FERTILITY PREFERENCE AMONG REFUGEES AND NATIVE WOMEN OF REPRODUCTIVE AGE IN KIGOMA REGION TANZANIA.A COMPARATIVE STUDY

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By

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A Dissertation Submitted in Partial Fulfillment of the Requirement
for the Degree of Master of Public Health of
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CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled: **"Fertility preferences among refugees and native women of reproductive age in Kigoma Region, Tanzania. A comparative study,** in partial fulfillment of the requirements for the degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences

_____

Prof Method Kazaura

(Supervisor)

_____

Date

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I, Nusura Haji Mwanga, declare that this dissertation is my original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

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ABSTRACT

Background: The displacement of people can impact fertility preferences, leading to either an increase or decrease in the desire for children. This can be influenced by factors such as the desire to replace lost family members or limited resources. The higher desired family size in the Kigoma region compared to the national level or surrounding regions underscores the need to study fertility differences between immigrant and native populations.

Objective: This study aimed to determine and compare the fertility preferences among refugee and native women of reproductive age in the Kigoma Region, Tanzania.

Methodology: The study was cross-sectional analytical and applied a quantitative approach. Stratified sampling was used to select participants. Data were collected through a structured interview form. The outcome variable was the desired number of children used as a proxy for fertility preference. Data analysis was performed using SPSS version 25. Categorical variables were summarized using percentage and continuous data as mean and standard deviation. Linear regression analysis was used to examine the association between the desired number of children and selected independent variables. The F-test was performed to assess the strength of the association. The significance level was set at $p<0.05$. Ethical clearance and informed consent were obtained before data collection.

Result: The study included 401 natives and 403 refugees. The mean age of participants was 28.2 (SD = 7.4) years and 26.8(SD=7) for natives and refugees respectively, ranging from 16 to 46 years. While 172 (42.6%) of the refugees had no formal education, 262 (65.3%) of the native women had at least primary education. Family planning use was significantly higher among natives 326 (81.3%) as compared to refugees 235 (58.3%) ($\chi 2=50.349$; $p<0.001$). The median desired family size was significantly higher among refugees than among natives; eight than five respectively, ($p<0.01$). For native women, the number of living children was significantly associated with desired family size ($p<0.001$). For refugee women, none of the individual-level factors were significantly associated with the desired family size. Health-related factors like the use of family planning and fear of side effects were significant for natives but not for refugees. Facility-related factors such as distance to the nearest health facility showed a weak but significant negative association with fertility desire among both groups**.**

Conclusion: Refugee women of reproductive age have elevated family size desires than their counterparts. Family planning users among refugees are significantly lower. Factors associated with desired family size among natives include the number of living children distance to health facilities and fear of side effects when using family planning among refugees. The study emphasizes the necessity for further research in the Kigoma region to gain a deeper understanding, especially of the cultural and socioeconomic factors associated with reproductive health choices.

TABLE OF CONTENTS

CERTIFICATION i
DECLARATION AND COPYRIGHT ii
ACKNOWLEDGMENTS iii
ABSTRACT iv
LIST OF TABLES ix
LIST OF FIGURES x
LIST OF ACRONYMS xi
DEFINITION OF KEY TERMS xii
CHAPTER ONE 1
1.0 INTRODUCTION 1
1.1 Background 1
1.2 Statement of the problem 2
1.3. Conceptual framework 3
1.4 Rationale of the study 5
1.5 Research questions 6
1.5.1 Broad question 6
1.5.2 Specific research question 6
1.6 Research objectives 6
1.6.1 Broad objective 6
1.6.2 Specific objectives 6
CHAPTER TWO 7
2.0 LITERATURE REVIEW 7
CHAPTER THREE 14
3.0 METHODOLOGY 14
3.1 Study design 14
3.2 Area of the study 14
3.3 Study population 16
3.4 Sample size estimation and sampling technique 16
3.4.1 Sample size 16

3.4.2 Sampling technique 17
3.4.1 Sampling steps 17
3.5 Eligibility criteria 18
3.5.1 Inclusion criteria 18
3.5.2 Exclusion criteria 18
3.6. Variables 18
3.6.1 Dependent variable 18
3.6.2 Independent variables 19
3.7. Data collection methods and tools 19
3.8 Data collection process 20
3.9. Data processing and analysis 21
3.10. Ethical consideration 22
3.11. Reliability and validity 22
3.12. Data dissemination plan 23
CHAPTER FOUR 24
4.0 RESULTS 24
4.1 characteristics of the study participants 24
4.2. Use of family planning methods among refugees and native women of reproductive age in the Kigoma region 26
4.3 The desired family size among refugee and native women of reproductive age in the Kigoma Region 26
4.4. Individual-level factors associated with desired family size among native women of reproductive age in the Kigoma region 28
4.4.1 Individual-level factors associated with desired family size among refugee women of reproductive age in the Kigoma region. 30
4.5. Health-related factors associated with desired family size among native women of reproductive age in Kigoma region 31
4.5.1 Health-related factors associated with desired family size among refugee women of reproductive age in the Kigoma region 33

4.6. Facility-related factors associated with desired family size among native women of reproductive age in the Kigoma region 34
4.6.1 Facility-related factors associated with desired family size among refugee women of reproductive age in Kigoma region 36
CHAPTER FIVE 38
5.0 DISCUSSION 38
CHAPTER SIX 44
6.0 CONCLUSION AND RECOMMENDATIONS 44
6.1 Conclusion 44
6.2 Recommendations 45
REFERENCES 46
APPENDICES 51
Appendix I: Consent Form – English Version 51
Appendix II: Consent Form-Swahili Version 53
Appendix III: Interview Form (English Version) 55
Appendix IV: Interview Form Swahili Version 60
Appendix V: Plan of Activities. 65
Appendix VI: Budget and Justification 66
Appendix VII: Clearance Letter 68
Appendix VIII: Introduction Letter 70
Appendix IX: Permission Letter 71

LIST OF TABLES

Table 1: Background characteristics of the study participants 25

Table 2: Distribution of participants by their study groups and use of family planning 26

Table 3 : Bivariate analysis of the desired family size and selected individual-level factors among native women of reproductive age in the Kigoma region 28

Table 4: Multivariate analysis of desired family size and selected individual-level factors among native women of reproductive age in Kigoma region 29

Table 5: Bivariate analysis of desired family size and selected individual-level factors among refugee women of reproductive age in Kigoma region 30

Table 6: Multivariate analysis of desired family size and selected individual-level factors among refugee women of reproductive age in Kigoma region 31

Table 7: Bivariate analysis of the desired family size and selected health-related factors among native women of reproductive age in the Kigoma region 31

Table 8: Multivariate analysis of desired family size and selected health-related factors among native women of reproductive age in the Kigoma region 32

Table 9: Bivariate analysis of desired family size and selected health-related factors among refugee women of reproductive age in Kigoma region 33

Table 10: Multivariate analysis of desired family size and selected health-related factors among refugee women of reproductive age in the Kigoma region 33

Table 11: Bivariate analysis of the desired family size and selected facility-related factors among native women of reproductive age in the Kigoma region 34

Table 12: Multivariate analysis of desired family size and selected facility-related factors among native women of reproductive age in the Kigoma region 35

Table 13: Bivariate analysis of desired family size and selected facility-related factors among refugee women of reproductive age in Kigoma region 36

Table 14: Multivariate analysis of desired family size and selected facility-related factors among refugee women of reproductive age in the Kigoma region 37

LIST OF FIGURES

Figure 1: Conceptual framework of the relationship between the desired number of children and independent variables. 4

Figure 2: Independent-sample median test for the desired family size between Native and Refugee women of reproductive age in the Kigoma region. 27

LIST OF ACRONYMS

BCMS	Bosnian, Croatian, Montenegrin, Serbian
DRC	Democratic Republic of Congo
FP	Family Planning
FRI	Facility-Related Issues
HRI	Health-Related Issue
ILF	Individual-Level Factors
IRB	Institutional Review Board
KMO	Kaiser-Mayer Olkin
MUHAS	Muhimbili University of Health and Allied Sciences
PI	Principal Investigator
RA	Research Assistant
SDD	Socio-Demographic Data
SPSS	Statistical Package for Social Sciences
SPHSS	School of Public Health and Social Sciences
SRH	Sexual and Reproductive Health
TFR	Total Fertility Rate
WHO	World Health Organization
WRA	Woman of Reproductive Age

DEFINITION OF KEY TERMS

Fertility Preferences: An individual's expressed desire for the number and timing of children they wish to have. These preferences influence personal health, financial situation, social factors, and the broader socioeconomic environment (1).

Refugee: A refugee is a person who has been forced to flee their country because of persecution, war, or violence. A refugee has a well-founded fear of persecution for reasons of race, religion, nationality, political opinion, or membership in a particular social group. Most likely, they cannot return home or are afraid to do so (2).

Native: A native is a person who was born in a particular place or whose parents are from a particular place. It is often used to describe individuals who are original inhabitants of a specific area, region, or country, as opposed to those who have migrated or whose ancestors migrated from elsewhere (2).

Ideal family size: Refers to the number of children that individuals or couples consider most desirable based on their personal preferences, cultural norms, socioeconomic conditions, and other influencing factors (3).

Desired family size: Refers to the number of children that individuals or couples want to have at a specific point in time, influenced by their personal, economic, and social circumstances. According to Bongaarts, desired family size captures the reproductive intentions of individuals or couples and can be shaped by factors such as personal preferences, socioeconomic status, and perceived ability to support and raise children (4).

Actual family size: Refers to the number of children that individuals or couples have at a given point in time. This measure reflects the real-life outcomes of reproductive behavior, as opposed to aspirations or intentions. According to Preston et al., actual family size is an important demographic measure that captures the completed fertility of a population.

Preferred family size: Refers to the number of children that individuals or couples would ideally like to have, considering their personal, cultural, and socioeconomic contexts. According to Hagewen and Morgan, preference for family size is shaped by various factors including individual values, societal norms, economic conditions, and expectations about childbearing and childrearing (1).

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Forced displacement has become a global crisis, affecting millions worldwide due to various factors such as violence, persecution, and poverty (5). Women make up a significant proportion of these displaced populations, ranging from 50 to 80 percent depending on the country (5). Understanding fertility preferences is crucial as family size significantly impacts individual welfare, community dynamics, and national demographics. Recent demographic shifts in high-income nations, such as the United Kingdom, France, and Germany, have witnessed declines in fertility rates (6).

Migration, especially among women of reproductive age, requires an examination of fertility disparities between immigrant and native populations, particularly refugees and forced migrants (7). Such migration often disrupts fertility patterns, which is further complicated by Africa's slow fertility transition attributed to limited social support programs and a desire for larger families (8). Despite extensive research on migration's economic aspects, there is limited understanding of its demographic implications, especially concerning fertility. This knowledge gap extends to the influence of host communities on fertility preferences, particularly among women. Sociocultural factors, including religious beliefs and cultural norms, pose unique challenges for refugee populations (9).

Refugees encounter difficulties accessing sexual and reproductive health (SRH) services, which is exacerbated in humanitarian settings (10). Tanzania, hosting a significant refugee population, struggles to provide adequate SRH services, impacting fertility preferences and reproductive health choices (11). Understanding fertility preferences among native and refugee populations in Tanzania, particularly in the Kigoma region with multiple refugee camps, is vital. The proposed study aims to bridge this gap by examining fertility preferences among these groups, contributing to a deeper understanding of integration dynamics and population variations.

Through this research, we aim to illuminate the intricate interplay of individual-level, health- and facility-related factors shaping fertility preferences among native and refugee women in the Kigoma region.

1.2 Statement of the problem

High fertility rates in developing countries, particularly in sub-Saharan Africa like Tanzania, pose significant health risks for mothers, newborns, and society at large (4). This heightened fertility is linked to increased morbidity and mortality rates among both mothers and children. While Tanzania already experiences a notably high total fertility rate of around five children per woman over her reproductive age, the Kigoma region surpasses this with a rate nearing seven children per woman (1,11). The sources and determinants of these elevated fertility rates are multifaceted, with the desire for larger family sizes being a recognized contributor.

Numerous factors have been associated with fertility desires, reflecting the complex socio-cultural and economic landscape (1,4,11–13). In the Kigoma region specifically, there's a notable influx of refugees from Rwanda and the Republic of Congo, settling in various camps across the area, particularly in Nyarugusu, Mtendeli, and Nduta (2,14–16). These refugees often seek to compensate for the loss of family members by desiring replacement of children (14). This inclination may contribute to higher fertility rates among refugees compared to natives. However, the specific contribution of refugee women and their partners from Rwanda and the Republic of Congo to this phenomenon has not been thoroughly investigated.

To address this gap and gain insights into the fertility disparities between native and refugee populations, the primary aim of this study is to evaluate and compare fertility preferences among women of reproductive age in the Kigoma Region of Tanzania, with a particular emphasis on distinguishing between native inhabitants and refugee populations. By doing so, we aim to shed light on the nuanced factors driving fertility dynamics in this region and inform targeted interventions aimed at improving reproductive health outcomes for both native and refugee communities.

1.3. Conceptual framework

A collection of autonomous factors collectively shapes Fertility Preferences, the dependent variable. These factors provide insights into the determinants of individual aspirations regarding family size, birth order, previous childbirths, lifetime contraceptive use, and fertility requirements. The study assesses these independent variables through various data collection methods, such as interviews and reviewing existing demographic data. The framework aimed to explore the interplay between Individual-Level factors (ILF), Health-Related Issues (HRI), and Facility Issues (FRI) as independent variables. Intervening Variables, namely partner approval of family planning and duration of displacement for native and refugee women in the region, are also considered, as illustrated in Figure 1.

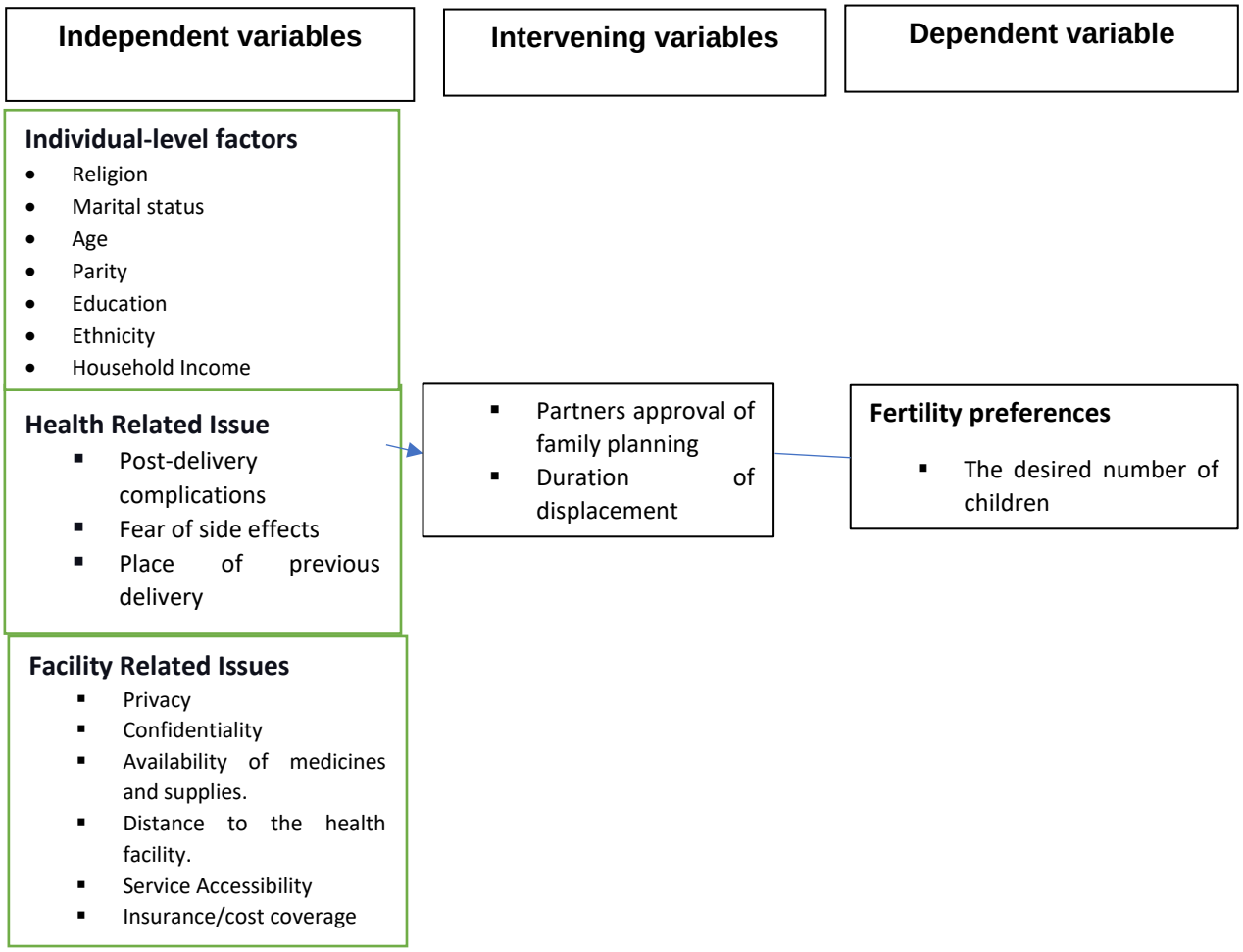


Figure 1: Conceptual framework of the relationship between the desired number of children and independent variables.

1.4 Rationale of the study

The rationale for this study lies in the urgent need to fill a crucial knowledge gap within the Kigoma region of Tanzania, particularly concerning issues related to fertility preferences. This research carries significant academic, practical, policy, and stakeholder implications. Academically, the study seeks to address a substantial void in the understanding of fertility preferences among both native and refugee households in the Kigoma region. The study aimed to contribute valuable insights to various academic disciplines such as demography, public health, sociology, and anthropology. Furthermore, sheds light on the complexities of studying fertility within multicultural contexts, enriching scholarly discourse in these fields. On a practical level, the research endeavors to make tangible improvements in healthcare services. Uncovering specific reproductive health needs among the population will equip healthcare providers and humanitarian organizations with essential information to tailor their services effectively. This can lead to enhancements in family planning programs and ultimately result in better reproductive health outcomes for women residing in Kigoma. From a policy standpoint, the study holds significant implications for evidence-based policymaking enabling them to formulate informed policies that address the reproductive health and rights of women in the Kigoma region. This research has the potential to influence policy decisions aimed at improving healthcare infrastructure and access to reproductive health services. Moreover, the stakeholders involved, including humanitarian organizations and local communities, stand to benefit profoundly from this study. By gaining deeper insights into the reproductive health needs of refugee women and fostering understanding and cooperation among community members, the research can facilitate more targeted interventions and promote holistic support mechanisms. The study holds immense significance in bridging knowledge gaps, informing practical interventions, guiding policy formulation, and promoting collaboration among stakeholders to address fertility preferences and reproductive health issues in the diverse context of the Kigoma region.

1.5 Research questions

1.5.1 Broad question

What are the fertility preferences among refugees and native women of reproductive age in Kigoma Region, Tanzania?

1.5.2 Specific research question

This has the following research questions.

1. What is the current use of any type of family planning method among refugees and native women of reproductive age in the Kigoma Region?
2. What is the current family size of refugees and native women of reproductive age in the Kigoma Region?
3. What are the individual-level factors associated with fertility preference among native and refugee women of reproductive age in the Kigoma region?
4. What are the health-related factors associated with fertility preference among native and refugee women of reproductive age in the Kigoma region?
5. What are the facility-related factors associated with fertility preferences among native and refugee women of reproductive age in the Kigoma region**?**

1.6 Research objectives

1.6.1 Broad objective

To assess and compare fertility preferences among refugee and native women of reproductive age in the Kigoma Region of Tanzania.

1.6.2 Specific objectives

1. To determine the use of any type of family planning methods among refugees and native women of reproductive age in the Kigoma region.
2. To assess the desired family size among refugee and native women of reproductive age in the Kigoma Region.
3. To determine individual-level factors associated with fertility preference among native and refugee women of reproductive age in the Kigoma region.
4. To examine the health-related factors associated with fertility preference among native and refugee women of reproductive age in the Kigoma region.
5. To investigate the facility-related factors associated with fertility preferences among native and refugee women of reproductive age in the Kigoma region.

CHAPTER TWO

2.0 LITERATURE REVIEW

Fertility preference, particularly concerning family size, is a critical aspect of reproductive health that influences population dynamics, maternal and child health outcomes, and socio-economic development. This literature review aims to synthesize existing research on fertility preference among refugee and native women of reproductive age in the Kigoma region of Tanzania.

2.1. The use of family planning methods among refugee and native women of reproductive age

A systematic analysis for the Global Burden of Disease Study 2019 examined contraceptive method mix, prevalence, and demand satisfied by age and marital status in 204 countries and territories. The study found that the global modern CPR (mCPR) increased by 20.1 percentage points between 1970 and 2019. The use of implants, injections, female sterilization, and condoms increased, while traditional methods declined (17).

The comparative literature review on the use of family planning methods among refugee and native women of reproductive age reveals a complex landscape shaped by various socio-cultural and economic factors. One pivotal study on Family planning in refugee settings, findings and actions from a multi-country study" by Tanabe et al. conducted across multiple refugee settings, including Bangladesh, Djibouti, Jordan, Kenya, Malaysia, and Uganda, employed mixed methods to assess knowledge, beliefs, and practices related to family planning (18). The study highlighted significant awareness and demand for family planning among adult women aged 20–29 years compared to adolescent girls aged 15–19 years. However, the availability of long-acting and permanent methods was limited, and accessibility barriers were prevalent, such as distant service points and cost of transport (18).

Another critical study by Achola et al., "Factors associated with family planning use among refugee and host populations in Adjumani district, West Nile, Uganda: a comparative study," utilized a comparative cross-sectional design to examine factors influencing family planning use among refugees and hosts in Uganda (19). The study found a modern Contraceptive Prevalence Rate (mCPR) of 28.2% among refugees compared to 32.2% among the host

population (19). Notably, marital status, education level, occupation type, and duration of stay were significant factors associated with family planning use among both groups. The study underscored the need for community-level sensitization about the benefits of family planning.

A study conducted in four emerging regions of Ethiopia found that the overall CPR was 22.2%, with significant regional variations: 11.7% in Afar, 38.6% in Benshangul Gumuz, 25.5% in Gambela, and 8.8% in Somali regions. Factors such as age, religion, education, marital status, family size, and knowledge were significantly associated with contraceptive use (20).

Among refugee women, the most commonly used contraceptive methods are often short-term methods such as condoms and birth control pills (21). Long-acting reversible contraceptives (LARCs) like intrauterine devices (IUDs) and implants are less commonly used due to limited availability and higher costs (22).

2.2 Desired family size among refugee and native women of reproductive age

Access to family planning services is recognized as a fundamental human right, crucial for the health and empowerment of women, particularly in refugee settings. The UNHCR report underscores this by providing a comprehensive analysis of fertility trends and contraceptive use globally. It reveals a marked decrease in fertility rates, from an average of five children per woman in the mid-20th century to 2.5 in recent years, though these figures vary regionally. This decline reflects broader changes in societal norms and the increasing availability of reproductive health services. The report advocates for the continuation and expansion of these services, emphasizing their role in humanitarian operations and their impact on women's health and societal development.

A multi-country study conducted by the United Nations High Commissioner for Refugees (UNHCR) and the Women’s Refugee Commission assessed family planning knowledge, beliefs, and practices among refugees in various settings, including Bangladesh, Djibouti, Jordan, Kenya, Malaysia, and Uganda. The study found that adult women aged 20–29 were more likely to be aware of and use modern family planning methods compared to adolescent girls aged 15–191. The study highlighted barriers such as distant service delivery points, cost

of transport, lack of knowledge, misinformation, religious opposition, cultural factors, language barriers, and provider biases (18).

A qualitative study on Eritrean refugees revealed that displacement influenced their fertility desires. While a 2002 national survey of Eritreans indicated an ideal family size of 6.3 children, the study population's ideal family size was three to five children (3). This shift reflects the impact of displacement on family planning preferences.

A study on Syrian refugees in Jordan found that the ideal family size varied significantly based on socio-economic status and access to resources. Many families expressed a preference for smaller family sizes (2-4 children) due to economic constraints and the challenges of raising children in displacement (18).

Research among Rohingya refugees in Cox's Bazar, Bangladesh, indicated that traditional beliefs and cultural norms still play a significant role in determining family size. Despite the harsh living conditions, many families preferred larger family sizes (5-7 children), reflecting their cultural and religious values (18).

A study on Congolese refugees in Uganda highlighted that displacement often leads to a shift in family planning preferences. While traditionally larger families were common, the ideal family size among refugees tended to be smaller (3-5 children) due to limited resources and the uncertainty of their living conditions (3).

Among Afghan refugees in Pakistan, the ideal family size was influenced by both cultural norms and the availability of family planning services. Many families preferred having 4-6 children, but those with better access to education and healthcare services tended to opt for smaller families.

In Kenya, South Sudanese refugees showed a preference for smaller family sizes (2-4 children) due to the economic hardships and the desire to provide better opportunities for their children. Access to family planning services was a critical factor in shaping these preferences (23).

These studies illustrate that the ideal family size among refugees is influenced by a complex interplay of cultural, economic, and logistical factors. The preferences can vary widely depending on the specific context and the resources available to the refugee population.

2.3. Individual-level factors associated with fertility preference among native and refugee women of reproductive age

Age is a significant factor influencing fertility preferences. Younger women often have higher fertility intentions compared to older women. Parity, or the number of children a woman already has, also plays a crucial role (24). Women with more children tend to prefer smaller family sizes (25).

Both the woman's and her partner's level of education significantly impact fertility preferences (24,25). Higher educational attainment is generally associated with a preference for smaller family sizes. Education influences knowledge and attitudes towards family planning and reproductive health (26,27).

Economic factors, including household wealth and employment status, are critical determinants. Women from wealthier households or those who are employed are more likely to prefer smaller families due to the economic costs associated with raising children (26).

Cultural norms and religious beliefs heavily influence fertility preferences. In many refugee settings, traditional beliefs favor larger families. However, exposure to different cultures and the challenges of displacement can shift these preferences (25).

Access to and use of contraceptives are pivotal. Women with better access to family planning services and those who use modern contraceptives tend to prefer smaller families. Barriers such as lack of knowledge, cultural unacceptability, and financial constraints can limit access (24,25).

Women's autonomy in making reproductive decisions is a significant factor. Higher decision-making power within the household is associated with a preference for smaller family sizes. This autonomy is often linked to education and economic independence (26).

Exposure to media and information about family planning and reproductive health can influence fertility preferences. Women who are more informed about the benefits of smaller family sizes and the availability of contraceptives are likely to have lower fertility intentions (26).

The overall health and well-being of women, including mental health, can affect their fertility preferences. Women in better health are more likely to plan and space their pregnancies, leading to smaller family sizes (24).

2.4. Health-related factors associated with fertility preference among native and refugee women of reproductive age

Knowledge about reproductive health significantly influences fertility preferences. Women with better understanding of reproductive processes, contraception, and family planning tend to prefer smaller family sizes. Lack of knowledge can lead to misconceptions and higher fertility intentions (26).

Access to quality healthcare services, including family planning and reproductive health services, is crucial. Women with better access to these services are more likely to use contraceptives and prefer smaller families. Barriers such as financial constraints, cultural unacceptability, and language barriers can limit access (28,29).

The use of modern contraceptives is a key factor. Women who use contraceptives are more likely to have lower fertility preferences (30). However, myths, misinformation, and side effects can deter contraceptive use, especially among refugee populations (26).

Concerns about maternal and child health can influence fertility preferences. Women who have experienced complications during pregnancy or childbirth, or who have children with health issues, may prefer smaller families to ensure better care and resources for each child (29).

Mental health plays a significant role in fertility preferences. Women experiencing stress, anxiety, or depression due to displacement or other factors may have different fertility intentions compared to those with better mental health. Mental health support can help in making informed reproductive choices (28).

Nutritional status impacts fertility preferences. Women with better nutritional status are more likely to plan and space their pregnancies, leading to smaller family sizes. Malnutrition and food insecurity can affect reproductive health and fertility intentions (28).

The overall quality and responsiveness of the health system, including the availability of culturally sensitive care and trained healthcare providers, can influence fertility preferences.

Women who receive respectful and person-centered care are more likely to engage in family planning (28).

These health-related factors highlight the importance of comprehensive healthcare services and education in shaping fertility preferences among native and refugee women. Addressing these factors can help in promoting informed reproductive choices and improving overall reproductive health outcomes.

2.5. Facility-related factors associated with fertility preference among native and refugee women of reproductive age

The availability of reproductive health services, including family planning, significantly influences fertility preferences. Facilities that offer a wide range of contraceptive options and reproductive health services are more likely to meet the needs of women, leading to a preference for smaller family sizes (29).

The quality of care provided at health facilities, including the competence and attitude of healthcare providers, impacts fertility preferences. Women who receive respectful, person-centered care are more likely to use family planning services and prefer smaller families (26).

Physical accessibility, including the distance to health facilities and transportation availability, plays a crucial role. Women who have to travel long distances or face transportation challenges are less likely to access family planning services, which can influence their fertility preferences (29).

The cost of services, including consultation fees, cost of contraceptives, and other related expenses, affects fertility preferences. Affordable services encourage the use of family planning methods, leading to a preference for smaller families (26).

Facilities that provide culturally sensitive care, including language support and respect for cultural practices, are more likely to be utilized by women from diverse backgrounds. This can positively influence their fertility preferences by making them feel more comfortable and understood (29).

The assurance of privacy and confidentiality in reproductive health services is critical. Women are more likely to seek family planning services and prefer smaller families if they trust that their privacy will be respected (26).

Strong health system support, including adequate staffing, supply chain management, and continuous training for healthcare providers, ensures the consistent availability of quality services. This support can influence fertility preferences by ensuring reliable access to family planning services (29).

Facilities that engage with the community and provide education and outreach programs can positively influence fertility preferences. Community engagement helps in raising awareness about the benefits of family planning and addressing misconceptions (26).

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study design

This cross-sectional study analyzed and compared the fertility preference between natives and refugees living in Camps in Kigoma, Tanzania. A quantitative approach is a research methodology used to enable rigorous hypothesis testing, which is essential in comparative studies to determine whether observed differences or relationships are statistically significant.

3.2 Area of the study

The study area was the Kigoma Region, Western Tanzania. Kigoma Region in Tanzania is an exciting location for studying fertility preferences between natives and refugees. The region has approximately 2.5 million people and is home to around 300,000 refugees from the Democratic Republic of Congo and Burundi.

The study area focused on Kasulu Rural District and three major refugee camps in the Kigoma region of western Tanzania: Nyarugusu, Mtendeli, and Nduta. These camps primarily host refugees from Burundi and the Democratic Republic of Congo (DRC) and are managed with the support of international organizations such as the United Nations High Commissioner for Refugees (UNHCR) and various non-governmental organizations (NGOs).

Kasulu District

It is one of the larger districts in the region, known for its diverse population, including both local Tanzanian communities and significant refugee populations residing in camps such as Nyarugusu. Kasulu District covers an area of approximately 4,242 square kilometers. The district's landscape is characterized by rolling hills, valleys, and a generally moderate climate, which supports both agriculture and settlement. Kasulu District is administratively divided into several wards, each consisting of multiple villages.

There are about 30 wards and more than 100 villages within the district. Some of the major wards include Kasulu Mjini (Urban Kasulu), Nyansha, Kagerankanda, Kitagata, Makere,

Heru Juu and Nyakitonto. These wards are further subdivided into smaller villages and sub-villages, which are the basic units of local governance and administration.

The district has a mix of primary and secondary schools, both government and private, which serve the local population. However, access to higher education is limited, with most students traveling to Kigoma town or other regions for tertiary education.

Healthcare services in Kasulu District include several health centers, dispensaries, and a district hospital. The Kasulu District Hospital is the primary healthcare facility, offering a range of services including general outpatient and inpatient care, surgery, and maternal health services. In addition to the district hospital, there are numerous health centers spread across the wards, providing basic healthcare and emergency services.

Reproductive health services are a key focus in Kasulu District due to the high population density and the presence of refugee communities. The district's health facilities provide various reproductive health services, including Antenatal care, safe delivery services, postnatal care, and emergency obstetric care are available in the district hospital and larger health centers. A range of contraceptive options are provided to residents, along with counseling and education on family planning methods.

Nyarugusu Camp

Nyarugusu camp is in the Kasulu District of Kigoma Region. It is one of the largest and oldest refugee camps in Tanzania, established in 1996 to host refugees fleeing the civil war in the DRC. The camp initially hosted Congolese refugees but later expanded to accommodate Burundian refugees, leading to a population of over 150,000 individuals.

Nyarugusu has several health facilities providing comprehensive healthcare, including general medical care, maternal and child health services, treatment for communicable and non-communicable diseases, and mental health support. The camp offers antenatal and postnatal care, family planning, prevention and treatment of sexually transmitted infections (STIs), and safe delivery services. Programs addressing gender-based violence (GBV) are also in place, including medical and psychosocial support for survivors. (TDHS, 2022).

Mtendeli Camp

Mtendeli camp it was established in 2016 to accommodate Burundian refugees fleeing political unrest. The camp has a population of around 50,000 refugees. The camp provides primary healthcare through various clinics and health posts. Services include emergency care, chronic disease management, vaccination, and nutritional support. These include family planning, antenatal and postnatal care, safe delivery, and treatment for reproductive health issues. The camp also provides services for survivors of sexual and gender-based violence

Nduta Camp

Nduta camp was reopened in 2015 to respond to the influx of Burundian refugees. The camp hosts approximately 80,000 refugees. Nduta camp has several health facilities offering services such as general medical care, vaccinations, mental health services, and treatment for both communicable and non-communicable diseases. The camp provides comprehensive reproductive health services, including family planning, maternal health care, antenatal and postnatal services, and GBV prevention and response programs.

3.3 Study population

The study consisted of two groups of women of reproductive age. The first group was selected from three refugee camps in Kigoma, Tanzania: Nyarugusu, Mtendeli, and Nduta. The second group, consisting of native women, was selected from households in villages in the Kasulu district of Tanzania.

3.4 Sample size estimation and sampling technique

3.4.1 Sample size

Overall, sample size estimation for the study involved refugee and native women of reproductive age which was essential for ensuring the validity and reliability of the research findings and producing strong statistical power for the generalization of the results (Creswell & Hirose, 2019; Hair et al., 2021). Particularly when working with populations that may face challenges in participation. Adjusting for potential non-participation rates helps to mitigate any potential biases that could arise and ensures that the study is sufficiently powered to yield meaningful results.

- The sample size was estimated by using Rosner's 2015, formula for comparing two means:

  $n = (Z_{\alpha/2}+Z_{\beta})^2 * 2 * \sigma^2 / d^2$,

  where $Z_{\alpha/2}$ is the critical value of the Normal distribution at $\alpha/2$ (e.g. for a confidence level of 95%),

  α is 0.05 whose critical value is 1.96,

  Z_{β} is the critical value of the Normal distribution at β (e.g. for a power of 80%, β is 0.2 and the critical value is 0.84),

  where $Z_{\alpha/2}$ is the critical value of the Normal distribution at 5% level of significance, producing the critical value of 1.96.

  Z_{β} is the critical value of the Normal distribution for a power of 80%, producing the critical value of 0.84.

  σ^2 is the population household's size variance, estimated to be 1.2 persons, and d is the mean difference in family size we would like to detect between the two populations; estimated to be 0.25 people.

  Therefore, n = 362. Adjusting for a possible 10% non-participation rate, the estimated minimum sample size for each group was 400 women from each study group (native and refugees). Therefore, a total minimum sample size of 800 for both refugee and native women of reproductive age was selected.

3.4.2 Sampling technique

To gather data on women of reproductive age in Kasulu Rural District, a stratified sampling process was employed to ensure representative and reliable results.

3.4.1 Sampling steps

- Native group, a stage random sampling technique was applied.

Ward Selection: Randomly selected four wards from Kasulu Rural District to ensure geographic diversity and representation.

Village Selection: From each chosen ward, two villages were randomly selected and included in the study, providing a broad sample of rural areas.

Street selection: From each chosen village two streets were randomly selected and participated in the study.

Selection of Households and women of reproductive age: Within each selected street, 25 households were randomly chosen. From each household, one eligible Woman of Reproductive Age was selected and participated in the study.

- Selection process for Women of Reproductive Age in Refugee Camps, a three-stage random sampling technique was applied.

Stage 1: Zone selection: In each of the three refugee camps, namely Nyarugusu, Mtendeli, and Nduta, two zones out of four zones were selected and participated in the study.

Stage 2: Street selection: Two streets were selected from each zone within each refugee camp. Household selection: From each selected street, 35 households were identified.

Stage 3: Subsequently, one eligible woman of reproductive age was chosen from each of the selected households. This approach was used to ensure that the woman of reproductive age. The selection were diverse and reflected the study population within the refugee camps. The sampling process successfully ensured representative and reliable results for the study population.

3.5 Eligibility criteria

3.5.1 Inclusion criteria

Women between 16 and 49 who live in the Kigoma region of Kasulu Rural district were eligible for the study. Refugee women of reproductive age who have lived in Nyarugusu, Mtendeli, or Nduta camp for at least ten years and have provided signed consent were also eligible.

3.5.2 Exclusion criteria

The potential participants who could not speak English or Swahili were excluded from this study.

3.6. Variables

3.6.1 Dependent variable

The dependent variable of the study was the desired number of children.

This was assessed by asking the participants if they would wish to have children in the future and the number that they were willing to have.

3.6.2 Independent variables

Independent variables include characteristics that are relevant in the literature on fertility desire These include:

i. Individual-level factors
   - Background (Refugee, Natives—ref.).
   - Women age at interview (16–19; 20-24; 25–29; 30–34; 35–39; 40–49).
   - Marital status (never married ref.; married and not married, including separated, divorced, and widowed.
   - Parity (childless—ref.; one child; two children; three children or more).
   - Educational status (lower secondary or less—ref.; upper secondary; post-secondary or tertiary).
   - Household income,

ii. Obstretic factors-related factors
   - post-delivery complications (Ref; post-delivery bleeding etc)
   - Place of previous delivery (the services given during previous delivery)
   - Fear of side effects.

iii. Facility-related factors
   - insurance/cost coverage during delivery.
   - Privacy
   - Confidentiality (from health care providers)
   - Distance to health facility (ref; km from home to hospital)

3.7. Data collection methods and tools

The data collection tool used in this study was an interview form. This questionnaire was used to gather information about individual-level factors, desired family size, lifetime usage of family planning methods, health-related factors, and facility-related factors. The questionnaire was divided into five sections, each containing questions about the topic.

The first section focuses on individual-level factors, including age, ethnicity, education level, marital status, perceived level of income, and religion.

The second section contained the desired family size assessment questions. The questions were asked about the respondent's number of children, the total number of living children, the ideal family size, the current household size, and satisfaction with household size.

The third section investigates use of any family planning methods, including questions about the type of method used, the reasons for discontinuing use, and the factors that influenced the decision to use or not use family planning methods.

The fourth section examines health-related factors, including the availability of maternal healthcare services and factors that could affect the addition of more children in the future.

Lastly, the fifth section examines facility-related factors, including the distance to the nearest health facility where the respondent receives services and the factors that could influence the desire to increase family size, such as privacy and confidentiality in health facilities, availability of medicines and supplies, availability of health services, insurance/cost coverage, and donor support.

3.8 Data collection process

The study's data collection process commenced only after obtaining ethical clearance from MUHAS IRB, attaining permission from local government authorities of the Kasulu district in the Kigoma region, and securing administrative management of the respective refugee camps. The principal researcher trained four research assistants in participant identification, consent taking, recruitment, and data collection and oversaw these processes.

The study employed stratified sampling based on two groups, natives, and refugees. Eligible WRA was selected from each household in refugee camps and native streets. After selection, the research assistants explained the study's objectives, procedures, potential risks, and benefits and obtained informed consent from potential participants for voluntary participation.

After recruiting the participants who agreed to sign the consent form for the study, the research assistants read the questions to them, and their responses were noted in a questionnaire. Finally, the collected data was entered into Microsoft Excel version 19, and descriptive and inferential statistics were produced using statistical software.

3.9. Data processing and analysis

After the data collection, the stored data in Excel format was analyzed using SPSS software, specifically version 25 from Chicago Inc. Co. The data transformation from Excel format into SPSS version 25 was carried out before the analysis.

Once the data was entered into the software, the next step involved categorizing the numeric variables. The process aimed to organize the data into meaningful groups or ranges that enabled easier interpretation and analysis. Simultaneously, frequencies for categorical variables were determined, which provided an understanding of the distribution of each category within the dataset.

- **To determine the use of any type of family planning methods among refugees and native women of reproductive age:**

The variable to assess lifetime use of family planning methods was categorical. Therefore, a frequency table is presented whereby the percentage of respondents who report having ever used any type of family planning method is obtained for each group, natives, and refugees**.**

- **To assess the desired family size among refugee and native women of reproductive age:**

The median desired family size for both refugee and native women was determined and displayed using a Box and whiskers chart aiding visual comparison.

- **To determine individual-level factors associated with fertility preference:**

Multiple linear regression was applied to identify significant predictors of fertility preference. The outcome measures of association were assessed through the regression coefficients for each predictor variable. These coefficients demonstrated the magnitude and direction of the relationship between each independent variable and the dependent variable, adjusting for potential confounding variables**.**

The multiple linear regression model is expressed as follows:

$Y = \beta o + B_1X_1 + B_2X_2, + B_3X3 + \ldots + BnXn$

Whereby, Y; is the dependent variable (Fertility Preferences)

βo is a constant.

X_i are independent variables that are individual-level factors but adjusting for Health Related (HRI); Facility-related (FRI); and socio-demographic factors.

Bi……. is the regression coefficient for the independent variable X_i.

- **To examine the health-related factors associated with fertility preference among native and refugee women of reproductive age:**

A similar multivariable linear regression model was applied whereby the independent variables were health-related predictors**.**

- **To investigate the facility-related factors associated with fertility preferences among native and refugee women of reproductive age:**

Finally, the next model was based on independent variables that are facility related**.** In all analyses involving multivariable linear regression model, the 95% confidence intervals for each regression-adjusted odds ratio were presented as measures of assessing the strength of the association. Whereas the significance level set at 5% indicated the threshold below which the relationship between variables was considered statistically significant.

3.10. Ethical consideration

The study received ethical clearance from the Institute of Review Board (IRB) at Muhimbili University of Health and Allied Sciences (MUHAS). Before data collection, Permission was obtained from the camp's management and local administrative government in the host community. Potential participants were informed about the study's objectives and the voluntary nature of their participation, and their confidentiality was ensured. The questionnaire did not contain personal identification and was kept under lock and key, accessible only to the principal investigator. As needed, the data was released to the supervisor, MUHAS SPHSS, or MUHAS IRB. After final analysis and report submission, the data was submitted to the MUHAS repository for controlled access.

3.11. Reliability and validity

The study questionnaire was modified after a literature review. A biostatistics professor reviewed and improved the modified version. An expert in the fertility field reviewed it for correctness, clarity, and delivery in English, contributing to improving its face and content validity. The interview form was translated into Kiswahili and back to English to enhance its semantic equivalence. Inputs and suggestions from the MUHAS Institute of Review Board (IRB) Committee were addressed to improve conceptual and item equivalence. After pre-testing with 40 participants, 20 native and 20 refugee women of reproductive age,

ambiguous terms were simplified, and low-reliability items were removed to improve overall reliability.

3.12. Data dissemination plan

The study findings will be presented in a specific scientific conference prepared by MUHAS. Additionally, the report of these findings was shared with the local administrative government in which the study was conducted, as well as with the management of the refugee camp, as feedback on the study conducted in their territory. Furthermore, the findings of this study were presented at the Department of Epidemiology and Biostatistics in the School of Public Health and Social Sciences of MUHAS. Finally, after final defenses, the manuscripts were prepared and submitted to peer-reviewed publications.

CHAPTER FOUR

4.0 RESULTS

4.1 characteristics of the study participants

This study recruited a total of 804 participants. Table 1 shows the distribution of study participants by groups and by their background characteristics. Of these, 401 and 403 were natives and refugees respectively. Among the refugees, 233 (57.8%) and 170 (42.8%) were Burundian and Congolese respectively. The participants' mean age was 28.2 (Standard deviation = 7.4) and 26.8(Standard deviation = 7.0) years for natives and refugees respectively ranging from 16 to 46 years. The majority (more than 60%) of all study participants in the two study groups were young (less than 30 years). While 379 (94.0%) of the refugee study participants had either never had formal education or only primary education, 385 (96.0%) of the native study participants had at least primary education. More than 70% of all study participants from all study groups reported being either married or cohabiting. Christians dominated among all participants from both study groups.

Table 1: Background characteristics of the study participants

Characteristic	Natives (n=401) Number (%)	Refugees (n=403) Number (%)
Age [Mean (SD)]	**28.2 (SD=7.4)**	**26.8 (SD=7.0)**
16 – 19	50 (12.5)	70 (17.4)
20 – 24	97 (24.2)	115 (28.5)
25 – 29	82 (20.4)	82 (20.3)
30 – 34	89 (22.2)	66 (16.4)
35 – 39	45 (11.2)	48 (11.9)
40 – 46	38 (9.5)	22 (5.5)
Education level		
No formal	16 (4.0)	172 (42.6)
Primary level	123 (30.7)	207 (51.4)
Above primary level	262 (65.3)	24 (6.0)
Marital status		
Single	50 (12.5)	44 (10.9)
Married	239 (59.6)	292 (72.5)
Cohabiting	93 (23.2)	58 (14.4)
Divorced/widowed	19 (4.7)	9 (2.2)
Religion		
Christian	320 (79.8)	386 (95.8)
Muslim	81 (20.2)	17 (4.2)

4.2. Use of family planning methods among refugees and native women of reproductive age in the Kigoma region

Significantly, χ^2=50.349; p<0.001, more women of reproductive age group among natives reported using any method of family planning as compared to their counterparts, 326 (81.2%) against 235 (58.3%) respectively. While only use of oral contraceptives does not differ between the two groups, the use of all other types of family planning methods differs between the two groups. The proportions of users were significantly higher among natives than among refugees, except for natural family planning methods (Table 4.2.1).

Table 2: Distribution of participants by their study groups and use of family planning

	Natives	**Refugees**	
	Number (%)	**Number (%)**	**χ^2; p-vale**
Use of any method	326 (81.3)	235 (58.3)	50.349; < 0.01
Pills	101 (31.0)	114 (48.5)	0.987; 0.339
Condom	119 (36.5)	8 (3.4)	115.87; <0.01
IUCD	79 (24.2)	45 (19.1)	11.224; <0.01
Injectable	80 (24.5)	24 (10.2)	34.955; <0.01
Natural FP methods	65 (19.9)	93 (39.6)	6.004; 0.014
Traditional methods	0 (0.0)	37 (15.7)	Not applicable

4.3 The desired family size among refugee and native women of reproductive age in the Kigoma Region

The median desired family size among native and refugee women of reproductive age has differed between the two groups, 5 (IQR=2) and 8 (IQR=3) respectively; significantly higher among refugee women than natives (p<0.01) (Figure 1).

Median Family Size

The overall grand median for desired family size across both groups is 6.00, as indicated by the blue line.

Native Women: The median desired family size is slightly below the grand median, with most values clustering around 5 to 6. The boxplot shows a relatively narrow interquartile

range (IQR), indicating less variability in the desired family size among native women. There are also a couple of outliers who desire a family size of 10 or more.

Refugee Women: The median desired family size is above the grand median, with most values clustering around 7 to 8. The boxplot for refugee women shows a wider IQR, indicating greater variability in desired family size. The distribution skews toward larger family sizes, with some women desiring family sizes well above 10.

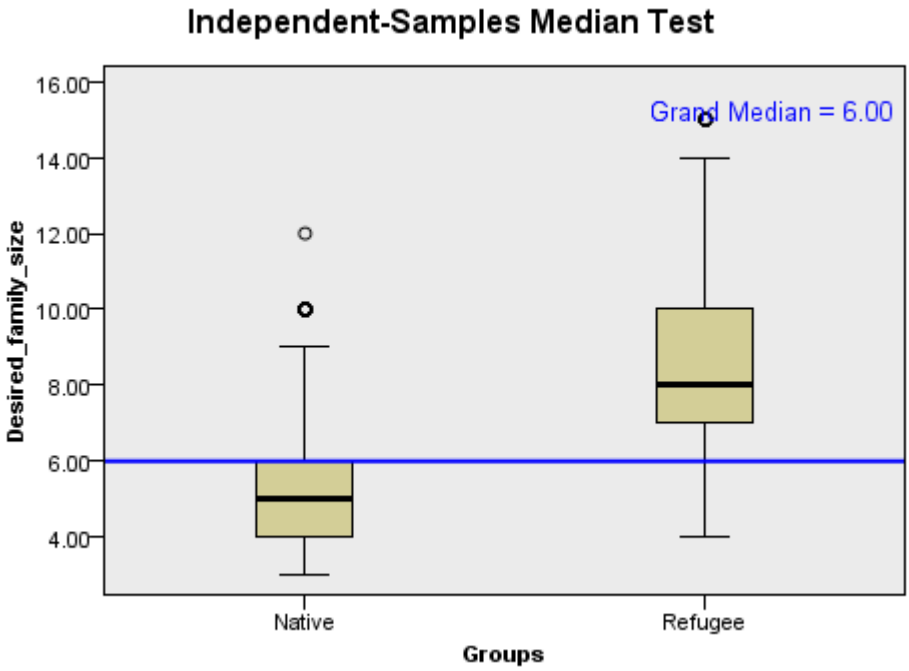


Figure 2: Independent-sample median test for the desired family size between Native and Refugee women of reproductive age in the Kigoma region.

4.4. Individual-level factors associated with desired family size among native women of reproductive age in the Kigoma region

In the analysis, individual-level variables considered included age, marital status, education level, income, and religion.

Table 3 : Bivariate analysis of the desired family size and selected individual-level factors among native women of reproductive age in the Kigoma region

Factor	Combined group variation	p-value
Comparison of means	**F-test**	
Education-level	1.690	0.186
Marital status	4.112	0.007
Religion	6.405	0.012
Correlations	**Pearson correlation coefficient**	
Age	-0.033	0.509
Income	-0.104	0.038
Number of living children	0.113	0.023

Marital status and religion were found to significantly influence desired family size, with both factors showing a statistically significant difference (p-value < 0.05). Income and the number of living children also had a statistically significant relationship with desired family size, although these correlations were weak. Specifically, higher income was slightly associated with a lower desired family size, and women with more living children tended to desire larger families.

Table 4: Multivariate analysis of desired family size and selected individual-level factors among native women of reproductive age in Kigoma region

	Standardized coefficient				
Factor	**β**	**Std. error**	**Standardized coefficient beta**	**t**	**p-value**
Intercept	3.114	0.457	-	6.815	< 0.001
Education level	-0.184	0.125	-0.053	-1.473	0.141
Marital status	0.162	0.099	0.059	1.636	0.103
Income	-	0.000	-0.013	-0.353	0.725
Religion	0.034	0.175	0.007	0.197	0.844
Living children	0.822	0.043	0.697	19.120	< 0.001

Adjusting for other variables, the reported total number of living children was the only associated with desired family size among native women of reproductive age in the Kigoma region (Table 4.4.2). The analysis suggests that the number of living children is the most significant predictor of desired family size, with a strong and statistically significant positive effect. Other factors like education level, marital status, income, and religion do not show statistically significant effects in this model, indicating they may not be as influential in determining desired family size among the women studied.

4.4.1 Individual-level factors associated with desired family size among refugee women of reproductive age in the Kigoma region.

Table 5: Bivariate analysis of desired family size and selected individual-level factors among refugee women of reproductive age in Kigoma region

Factor	Combined group variation	p-value
Comparison of means	**F-test**	
Education-level	3.325	0.037
Marital status	2.288	0.078
Religion	10.091	0.002
Correlations	**Pearson correlation coefficient**	
Age	0.048	0.333
Income	-0.038	0.443
Number of living children	0.024	0.635

Variables with p-values less than 0.05 include education level, marital status, and religion. While education level and marital status show moderate F-values, indicating some variation in means, religion has a notably high F-value (10.091), suggesting significant variation between groups and a substantial impact on the dependent variable. Correlations are very weak, with age (0.048) and number of living children (0.024) showing slight positive correlations, and income (-0.038) indicating a very weak negative correlation with the dependent variable.

Table 6: Multivariate analysis of desired family size and selected individual-level factors among refugee women of reproductive age in Kigoma region

Factor	Standardized coefficient				
	β	Std. error	Standardized coefficient beta	t	p-value
Intercept	8.735	0.828	-	10.552	< 0.001
Education	0.112	0.211	0.027	0.532	0.595
level	0.288	0.218	-0.067	-1.324	0.186
Marital status	0.318	0.627	0.026	0.507	0.613

Adjusting for other variables, none of the selected individual-level variables was associated with the desired family size among refugee women of reproductive age in the Kigoma region (Table 4.4.3). The intercept is 8.735 with a p-value < 0.001, highlighting a significant baseline level. Education level shows a significant positive impact on desired family size with a standardized coefficient beta of 0.318 and a p-value of 0.027. In contrast, marital status has a positive effect with a beta of 0.211, but it is not statistically significant (p-value = 0.186). Thus, education level significantly influences desired family size, while marital status does not.

4.5. Health-related factors associated with desired family size among native women of reproductive age in Kigoma region

Selected health-related factors were lifetime use of family planning, fear of family planning side effects, and previous delivery complications.

Table 7: Bivariate analysis of the desired family size and selected health-related factors among native women of reproductive age in the Kigoma region

Factor	Combined group variation	p-value
Comparison of means	F-test	
Use of FP	9.404	0.002
Fear of FP side effects	10.763	0.001
Access to prenatal care	1.610	0.205
Previous delivery complications	1.148	0.285

Variables that had an indication of association with desired family size were lifetime use of family planning services (F=9.404; p=0.002) and fear of family planning side effects (F=10.763; p=0.001) significantly influence desired family size. However, access to prenatal care (F-test = 1.610, p-value = 0.205) and previous delivery complications (F-test = 1.148, p-value = 0.285) do not have a significant impact on desired family size.

Table 8: Multivariate analysis of desired family size and selected health-related factors among native women of reproductive age in the Kigoma region

Factor	Unstandardized coefficient		Standardized coefficient beta	t	p-value
	β	Std. error			
Intercept	5.779	0.868	-	8.430	000
FP side effects	0.134	0.244	0.032	-544	0.587
Access to prenatal care	0.392	0.218	-0.095	-1.606	0.109
Previous delivery complications	0.232	0.358	0.039	0.648	0.517

After adjusting for other variables, none of the selected health-related factors were significantly associated with desired family size among native women of reproductive age in the Kigoma region. Specifically, family planning side effects (p-value = 0.587), access to prenatal care (p-value = 0.109), and previous delivery complications (p-value = 0.517) did not show a significant relationship with desired family size. However, in the multivariate analysis, the intercept was significant with an unstandardized coefficient of 5.779 (p-value < 0.001), and concerns about family planning side effects had a significant positive effect on desired family size (unstandardized coefficient = 0.134, p-value = 0.000). Access to prenatal care (unstandardized coefficient = 0.392, p-value = 0.587) and previous delivery complications (unstandardized coefficient = 0.232, p-value = 0.517) did not significantly impact desired family size.

4.5.1 Health-related factors associated with desired family size among refugee women of reproductive age in the Kigoma region

Similarly, selected health-related factors were lifetime use of family planning, fear of family planning side effects, and previous delivery complications.

Table 9: Bivariate analysis of desired family size and selected health-related factors among refugee women of reproductive age in Kigoma region

Factor	Combined group variation	p-value
Comparison of means	F-test	
Lifetime use of FP	3.210	0.074
Fear of FP side effects	0.059	0.808
Access to prenatal care	0.610	0.435
Previous delivery complications	0.846	0.358

None of the selected variables were significantly associated with desired family size among refugee women of reproductive age in the Kigoma region. The bivariate analysis revealed that while lifetime use of family planning showed a marginally significant variation with a p-value of 0.074 (F-test = 3.210), fear of family planning side effects (p-value = 0.808), access to prenatal care (p-value = 0.435), and previous delivery complications (p-value = 0.358) did not show significant variations in desired family size.

Table 10: Multivariate analysis of desired family size and selected health-related factors among refugee women of reproductive age in the Kigoma region

Factor	Unstandardized coefficient		Standardized coefficient beta	t	p-value
	β	Std. error			
Intercept	6.712	0.982	-	6.832	000
Use of FP	0.971	0.319	0.179	3.047	0.002
Fear of side effects					
Access to prenatal care	0.502	0.305	0.095	1.646	0.101
Previous delivery complications	0.331	0.303	0.061	1.093	0.275
	-0.487	0.292	-0.095	-1.671	0.096

After adjusting for other variables, the use of family planning was significantly associated with desired family size among refugee women of reproductive age in the Kigoma region. The multivariate analysis revealed that the intercept is significant (coefficient = 6.712, p-value < 0.001), and the use of family planning has a significant positive effect on desired family size (coefficient = 0.971, p-value = 0.002). Other factors, including fear of side effects (coefficient = 0.502, p-value = 0.101), access to prenatal care (coefficient = 0.331, p-value = 0.275), and previous delivery complications (coefficient = -0.487, p-value = 0.096), do not show significant impacts, with previous delivery complications only marginally significant. Overall, family planning is the only significant factor influencing desired family size.

4.6. Facility-related factors associated with desired family size among native women of reproductive age in the Kigoma region

Selected health-related factors were distance to the nearest health facility, access to health services, place of delivery during the last childbirth, and insurance coverage.

Table 11: Bivariate analysis of the desired family size and selected facility-related factors among native women of reproductive age in the Kigoma region

Factor	Combined group variation	p-value
Comparison of means	**F-test**	
Service accessibility.	1.610	0.205
Insurance coverage	0.378	0.539
Previous delivery at H/Facility	0.137	0.711
Correlations		
Distance to the facility	-0.203	< 0.001

The association with fertility desire among native women of reproductive age in Kigoma was weak. However, this association was negative and significant ($r=-0.203$; $p<0.001$) (Table 4.6.1). The association between fertility desire and various factors among native women of reproductive age in Kigoma was generally weak, with a negative and significant correlation ($r=-0.203$; $p<0.001$). The bivariate analysis indicates that service accessibility, insurance coverage, and previous delivery at a health facility do not have a significant impact on desired family size, as their p-values exceed 0.05. Conversely, the distance to the facility

demonstrates a highly significant correlation with desired family size, with a p-value below 0.001, underscoring its substantial influence on family size preferences.

Table 12: Multivariate analysis of desired family size and selected facility-related factors among native women of reproductive age in the Kigoma region

Factor	Unstandardized coefficient		Standardized coefficient beta	t	p-value
	β	Std. error			
Intercept	5.766	0.913	-	6.314	000
Insurance	0.007	0.286	-0.001	-0.024	0.981
Fear of side effects	0.014	0.024	0.030	0.587	0.557
Place of the previous delivery	-0.390	0.395	0.050	-0.987	0.324

Adjusting for other variables, the multivariate analysis indicates that none of the selected health-related factors—insurance coverage, fear of side effects, or place of previous delivery—are significantly associated with the desired family size among native women of reproductive age in the Kigoma region (Table 4.6.2). All factors have p-values greater than 0.05, suggesting they do not have a meaningful impact on family size preferences.

4.6.1 Facility-related factors associated with desired family size among refugee women of reproductive age in Kigoma region

Selected health-related factors among refugee women of reproductive age were place of delivery, service accessibility, and distance to the nearest health facility.

Table 13: Bivariate analysis of desired family size and selected facility-related factors among refugee women of reproductive age in Kigoma region

Factor	Combined group variation	p-value
Comparison of means	**F-test**	
Service accessibility.	0.610	0.435
Previous delivery at H/Facility	0.033	0.855
Correlations		
Distance to the facility	-0.132	0.008

There was a significant but weak negative association between fertility desire among refugee women of reproductive age in Kigoma and the distance to the nearest health facility (r=-0.132; p=0.008) (Table 4.6.2). The bivariate analysis reveals that service accessibility and previous delivery at a health facility do not significantly influence desired family size, with p-values of 0.435 and 0.855, respectively. In contrast, the distance to the facility is significantly correlated with desired family size, with a p-value of 0.008, highlighting its notable impact on family size preferences.

Table 14: Multivariate analysis of desired family size and selected facility-related factors among refugee women of reproductive age in the Kigoma region

Factor	Unstandardized coefficient		Standardized coefficient beta	t	p-value
	β	Std. error			
Intercept	7.505	0.668	-	11.240	000
Distance from the health facility	-0.364	0.098	-0.181	-3.721	000
Fear of side effects	1.099	0.333	0.160	0.102	0.001

The multivariate analysis reveals that among refugee women of reproductive age in the Kigoma region, both distance from the health facility and fear of side effects significantly influence desired family size. Specifically, distance from the health facility has a significant negative effect on desired family size ($p<0.001$), while fear of side effects significantly increases desired family size ($p=0.001$).

CHAPTER FIVE

5.0 DISCUSSION

5.1 Overview

This discussion examines the influence of fertility preferences as the dependent variable on various demographic and health-related factors among native and refugee women of reproductive age in the Kigoma region. The general objective of the study was to assess and compare fertility preferences among refugee and native women of reproductive age in the Kigoma Region of Tanzania. In this section, we highlight the main findings, interpretations, and their associated implications.

5.2. Use of Family planning methods among refugees and native women of refugee women of reproductive age

Although results from this study result indicate a higher overall use of any family planning methods (70%), among currently used ever-married women of reproductive age in the region in the region is estimated to be about 18% (TDHS, 2022). Significantly, natives reported a higher rate of using any method of family planning (81%) compared to refugees (58%). Factors such as access to healthcare, cultural beliefs, language barriers, and socio-economic conditions often favor natives in the use of family planning methods (23). In addition, the ideology of fertility compensation among refugees may explain more of this (22). productive age in the Kigoma region.

Our finding that suggested that the use of FP is positively associated with desired family size is consistent with some previous studies that suggest that access to and use of family planning services can influence reproductive preferences and outcomes. Studies have found that access to family planning services are linked to an increase in contraceptive use and a subsequent adjustment in family size preferences among women in low-resource settings (27,29,30). However, it is important to note that while some studies have shown a reduction in desired family size with increased use of FP, the context of refugee settings, where reproductive decisions can be influenced by a multitude of socio-economic and cultural factors, may lead to different outcomes. The lack of a significant association between fear of side effects and desired family size in our study ($\beta = 0.502$, $p = 0.101$) aligns with the

mixed findings in the literature. Some studies, such as (Goldstein J, 2013), indicate that fear of side effects can deter contraceptive use but does not consistently affect overall family size desires. Other research has shown that educational interventions addressing side effects can mitigate these fears without substantially altering reproductive goals.

Furthermore, we found a significant difference in the use of family planning mix between natives and refugees. More native women used modern methods, such as condoms, IUCDs, and injectable than their counterparts. The possible explanation could be that native women are more likely to use modern contraceptives due to higher levels of educational attainment and more established incomes than the refugees. All these may contribute to better awareness and acceptance of these family planning methods.

More (40%) of the refugee women report a higher uptake of natural family planning methods as compared to native women (20%). This reliance on natural methods among refugee women may be attributed to lower educational levels, which can limit their knowledge and use of modern contraceptives. In addition, about 16% of refugees use traditional methods, and none of the native women. The higher rates of traditional and natural method use among refugees may be suggestive of cultural beliefs that may favor traditional methods. This trend aligns with findings from previous studies, indicating that better access to healthcare services and comprehensive educational programs significantly improve family planning uptake among local populations (31).

The significant gap in formal education among refugees (94% with no or only primary education) is a critical factor contributing to their lower uptake of modern contraceptives. Educational programs that target refugee populations, offering information on the safety and effectiveness of modern contraceptive methods, could help bridge this gap (23,28,29).

5.3. Desired family size among refugee and native women of reproductive age in the Kigoma region

The discrepancy in desired family size between refugee women and native women underscores the profound influence of cultural, socio-economic, and personal experiences on reproductive preferences. This finding aligns with existing literature, which highlights the multifaceted nature of family planning decisions. For instance, (Odusina E.K., 2020) demonstrated in a study conducted in Nigeria that socio-economic factors and agricultural

demands significantly shape the reproductive desires of rural women. Similarly, the study suggests that socio-economic uncertainties, cultural norms, and experiences of displacement converge to foster a higher desire for larger families among refugee women.

Refugee women's higher desired family size can be attributed to several interrelated factors. Firstly, socio-economic conditions play a pivotal role, as larger families are often perceived as a form of social security amidst instability. This sentiment is corroborated by studies indicating that economic constraints influence reproductive preferences (32). Additionally, cultural, and religious beliefs within refugee communities uphold the value of larger families, contrasting with the preferences of native women who may prioritize other aspects such as education and career advancement. The significance of cultural norms in shaping reproductive desires is well-documented in literature exploring fertility preferences across diverse populations (25,26,33).

Furthermore, the experiences of displacement and loss contribute to refugee women's desire for larger families. The staggering statistic that 30% of refugee women have lost at least one child underscores the profound impact of trauma on reproductive decisions. Research indicates that experiences of loss can intensify the desire for familial stability and continuity (34). Hence, the quest for larger families among refugee women can be understood as a response to the need for resilience and continuity in the face of adversity.

In contrast, native women's preference for smaller families is influenced by their comparatively better educational and economic opportunities. Access to family planning resources and a shift towards valuing the economic and health benefits associated with smaller families contribute to this trend. This finding resonates with broader trends observed in developed and developing countries alike, where education and economic empowerment are associated with lower fertility rates (1,13,18,35).

5.4. Individual-level factors associated with desired family size among native and refugee women of reproductive age in the Kigoma Region.

The individual-level factors influencing desired family size among native and refugee women of reproductive age in the Kigoma Region present a complex interplay of socioeconomic, educational, and cultural influences.

The bivariate analyses reveal several key factors associated with the desired family size among native women. Concerns about the potential side effects of family planning methods are notably linked to desired family size. Women who are apprehensive about these side effects tend to prefer larger families. This finding is consistent with other studies indicating that fear of side effects can deter the use of effective contraceptive methods, leading to higher fertility preferences.

Higher educational attainment is initially associated with smaller desired family sizes. This aligns with global research showing that education tends to reduce fertility rates by increasing women's autonomy and access to information about family planning (36). Additionally, marital status influences family size preferences, with married women desiring more children than their unmarried counterparts, reflecting societal norms that value larger families within marriage. Religious affiliation also plays a role, suggesting that cultural and religious norms significantly influence reproductive goals (37).

The multivariate analysis identified the total number of living children as the only significant factor influencing desired family size ($\beta=0.822$, $p<0.001$). This suggests a pragmatic approach to family planning among native women, where the actual number of surviving children primarily determines fertility desires. This finding aligns with theories of reproductive behavior that emphasize the importance of replacement fertility and the desire to ensure a certain number of surviving offspring (38).

Despite initial correlations, concerns about side effects did not remain significant in the multivariable regression. However, among women who reported ever using family planning methods, there was a clear preference for condoms (36%) over long-term methods like intrauterine contraceptive devices (IUCD) and injectable. This preference likely stems from fears about side effects from long-term contraceptives, a concern that has been documented in other regional studies and highlights the need for improved education and reassurance about family planning methods (39).

For refugee women, the bivariate analysis suggests that education level, marital status, and religious affiliation might influence desired family size. However, the multivariate analysis does not find these factors to be significantly associated when controlling for other variables. This indicates that the reproductive preferences of refugee women are likely shaped by more

complex factors, perhaps related to their experiences of displacement, trauma, and socio-economic instability, which are not fully captured in our study (23).

Both native and refugee women report a median income level of 100,000 Tanzanian shillings (38.4 USD) per month, highlighting the financial constraints faced by these populations. This low-income level suggests limited economic opportunities and substantial financial challenges, impacting overall well-being and potentially influencing family size desires as a strategy for economic security and support in old age (4).

5.5 Health-related factors associated with desired family size among native and refugee women of reproductive age in the Kigoma region

Among size among refugee women. While not statistically significant, this trend suggests that health-related factors may still exert some influence on fertility preferences in this population. However, fear of family planning side effects and previous delivery complications do not show significant associations, indicating that other contextual factors may overshadow their impact on desired family size among refugee women.

The less pronounced influence of health-related factors on desired family size among refugee women compared to native women may be attributed to the intricate living circumstances and uncertainties experienced by refugees. Factors such as displacement, trauma, and socio-economic instability may overshadow the impact of health-related concerns, emphasizing the need for a holistic understanding of the diverse challenges faced by refugee populations (14,31).

Studying faces several limitations. Firstly, reliance on participants' recollections of past events may introduce memory lapses, potentially affecting data accuracy. Moreover, the risk of socially desirable responses could further compromise the precision of collected data. Cultural norms may also influence participants to withhold certain information, leading to incomplete data. Given the diverse cultural backgrounds of participants, it's crucial to consider these nuances during data interpretation. Additionally, the study design may hinder identifying the source of associations, limiting the depth of data analysis.

Furthermore, while the sample composition is representative of the refugee population in the Kigoma region, it may not fully reflect the diversity of refugee populations from other regions or countries. This limitation cautions against generalizing findings beyond the

studied demographics. Reliance on self-reported data, especially in sensitive areas like reproductive health, introduces biases that may distort findings. Moreover, the context-specific nature of the study's findings restricts their applicability solely to the Kigoma region, raising concerns about generalizing to regions with different socio-economic and cultural dynamics.

Lastly, given the evolving socio-economic conditions and policies, the study's findings may lose relevance over time. Research and updated analyses are necessary to address temporal changes and maintain the validity of conclusions.

In addressing study limitations, a multifaceted approach was adopted to enhance research reliability and validity. Strategies included structured interview prompts to reduce memory lapses and socially desirable responses, alongside measures to ensure participant confidentiality. Cultural sensitivity training and diverse research teams addressed cultural influences and data completeness challenges. To overcome study design constraints, mixed method approaches, and triangulation techniques were employed, bolstering the depth of analysis and sample diversity. Validation measures and skilled interviewers were used to address the reliance on self-reported data. Emphasis was placed on acknowledging context-specific findings, conducting comparative analyses, and collaborating across regions for broader insights. Longitudinal studies and regular methodology updates enabled tracking of temporal changes and adaptation to evolving socio-economic conditions, ensuring the continued relevance of the findings.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The study compared family planning utilization and desired family size between native and refugee women of reproductive age in the Kigoma region. It found that native women were more likely to use family planning methods than refugee women, who tended to prefer larger family sizes. Among native women, the number of living children influenced their desired family size, and there was a connection between the use of family planning services, concerns about side effects, and desired family size. Both native and refugee women showed a weak negative correlation between their desire for more children and proximity to the nearest health facility. These findings highlight the need for tailored approaches to family planning and reproductive health services for both groups. The dissertation emphasizes the necessity for further research in the Kigoma region to better understand the cultural, socioeconomic, and access-related factors affecting reproductive health choices. Such research will be crucial for refining and tailoring future interventions to be more effective. The study reveals the importance of adopting a holistic and culturally sensitive approach to family planning and reproductive health services. This approach aims to enhance health outcomes and promote greater autonomy among both native and refugee women in the Kigoma region. By addressing the identified gaps and leveraging community strengths, policymakers, and practitioners can enhance the well-being and reproductive health of these populations, contributing to broader public health and development goals.

6.2 Recommendations

1. Further research is needed to explore fertility preferences among native and refugee households in the Kigoma region, drawing from interdisciplinary perspectives such as demography, public health, sociology, and anthropology to understand fertility complexities within multicultural contexts comprehensively.
2. Efforts should be directed towards enhancing healthcare services by tailoring reproductive health programs based on identified needs, leading to tangible improvements in family planning initiatives and better reproductive health outcomes for women in Kigoma.
3. Policymakers are urged to incorporate evidence from this study into decision-making processes to formulate informed policies prioritizing the reproductive health and rights of women, thus impacting healthcare infrastructure and access positively.
4. Collaboration among stakeholders, including humanitarian organizations and local communities, is essential to implement targeted interventions addressing the unique challenges faced by refugee women, fostering understanding and cooperation, promoting holistic support mechanisms, and contributing to improving reproductive health outcomes in the diverse context of the Kigoma region.
5. Specific recommendations include implementing tailored family planning services, ensuring access to a variety of modern contraceptive methods, addressing concerns about side effects, developing culturally sensitive approaches, providing additional support for refugee women, and conducting further qualitative research to tailor future interventions effectively, aiming to address identified gaps and improve reproductive health services for both native and refugee populations in Kigoma.

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APPENDICES

Appendix I: Consent Form – English Version

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

SCHOOL OF PUBLIC HEALTH AND SOCIAL SCIENCES

APPENDIX A: INFORMED CONSENT FORM

Dear Participant, Participant No: .....

Introduction:

My name is **Nusura Mwanga**, and I am currently undertaking my further education in Master of Public Health at Muhimbili University of Health and Allied Sciences (MUHAS), School of Public Health and Social Sciences.

You are requested to participate in a research study on **'FERTILITY PREFERENCE AMONG REFUGEES AND NATIVE WOMEN OF REPRODUCTIVE AGE IN KIGOMA REGION, TANZANIA: A COMPARATIVE STUDY.**

The objective of the study is to assess and compare fertility preferences among refugees and native women in this Region of Kigoma. If you volunteer to participate in this study, we will ask you about your using and understanding of family planning methods and your choices on several children.

The discussion will take about 15-30 minutes of your time and you may find some of the questions asked are sensitive. The information that you provide during the study will be kept confidential and your identity will not be included in the data analysis.

By participating in this study and answering our questions, you will help us to generate information that will help planners and program managers to improve the health of women and their families.

Your participation in the study is voluntary and you have the right to withdraw from the study at any time after having agreed to participate. Also, you are free to refuse to answer any question that you feel uncomfortable with.

If you have any questions about this study, you may contact the following persons:

- **Ms. Nusura Mwanga**, School of Public Health, Muhimbili University of Health, and Allied Sciences. Mob: 0749671521 who is the Principal Investigator of this study or call the Institutional Review Board of Muhimbili University.
- If you ever have questions about your rights as a participant, you may call Dr. Nahya Masoud, Chairman of the Senate Research and Publications Committee, P.O. Box 65001, Dar es Salaam. Tel: 2150302-6.

Signing this consent indicates that you have understood what is expected from you and that you are willing to participate in this study.

Read by interviewee ( ) Signature of interviewee/thumb prints..... Date.....

Appendix II: Consent Form-Swahili Version

FOMU YA RIDHAA KWA KISWAHILI

CHUO KIKUU CHA SAYANSI ZA TIBA MUHIMBILI

SHULE YA AFYA NA SAYANSI ZA JAMII

RIDHAA YA USHIRIKI KATIKA TAFITI

Kwako mshiriki, Nambari ya siri ya fomu: .....

UTANGULIZI:

Jina langu ni Nusura Mwanga, kwa sasa ninaendelea na masomo yangu ya Uzamili ya Afya ya Umma katika Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili (MUHAS), Shule ya Afya ya Umma na Sayansi ya Jamii.

Unaombwa kushiriki katika utafiti wa **'UPENDELEO WA UZAZI MIONGONI MWA WAKIMBIZI NA WANAWAKE WAZAWA WA UMRI WA UZAZI MKOANI KIGOMA, TANZANIA:**

Madhumuni ya utafiti ni kutathmini na kulinganisha mapendeleo ya uzazi miongoni mwa wanawake wakimbizi na wanawake asilia katika Mkoa wa Kigoma. Ukijitolea kushiriki katika utafiti huu, tutakuuliza kuhusu matumizi na uelewa wako wa mbinu za kupanga uzazi na chaguo lako kwa watoto kadhaa.

Majadiliano yatachukua takribani dakika 15-30 za muda wako na unaweza kupata baadhi ya maswali yaliyoulizwa ni nyeti. Taarifa utakazotoa wakati wa utafiti zitakuwa siri na utambulisho wako hautajumuishwa katika uchanganuzi wa data.

Kwa kushiriki katika utafiti huu na kujibu maswali yetu, utatusaidia kutoa taarifa ambazo zitasaidia wapangaji na wasimamizi wa programu kuboresha afya ya wanawake na familia zao.

Ushiriki wako katika utafiti ni wa hiari na una haki ya kujiondoa kwenye utafiti wakati wowote baada ya kukubali kushiriki. Pia, uko huru kukataa kujibu swali lolote ambalo unahisi kuwa na wasiwasi nalo.

Nani wa Kuwasiliana

Ukiwana maswali yoyote juu ya utafiti huu tafadhali usisite kuwasiliana na mtafiti mkuu,

MS. Nusura Mwanga, wa Chuo Kikuu cha Afya cha Sayansi na Tiba cha Muhimbili (MUHAS), S.L.P 65001, Dar es salaam (Simu Namba **+255749671521**).

Maswali yoyote juu ya haki ya kufanya utafiti huu, unaweza kumuandikia Mwenyekiti wa Kamati ya Utafiti na Utangazaji ya Chuo Kikuu, **Dk Nahya Masoud** P.O .Box 65001, Dar es salaam Tele, 2150302-6

Imesomwa na mshiriki ( ) Sahihi…….

Tarehe.....

Appendix III: Interview Form (English Version)

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

SCHOOL OF PUBLIC HEALTH AND SOCIAL SCIENCES

INTERVIEW FORM

TITLE: 'FERTILITY PREFERENCE AMONG REFUGEES AND NATIVE WOMEN OF REPRODUCTIVE AGE IN KIGOMA REGION, TANZANIA:

Dear participant, I am a researcher doing my studies in Public Health. All responses will be kept anonymous and confidential. This will take just 10 minutes of your time. In case you have any inquiries please contact nusuramwanga@gmail.com

Thank you for your cooperation.

APPENDIX: IV: INTERVIEW FORM (SWAHILI VERSION)

A: INDIVIDUAL-LEVEL FACTORS

1. How old are you (years) _____ years.
2. What is your ethnicity?
    a) Native
    b) Burundian
    c) Congolese
    d) Other specify…….
3. What is the highest level of education did you achieve?
    a) No formal education
    b) Primary education
    c) Above primary education

4. What is your current marital status?

a) Single
b) Married
c) Cohabiting
d) Divorced
e) Widowed.

5. What is your perceived level of income for your household?

a) Low
b) Medium
c) High

6. What is your religion?

a) Christianity
b) Muslim
c) Other (specify) _____

B: DESIRED FAMILY SIZE

7. Have you ever had children of your own?

a) Yes
b) No

8. If yes, how many children have you ever had? _____

9. What is the total number of living children? _____

10. How many children do you consider an ideal family size? (number) _____

11. Do you think your family size preference has changed over the years?

a) Yes
b) No

12. What is your current household size? Number of people _____

13. How many generations typically reside in your household? _____ Generation.

14. How satisfied with your current household size?

a) Very satisfied
b) Somewhat satisfied
c) Neither satisfied nor satisfied
d) Very satisfied

15.What challenges do you associate with having a larger family size? (Select all that apply)

a) Financial strain
b) Limited access to education and healthcare
c) Overcrowded living conditions.
d) Increased environmental impact.
e) Cultural or social difficulties
f) Other (please specify) ……...

16. What factors influence your preference for a specific household size?

a) Economic considerations
b) Cultural or religious beliefs
c) Access to healthcare and education
d) Housing availability
e) Social pressure from family or community
f) Personal choice

C: LIFETIME USAGE OF ANY TYPE OF FAMILY PLANNING METHODS

17. Have you ever used any type of family planning method in your lifetime?

a) Yes
b) No

18. If you answered "Yes" are you or your partner currently doing anything to stop you from getting pregnant?

a) Yes
b) No

19. If yes, please what method are you using to stop from getting pregnant?

a) Birth control pills
b) Condoms
c) Intrauterine device (IUD)
d) Injectable contraceptives (e.g., Depo-Provera)
e) Sterilization (e.g., tubal ligation or vasectomy)
f) Natural family planning methods
g) Traditional methods
h) Emergency contraception (e.g. morning-after pill)

i) Other (please specify): _____

20. Have you ever discontinued the use any method to prevent you getting pregnant?

a) Yes

b) No

21. What was the main reason to discontinue use of any method to prevent you from getting pregnant?

a) Side effects or health concerns

b) Wanted to get pregnant.

c) Partner's preference

d) Method failure (e.g., unintended pregnancy)

e) Cost/access issues

f) Other (please specify): _____

22. What factors influenced your decision to use or not use family planning methods? (Select all that apply)

a) Health considerations

b) Partner's input

c) Religious or cultural beliefs

d) Education or awareness programs

e) Financial Considerations

f) Access to healthcare services

g) Other (please specify): _____

23. Would you say stopping getting pregnant is mainly your decision, mainly your partner, or a joint decision?

a) My decision

b) My partner’s decision

c) Joint decision**.**

D: HEALTH-RELATED FACTORS

24. How might the availability of maternal healthcare services influence fertility preferences?

a) Increased access may increase my choice.

b) Limited access may reduce my choice.

c) It has no significant impact on my choice.

d) Access to healthcare services primarily affects contraceptive choices.

e) None of the above.

24. Which of the following factors could affect adding more children in the future?

a) Previous post-delivery complications.

b) Access to prenatal care

c) Underlying diseases.

d) Place of previous delivery.

e) Health concern.

f) All the above

E: FACILITY RELATED FACTORS

25. What is the distance to the nearest health facility where you get services? _____Km

26. How much does this distance influence your decision to seek treatment?

a) Not at all

b) A little

c) Moderately

d) Significantly

e) Extremely

27. Which of the following might influence your desire to increase family size?

a) Privacy and confidentiality in the health facilities.

b) Availability of medicines and supplies.

c) Availability of health services.

d) Insurance/cost coverage

e) Donor's support**.**

Appendix IV: Interview Form Swahili Version

CHUO KIKUU CHA AFYA MUHIMBILI

FOMU YA MAHOJIANO

KICHWA CHA UTAFITI: 'MAPENDELEO YA UZAZI KATI YA WANAWAKE WAKIMBIAJI NA WANAWAKE WA WAZAWA WENYE UMRI WA KUZAALIANA KATIKA MKOA WA KIGOMA, TANZANIA:

Mpendwa mshiriki, Mimi ni mtafiti ninayefanya utafiti wangu katika Afya ya Umma. Majibu yote yatahifadhiwa kwa usiri na siri. Hii itachukua dakika 10 tu za muda wako. Ikiwa una maswali yoyote, tafadhali wasiliana nasi kupitia nusuramwanga@gmail.com.

A: KIPENGELE CHA MAMBO BINAFSI

1**.** Una umri gani (miaka) _____ miaka

2. je Wewe ni mzaliwa wa nchi gani?

a) Mtanzania
b) Burundi
c) Wakongo
d) Zingatia zingine…….

3. Ni kiwango gani cha juu cha elimu ulichofikia?

a) Sina elimu rasmi
b) Elimu ya msingi
c) Juu ya elimu ya msingi

4. Hali yako ya ndoa kwa sasa ikoje?

a) sijaolewa
b) nimeolewa
c) Naishi na mwenza bila ndoa
d) Nimeachika

e) Mjane.

5. Je Unafikiri kiwango cha mapato kwa kaya yako ni kipi?

a) Chini

b) Kati

c) Juu

6.Je Dini yako ni ipi?

a) Ukristo

b) Muislamu

c) Nyingine

B: UKUBWA WA FAMILIA UNAOTAKA

7. Je, umewahi kupata watoto wako mwenyewe?

a) Ndiyo

b) Hapana

8. Kama ndiyo, umewahi kupata watoto wangapi…….

9 Jumla ya watoto walio hai ni ngapi? _____

10. Unawaona watoto wangapi kuwa ukubwa wa familia unaofaa? (nambari) _____

11. Je, unafikiri ukubwa wa upendeleo wa familia yako umebadilika kwa miaka mingi?

a) Ndiyo

b) Hapana

12. Ukubwa wa kaya yako kwa sasa ni ngapi? Idadi ya watu _____

13.Ni vizazi vingapi kwa kawaida hukaa katika kaya yako? _____ Kizazi.

14.Je, umeridhishwa kwa kiasi gani na ukubwa wa kaya yako ya sasa?

a) Kuridhika sana

b) Kuridhika kwa kiasi fulani

c) Sijaridhika wala kuridhika

d) Kuridhika sana

15. Ni mambo gani yanayoathiri upendeleo wako kwa ukubwa maalum wa kaya?

a) Mawazo ya kiuchumi

b) Imani za kitamaduni au za kidini

c) Upatikanaji wa huduma za afya na elimu

d) Upatikanaji wa makazi

e) Shinikizo la kijamii kutoka kwa familia au jamii

f) Chaguo la kibinafsi

16. Ni changamoto gani unazohusisha na kuwa na familia kubwa zaidi? (Chagua zote zinazotumika)

a) Shida ya kifedha

b) Upatikanaji mdogo wa elimu na afya

c) Hali ya msongamano wa watu.

d) Kuongezeka kwa athari za mazingira.

e) Shida za kitamaduni au kijamii

f) Nyingine (tafadhali taja) ……

C: MATUMIZI YA MAISHA YA AINA YOYOTE YA NJIA ZA UZAZI WA UZAZI

17. Je, umewahi kutumia aina yoyote ya njia ya kupanga uzazi katika maisha yako?

a) Ndiyo

b) Hapana

18. Kama ni "Ndiyo" je, wewe au mpenzi wako kwa sasa mnafanya lolote ili kukuzuia usipate ujauzito?

a) Ndiyo

b) 2. Hapana

19. Kama ndiyo, je unatumia njia gani kuzuia kupata mimba?

a) Vidonge vya kudhibiti uzazi

b) Kondomu

c) Kifaa cha intrauterine (IUD)

d) Vidhibiti mimba kwa sindano (k.m., Depo-Provera)

e) Kufunga uzazi (k.m., kuunganisha neli au vasektomi)

f) Mbinu za asili za kupanga uzazi

g) Mbinu za jadi

h) Uzazi wa mpango wa dharura (k.m. kidonge cha asubuhi)

i) Nyingine (tafadhali taja): _____

20. Je, umewahi kuacha kutumia njia yoyote ya kukuzuia kupata mimba?

a) Ndiyo

b) Hapana

21. Ni sababu gani kuu ya kuacha kutumia njia yoyote ya kukuzuia usipate mimba?

a) Madhara au wasiwasi wa kiafya

b) Alitaka kupata mimba.

c) Upendeleo wa mwenzi

d) Kushindwa kwa njia (kwa mfano, mimba isiyotarajiwa)

e) Masuala ya gharama/upatikanaji

f) Nyingine (tafadhali taja**): _____**

22. Ni mambo gani yaliyoathiri uamuzi wako wa kutumia au kutotumia njia za kupanga uzazi? (Chagua zote zinazotumika)

a) Mawazo ya kiafya

b) Ingizo la mshirika

c) Imani za kidini au kitamaduni

d) Programu za elimu au uhamasishaji

e) Mawazo ya kifedha

f) Upatikanaji wa huduma za afya

g) Nyingine (tafadhali taja): _____

23. Je, unaweza kusema kuacha kupata mimba ni uamuzi wa nani?

a) Uamuzi wangu

b) Uamuzi wa mwenza wangu

c) Uamuzi wa pamoja

D: MAMBO YANAYOHUSIANA NA AFYA

24.Je, upatikanaji wa huduma za afya ya uzazi unaweza kuathiri vipi mapendeleo ya uzazi?

a) Kuongezeka kwa ufikiaji kunaweza kuongeza chaguo langu.

b) Ufikiaji mdogo unaweza kupunguza chaguo langu.

c) Haina athari kubwa kwa chaguo langu.

d) Upatikanaji wa huduma za afya huathiri uchaguzi wa uzazi wa mpango.

e) Hakuna kati ya zilizo hapo juu.

25.Je, ni mambo gani kati ya yafuatayo yanaweza kuathiri kuongeza watoto zaidi katika siku zijazo?

a) Matatizo ya awali baada ya kujifungua.
b) Upatikanaji wa huduma ya kabla ya kujifungua
c) Magonjwa ya msingi.
d) Mahali pa utoaji uliopita.
e) Wasiwasi wa kiafya.
f) Yote hapo juu

E: MAMBO YANAYOHUSIANA NA KITUO CHA AFYA.

26.Je, ni umbali gani hadi kituo cha afya kilicho karibu nawe unapopata huduma? _____Km

27. Umbali huu unaathiri kwa kiasi gani uamuzi wako wa kutafuta matibabu?

a) Hapana kabisa
b) Kidogo
c) Kiasi
d) Kwa kiasi kikubwa
e) Sana

Appendix V: Plan of Activities.

Activity	2023	2024			
	QUARTER-WEEKS				
	Q4	Q1	Q2	Q3	Q4
1. Development of a Proposal					
1.1. Concept Note					
1.2. Proposal and data tools development					
Ethical Clearance					
2. Data Collection					
2.1. Quantitative data collection					
3. Data Analysis					
3.1. Data management					
3.2 Data entry					
3.3. Data analysis					
4. Dissemination					
4.1. Writing the dissertation					
4.2. Drafting a publication					
4.5. Submission of dissertation					
4.5. Final examination (Defense)					

Appendix VI: Budget and Justification

S/No	PARTICULARS	QTY	TZS	
			UNIT COST	TOTAL
1	Proposal development			
	Ream of paper	1	10,000 .00	10,000.00
	Typing and printing costs (4 copies)	120 pages	500.00	60,000.00
	Photocopying (n=144*5copies)	120 pages	50.00	36,000.00
	Staple Machine (Medium size)	1	5,000.00	5,000.00
	Staple Pins (Box)	1	1,000.00	1,000.00
	Folders (Pcs)	5	2,000.00	10,000.00
	Writing Pens	10	500.00	5,000.00
	Marker pen	3	1000.00	3,000.00
	Notebooks	5	2,000.00	10,000.00
	Research Assistant Training (2 days) Allowance Tea and snacks	2 2	40,000.00 5, 000.00	80,000.00 10,000.00
SUB-TOTAL - I				**210,000.00**
2	Data collection, entry, and analysis			
	Principal investigator (1)	20 days	20,000.00	400,000.00
	Research Assistants Allowance (2)	10 days	20,000.00	400,000.00
	Transport costs (3)	10 days	2,000.00	60,000.00
	Communication (3)	10 days	1,000.00	30,000.00
	Installation of the SPSS program on my laptop (25.0 version)	1	150,000.00	150,000.00
	Data entry	10 days	200,000.00	200,000.00
	Data analyst		50,000.00	50,000.00
	SUBTOTAL – II			**1,290,000.00**
3	Compilation and report writing Dissertation Production printing (6 Pcs)*100	600	500.00	300,000.00
	SUBTOTAL – III			**300,000.00**
GRAND TOTAL				**1,800,000.00**

Budget justification

Funds will be allocated according to the stage and requirements as follows:

1. **Proposal development:** Funds partly will be used as allowances for the facilitator and the 2 research assistants' 2-day training on how to perform the required tasks. A4 realm papers, pens, pencils, and folders will also be required for the development of the data collection form**.**
2. **Data collection, entry, and analysis:** Some amount of the fund will be used as allowances for the principal investigator and the research assistant to for data collection and subsequent entry. Other expenses include transport, communication, and installation of SPSS program (version 25) in my laptop to enable data analysis.
3. **Compilation, report writing and dissemination:** At the end of the study a comprehensive report will be prepared and disseminated to Muhimbili University of Health and Allied Sciences.

Appendix VII: Clearance Letter

UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

OFFICE OF THE DIRECTOR – RESEARCH, PUBLICATIONS AND INNOVATION

Ref. No.DA.282/298/01.C/2162 Date: 09/04/2024

MUHAS-REC-04-2024-2164
NUSURA HAJI MWANGA
School of Public Health and Social Sciences
MUHAS

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: FERTILITY PREFERENCE AMONG REFUGEES AND NATIVE WOMEN REPRODUCTIVE AGE IN KIGOMA REGION TANZANIA: A COMPARATIVE STUDY

Reference is made to the above heading,

I am pleased to inform you that the Chairman has on behalf of the University Senate, approved ethical clearance of the above-mentioned study, on recommendations of the Senate Research and Publications Committee meeting accordance with MUHAS research policy and Tanzania regulations governing human and animal subjects research.

APPROVAL DATE: 09/04/2024
EXPIRATION DATE OF APPROVAL: 09/04/2025

STUDY DESCRIPTION:
Purpose:

The purpose of this cross-sectional analytical study design is to assess and compare fertility preferences among refugee and native women of reproductive age in the Kigoma Region of Tanzania

The approved protocol and procedures for this study is attached and stamped with this letter, and can be found in the link provided: https://irb.muhas.ac.tz/storage/Certificates/Certificate%20-%2015363.pdf and in the MUHAS archives.

The PI is required to:

1. Submit bi-annual progress reports and final report upon completion of the study.
2. Report to the IRB any unanticipated problem involving risks to subjects or others including adverse events where applicable.
3. Apply for renewal of approval of ethical clearance one (1) month prior its expiration if the study is not completed at the end of this ethical approval. You may not continue with any research activity beyond the expiration date without the approval of the IRB. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.
4. Obtain IRB amendment (s) approval for any changes to any aspect of this study before they can be implemented.
5. Data security is ultimately the responsibility of the investigator.
6. Apply for and obtain Data Transfer Agreement (DTA) from NIMR if data will be transferred to a foreign country.
7. Apply for and obtain Material Transfer Agreement (MTA) from NIMR, if research materials (samples) will be shipped to a foreign country.
8. Apply for and obtain permission to publish the results from National Institute for Medical Research. The application should be before submitting to a publisher and not concurrently through the email publications@nimr.or.tz.
9. Any researcher, who contravenes or fail to comply with these conditions, shall be guilty of an offence and shall be liable on conviction to a fine as per NIMR Act No. 23 of 1979, PART III section 10 (2)
10. The PI is required to ensure that the findings of the study are disseminated to relevant stake holders.
11. PI is required to be versed with necessary laws and regulatory policies that govern research in Tanzania. Some guidance is available on our website https://drp.muhas.ac.tz/.

6th April 24

Dr. Kasusu Nyamuryekung'e.

Chairperson, MUHAS Research and Ethics Committee



Appendix VIII: Introduction Letter

UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR – POSTGRADUATE STUDIES

In reply quote;
Ref. No. HD/MUH/T.626/2022 15th April, 2024

Kasulu Rural District,
P.O. Box 475,
KASULU-KIGOMA

Re: INTRODUCTION LETTER OF NUSURA HAJI MWANGA

The bearer of this letter is Nusura Haji Mwanga (HD/MUH/T.626/2022), a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing MPH-Distance Learning.

As part of her studies she intends to do a study titled: **"Fertility Preference Among Refugees and Native Women Reproductive Age in Kigoma Region Tanzania: A Comparative Study."**

The research has been approved by the Chairman of University Senate.

Kindly provide her the necessary assistance to facilitate the conduct of her research.

We thank you for your cooperation.

Mr. Sebe Mohamed
For: DIRECTOR, POSTGRADUATE STUDIES

c.c. Nusura Haji Mwanga

9 United Nations Road; Upanga West; P.O. Box 65001, Dar Es Salaam: Tel. G/Line: +255-22-2150302/6; Ext. 1015; Direct Line:+255-22-2151378;Telefax:+255-22-2150465;E-mail:dpgs@muhas.ac.tz;Web:https://www.muhas.ac.tz

Appendix IX: Permission Letter

JAMHURI YA MUUNGANO WA TANZANIA

OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

Anuani ya Simu "TAMISEMI" DODOMA
Simu Na: +255 26 2321607
Nukushi: +255 26 2322116
Barua pepe:ps@tamisemi.go.tz

Mji wa Serikali – Mtumba,
Mtaa wa TAMISEMI,
S.L.P. 1923,
41185 *DODOMA.*

Unapojibu tafadhali taja:-

Kumb. Na. AB. 307/323/01

03/05/2024

Katibu Tawala wa Mkoa,
Ofisi ya Mkuu wa Mkoa,
S.L.P.125,
KIGOMA.

Yah: KIBALI CHA KUFANYA UTAFITI WA HALI YA UZAZI KWA WAKIMBIZI UNAOFANYWA NA BI. NUSURA HAJI MWANGA

Tafadhalini rejea somo tajwa hapo juu.

2. Ofisi ya Rais - TAMISEMI imepokea maombi ya **Bi. Nusura Haji Mwanga** mwanafunzi wa **Chuo Kikuu cha Muhimbili (Usajili Na. HD/MUH/T.626/2022)** wenye lengo la kufanya utafiti wa hali ya uzazi kwa wakimbizi katika Halmashauri ya Kasulu. Maombi hayo yamewasilishwa pamoja na ridhaa (*Ethical Clearance*) ya Kamati ya Tafiti na Machapisho ya Chuo Kikuu cha Muhimbili ya chenye Kumb. Na. **DA.282/298/01.C/2162** cha tarehe 09/04/2024.

3. Utafiti huu unatarajiwa kufanyika kwa muda wa mwaka mmoja (1) kuanzia Aprili, 2024 hadi Aprili, 2025 na una lengo la kuongeza thamani ya maisha kwa wanawake walioko kwenye umri wa uzazi katika jamii ya wakimbizi na jamii inayowazunguka kwa kuiwezesha Serikali kuweka mipango husika.

5. Kwa barua hii, naomba umuelekeze Mkurugenzi wa Halmashauri ya Kasulu kumruhusu na kumpatia ushirikiano Bi. Nusura Haji Mwanga ili aweze kutekeleza utafiti.

6. Ninakushukuru kwa ushirikiano wako.

Dkt. Bakari Salum
Kny. **KATIBU MKUU**