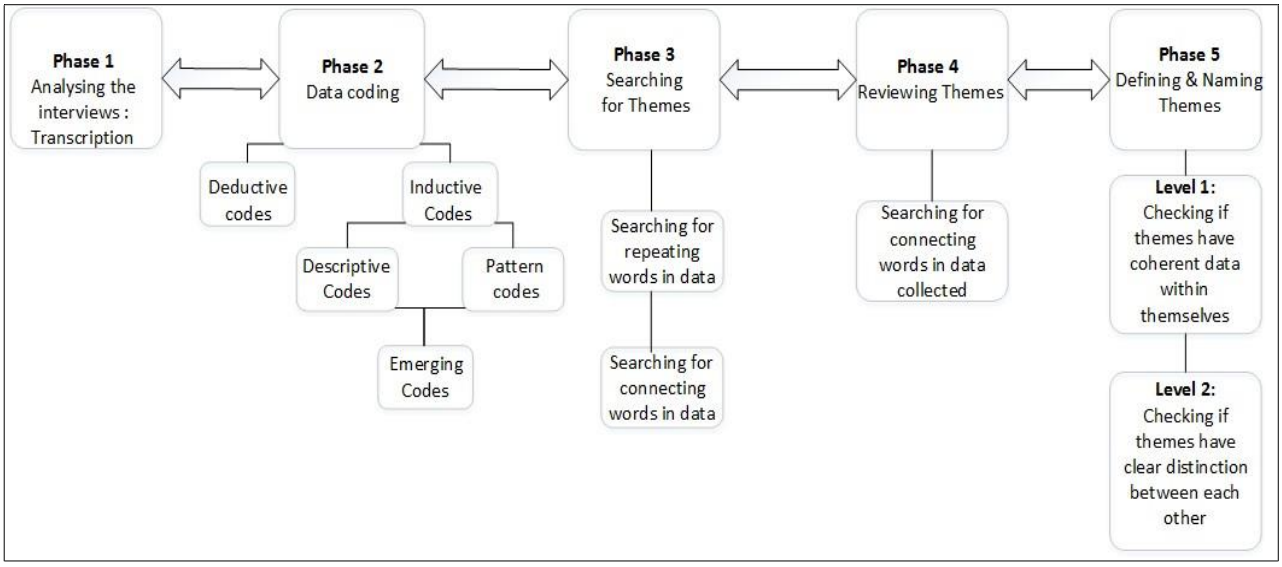

Figure 1: Thematic Analysis Process (68)

Phase 1: Analysing the Data

The main goal of this stage was to immerse in the data collected to gain familiarity and understanding of the subject matter (67,69). This involved a thorough review of interview transcripts and recordings to capture the participants' perspectives and experiences. By closely examining the data, the researcher identified key themes, patterns, and factors influencing the adoption of VMMC. Detailed coding and categorization of the transcripts helped in organizing and synthesizing the findings for a comprehensive analysis.

Table 1: VMMC Decision-Making Factors and Theoretical Frameworks Diagram

Key Themes	Health Belief Model (HBM) (52,56)	Theory of Planned Behaviour (TPB) (51,55)	Social Cognitive Theory (SCT) (49,50,54)
Psychosocial Factors and Decision-Making	- **Perceived susceptibility** (e.g., to HIV/AIDS) - **Perceived benefits** of VMMC for health	- **Attitudes** toward VMMC (personal beliefs about the benefits and risks) - **Subjective norms** (social pressure from peers, leaders)	- **Self-efficacy** (confidence in the ability to undergo VMMC) - **Observational learning** (influence of peers who have undergone VMMC)
Access and Knowledge Barriers	- **Perceived barriers** (e.g., access to healthcare, knowledge gaps) - **Cues to action** (external factors that prompt VMMC uptake)	- **Perceived behavioural control** (confidence in accessing services) - Influence of **knowledge** on attitudes and intent	- **Environmental factors** (impact of access and knowledge on VMMC) - **Outcome expectations** (anticipated health benefits based on information)
Military Culture and Institutional Factors	- **Perceived barriers** (institutional or cultural hurdles within the military) - Influence of **authority** as a cue to action	- **Subjective norms/ Social influence** (influence of military leadership and policies) - **Perceived control** (impact of military rules and culture on decision-making)	- **Social influence** (modelling behaviours of higher-ranked personnel) - **Reinforcement** (institutional reinforcement or discouragement of VMMC)

Table 1 illustrates how each of the three theoretical frameworks connects with different aspects of VMMC decision-making, based on factors identified in the study.

Phase 2: Data Coding

Deductive Codes

Deductive coding followed established health behaviour theories, such as the HBM, the TPB, and the SCT (49,51,52). Predefined categories related to VMMC such as perceived barriers, attitudes, subjective norms, perceived behavioural control, outcome expectations, and self-efficacy beliefs (see Table 2 in Appendix 1), which guided the coding process. Interview data and other qualitative inputs were coded according to these theoretical concepts to clarify the underlying mechanisms and factors influencing active duty military men's decision-making about VMMC.

Inductive Codes

Without imposing established categories, inductive coding was utilized to uncover emergent themes from the qualitative data obtained. This method, grounded in the qualitative research tradition, allowed for the discovery of new patterns and insights in participant narratives (see Table 2 in Appendix 1). By prioritizing participants' voices and subjective interpretations, inductive coding provided a contextualized understanding of the factors influencing active duty military men's decision-making on VMMC.

Pattern Codes

Pattern codes play a crucial role as organizational constructs in the investigation of decision-making processes related to VMMC among active duty men in Malawi, helping to grasp the complexity involved in this phenomenon. Data segments that captured significant concepts or ideas pertinent to VMMC decision-making were given initial codes. This involved looking for connections across the data set. The patterns that had been found were then expanded upon and transformed into broad themes that encapsulated important facets of the decision-making procedures used by VMMC (see Table 3 in the Appendix 2). This process required careful consideration of the relationships between patterns and their significance in understanding the phenomenon under investigation.

Comparison of Pattern codes and Deductive codes

Several studies and theoretical frameworks inform the comparison of pattern codes and deductive codes in theme analysis for understanding decision-making processes for VMMC among active duty men in Malawi.

1. **Origin**: Deductive codes are drawn from pre-existing ideas or study topics, whereas pattern codes originate directly from the data, reflecting participants' experiences and viewpoints. The significance of letting the data speak for itself and accurately documenting participants' actual experiences is emphasized by studies on theme analysis (68). On the other hand, deductive coding bases data analysis and interpretation on well-established theoretical frameworks (70).

2. **Flexibility**: Since pattern coding catches emerging themes, it provides flexibility in responding to subtleties in the data. The dynamic element of thematic analysis is

emphasized by, those who point out that researchers can modify their coding procedure to account for fresh perspectives and new findings (68). Deductive coding limits flexibility by adhering to pre-set categories derived from theory or previous study, even if it offers an organized framework.

3. **Exploratory vs. Confirmatory**: Pattern coding is an exploratory method that yields fresh information and ideas. This strategy is in line with qualitative research techniques that seek to produce new information and conduct in-depth explorations of phenomena (71). Deductive coding, on the other hand, is confirmatory and tests ideas or assumptions that already exist. Confirmatory aspects are useful for cross-study findings comparison and theoretical model validation (72).

4. **Depth vs. Breadth**: Pattern coding enables in-depth investigation of particular themes in the data, revealing insightful information about the views and experiences of the participants. Researchers can explore the subtleties of participants' narratives in great detail thanks to the iterative nature of theme analysis (68). Deductive coding, on the other hand, offers breadth by classifying data in accordance with predefined criteria, allowing for systematic examination along several dimensions. This scope is beneficial for getting a thorough picture of the data and spotting broad trends (70).

Justification of Matched Pattern Codes and Deductive Codes for Final Emerging Codes

In the thematic analysis of VMMC decision-making among active duty men in Malawi, pattern codes and deductive codes were employed to identify and explore emerging themes. Deductive codes were aligned with key components of the HBM, a framework for understanding health behaviours (52). These codes, such as "Cues to action for VMMC," "Perceived susceptibility to HIV/AIDS," "Perceived benefits of VMMC," and "Perceived barriers to VMMC," provided a structured approach to analyzing participant views and decision-making processes (53). Furthermore, by combining pattern and deductive codes, the analysis captured both theoretical insights and the nuanced experiences of participants, enhancing the depth and rigor of the findings. This integrated method allowed for a comprehensive understanding of VMMC decision-making within military populations, supported by both theory and participant narratives (73).

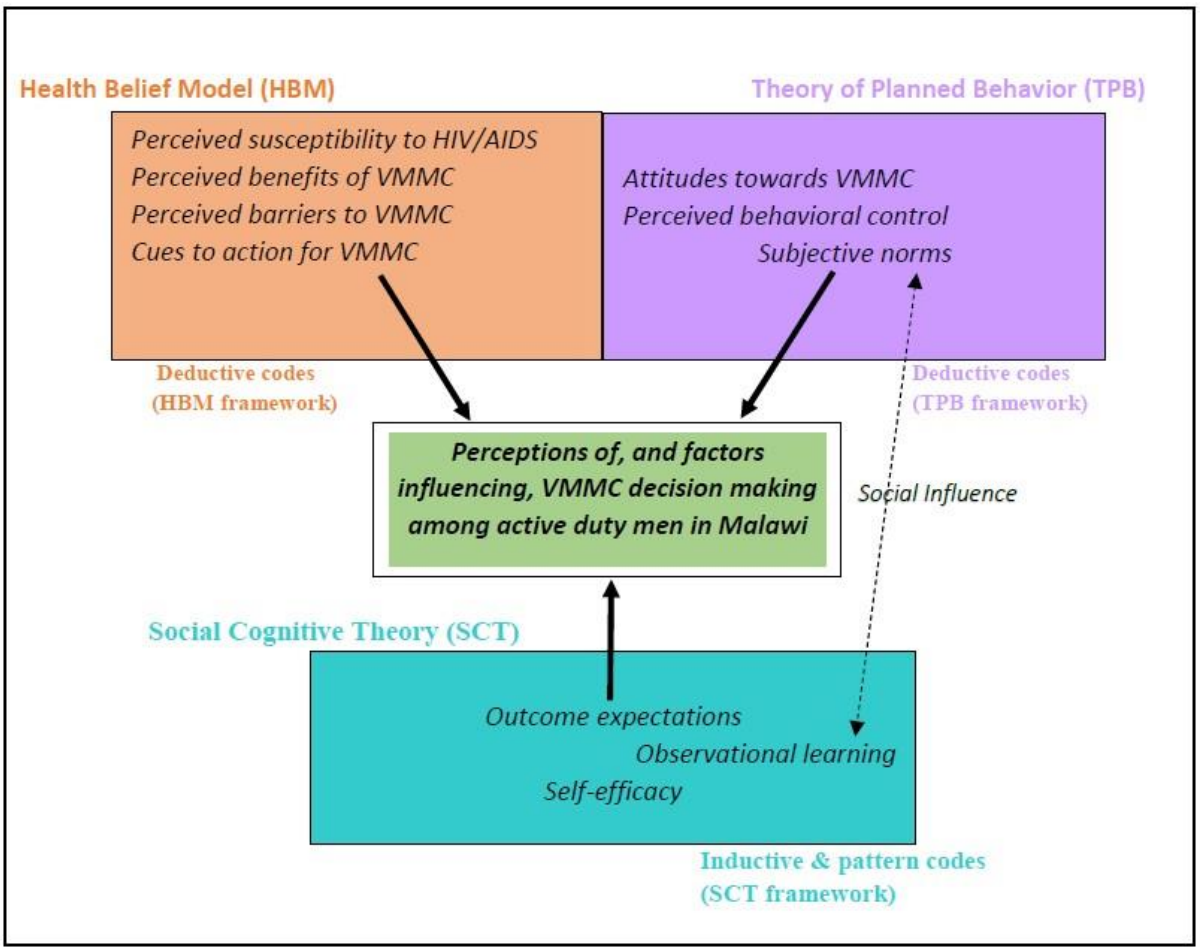

Figure 2: Theoretical Framework and Coding Process in VMMC Decision Making Analysis (51–56)

Figure 2 illustrates the linkages between HBM), the TPB, and the SCT in the context of VMMC decision-making among active duty men in Malawi. The diagram highlights the key concepts of self-efficacy, outcome expectations, perceived behavioural control, and the influence of social environment and observational learning, helping to clarify how these theories interact and inform analysis. Furthermore, the diagram shows how the key components of each theory, were applied to come up with deductive, inductive, and pattern codes, and the emerging themes from participant narratives that contributed to understanding the decision-making process for VMMC.

Phase 3: Searching for Themes

The researcher analysed the coded data to identify patterns, recurring themes, and connections, revealing similarities and differences in participants' experiences and perceptions of VMMC. This process uncovered underlying meanings and emphasized the importance of understanding

VMMC views from the participants' perspectives, reflecting the complexity and context-dependence of their decision-making.

Phase 4: Reviewing Themes

The researcher reviewed and refined the identified themes to ensure they aligned with the study's aims and accurately represented the data. This process involved evaluating each theme's significance, modifying them to capture the complexity of participants' experiences with VMMC, and ensuring consistency with the study's theoretical frameworks. This thorough refinement enhanced the validity of the findings and deepened the understanding of VMMC within the Malawian military context. In addition to improving the validity and dependability of the results, the researcher hoped to get a deeper understanding of the phenomenon being studied. Overall, this process helped the researcher to identify meaningful insights and conclusions from the data, enriching understanding of VMMC within the context of the Malawian military.

Phase 5: Defining & Naming Themes

In the final stage of the thematic analysis process, the researcher meticulously characterized and named the identified themes to ensure they accurately captured the essence of the data. Each theme was given a descriptive title, facilitating a comprehensive summary of the main conclusions drawn from the analysis. This stage was crucial for enhancing coherence and clarity in presenting the research findings, and adhering to the standards for reporting qualitative research. By precisely identifying and labelling themes, the researcher aimed to communicate key insights and patterns arising from the data effectively. Moreover, the process of naming and characterizing themes assists in summarizing the primary ideas within the data, aiding the interpretive process and facilitating a deeper understanding of the research findings (74).

All things considered, thematic analysis relies heavily on the precise definition and labelling of themes. This not only helps researchers report qualitative findings with transparency and rigor, but it also helps them convey the key insights and patterns that emerge from the data.
The six themes found in phase 4 were renamed, at the researcher's option, to have a more concise and descriptive name for a deeper meaning, without changing the themes' core meaning. The following three themes were found:

1. Psychosocial Factors and Decision-Making:

- Examine the emotional and psychological factors that affect active duty men's decision-making.
- Examine attitudes, views, and perceptions regarding VMMC and how these aspects influence choices.
- Analyze how peer pressure, community attitudes, and social norms affect the psychosocial dynamics of VMMC decision-making.

2. Access and Knowledge Barriers:

- Examine how knowledge and accessibility affect the process of making decisions. Examine the level of knowledge and how aware active duty personnel are about VMMC.
- Examine how healthcare infrastructure, information sharing, and SBCC initiatives affect VMMC decision-making.

3. Military Culture and Institutional Factors:

- Analyze how military culture influences VMMC decision-making.
- Examine how military leadership, policies, and procedures affect how people view VMMC.
- Examine the effects of institutional support or barriers on active duty men's desire to undergo VMMC inside the military organization.

2.11 Ensuring Rigour

Ensuring rigour in the research process is paramount to maintaining the integrity and validity of the study findings. To achieve this, meticulous documentation of the research process was undertaken by the researcher. This included detailed records of data collection procedures, methodological decisions, and any modifications made throughout the study duration. Regular communication with supervisors was also upheld as a fundamental aspect of rigour maintenance. Through multiple update meetings, supervisors actively engaged in discussions to assess the quality of data collected and the effectiveness of the chosen data collection tools. Additionally, supervisors were provided with the opportunity to engage directly with the

research material by reviewing interview transcripts randomly. This collaborative approach facilitated valuable feedback loops, enabling the researcher to gain insights and perspectives from a supervisory standpoint. Such feedback was instrumental in guiding decisions regarding the next steps in the research process and identifying potential areas for refinement or improvement.

To further ensure the dependability of the findings, member checking was also conducted, where participants were given the opportunity to review and validate the interpretations of their responses. Member checking added an additional layer of credibility, ensuring that the data collected was both rich and reflective of the participants' true experiences. By implementing these measures, the study maintained a rigorous and transparent approach to data collection and analysis, thereby enhancing the overall trustworthiness of the research findings. Finally, transferability was considered by providing rich, detailed descriptions of the research context, participants, and findings, allowing readers to assess the applicability of the results to other settings. By incorporating these rigorous practices, the study upheld high standards of methodological transparency and quality assurance, thereby contributing to the overall rigour and enhancing the credibility and trustworthiness of the research outcomes.

2.12 Reflexivity and Positionality Statement

The PI is currently the Program Manager for the Department of Defense (DoD) project funded through the Department of Defense HIV/AIDS Prevention Program (DHAPP). One project objective is to offer the full package of VMMC services. As the PI, my role as the Program Manager, positioned me as both a leader in the implementation of VMMC services and a researcher. This dual role inherently carried potential biases, particularly due to the power dynamics and authority associated with my position, which could influence participants' responses during data collection. For this reason, the PI initially engaged an independent research assistant to conduct interviews for this study so as to ensure that participants do not give information that they think the PI would like to hear. Engaging an independent research assistant was to reduce and address any influence the PI could have on the participants' perspective and interests as well as enhance the credibility of the research. This approach was designed to ensure that participants provided authentic responses, free from the potential pressure of aligning their views with the perceived goals of the VMMC program. Unfortunately, in the course of initiating data collection through interviews, the independent

research assistant did not deliver on time on the expected deliverables agreed upon for the engagement. In order to realign the timeline for data collection and ensure that quality data was gathered, the PI took up the task of conducting the participant interviews. During this transition, strict adherence to the interview guide and consistent data collection practices were maintained to uphold the objectivity and confirmability of the data.

Throughout the research process, reflexivity was a key component in addressing my positionality as a female researcher investigating male circumcision, a topic that could invoke gender-related biases. Recognizing that my gender might affect the comfort level and openness of male participants, I was mindful of creating a neutral and non-judgmental interview environment to encourage honest and uninfluenced responses. Participants were given the option of selecting where the interview can be done, in a space that they felt comfortable and could freely express themselves. Additionally, I maintained a reflexive journal to document any personal reflections, potential biases, and assumptions encountered during the research process. This practice helped clarify how my perspectives might influence the study and ensured that the findings remained grounded in the participants' experiences rather than my preconceptions.

During the participant interviews, I introduced myself primarily as a student researcher conducting this study in partial fulfilment of a Master of Public Health degree. This approach was intended to create a neutral and approachable atmosphere, encouraging participants to share their experiences and perspectives without feeling influenced by my professional role. In the few instances where participants recognized me as part of the DoD project, I transparently disclosed my positionality within the project. I reassured participants of the importance of their honest and open responses, emphasizing that they should not let my position in the project influence their contributions. This disclosure aimed to build trust and mitigate any potential bias that might arise from the power dynamics associated with my role, thereby reinforcing the authenticity and reliability of the data collected.

2.13 Ethical Considerations

Ethical approval for this research was obtained from the University of Witwatersrand's Human Research Ethics Committee (HREC) with HREC (Medical) Clearance Certificate Number M220303 (Appendix 2). The research identified and recruited participants who were active

duty men who had undergone VMMC and others who had not undergone VMMC based at Unique. Participants were part of the MDF where for security reasons, certain information is not freely given and may not be made public. Given the uniqueness of the study population and the setting of the research, additional ethical approval was sought from the National Health Sciences Research Committee (NHSRC) with NHSRC Certificate Number 2991 (Appendix 3) and also obtained consent from the Commander of the MDF who provided a Letter of Introduction (Appendix 4) to ensure information shared was not going to expose the vulnerability of the interest group. To ensure confidentiality, the researchers obtained approval from the MDF before commencing the study. Using codes, participant identities were made anonymous. Participants were also given the assurance that any information they submitted would be treated with the utmost confidentiality and would only be utilized for research. These actions were done to protect participant privacy and adhere to ethical confidentiality guidelines during the course of the study.

The study was conducted at a time when globally we are affected by the COVID-19 pandemic. The data collection method was conducted with ethical considerations at its core, demonstrating a dedication to protecting the rights and welfare of participants. Participants were informed on the research topic, the aim of the study, and that the primary reason they were selected to participate in the study was that they were active duty men who underwent VMMC or had not undergone VMMC. Prior to the interview, informed written consent was sought from all participants, stressing their voluntary nature and their freedom to withdraw at any time without consequence. Each participant was asked to sign a written consent (Appendix 10) that they have willingly chosen to participate in an interview for the study as well as allowing the interview to be recorded (Appendix 11). The identity of the participants was kept confidential and codes were used for participant identification.

In order to ensure that participants fully understood and agreed, this consent was further confirmed verbally at the beginning of the interview. The study aimed to improve transparency and participant understanding by providing information sheets in either English or Chichewa, the preferred language of the participants, that detailed the methods, goals, and confidentiality measures. Additional measures that promoted accountability and transparency in the research process included participants' consent to an audio recording of the interview and possible follow-up interviews. These strict moral guidelines played a key role in creating a climate of

trust and respect, empowering participants to make informed decisions about their involvement in the study while safeguarding their confidentiality and privacy.

Data collected from this research is being stored electronically on the PI's computer which is password protected and a backup file is stored in Google Drive of the PI's Wits Student account which is also password protected. All data for this study will be stored for six years post-completion of the research project and only be accessible for academic purposes.

Chapter 3: Results

This section summarizes the main findings and clarifies the facilitating factors, barriers, and complex dynamics influencing VMMC uptake in the military setting through theme analysis and interpretation. It provides insights into the intricacies of VMMC decision-making and implications for public health interventions and military healthcare policy by placing the findings within the context of current research and theoretical frameworks. The use of theoretical frameworks, particularly the HBM, TPB, and SCT (49,51,52), allows for a more structured and comprehensive analysis of the factors influencing VMMC decision-making. By applying these frameworks, the study uncovers how individual, social, and cognitive factors interact to shape health behavioural choices, offering deeper insights into the complexities of VMMC uptake in military contexts. In order to battle HIV/AIDS and improve health outcomes for military communities in Malawi and other similar settings, this chapter serves as a critical reflection on the study path.

3.1 Characteristics of the Study Participants

Twenty-three participants were included in the analysis. Sixteen active-duty men who had undergone VMMC and seven active-duty men who had not undergone VMMC participated in the research.

Table 2 shows a summary of the participants' demographics. Pseudonyms in the form of participant numbers have been used in order to ensure participants' confidentiality. A larger proportion of participants were married (n=16). Furthermore, four participants had served for two years or less, indicating a mix of new recruits and experienced active-duty men. There was a spread of ages among participants. Seven participants were in the 30-34 year age group and five participants were in the age group of 40-44 years. Age groups ranged from 18 to 50 years and above, with varying numbers of participants across different age categories.

Table 2: Participant Demographics

Participant Number	**Age group**	**Circumcision status**	**Rank**	**Years of service**
*002	25-29	Yes	Private	<5
*003	18-24	Yes	Private	<5
*004	30-34	Yes	Private	<5

*008	40-44	No	Staff Sergeant	20+
*009	30-34	Yes	Lieutenant	5-9
*010	35-39	Yes	Sergeant	10-19
*011	30-34	Yes	Lance Corporal	10-19
*012	50 above	Yes	Sergeant Major	20+
*013	50 above	No	Staff Sergeant	20+
*014	30-34	Yes	Private	<5
*015	25-29	Yes	Private	<5
*016	30-34	Yes	Private	<5
*017	25-29	Yes	Private	<5
*018	40-44	Yes	Not disclosed	10-19
*019	40-44	Yes	Sergeant	10-19
*020	40-44	Yes	Not disclosed	10-19
*021	25-29	No	Private	<5
*022	25-29	Yes	Private	<5
*023	40-44	Yes	Not disclosed	20+
*024	30-34	No	Private	<5
*025	25-29	No	Private	<5
*026	25-29	No	Private	<5
*027	30-34	No	Private	<5

Military ranks serve as an essential demographic characteristic, particularly in studies involving military personnel, as they reflect an individual's level of responsibility, experience, and influence within the armed forces. These are described as follows:

- **Private:** This is the lowest enlisted rank in the military, typically occupied by new recruits who have recently completed basic training.
- **Lance Corporal:** A step above Private, a Lance Corporal is still considered a junior enlisted rank but with slightly more responsibility.
- **Staff Sergeant:** A Staff Sergeant is a mid-level non-commissioned officer (NCO) with considerable experience and leadership responsibilities.
- **Lieutenant:** This is a junior officer rank, usually the first level of commissioned officer after completing officer training.

- **Sergeant Major:** This is a senior non-commissioned officer rank, often seen as the pinnacle of the NCO ranks. A Sergeant Major serves as a key advisor to commanders, offering guidance on soldier welfare, discipline, and the execution of missions.

3.2 Factors Shaping VMMC Decision-Making Among Active Duty Men

The decision-making process for VMMC among active duty men in Malawi is influenced by a complex interplay of factors. This subsection explores how military culture, prior knowledge, perceived benefits and risks, social influences, and access to healthcare shape the attitudes and decisions of these men regarding VMMC. By understanding these factors, we can gain insights into the unique challenges and motivators that impact VMMC uptake within military settings.

1. Military Culture

The decision-making process for VMMC among active duty men in Malawi revealed the influence of military culture as an important aspect. Participants' decisions to undergo circumcision were frequently attributed to military characteristics, such as discipline and dedication to health and well-being, which either helped or hampered the decision-making process regarding circumcision.

> *"This program needs to continue here at MDF, because we, soldiers, we are also difficult people sometimes. Most of the times we do go to the fields where it puts our lives at risk considering that sometimes we go to our borders and live there for several months and you have leaved your wife home. So, you already know we are humans and sometimes we need to be relieved. There are others who can abstain but there are also others who cannot abstain so they start having sex with ladies while there and if not circumcised and women you are meeting in that village they don't know about their statuses, you ended up getting a lot of diseases and transmit to your wife when you get home. But chances are reduced when you get circumcised."* ***(Circumcised, 017)***

Participants expressed that their decision-making process regarding circumcision was often influenced by the military environment they were in. They described feeling pressure or expectations from societal norms, cultural beliefs, and interpersonal relationships within the military community. Some mentioned that these factors made it challenging for them to make a decision that truly aligned with their personal preferences or beliefs. For instance, during the

interviews, participants frequently mentioned how strict adherence to military protocols or norms affected their willingness to seek circumcision. Many expressed concerns about deviating from established practices or feared judgment from peers and superiors if they pursued preventive health services like circumcision. The emphasis on discipline within the military culture was often cited as a reason for reluctance to engage in activities perceived as optional or non-essential.

In addition, the participants emphasized pragmatic factors from the military setting that influenced their choices for VMMC. For example, active duty men reported being sent on missions where there was little or no access to water for bathing for several days. In these kinds of circumstances, VMMC was thought to be advantageous for maintaining cleanliness since it might lower the risk of infections. Participants further emphasized how military culture had a hierarchical structure and that recommendations from senior military people were taken as orders to uptake VMMC. Therefore, recommendations for VMMC carried a lot of weight and influence over individual decision-making processes when recommended or endorsed by a superior officer.

> *"…as a section commander to my soldiers, I always give them the information for them to have a choice because not all can withstand in terms of abstinence, so I always tell them the part of circumcision so that they can take it."* ***(Not Circumcised, 008)***

> *"*When *coming back to Malawi make sure everyone is circumcised and out of 850 people, more than half of the people got circumcised...because I was Regimental Sergeant Major, I was telling them to go and get circumcision, so they were going and got circumcised through this process."* ***(Circumcised, 012)***

Participants expressed challenges with scheduling time off for VMMC and recovery amidst demanding military responsibilities. Some deferred or opted out of VMMC due to concerns about its impact on their military duties, while others emphasized the need to balance recovery time with operational demands, highlighting the criticality of adequate healing time. A number of participants conveyed that their demanding job positions and frequent deployments made it difficult for them to find time to access VMMC services.

"For me it has to do with more less convenience because mostly between going to work and everything in between, I thought like if I have to take time off because I might need a few weeks to recover after the processes. You know when the procedures are done especially if you are going for surgical option then I just feel reluctant. Balancing work or school that was when I was back in college, so I thought I will do when it is convenient but otherwise for the mean time I feel like it's okay. And to some extent it is because I don't feel like I will benefit much so it's why I simply leave it alone." ***(Not Circumcised 021)***

2. Prior Knowledge

Throughout the interviews, participants demonstrated a strong grasp of VMMC and its potential to reduce HIV transmission. Many emphasized the importance of circumcision in reducing the risks of acquiring HIV and other STIs. Their knowledge about VMMC was influenced by a variety of sources, including sensitization talks, mobile van announcements, and social and behaviour change communication (SBCC) campaigns. Participants highlighted how information from these campaigns, which focused on HIV and STI risk reduction, as well as cervical cancer prevention in women and hygiene promotion, shaped their decision-making process regarding VMMC.

"…my concern is if more messages will be given to let's say soldiers or to the public that VMMC is having higher percentage of reducing HIV, I understand that, once if a person has conducted the circumcision, he has a freelance for him to do what so ever he is wishing, then go into multiple sex just because he is fully aware that he is protected, because he did circumcision…" ***(Not circumcised, 008)***

Participants emphasized the significance of disseminating information on VMMC in shaping their decision-making process regarding circumcision. Many recounted how discussions on the benefits of VMMC, particularly its role in reducing the risk of STIs, HIV transmission, and cervical cancer in women, impacted their perceptions and decisions regarding circumcision. They highlighted how these discussions, which also emphasized cleanliness practices, helped them make informed choices about VMMC uptake.

"I came across a campaign at a point where they were talking of prevention of cervical

cancer, saying that the foreskin can be a host, especially for those that are sexually involved with several partners. So, removing that to some extent reduces the possibility that you can carry the pathogens responsible for the development of this type of cancer when you have undergone Voluntary Medical Male Circumcision… I am not sure if this was backed up by any research, but then some people do claim that you are less prone to getting infected with HIV if you're circumcised. So, I am not too sure how that works..." ***(Not circumcised, 021)***

3. Perceived Benefits

Participants in the study expressed a clear recognition of the significant benefits of VMMC particularly in terms of reducing the risk of HIV and other STIs. They viewed circumcision as a protective measure that could decrease their vulnerability to these health risks. Additionally, some participants highlighted the role of circumcision in promoting enhanced genital hygiene practices, recognizing its importance in their active duty roles where when they are on missions they oftentimes have limited access to water for hygiene purposes. Furthermore, several participants emphasized the importance of VMMC in protecting their sexual partners from HIV and other STIs, demonstrating a strong sense of responsibility toward their partners' well-being. These findings revealed that participants recognized the multifaceted benefits of VMMC beyond individual health, encompassing aspects of personal hygiene and partner protection.

"…what if I will be one of the guys who increases the problem to our women about cervical cancer something like that but if it happens that I don't undergo circumcision, and what if it happens I have come across someone who is infected with HIV/AIDS or any other STIs and happens to be a victim…" ***(Circumcised, 009)***

Furthermore, a few individuals underscored the cultural and religious importance of circumcision, perceiving it as a milestone or a manifestation of identity that is profoundly ingrained in their cultural background or religious convictions. These cultural factors affected their attitudes regarding VMMC.

"…the reason for me to be circumcised is actually not known because if God created a man with foreskin, I think he had a purpose for that. And what I do is cleaning but circumcising with the purpose of saying I should prevent HIV, I see that that's not the

fact other than myself having an abstinence from having sex." ***(Not circumcised, 008)***

Decision-making was also greatly influenced by individual views about the advantages of circumcision in terms of health. Participants gave strong arguments for and against VMMC, citing perceived improvements in hygiene and a lower risk of genital infections.

> *"First of all, I can say that circumcision is good. Mainly in terms of cleanliness because the foreskin keeps viruses and also as you are having sex with a woman, the foreskin can get injured and mixed with the fluids produced by the woman you can contract some infections. That's the advantage of circumcision, you don't contract infections easily."* ***(Circumcised, 004)***

> *"When I was told that it's easy when it comes to hygiene and preventing infections that might result from maybe moisture and maybe other things remaining under the foreskin for too long. So, I did explore, thinking maybe I might want to undergo this but then somehow I back tracked on my idea."* ***(Not Circumcised 021)***

Furthermore, a few individuals who had undergone VMMC shared personal experiences of improved sexual performance and satisfaction after circumcision. They attributed these gains to the physiological changes brought about by circumcision. They reported feeling stronger and able to satisfy their spouses.

> *"Yeah, I can say that the performance itself has been reduced for me. I can say so. You know, before the sensitivity in me was high but after this circumcision it has reduced…You know what before getting circumcised, the process of sex that is, to finish the process it was less minutes but after it takes longer."* ***(Circumcised 019)***

The reports of enhanced sex life demonstrated the complexity of the perceived advantages of VMMC and the wide range of human reactions to VMMC. On the other hand, men that have not undergone VMMC expressed a negative impact pertaining to the impact on sexual performance.

> *"Previously when they were having sex maybe they could manage to do two, three or*

four rounds but once they underwent this male circumcision, they don't even pass two rounds. So, it is becoming a challenge in many societies because many men are afraid to undergo this circumcision process because they afraid of going through the same challenge." ***(Not Circumcised 024)***

Participants' decision-making process about VMMC was influenced by a wide range of perceived benefits, including cultural, personal, and medical considerations.

4. Perceived Risks

Due to the challenges in making decisions regarding VMMC, participants expressed a variety of worries and misunderstandings regarding the potential risks connected to VMMC. The main concern among participants (both circumcised and not circumcised) was pain or adverse events during and after circumcision; several expressed anxieties about the discomfort of the procedure and the possibility of delayed wound healing.

"…rumors I would hear. Things like when you get circumcised it swells up…" ***(Circumcised, 002)***

*"*The *worst thing is the pain, when a person is circumcised. Because it is a wound, they were terrifying issues about pain. It takes time for the wound to recover."* ***(Circumcised, 014)***

Some men who have not undergone VMMC expressed concerns about how undergoing the VMMC process might affect their capacity to carry out everyday tasks and activities, bringing attention to the practical aspects of getting circumcised.

"My worry is that I don't know how long will it take for me to start having sexual intercourse with my partner….about the treatment after the process maybe the wound might take long to get healed …But if I start having feelings while I have done circumcision, can't this cause the stitches to start detaching and maybe by the time this happens, I don't have transport to go back to the hospital." ***(Not Circumcised, 025)***

Furthermore, a common issue among the participants was uncertainty regarding sexual function following circumcision. A few men who were not circumcised expressed worries

about possible changes in their sexual experience or performance after becoming circumcised. They were afraid that this would make them less skilled when it came to sexual activity or less able to satisfy their partners. These fears frequently reflected wider societal norms and expectations around male sexual performance and were based in cultural ideas about masculinity and sexual prowess.

> *"Yes, I was worried. As I said before that people were saying those medical people when they are doing this circumcision, they cut a certain vein and when they cut it you can't have any desire for a woman. End result you will be living in the family without children so that was my worry."* ***(Circumcised, 20)***

> *"Previously when they were having sex maybe they could manage to do two, three or four rounds but once they underwent this male circumcision, they don't even pass two rounds. So, it is becoming a challenge in many societies because many men are afraid to undergo this circumcision process because they afraid of going through the same challenge."* ***(Not Circumcised, 024)***

Participants who were circumcised expressed concerns of widespread misconceptions about VMMC regarding the long-term consequences of circumcision such as the risk of infertility. Men who were not circumcised expressed concerns about the procedure's confidentiality and the possible stigma attached to getting circumcised, especially in areas where VMMC is not commonly performed.

> *"Yes, I think about the drug that they use at least to kill the pain. Yes, I think this was also another issue of whereby that you…they inject you a drug whereby that drug affects your reproductive organ maybe in future you will not be able to conceive or this drug might also reduce fertility its self."* ***(Circumcised 009)***

> *"My worry is what I heard on the radio that a certain group of people who underwent circumcision are not having children, now that is my worry but also the other worry is about the wound."* ***(Not Circumcised 027)***

Participants also mentioned how cultural factors influenced how people perceived

circumcision, with some ethnic groups—like the Yao tribe in southern Malawi—having particular customs and attitudes about circumcision. Moreover, some individuals expressed their fear of feeling that this is an effort to turn them into Muslims because they associate circumcision with Islamic customs. Their decision-making process became even more complicated as a result of this anxiety, which went beyond the simple physical and sexual implications of circumcision.

> *"When I got circumcised, all that was worrying me before, things like when you get circumcised at an old age your body performance gets affected, I concluded that it was not true. I have evidence. I am a man I can get intimate with my partner and see that nothing is wrong."* ***(Circumcised, 004)***

> *"…most Malawians we relate it to religion, maybe our tribes that we are coming from you know. So, it was like related mainly to a certain tribe and a certain religion so if someone who is not belonging to that tribe or that religion it's hard for that person to understand or to take it."* ***(Circumcised, 019)***

In general, society standards, cultural beliefs, and personal experiences all influenced how risky people felt VMMC was.

> *"The bible has got two commandments, I mean 10 commandments, out of those commandments it is directly stipulating if you love your wife, you cannot go out to for sex…I should say fornication is wrong, so we are looking into those dynamics."* ***(Not Circumcised 008)***

These worries brought to light how crucial it is to clear up misunderstandings and give correct information in order to support active duty men in Malawi in making well-informed decisions.

5. Social Influence

Active duty men's decisions for VMMC were significantly influenced by social factors such as peer discussions, cultural norms, and community perceptions. Participants expressed how their thoughts about circumcision were influenced by discussions with peers, advice from community leaders, and cultural norms around masculinity and health-related activities. The

uptake of VMMC was found to be facilitated by peer support and encouragement, whereas stigma or false information in social networks served as hurdles.

> *"…they were coming to my room and asking how I'm feeling. They found that after two days I was looking like I don't have a wound, so they were asking what is happening. So, I said this it is a good thing, don't be afraid of it. Let's go and get circumcised and reduce chances of getting diseases"* ***(Circumcised, 017)***

> *"…for a person like me, maybe I have heard since we do discuss and information I can hear from my friend I can deem it important, because if you are to tell me I won't hear you and I won't make use of it. But a friend whom I interact with, often tells me something I will understand. So, we receive information differently some benefit from friends some from just hearing they see it as an important thing to do."* ***(Not Circumcised 013)***

Participants also mentioned how seeing other people's experiences with VMMC affected their ability to make decisions. Participants regardless of having undergone VMMC or not, had favourable impressions of the VMMC procedure since they witnessed their colleagues go through the healing process quicker and with little to no pain. On the other hand, others experienced painful outcomes and delayed healing, hence making those who have not undergone VMMC hesitate to get circumcised themselves.

> *"…and a lot of people are shunning circumcision because of fear of the unknown…When these people are making campaigns to circumcise people after they go some people come to say don't do that, they will even give an example to say there was a certain guy who lost his penis because it was cut. If you take that risk at your age, you will lose everything."* ***(Circumcised, 010)***

> *"My understanding is that, I haven't undergone circumcision, so in my understanding circumcision seems to be very important because I am one of the victims who have met challenges concerning circumcision like getting diseases that are transmitted through sexual intercourse like Syphilis. So, I feel that if I got circumcised, it can be helpful."* ***(Not Circumcised 025)***

Participants who had undergone VMMC drew attention to the fact that adhering to post-operative instructions facilitated faster healing processes and allayed worries regarding procedure-related pain and discomfort. Furthermore, people who successfully dealt with erection and pain concerns after circumcision shared their stories, giving others comfort and direction on VMMC.

> *"But the problem that people are scared with it is that when they have been stitched, and the penis elects the stitches might split open. While with the ring when the shaft elects, it squeezes the manhood together, with the ring in place the penis might enlarge on both sides and the ring becomes tight, this causes pain. That is where most men were worried with when I was interacting with them."* ***(Circumcised, 004)***

The way that participants interacted with one another in both military and civilian contexts significantly influenced how they felt about and perceived VMMC. Active duty men that have not undergone VMMC were encouraged to seek circumcision by their colleagues' positive experiences, whereas misconceptions or unfavourable experiences discouraged others from doing so.

> *"Yes, I have because I saw my friend that time who went for circumcision, I don't know what happened to him and I don't know how the process was done. He stayed for three months in pain with a wound failing to heal. He was just wearing 'chitenje'*[2] *and he was not coming to school. Medical personnel have been visiting him and up to date when he wears a condom, it just burst and he told me that maybe they didn't circumcise him well."* ***(Not Circumcised, 026)***

In general, social factors had a significant role in shaping active duty men's decisions in Malawi about VMMC.

> *"...because I am one of the people who have been ignoring this issue about circumcision. I have been hearing this information for so many years and after getting*

[2] Chitenje is defined as **an African garment similar to the sarong**, often worn by women wrapped around the chest or waist or as a headscarf or sling to carry a baby

that STIs for several times, it's when I have decided to go for circumcision. So, I can advise my fellow youths and men that it is very important to get circumcised." ***(Not Circumcised, 025)***

6. Healthcare Access

The availability of information and access to VMMC service were found to be important determinants of participant decision-making. Participants reported some difficulties with convenience and the lack of thorough information on VMMC. In order to enable informed decision-making regarding VMMC, participants emphasized the need of having easy access to healthcare facilities as well as the necessity of customized information and support services.

"I just decided of going to the hospital, the first thing they gave me counseling, they told me about the procedure, what happens when you get circumcised and the importance of getting circumcised. But before everything they told me to do blood test…" ***(Circumcised. 011)***

"…I used to know that there is circumcision that happens to Yao tribe that practice 'Jando[3]'. But with passage of time, the government intervened to say there is medical circumcision which covered all tribes of people. Because initially it used to happen to a particular tribe but when the government intervened it became introduced to all tribes that anyone can feel free to access medical circumcision…" ***(Not circumcised, 013)***

Furthermore, participants frequently faced obstacles in obtaining VMMC services due to the nature of their military responsibilities. Concerns over privacy and discomfort were among the other complaints highlighted regarding the atmosphere at VMMC clinics, where participants frequently ran into familiar faces, especially women, which made them feel uneasy and reluctant to have the procedure done. Moreover, participants reported that the presence of children at the clinics during VMMC campaigns made them feel uncomfortable because they felt it was inappropriate to undress in their presence.

"I didn't feel good because it was very embarrassing and during that period, my bed

[3] Jando is the name given to a sequence of ceremonies which combine initiation rites and circumcision.

was just close to an elderly father. Those who were assisting the doctor with tools were just new recruits (girls) so it was somehow very embarrassing, that is according to my side regardless that they medical personnel." ***(Circumcised, 022)***

These difficulties brought to light the necessity of customized approaches to VMMC service provision and information sharing in military environments. Providing services that are gender-sensitive, guaranteeing privacy and confidentiality, and removing logistical obstacles are all crucial to encouraging active duty men in Malawi to use VMMC. Campaigns and outreach programs should also be planned to establish welcoming and encouraging settings that motivate active duty men to access VMMC services.

3.3 Experiences of Men Who Have Undergone VMMC

Men who had undergone VMMC provide valuable insights into their experiences, perceptions, and motivations surrounding the procedure. Their narratives shed light on various aspects, including the decision-making process, the VMMC service delivery, and the post-circumcision period.

Decision-Making Process:

Participants who had undergone VMMC described a multifaceted decision-making process which was influenced by a combination of personal, social, and health-related factors. Many expressed a desire to reduce their risk of HIV infection and other sexually transmitted infections as a primary motivation for seeking circumcision. Additionally, some men cited cultural or religious reasons, visual appearance preferences, or the influence of peers and family members as contributing factors to their decision.

"They were testing for HIV and they told us that once you tested positive they will not continue with the process, so it was a bit challenging because we went there with three people and we knew that once one is not to be circumcised, it means the whole village will know about the status but fortunately we were all negative and they circumcised us." ***(Circumcised, 022)***

"The information that made me was that by then we were chatting on the group associated with health so they enlightened us, the cause of this discussion was about

death of women due to Cervical Cancer. My mother died with Cervical Cancer…it touched me because I had to think that my wife can also suffer from the same disease that killed my mother. So, after that discussion, I told my wife and she told me to go and get circumcision." ***(Circumcised, 020)***

VMMC Service Delivery:

Men who had undergone VMMC shared their experiences with the service delivery process, highlighting aspects such as access to information, counselling, and the quality of care received. Positive experiences often involve clear and comprehensive information provided by healthcare providers, supportive counselling sessions addressing concerns and misconceptions, and a comfortable environment.

"risk of getting HIV/AIDS is minimized and also the STIs are reduced. I can say that the counseling they gave us is what I have already said, importance of circumcision. Apart from that, they also asked us to get blood test and to know our HIV statuses." ***(Circumcised, 016)***

"...before circumcision they test for HIV in order for them to see the immunity because when your immunity is low and when being circumcised, it might be difficult for the wound to get healed due to low immunity..." ***(Circumcised, 017)***

Conversely, negative experiences included inadequate information, limited counselling support, or discomfort during and after the procedure.

Post-Circumcision Period:

After undergoing VMMC, men shared their post-operative experiences, including pain management, the healing process, and sexual function. Positive post-circumcision experiences are characterized by minimal pain or discomfort, swift recovery, and satisfaction with the visually appealing appearance. Participants reported improvements in hygiene and sexual pleasure following circumcision. However, challenges such as pain, swelling, or wound complications may occur, impacting the overall experience.

"When I got circumcised, all that was worrying me before, things like when you get

circumcised at an old age your body performance gets affected, I concluded that it was not true. I have evidence. I am a man I can get intimate with my partner and see that nothing is wrong." ***(Circumcised, 004)***

"…I can say the performance itself has been reduced for myself I can say so. You know, before the sensitivity in me was high but after this circumcision it has reduced…You know what before getting circumcised, the process of sex, that is to finish the process, it was less minutes but after it takes longer." ***(Circumcised, 19)***

In summary, the experiences of men who have undergone VMMC provide valuable insights into the decision-making process, service delivery, and post-circumcision period. Their narratives inform efforts to optimize VMMC programs, improve service delivery, and address concerns to promote the uptake and positive outcomes of circumcision within this population. Overall, the study's findings shed light on the various perspectives, experiences, and variables that active duty men in Malawi consider when making decisions on VMMC. The results show the necessity for focused interventions and all-encompassing healthcare services to encourage VMMC uptake among military populations. They also highlight the intricate interaction of individual, social, cultural, and institutional elements that impact attitudes about VMMC within military contexts.

Chapter 4: Discussion

4.1 Introduction

This chapter delves into the noteworthy themes that surfaced from the narratives of study participants, shedding light on the multifaceted factors influencing their decision-making processes regarding VMMC. As revealed through thematic analysis, participants' past knowledge of VMMC emerged as a significant determinant in their attitudes towards VMMC. The discourse surrounding the perceived benefits and risks of VMMC varied widely among participants, ranging from HIV and STI prevention to concerns about potential adverse effects and implications for sexual function post-circumcision. Additionally, the pervasive influence of military culture was evident in participants' opinions about VMMC, with considerations such as peer interactions and adherence to military rules shaping their perspectives. Notably, participants highlighted the critical role of information availability and accessibility of VMMC services in shaping their decisions, drawing attention to challenges related to facility accessibility and the need for tailored services and more information on VMMC for active duty men. Importantly, social factors emerged as influential determinants of decision-making, with cultural norms and community opinions exerting significant sway away from VMMC.

The integration of the HBM, TPB, and SCT provides key lenses for understanding the decision-making processes regarding VMMC among active duty men (49,51,56). The HBM helps explain participants' perceptions of risks and benefits, such as HIV prevention versus concerns about adverse effects (31,53), while the TPB addresses the influence of subjective norms and perceived behavioural control within the military setting (55,57). SCT highlights the role of social learning and peer interactions, emphasizing how military culture and observed behaviours influence individual decisions (50,57). Together, these theories offer a comprehensive understanding of the individual, social, and cognitive factors that shape decision-making processes. This discussion illuminates the complex interplay of individual, social, and structural factors in shaping VMMC decision-making among active duty men, offering valuable insights for the development of targeted interventions and policies aimed at promoting circumcision uptake within military settings.

4.2 Perceptions of VMMC among Active Duty Men

Military personnel may encounter difficulties accessing VMMC services due to the demanding nature of their roles and the constraints of military life (9). Participants faced challenges

accessing VMMC services due to their demanding work schedules, which left little time for medical appointments. Additionally, they expressed the need for sufficient recuperation time after the procedure, highlighting concerns about balancing recovery with their military duties and responsibilities. In addressing these barriers, the effectiveness of SBCC initiatives is crucial. SBCC strategies aim to disseminate accurate information about VMMC, promote positive attitudes towards the procedure, and address misconceptions and concerns among military personnel (32,34). Research has shown that well-designed SBCC interventions can enhance knowledge, improve perceptions, and ultimately increase VMMC uptake among target populations (30,75). This study discovered that participants received information about VMMC through SBCC campaigns, which involved health personnel conducting talks within their military units and disseminating information through mobile van announcements. By analyzing the influence of accessibility and information sharing, as well as the effectiveness of SBCC initiatives, researchers can evaluate the impact of these factors on VMMC uptake among military personnel. This comprehensive understanding is essential for developing targeted interventions and policies aimed at overcoming barriers and promoting VMMC uptake within military settings.

The implications for VMMC interventions are multifaceted and critical for promoting VMMC uptake within this population. SBCC initiatives should be tailored specifically to the needs and challenges faced by active duty men, considering their demanding roles and the constraints of military life. To address logistical barriers to accessing VMMC services, interventions should focus on improving the accessibility of VMMC services by streamlining appointment scheduling, offering flexible clinic hours to accommodate military schedules, and providing services within or near military bases. Furthermore, embedding VMMC within military healthcare policies and practices by integrating VMMC services into routine healthcare offerings within military facilities, training military healthcare providers on VMMC counselling and service provision, and establishing clear referral pathways for military personnel interested in undergoing the procedure, barriers to access can be minimized, and uptake can be increased.

The military culture and institutional context significantly shape active duty men's perceptions and decisions regarding voluntary medical male circumcision (VMMC). Existing literature highlights the profound influence of military culture on individuals' attitudes and behaviours

towards healthcare practices, including VMMC. Studies have identified camaraderie, a sense of duty, and adherence to military norms as influential factors shaping military personnel's perceptions of VMMC (39,40). Military environments often prioritize discipline and conformity, which can impact individuals' willingness to engage in health-promoting behaviours perceived as optional or non-essential (9). Moreover, military leadership, rules, and policies play a pivotal role in shaping VMMC uptake within military settings. Research has demonstrated that institutional support or barriers can significantly influence active duty personnel's inclination to undergo VMMC (31,38). For example, the availability of VMMC services within military facilities and the perception of circumcision among peers and superiors can influence individuals' decisions regarding VMMC uptake (28). Understanding how these institutional factors interact with individual beliefs and preferences is essential for developing targeted interventions and policies aimed at promoting VMMC uptake.

4.3 Experiences of Active Duty Men with VMMC

Understanding the experiences of active duty men who have undergone VMMC, as well as those who have not undergone VMMC, is essential for assessing the effectiveness of VMMC programs within military settings. Research suggests that access to information and healthcare services, as well as military culture and institutional factors, significantly impact individuals' decisions regarding VMMC; decisions for or against VMMC (23). Military environments often prioritize discipline and conformity, which can influence individuals' willingness to engage in health-promoting behaviours perceived as optional or non-essential (76). By exploring the experiences of active duty men with VMMC, researchers can identify barriers and facilitators to uptake, informing the development of strategies to promote VMMC within military populations. In this study, we isolated barriers to VMMC uptake among active duty men in military settings were identified, with the main concern being pain and discomfort associated with the procedure (31). Additionally, anxiety about wound healing and uncertainty regarding sexual function were prominent barriers (9). Fear of changes in sexual experience and concerns about infertility also deterred some individuals from undergoing VMMC (9). Moreover, the influence of military culture, which prioritizes toughness and may inhibit discussions about health concerns, emerged as a significant barrier to VMMC uptake. Cultural beliefs and norms, especially within military environments, often contributed to apprehension about undergoing a procedure perceived as elective or non-essential. These barriers were seen in both men who underwent VMMC and the same sentiments were made by men who did not undergo VMMC.

Conversely, facilitators included camaraderie and support from peers, as well as institutional initiatives that promoted VMMC services and addressed misconceptions about the procedure (76). On the other hand, factors facilitating the decision not to undergo circumcision included a lack of perceived immediate health benefits, concerns about disrupting military duties during the recovery period, and the absence of peer pressure within their social circles to undergo the procedure (35). Participants expressed that God did not intend for the foreskin to be removed while others expressed sentiments of remaining faithful to their partners hence, they do not see the health benefit of undergoing VMMC.

In this study, the experiences of active duty men who underwent voluntary medical male circumcision (VMMC) were multifaceted, reflecting both barriers and facilitators to the procedure. While some participants expressed concerns about pain, discomfort, and anxiety during the healing process, others highlighted the positive impact of the procedure on their sexual health and overall well-being (77). Overall, the experiences of active duty men with VMMC underscored the complex interplay of individual, interpersonal, and institutional factors shaping their decision-making and outcomes related to circumcision within military settings.

Understanding the experiences of active duty men VMMC are profound for designing effective interventions and practices within military settings. Firstly, addressing barriers such as concerns about pain, discomfort, and anxiety associated with the procedure is crucial (78). Interventions aimed at providing adequate pain management and support during the healing process can help alleviate these concerns and encourage uptake of VMMC. Additionally, efforts to provide accurate information about the procedure and its benefits, while addressing misconceptions and cultural beliefs, are essential for promoting informed decision-making among active duty men (79). Furthermore, initiatives that leverage peer support and institutional promotion of VMMC services can serve as facilitators for uptake. However, it's important to recognize and respect individuals' reasons for choosing not to undergo circumcision, such as concerns about disrupting military duties or religious beliefs. By considering both barriers and facilitators identified in this study, VMMC interventions and practices can be tailored to effectively meet the needs of active duty men in military settings, ultimately contributing to HIV prevention efforts and improving overall health outcomes.

4.4 Factors Influencing Decision-Making for VMMC among Active Duty Men

Understanding the psychological and emotional aspects involved in the decision-making process for VMMC is essential for promoting uptake among active duty men. Existing literature emphasizes the significance of psychosocial factors in influencing individuals' decisions regarding VMMC. Studies have highlighted the role of attitudes, beliefs, and perceptions about VMMC in shaping individuals' willingness to undergo the procedure (28,40). Positive attitudes towards VMMC, driven by perceived benefits such as reduced risk of HIV and other STIs have been associated with higher acceptance rates among men. Moreover, peer pressure, community attitudes, and social norms play a crucial role in the decision-making process for VMMC. Research suggests that individuals may feel compelled to undergo circumcision due to social expectations or pressures from peers and community members (9). Participants that had undergone VMMC cited the influence of military culture and institutional factors was evident, with some participants feeling compelled to undergo VMMC due to peer pressure or institutional norms. Conversely, negative community attitudes towards VMMC or cultural beliefs opposing the practice acted as barriers to uptake of VMMC for those that have not undergone VMMC (9). The findings of this study support existing literature on the influence of social and cultural factors on VMMC uptake. Research has consistently shown that social expectations and pressures, including those from peers and community members, can significantly impact individuals' decisions regarding circumcision (9). Similarly, the influence of military culture and institutional norms on VMMC uptake among active duty personnel has been documented in various studies (57). These factors can create a social environment where individuals may feel compelled to undergo VMMC to conform to perceived norms or expectations within their military community.

Access to information and healthcare services is paramount in the decision-making process for VMMC among active duty men. Existing literature underscores the importance of access and knowledge barriers in shaping individuals' decisions regarding VMMC. Studies have identified limited awareness and comprehension of VMMC within military communities as significant obstacles to informed decision-making (9). Lack of accurate information about the procedure, its benefits, and potential risks can contribute to uncertainty and hesitancy among men considering circumcision (28). Moreover, barriers to accessing healthcare infrastructure, including geographical distance, cost, and availability of services, further exacerbate challenges related to VMMC uptake (9,40). Our study revealed a critical need for more

information and improved access to healthcare services in the decision-making process for VMMC among active duty men, consistent with existing literature. Interviews with participants revealed participants had limited awareness and understanding of VMMC within military communities, presenting a significant barrier to informed decision-making. This lack of accurate information regarding the procedure, its benefits, and potential risks contributed to uncertainty and hesitancy among men considering circumcision. Additionally, challenges related to accessing healthcare infrastructure, such as geographical distance, cost, and availability of services, further compounded the difficulties associated with VMMC uptake. These findings underscore the urgent need to address knowledge gaps and enhance healthcare accessibility to facilitate informed decision-making and ultimately increase VMMC uptake among active duty men within military settings. Notably, privacy concerns emerged as an additional consideration, as some participants expressed apprehensions about the potential compromise of their privacy during the procedure. These findings emphasize the urgent need to address knowledge gaps and enhance healthcare accessibility, while also recognizing the importance of ensuring privacy and confidentiality, to facilitate informed decision-making and bolster VMMC uptake among active duty men in military contexts.

The implications of understanding the psychological, emotional, and social aspects involved in the decision-making process for VMMC are profound for interventions and practices aimed at promoting uptake among active duty men. Firstly, recognizing the influence of positive attitudes towards VMMC, driven by perceived benefits such as reduced risk of HIV and other sexually transmitted infections, underscores the importance of disseminating accurate information about the procedure and its advantages. Additionally, addressing peer pressure, community attitudes, and social norms is crucial in creating a supportive environment where individuals can make informed decisions about VMMC without feeling coerced. Efforts to mitigate negative community attitudes or cultural beliefs opposing circumcision are essential to remove barriers to uptake. Moreover, ensuring access to comprehensive information and healthcare services is paramount, considering the identified barriers such as limited awareness and comprehension of VMMC within military communities and challenges related to accessing healthcare infrastructure. By addressing these factors, VMMC interventions and practices can effectively promote informed decision-making, alleviate concerns, and ultimately increase uptake among active duty men within military settings, contributing to improved health outcomes and HIV prevention efforts.

4.5 Strengths and Limitations of the Study

This research enhances our understanding of the multifaceted variables that influence individuals' attitudes and behaviours regarding circumcision. Moreover, the findings contribute significantly to the existing literature on VMMC decision-making within the context of active duty men in Malawi. By meticulously examining these issues, this study not only expands the knowledge base on VMMC but also sheds light on the intricate interplay of factors shaping decision-making dynamics among military populations. Consequently, the insights gleaned from this research hold substantial implications for designing targeted interventions and policies aimed at promoting VMMC uptake and improving healthcare outcomes within military settings in Malawi and potentially beyond.

Limitations of the study were getting people to be available in the face of their busy military duties was a major challenge. Participants' schedules were frequently set by their military responsibilities and activities; thus, it was necessary to be flexible and carefully coordinate interview times. Another layer of difficulty was managing any discomfort or unwillingness to talk about delicate subjects related to VMMC. It is possible that some participants may have had reservations or unease discussing their own experiences or opinions regarding VMMC for fear that they could be singled out by military personnel involved in the military VMMC programming. This highlights the necessity for a supportive and enabling environment to promote their complete participation.

In addition, the study focused only on the perspective of men and not their partners. Participants who had negative views and perceptions of VMMC refused to participate. This impacted the result of the number of participants who had more positive views agreeing to participate. In addition, social desirability bias is a potential limitation where participants may tell the researchers what they think they want to hear, but we made sure in the analysis to also manually check the data and see if there were any such trends being obvious. Participants may give responses that benefit the continuation of the program based on those benefits they will continue to receive if the program continues or it could even be in the negative aspect where some may just want to sabotage the program for other reasons that may not be known. Benefits could be allowances received for participation in VMMC outreach and campaigns.

Chapter 5: Conclusion and Recommendation

5.1 Conclusion

VMMC remains a cornerstone of HIV prevention strategies, particularly in high-risk environments like military settings. This study delved into the multifaceted factors influencing VMMC decision-making, perceptions, and experiences among active duty men in Malawi. With the overarching goal of informing targeted interventions to enhance VMMC uptake within military populations, findings shed light on the complexities inherent in this context.

Through this investigation, several pivotal findings emerged, substantiated by both existing literature and our study's data:

Decision-Making Process: The decision-making process surrounding VMMC among active duty men is indeed intricate, influenced by a myriad of factors. Our study supported existing research, revealing that positive attitudes towards VMMC, rooted in its perceived benefits in reducing the risk of HIV and other sexually transmitted infections, were positively correlated with higher acceptance rates among participants. For instance, interviews with active duty men showcased instances where individuals cited the desire to protect their health and that of their partners as a driving force behind their decision to undergo VMMC. However, our findings also underscored the challenges posed by negative community attitudes or cultural beliefs opposing circumcision. For instance, several participants recounted instances where misconceptions about VMMC, such as fears of decreased sexual pleasure or concerns about pain during the procedure, influenced their decision-making process. These insights underscore the importance of targeted educational interventions aimed at dispelling myths and providing accurate information about VMMC within military communities.

Influential Perceptions: Our study illuminated the significant influence of perceptions on VMMC acceptance among active duty men. Peer pressure, community attitudes, and social norms emerged as key determinants shaping individuals' perceptions of VMMC. For instance, participant interviews highlighted how conversations among peers and the prevailing attitudes within their units influenced participants' views on circumcision. Moreover, our interviews revealed the impact of broader community norms and cultural beliefs on individuals' perceptions of VMMC. For instance, participants described how cultural taboos surrounding circumcision in certain communities influenced their attitudes towards the procedure. These

findings underscore the need for targeted community-based interventions aimed at fostering positive attitudes towards VMMC and challenging stigma and misconceptions.

Experiences with VMMC: Access to information and healthcare services, alongside military culture and institutional factors, significantly shape the experiences of active duty men with VMMC. Our study supported existing literature, highlighting barriers such as inadequate awareness, accessibility challenges, and institutional norms that may impede VMMC uptake. For instance, interviews with participants revealed instances where limited access to accurate information about VMMC, coupled with logistical challenges in accessing healthcare services, hindered their decision-making process. Additionally, our findings underscored the influence of institutional norms and military culture on individuals' experiences with VMMC. For instance, participants described how concerns about time off for recuperation and support from respective leaders within their units influenced their decision to undergo VMMC. These insights underscore the importance of tailored interventions aimed at addressing logistical barriers and providing institutional support to facilitate VMMC uptake within military settings.

In conclusion, the study provides valuable insights into the complex dynamics surrounding VMMC uptake among active duty men in military settings. By highlighting the multifaceted factors including psychosocial influences, access barriers, and military culture, influencing decision-making, perceptions, and experiences with VMMC, that shape individuals' decisions regarding VMMC uptake within this population. Our findings lay the groundwork for targeted interventions aimed at promoting VMMC uptake and reducing HIV transmission within military populations. Moving forward, it is imperative to leverage these insights to develop comprehensive strategies that address barriers, dispel misconceptions, and foster a supportive environment for VMMC within military communities.

The findings underscore the need for targeted interventions and guidelines to address the identified obstacles and encourage VMMC uptake among Malawi's military population, thereby promoting their sexual and reproductive health. Additionally, recognizing power dynamics within the military is essential for understanding how institutional norms and peer pressure may influence individuals' decisions regarding VMMC. Understanding and addressing these factors are essential for promoting informed decision-making and increasing VMMC uptake within military populations.

By addressing these topics, the study contributes to the understanding of VMMC decision-making within the context of active duty men. Only through concerted efforts can we realize the full potential of VMMC as a vital HIV prevention strategy in military settings.

5.2 Implications

The results of this study have a number of implications for the provision of VMMC services and public health initiatives aimed at the military population in Malawi. First and foremost, in order to support well-informed decision-making, interventions meant to encourage the uptake of VMMC should dispel myths and offer accurate and correct information about VMMC and the process itself. Reaching marginalized populations depends on initiatives to make VMMC services easily accessible, especially in military environments. Furthermore, intervention efforts should acknowledge and take advantage of the role that community involvement and peer support play in encouraging VMMC uptake. For VMMC initiatives among active duty military men to be successful, customized strategies that consider the distinct organizational and cultural dynamics of military environments are crucial.

5.3 Recommendations

Future Research

While this study has provided valuable insights into the perceptions, experiences, and factors influencing active duty military men's decisions regarding voluntary medical male circumcision (VMMC) in Malawi, several avenues for future research remain to be explored. Longitudinal studies tracking individuals over time could offer deeper insights into how perceptions towards VMMC evolve and the variables influencing uptake over time, particularly among military personnel. Additionally, conducting comparative studies between civilian and military populations could elucidate the unique elements affecting circumcision uptake within military settings, guiding tailored intervention strategies. Moreover, supplementing qualitative findings with quantitative assessments of decision-making factors, such as knowledge, attitudes, and social influences, through survey approaches could provide a more comprehensive understanding of VMMC decision-making among military populations.

For Practice

Several practice recommendations can be proposed based on the findings. Implementing comprehensive Sexual and Reproductive Health education programs within military settings to increase awareness and knowledge about VMMC and its role in HIV prevention is crucial. Ensuring accessible VMMC services within military facilities, including establishing VIP VMMC services with flexible clinic hours, is essential to address access barriers. Establishing peer education and support programs can leverage social influences to promote positive attitudes towards VMMC among military personnel. Engaging military leadership to prioritize access to VMMC services and creating policies that support VMMC uptake is vital. Lastly, providing tailored counselling and support to individuals considering VMMC can address concerns and provide guidance throughout the decision-making process and recovery period. By implementing these recommendations, military organizations can foster an environment conducive to VMMC uptake among active duty men, ultimately improving sexual and reproductive health outcomes within the military population.

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Appendices

Appendix 1 – Table 3: Deductive and Inductive Codes

Deductive Codes		**Inductive Codes**	
Health Belief Model (HBM) Factors	• Perceived susceptibility to HIV/AIDS • Perceived benefits of VMMC • Perceived barriers to VMMC • Cues to action for VMMC	**Personal Experiences with VMMC**	• Individual stories and narratives related to undergoing VMMC • Specific experiences during and after the procedure
Theory of Planned Behaviour (TPB) Factors	• Attitudes towards VMMC • Subjective norms regarding VMMC • Perceived behavioural control over VMMC	**Perceptions of VMMC Benefits**	• Participants' perspectives on the potential advantages of VMMC • Personal beliefs regarding the health benefits or cultural significance of circumcision
Social Cognitive Theory (SCT) Factors	• Observational learning from peers or community members • Outcome expectations regarding VMMC • Self-efficacy beliefs related to VMMC decision-making	**Concerns and Misconceptions**	• Worries or fears expressed by participants regarding VMMC • Misconceptions or misunderstandings about the VMMC and its outcomes
Healthcare Access	• Availability of VMMC services • Geographical accessibility of healthcare facilities • Affordability of VMMC procedures	**Social Influences and Peer Discussions**	• Accounts of discussions with peers or community members about VMMC • Influence of social norms or expectations on VMMC decision-making
Military Culture and Institutional Factors	• Influence of military values and norms on VMMC decision-making • Impact of military policies and regulations on VMMC uptake • Role of military leadership in promoting or discouraging VMMC	**Access to Healthcare Services**	• Reports on the availability and accessibility of VMMC services • Challenges or barriers encountered in accessing healthcare facilities for circumcision
		Military Identity and Decision-Making	• Reflections on how military affiliation influences VMMC decision-making • Balancing military duties with personal health choices

Appendix 2 – Table 4: Descriptive Codes and Pattern Codes

Pattern code	**Descriptive codes**	**Pattern code explained**
Prior knowledge	Prior knowledge, familiarity with circumcision procedures, and previous exposure to VMMC information	Includes any data related to participants' existing knowledge or familiarity with Voluntary Medical Male Circumcision (VMMC)
Military Culture	Military culture, camaraderie, sense of duty, adherence to military norms and regulations	Encompasses the influence of the military environment, values, and norms on decision-making regarding VMMC among active duty men
Perceived Benefits	HIV prevention, health benefits, cultural or religious beliefs, perceived advantages of VMMC	Refers to participants' perceptions of the advantages or benefits associated with undergoing VMMC
Perceived Risks	Fear of pain or complications, concerns about sexual function, misconceptions about VMMC risks	Covers participants' apprehensions or misconceptions regarding potential risks associated with VMMC
Social Influences	Peer discussions, the influence of community leaders or elders, societal norms regarding circumcision	Includes the impact of social interactions, peer influence, and community perceptions on VMMC decision-making
Healthcare Access	Accessibility of VMMC services, proximity to healthcare facilities, availability of information	Encompasses factors related to the ease of accessing VMMC services and information about the procedure

Appendix 3: Plagiarism Declaration

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

FACULTY OF HEALTH SCIENCES

PLAGIARISM DECLARATION TO BE SIGNED BY ALL HIGHER DEGREE STUDENTS

SENATE PLAGIARISM POLICY: APPENDIX ONE

I, Chimwemwe Cece Chirembo (Student number: 2371753) am a student registered for the degree of Master of Public Health, Social and Behaviour Change Communication in the academic year 2023.

I hereby declare the following:

- I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong.
- I confirm that the work submitted for assessment for the above degree is my own unaided work except where I have explicitly indicated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.
- I have included as an appendix a report from "Turnitin" (or other approved plagiarism detection) software indicating the level of plagiarism in my research document.

Signature: C. Chirembo Date: 28 March 2024

1

Appendix 4: HREC (Medical) Clearance Certificate

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG

R49 Ms C Chirembo

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M220303

NAME: (Principal Investigator)	Ms C Chirembo
DEPARTMENT:	School of Public Health Medical School University
PROJECT TITLE:	*Experiences, perceptions and factors influencing decision making amongst men providing a public sector service in Malawi for voluntary medical male circumcision*
DATE CONSIDERED:	2022/03/25
DECISION:	Approved conditionally
CONDITIONS:	The HREC (Med) requires evidence of ethics approval from Malawi
NOTE:	If contact information regarding student study participants is required, please contact the Registrar's office - <Nicoleen.Potgieter@wits.ac.za>
SUPERVISOR:	Dr N Christofides and T Rwafa
APPROVED BY:	Dr CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	2022/07/28

This Clearance Certificate is valid for 5 years from the date of approval. An extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office secretariat on the 3rd floor, Phillip Tobias Building, Parktown, University of the Witwatersrand, Johannesburg.

I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated from the research protocol as approved, I/we undertake to submit details to the Committee. I agree to submit a yearly progress report. When a funder requires annual re-certification, the application date will be one year after the date when the study was initially reviewed. In this case, the study was initially reviewed in **March** and therefore reports and re-certification will be due in the month of **March** each year. Unreported changes to the study may invalidate the clearance given by the HREC (Medical).

Signature of Principal Investigator

29 July 2022
Date

Appendix 5: NHSRC Approval Letter and Certificate (Malawi Ethics)

Telephone: + 265 1 789 400
Facsimile: + 265 1 789 431
E-mail: research@mail.gov.mw
All Communications should be addressed to: The Secretary for Health

In reply please quote No. MED/4/36c
Ministry of Health
P.O. Box 30377
Lilongwe 3
Malawi

2nd November 2022

Chimwemwe Chirembo

University of the Witwatersrand

Dear Sir/Madam

RE: Protocol # 22/09/2991: Experiences, Perceptions and Factors Influencing Decision Making among Men Providing a Public Sector Service in Malawi for Voluntary Medical Male Circumcision

Thank you for the above titled proposal that researcher submitted to the National Health Sciences Research Committee (NHSRC) for review. Please be advised that the NHSRC has **reviewed** and **approved** the above named study.

- **APPROVAL NUMBER** **:2991**
- The above details should be used on all correspondences, consent forms and documents as appropriate.
- **APPROVAL DATE** **:02/11/2022**
- **EXPIRATION DATE** **:01/11/2023**
  This approval expires on **01/11/2023**. After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the NHSRC Secretariat should be submitted one month before the expiration date for continuing review.
- **SERIOUS ADVERSE EVENT REPORTING:** All serious problems having to do with subject safety must be reported to the NHSRC within 10 working days using standard forms obtainable from the NHSRC Secretariat.
- **MODIFICATIONS**: Prior NHSRC approval using forms obtainable from the NHSRC Secretariat is required before implementing any changes in the protocol (including changes in the consent documents). You may not use any other consent documents besides those approved by the NHSRC.
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the NHSRC using standard forms obtainable from the NHSRC Secretariat.
- **QUESTIONS**: Please contact the NHSRC on phone number *+265 999397913* or by email on mohdoccentre@gmail.com.
- **OTHER**: Please be reminded to send in copies of your final research results for our records (Health Research Database).

Kind regards from the NHSRC Secretariat.

National Health Sciences Research Committee
2022 -11- 02
APPROVED

.....
CHAIRPERSON, NATIONAL HEALTH SCIENCES RESEARCH COMMITTEE
Promoting Ethical Conduct of Research

1

CERTIFICATE OF ETHICS APPROVAL

This is to certify that the National Health Sciences Research Committee has reviewed and approved the study titled:

Study Title: Protocol # 22/09/2991: Experiences, Perceptions and Factors Influencing Decision Making among Men Providing a Public Sector Service in Malawi for Voluntary Medical Male Circumcision

Investigator: Chimwemwe Chirembo

StartDate: 02/11/2022

EndDate:01/11/2023

Date of issue: 02/11/2022

Dr Martias Joshua
For Chairperson-NHSRC

National Health Sciences Research Committee
2022 -11- 02
APPROVED

Mr Billy Nyambalo
NHSRC Administrator

Appendix 6: MDF Letter of Introduction & Endorsement Letter

Tel: (265) 01 791 510/ 01 790 000
Email: mdfhqs@gmail.com

Headquarters Malawi Defence Force
Kamuzu Barracks
Private Bag 43
LILONGWE

20 September 2022

LETTER OF INTRODUCTION

The bearer of this letter is Ms Chimwemwe CHIREMBO, a student at University of Witwaterstrand, Johannesburg. She is currently pursuing a Master's Degree in Public Health majoring in Social Behaviour Change Communication.

It is a requirement for students to complete research in partial fulfillment for the award of the Master's Degree. As such, the student has been granted authority to gather information from within Kamuzu Barracks relevant to her research topic; *Experiences, Perceptions and Factors influencing Decision Making among Men Providing a Public Senior Service in Malawi for Voluntary Medical Male Circumcision.*

In view of this, be assured that the collected data shall be treated confidentially and used for the study and not anything else.

This also serves as an introductory letter so that the student is permitted to collect data from your Unit/Department.

I thank you in advance for the assistance you will render the student.

E K MLELEMBA
Major
For Commander
MALAWI DEFENCE FORCE

INSTITUTIONAL ENDORSEMENT REQUIRED

Statement from the Institution:

The NHSRC will only accept for review and approval research proposals that have been found scientifically and ethically acceptable by our institution. The acceptable Institutional endorsement will be that from the Institution in which the research is to be conducted or one from the institution conducting the research.

We, representing

MALAWI DEFENCE FORCES

(Name of Institution conducting the research/in which the research is to be conducted)

do certify that we have reviewed the research proposal titled

Experiences, perceptions and factors influencing decision making among men providing a public sector service in Malawi for Voluntary Medical Male Circumcision. Submitted by

CHIMWEMWE CHIRAMBO

We attest to the scientific merit of this study and the competency of the investigator(s) to conduct the project and do hereby recommend the proposal to the NHSRC for review and approval.

SIGNATURE

Signature: Head of Institution
(or other authorized signatory)

Name (Please Print) EMMANUEL KELVIN MLELEMBA (MAJOR)

Contact Number : +265 999 727 731

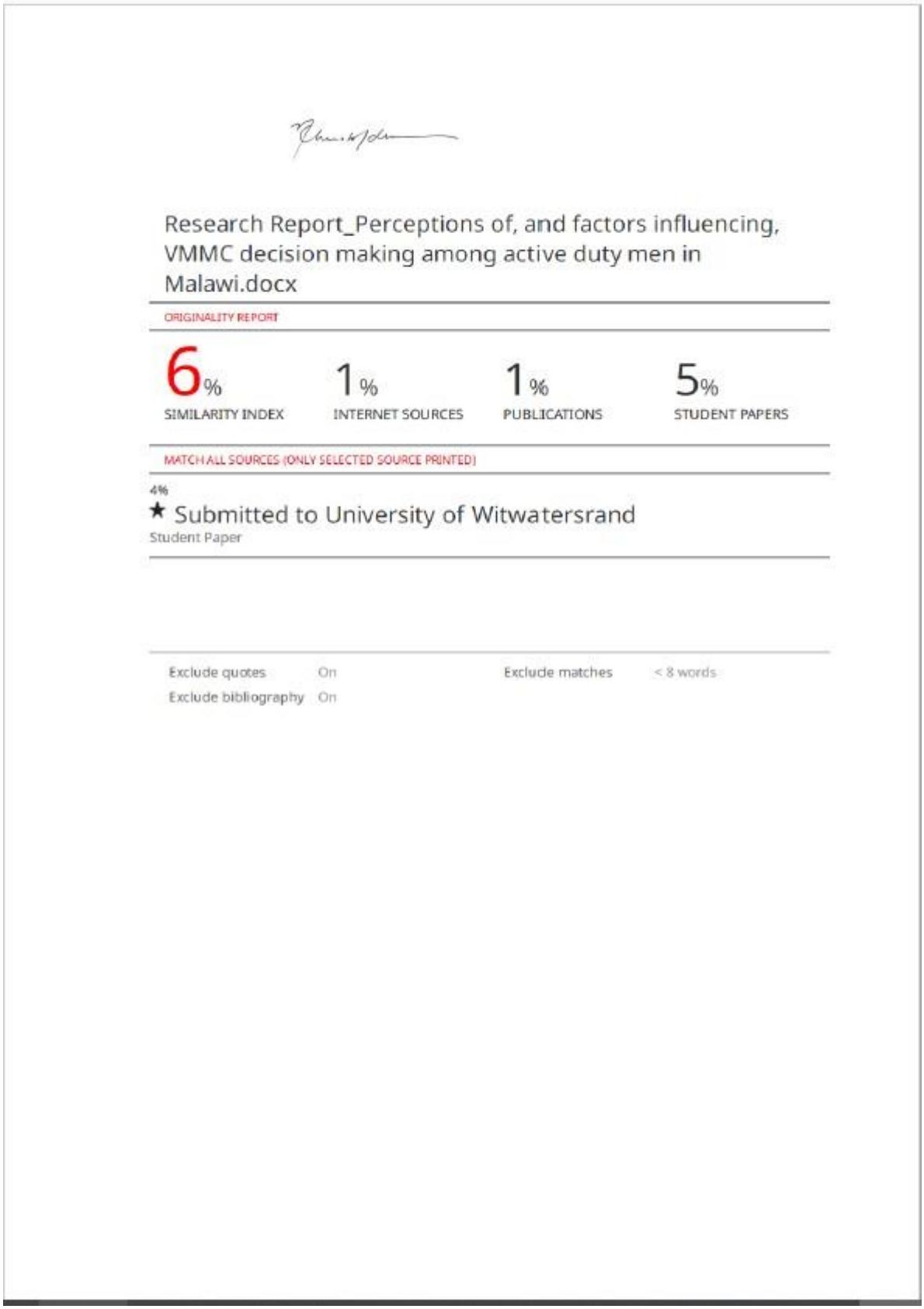
E-mail address : emlelemba@yahoo.com

OFFICIAL STAMP OF INSTITUTION

MDF HEADQUARTERS
20 SEP 2022
PRIVATE BAG 43, LILONGWE

**Institution includes Universities, Hospitals, Research Institutes or Companies.*

Appendix 7: TurnItIn Report



Research Report_Perceptions of, and factors influencing, VMMC decision making among active duty men in Malawi.docx

ORIGINALITY REPORT

6%	1%	1%	5%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

MATCH ALL SOURCES (ONLY SELECTED SOURCE PRINTED)

4%

★ Submitted to University of Witwatersrand

Student Paper

Exclude quotes	On	Exclude matches	< 8 words
Exclude bibliography	On		

Appendix 8: Demographic Information

PARTICIPANT DEMOGRAPHICS

Instructions:

Please fill this form completely. Do not leave any space unanswered. Once you have completed the form, may you hand it to the research assistant that will conduct your interview.

1. Participant ID: _____
2. Please tell me about yourself and your background?
3. Tell me about your work that you do on a day to day basis in the military?
4. Age: _____
5. Marital status:
    - Single
    - Married
    - Divorced
    - Widowed
6. Number of children: _____
7. Military rank: _____
8. Company: _____
9. Number of years in service: _____
10. Highest Level of Education attained
    - College/University
    - Secondary school
    - Primary school

Appendix 9: Interview Guide: Participants who have undergone VMMC

INTERVIEW GUIDE

∞Participants who have undergone VMMC∞

Experiences of VMMC

1. I understand that you have been through VMMC. Could you tell me about your experience?
    a. Describe to me the processes you underwent before you were medically circumcised?
    b. What happened during the procedure?
2. What effect has pre-VMMC education/counseling had on your understanding of VMMC, if at all it has?
    a. Who provided you with information?
    b. What information did you receive?
    c. What is your view about the information you received?

Perceptions about VMMC and decision-making

3. What led you to make the decision to go for VMMC?
    a. Where did you first hear about it?
    b. What did you think when you first heard about it?
    c. Who did you discuss VMMC with, if anyone?
    d. What did you hear about benefits, if anything?
    e. What did you hear about risks, if anything?
4. In your view, what feelings and fears/misconceptions/myths do other soldiers have about VMMC?
5. Would you recommend other men to be medically circumcised as well or not? Why?

Influencers

6. What were your concerns or fears before going for the procedure?
    a. What do you think now?
7. What finally influenced you to undergo VMMC? Why?

Perceptions of others

8. Who have you talked to about the procedure since you had it?
    a. What are the reactions of others?
9. What do others think of your decision to undergo VMMC?
    a. What was the focus of the discussion?

Closing:

10. What recommendations would you give to help improve the VMMC programme in Malawi?
    a. What about in the Malawi Defense Force?

Thank you for taking the time and providing detailed responses to my questions. I may come back to you should I need any clarification to the answers provided. When I am done with transcribing the interview, I will share with you to review and confirm that all the information captured is correct.

Have a good day.

Appendix 10: Interview Guide: Participants who have not undergone VMMC

INTERVIEW GUIDE

∞Participants who have not undergone VMMC∞

Grand tour questions:

11. Tell me about yourself and the work that you do?

Perceptions of VMMC

12. What do you understand about circumcision?
    a. What are the types and or modes of delivery that you know?
13. Can you tell me specifically what do you know about VMMC?
    a. How is VMMC compared to non-medical circumcision?
    b. What have you heard about VMMC and associated health conditions (probe: STI, HIV, cancer), if at all?
    c. Where did you get this information? Who gave you information?
14. Would you recommend other men to be medically circumcised? Why?

Influencers/Limitations of VMMC

15. What are your concerns if any for undergoing VMMC?
    a. Why do you think/ or feel that way?

Perceptions of others

16. Who have you talked to about concerning VMMC, if at all you have?
    a) What are the reactions/ what do they think?
    b) What do you your friends/family/colleagues say about VMMC?
17. How does your community view VMMC?

Closing:

18. What recommendations would you give to help improve the VMMC programme in Malawi?
    a. What about in the Malawi Defense Force?

Thank you for taking the time and providing detailed responses to my questions. I may come back to you should I need any clarification to the answers provided. When I am done with transcribing the interview, I will share with you to review and confirm that all the information captured is correct.

Have a good day.

Appendix 11: Information Sheet

STUDY INFORMATION DOCUMENT

Study title: Perceptions and factors influencing decision making among men providing a public sector service in Malawi for Voluntary Medical Male Circumcision

Greeting:

Greeting, potential participant. Thank you for taking your time to read this information sheet pertaining to a study I would like to carry out as a course requirement for a Master of Public Health (MPH), Social and Behaviour Change Communication (SBCC) at Wits University School of Public Health. The information that will be gathered will remain confidential and only be used for the purposes of fulfilling the requirements of the MPH program at Wits University.

Introduction:

I, Chimwemwe Chirembo, am doing research on factors influencing men providing a public sector service in Malawi to undergo Voluntary Male Medical Circumcision (VMMC). Research is a process used in seeking new knowledge. In this study I want to learn about the perceptions of men providing a public sector service toward VMMC, factors that influence the decision making among men providing a public sector service to undergo VMMC, and to understand the decision-making process of men providing a public sector service to undergo VMMC.

VMMC is implemented as a key national prevention strategy. VMMC has a lifelong impact of protecting the individual by reducing the risk of acquiring HIV. A high VMMC coverage

of 80% or higher among men aged 15-49 years could have significant impact on reducing HIV.

Military populations are highly mobile whose scope of work often leaves them with long stays away from home predisposing them to high risk sexual behaviors. This increases their risk of contracting HIV. HIV/AIDS is a major public health issue in Malawi with the national prevalence rate at approximately 9.2% among people aged 15-49 years. HIV prevention measure and the uptake of VMMC services can contribute to reduction of the risk of HIV acquisition among this group. Despite services being provided at MDF health facilities, uptake of VMMC remains low among men providing a public sector service.

Invitation to Participate:

I am inviting you to take part in a research study that will explore perceptions and factors influencing decision making among men providing a public sector service in Malawi for VMMC.

What is involved in the study?

This study will take place at Unique situated in the urban central region district of Lilongwe. The study population for the study is men providing a public sector service that are based at Unique. The study will require the participation of men who have undergone VMMC as well as those who have no undergone VMMC.

Men will be selected to participate in this study in a targeted approach ensuring diversity in characteristics such as marital status, service position, years of service, and age. Selected participants will be required to participate in a thirty-minute interview where a questionnaire will be administered. A research assistant will conduct a face-to-face interview where the questionnaire will be administered on behalf of the Principal Investigator, Chimwemwe Chirembo. The questionnaire will include questions about your perception and experiences with VMMC. The interview will be recorded to ensure that the information you provide is accurately captured.

Benefits of being in the study:

There is no direct benefit for your participation in the study. However, your participation will provide the PI information that can be used to improve the implementation of VMMC services

at Malawi Defense Force VMMC sites. This may result in the increased uptake of VMMC among men providing a public sector service.

Participation is voluntary:

Participation in the study is voluntary. You may refuse to participate and this will result in penalty or loss of benefits to which you are otherwise entitled. If you choose to participate, you may discontinue participation at any time without penalty, or loss of benefits to which you are otherwise entitled; there is no requirement to provide a reason for withdrawing and any data collected from you will in default be destroyed, unless you specifically consent to its retention. Please free not to answer questions that you don't feel comfortable answering.

There is no payment or cost associated with participation in the study, *e.g.* travel expenses and refreshments.

Confidentiality:

Normally personal information will be treated in the strictest confidence and will only be available to the Principal Investigator (PI) and her Supervisor. The only exceptions - and all of them are rare - would normally be:

1. personal information may be disclosed if required by law
2. the Human Research Ethics Committees of the University may exceptionally require personal data to respond to a formal complaint, or for a compliance audit
3. the South African Health Products Regulatory Authority (SAHPRA), which is the successor body to the South African Medicines Control Council (SAMCC), might conceivably require access to personal data, if conducting an investigation into a drug trial

If results are published, this may, exceptionally, lead to cohort, or more rarely, individual identification. All data collected in the course of the study will be securely retained for two (2) years, if a scientific publication arises from the study and six (6) years, if there is no publication. Thereafter it will be destroyed accordingly.

Anonymity:

Your identity will be de-identified so that your personal information remains anonymous.

Contact details of researcher/s:

For further information or queries concerning the study, you may contact the following.

Chimwemwe Chirembo, Principal Investigator

2371753@students.wits.ac.za

Contact number: +265999955199

Prof. Nicola Christofides, Supervisor

nicola.christofides@wits.ac.za

Contact number: +27827748547

Dr. Teurai Rwafa, Supervisor

teurai.rwafa@wits.ac.za

Contact number: +27749637019

Outputs:

At the end of the study, the PI expects to understand men providing a public sector service's perception, experiences, attitudes, and behavior on VMMC. In addition, understand the decision-making process and factors influencing the decision to undergo VMMC. With this information, the PI hopes to contribute to the knowledge on VMMC, in particular in relation to the uptake of VMMC among men providing a public sector service in Malawi.

Upon completion of the study, finding will be shared with Malawi Military Health Services (MAMHS through the MDF HIV/AIDS Program. The finding of the study will contribute to knowledge on VMMC which can be utilized in improving VMMC programming within the military.

Contact details of HREC administrator and chair:

This study has been approved by the Human Research Ethics Committee (Medical) of the University of the Witwatersrand, Johannesburg ("Committee"). A principal function of this Committee is to safeguard the rights and dignity of all human subjects who agree to participate in a research project and the integrity of the research.

If you have any concern over the way the study is being conducted, please contact the Chairperson of this Committee who is Doctor Clement Penny, who may be contacted on telephone number 011 717 2301, or by e-mail on Clement.Penny@wits.ac.za. The telephone numbers for the Committee secretariat are 011 717 2700/1234 and the e-mail addresses are Zanele.Ndlovu@wits.ac.za and Rhulani.Mukansi@wits.ac.za

Thank you for reading this Study Information Sheet.

Date: October 2021

Appendix 12: Participant Consent Form

PARTICIPANT CONSENT FORM

Project Title:

Perceptions and factors influencing decision making among men providing a public sector service in Malawi for Voluntary Medical Male Circumcision

1. I have been given a Participant Information Sheet which explains the nature and processes involved in this study, which is attached hereto;
2. I was given time to read it, or had it read to me, in the language I best understand;
3. I was given time to ask any questions I wanted to and found any answers given to me to be reasonable and satisfactory;
4. I believe I fully understand why the study is being conducted and what the intended outcomes will be;
5. I understand that there will be no immediate benefit to me, should I agree to participate, nor will I receive any payment; conversely, participation will not cost me anything but my time;
6. I understand that, even if I initially consent to take part in the study, I may subsequently withdraw at any time and would not be required to give any reasons; if that happened, any data collected about me for the purposes of the study would immediately be destroyed, unless I give consent for it to be retained
7. I have been given a range of contact details, listed below. If I require further information or become concerned about any aspect of this study, I am free to speak to any of these contacts.

Contact details:

Chimwemwe Chirembo, Principal Investigator, telephone no. +265999955199, or by e-mail at 2371753@students.wits.ac.za

Prof Nicola Christofides, Supervisor, on telephone no. +27827748547, or by e-mail at nicola.christofides@wits.ac.za

Dr Teurai Rwafa, Supervisor, on telephone no. +27749637019, or by e-mail at teurai.rwafa@wits.ac.za

Professor CB Penny, Chairperson of the Human Research Ethics Committee (Medical) at the University of Witwatersrand, on telephone no. 011 717 2301, or by e-mail at Clement.Penny@wits.ac.za.
Ms. Z Ndlovu or Mr Rhulani Mkansi, Committee Secretariat, telephone nos.: 011 717 2700 or 1234, or by e-mail at: Zanele.Ndlovu@wits.ac.za or Rhulani.Mkansi@wits.ac.za

Name of Participant: _____
Date: _____
Place: _____
Signature or mark _____

Witnessed by:

Name of Witness: _____
Signature: _____
Date: _____

Appendix 13: Consent Form for Audio Recording

CONSENT FORM FOR AUDIO RECORDING OF STUDY PARTICIPATION

Project Title:

Perceptions and factors influencing decision making among men providing a public sector service in Malawi for Voluntary Medical Male Circumcision

I hereby consent to audio recording of the interview.

.

I understand that:

- The recording will be stored in a secure location (password protected computer) with restricted access to the researcher and the research supervisor.
- The recording will be transcribed and any information that could identify me will be removed,
- The recordings will be erased within either (a) two (2) years of the publication of the research findings, or (b) six (6) years, if no publications arise from this research
- Anyone wishing to access this information in the future will first have to obtain the approval of the Human Research Ethics Committee (Medical) of the University of the Witwatersrand, Johannesburg
- Direct quotes from my interview, without any information that could identify me, may be cited in the research report or other write-ups of research.

Name of Participant: _____

Date: _____

Place: _____

Signature or mark _____

Witnessed by:

Name of Witness: _____

Signature: _____

Date: _____