# Exploring Factors Influencing Discontinuation of Biomedical Infertility Care among Individuals with Infertility in Tanzania: A Literature Review and Qualitative Study

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Exploring Factors Influencing Discontinuation of Biomedical Infertility Care among Individuals with Infertility in Tanzania: A Literature Review and Qualitative Study

A thesis submitted in partial fulfilment of the requirement for the degree of Master of Science in Public Health and Health Equity

by Anna Gideon Kasililika

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Where other people's work has and Artificial Intelligence tools been used (from either a printed or virtual source, or any other source), these have both been carefully acknowledged and referenced in accordance with academic requirements. The thesis "Exploring factors Influencing Biomedical Infertility Care Discontinuation among Individuals with Infertility in Tanzania: Literature Review and Qualitative study" is my own work.

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# Abstract

Biomedical infertility care is often sought by individuals to cope with infertility. However, many discontinue treatment before achieving pregnancy, exposing them to prolonged infertility-related stigma, emotional distress, hopelessness, and an increased risk of mental health disorders. Most studies examining reasons for discontinuation have been conducted in high-income countries, which may not reflect the realities of low-income settings like Tanzania due to differences in population structure, fertility healthcare systems, economic conditions, and sociocultural factors.

This study explored factors influencing biomedical infertility care discontinuation and identified context-sensitive interventions to improve continuation in Tanzania. A literature review guided by McLeroy's socio-ecological model was combined with qualitative interviews with key informants, including fertility care professionals, a religious leader, and a leader for infertility support group.

Discontinuation was mainly influenced by financial burden due to high treatment costs, limited insurance coverage, and lack of government-funded infertility services. Emotional stress—linked to treatment failure, long duration of treatment, and inadequate counselling—was another key factor. Lack of support from male partners, rural residence, low income, and certain religious beliefs also contributed. However, religion also encouraged continuation, as faith and support from religious communities motivated individuals to persist with care.

These factors interact across levels of the socio-ecological model, shaping individual decisions. Holistic interventions—including psychosocial support, insurance expansion, national Assisted Reproduction Technology legislation, improved training for fertility care professionals, and engagement with male partners, religious, and community leaders—are essential for promoting continued infertility care in Tanzania.

Key words: Infertility, Biomedical Infertility care, Treatment discontinuation, Socio-ecological model, Tanzania

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# Table of Contents

Abstract ..... iii
Acknowledgements ..... iv
List of Tables ..... vii
List of Figures ..... vii
Abbreviations ..... viii
Glossary ..... ix
Chapter 1: Introduction ..... xi
Chapter 2: Background ..... 1
2.1 Tanzania country profile ..... 1
2.2 Infertility and Infertility care in Tanzania ..... 2
Chapter 3: Problem Statement and Justification ..... 5
3.1 Problem Statement ..... 5
3.2 Justification ..... 6
3.3 Objectives ..... 7
Chapter 4: Methods and Analytical framework ..... 8
4.1 Study design ..... 8
4.2 Literature review ..... 8
4.3 Qualitative study ..... 10
Chapter 5: Results ..... 13
5.1 Individual factors ..... 13
5.2 Interpersonal factors ..... 16
5.3 Community factors ..... 18
5.4 Institutional factors ..... 20
5.5 Public policy factors ..... 23
Chapter 6: Discussion ..... 27
Chapter 7: Conclusion and Recommendations ..... 31
7.1 Conclusion ..... 31
7.2 Recommendations ..... 31
References ..... 34
Appendices ..... 45
Appendix A: Figures ..... 45
Appendix B: Tables ..... 47

Appendix C: Informed Consent ..... 56
Appendix D: Declaration of Use of Artificial Intelligence (AI) ..... 58

# List of Tables

Table 1: Health Facilities in Tanzania (27) ..... 47
Table 2: Formulating research question using PICO ..... 47
Table 3: Search strategy in PubMed ..... 48
Table 4: Search strategy in other databases. ..... 48
Table 5: Sociodemographic profile of key informants ..... 49
Table 6: Topic guide ..... 49
Table 7: Summary of reviewed articles in the Literature review ..... 52

# List of Figures

Figure 1: Location of Tanzania in Sub-Saharan Africa (136) ..... 45
Figure 2: Tanzania Showing Administrative Regions (25) ..... 46

# Abbreviations

| | |
|---|---|
| ART | Assisted Reproductive Technology |
| BMH | Benjamin Mkapa Hospital |
| CHF | Community Health Fund |
| ESHRE | European Society of Human Reproduction and Embryology |
| FP | Fertility care professional |
| HIV | Human Immunodeficiency Virus |
| HPV | Human Papillomavirus |
| HSSP | Health Sector Strategic Plan |
| iCHF | Improved Community Health Fund |
| ICPD PoA | International Conference on Population and Development Programme of Action |
| ICSI | Intracytoplasmic Sperm Injection |
| IUI | Intrauterine Insemination |
| IVF | In Vitro Fertilization |
| ISGL | Infertility Support Group Leader |
| MoH | Ministry of Health |
| MNH | Muhimbili National Hospital |
| NHIF | National Health Insurance Fund |
| OPP | Out of Pocket |
| PI | Principal Investigator |
| PICO | Population, Intervention, Comparison, Outcome |
| RA | Research Assistant |
| RL | Religious leader |
| SDG | Sustainable Development Goals |
| SRH | Sexual and Reproductive Health |
| SSA | Sub Saharan Africa |
| SSI-KI | Semi structured Interview with Key Informant |
| STI | Sexual Transmitted Infections |
| USD | United State Dollar |

# Glossary

| | |
|---|---|
| Assisted Reproduction Technology | All interventions that include the *in vitro* handling of both human oocytes and sperm or of embryos for the purpose of reproduction (1). |
| Biomedical infertility care | Biomedical infertility care offered in formal settings encompasses a range of interventions, including fertility counselling, diagnostic assessments, surgical procedures, hormonal therapy, intrauterine insemination (IUI), and assisted reproductive technologies (ART) such as in vitro fertilization (IVF) (2). |
| Biomedical infertility care discontinuation | Biomedical infertility care discontinuation refers to the interruption or complete cessation of biomedical fertility treatment at any stage in the care-seeking pathway before achieving pregnancy (3). |
| Donor gamete and embryo | Reproductive materials—sperm, oocytes, or embryos—donated by a third party and used in assisted reproductive technologies (ART) when individuals or couples are unable to conceive with their own gametes (1). |
| Female Infertility | Infertility caused primarily by female factors encompassing: ovulatory disturbances; diminished ovarian reserve; anatomical, endocrine, genetic, functional or immunological abnormalities of the reproductive system; chronic illness; and sexual conditions incompatible with coitus (1). |
| Fertility care | Interventions that include fertility awareness, support and fertility management with an intention to assist individuals and couples to realize their desires associated with reproduction and/or to build a family (1). |
| Fertility care professional | In this thesis, refers to anyone working in fertility or ART services—doctors, nurses, embryologists, counselors, lab technicians |
| Intracytoplasmic sperm injection | A procedure in which a single spermatozoon is injected into the oocyte cytoplasm (1). |
| In Vitro Fertilization | A sequence of procedures that involves extracorporeal fertilization of gametes. It includes conventional in vitro insemination and Intracytoplasmic Sperm Injection (1). |
| Induced Abortion | Intentional loss of an intrauterine pregnancy, through intervention by medical, surgical or unspecified means (1). |
| Infertility | A disease characterized by the failure to establish a clinical pregnancy after 12 months of regular, unprotected sexual intercourse or due to an impairment |

| | |
|---|---|
| | of a person's capacity to reproduce either as an individual or with his/her partner (1). |
| Male Infertility | Infertility caused primarily by male factors encompassing: abnormal semen parameters or function; anatomical, endocrine, genetic, functional or immunological abnormalities of the reproductive system; chronic illness; and sexual conditions incompatible with the ability to deposit semen in the vagina (1). |
| Seminal analysis | A description of the ejaculate to assess function of the male reproductive tract. Characteristic parameters include volume, Ph, concentration, motility, vitality, morphology of spermatozoa and presence of other cells (1). |
| Secondary Infertility | Inability to initiate or establish a clinical pregnancy but has previously initiated or been diagnosed with a clinical pregnancy (1). |
| Sperm bank | Repository of cryopreserved sperm stored for future use (1). |
| Total Fertility Rate | The average number of live births per woman (1). |
| Tubal pathology | Tubal abnormality resulting in dysfunction of the Fallopian tube, including partial or total obstruction of one or both tubes (proximally, distally or combined), hydrosalpinx and/or peri-tubal and/or peri-ovarian adhesions affecting the normal ovum pick-up function. It usually occurs after pelvic inflammatory disease or pelvic surgery (1). |

# Chapter 1: Introduction

Infertility is a reproductive health problem affecting approximately one in six people globally (4). Infertility is defined as the failure to conceive after 12 months of regular unprotected sexual intercourse in a couple not using contraceptives (1). Infertility carries deeper social and emotional burden in African communities than in Western contexts, as cultural norms strongly emphasize the value of parenthood (5,6). Studies in Tanzania have reported that childbearing is deeply intertwined with social status and personal security (7–9). Consequently, individuals who are unable to conceive, particularly women, might face intense societal stigma, and discrimination, which can escalate into verbal and sexual abuse (10,11). This occurs even though infertility may result from either female or male factors, both partners, or sometimes remain unexplained (12–14)

To cope with infertility, individuals may seek infertility care, initially turning to traditional methods such as herbal remedies and spiritual practices (6,15,16), and later pursuing biomedical approaches or, in some cases, using both concurrently (8,17,18). However, during the course of biomedical infertility care, some individuals discontinue treatment before achieving pregnancy (3,19,20).

I witnessed this challenge first-hand while working at the infertility clinic at Benjamin Mkapa Hospital (BMH), a specialized facility in Tanzania. This experience prompted me to reflect critically on the individual, interpersonal, sociocultural, institutional, and public policy factors that can influence the discontinuation of infertility care, as well as the interventions that can promote continuity of care and ultimately improve reproductive health outcomes in the country. As a result, I developed a keen interest in exploring the factors contributing to the discontinuation of biomedical infertility care, which forms the focus of this thesis.

The thesis also aims to generate evidence-based recommendations for policymakers, fertility care professionals, religious leaders, and infertility support group leaders, tailored to the Tanzanian context. It is anticipated that the findings will offer valuable insights into treatment discontinuation as a significant public health challenge faced by individuals undergoing biomedical infertility care.

# Chapter 2: Background

## 2.1 Tanzania country profile

Tanzania is one of the countries in Sub-Saharan Africa (SSA) (Appendix A, Figure 1), covering an area of approximately 945,000 square kilometres and administratively divided into 31 regions (Appendix A, Figure 2). The country has two official languages: Swahili and English. According to the 2022 census, Tanzania has a population of 61.7 million, with 65.1% residing in rural areas. About 67.1% of the population has attained primary education, and over 90% work in non-professional occupations (21,22).

According to the Tanzania Health Facility Atlas 2023, Tanzania has a total of 11,805 health facilities, including 9,366 major ones that offer comprehensive preventive and curative services. These major facilities consist of 436 hospitals, 1,126 health centres, and 7,804 dispensaries. Most facilities (74.6%, or 6,988) are government-owned, while private facilities account for 13.8% (1,299), Faith-Based Organizations own 10.6% (998), and parastatals operate 1% (81). The healthcare system features one National Hospital—Muhimbili National Hospital (MNH)—along with six specialized hospitals, 15 zonal referral hospitals, 62 regional hospitals, and 351 district hospitals (Appendix B. Table 1) (23).

Tanzania's health system operates through a hierarchical referral structure. Primary Health Care (PHC) is delivered at the community level through dispensaries, health centres, and district hospitals. Regional Referral Hospitals provide the first level of specialized care, while zonal referral hospitals offer more advanced services and refer patients to the specialized hospital and National Hospital. This tiered network facilitates efficient service delivery and patient referrals nationwide (24,25,23) .

The main purchasers of formal healthcare include the Ministry of Health (MoH), health insurance schemes, donors, and out-of-pocket payments (OPP) (25,26). Donor support has declined while out-of-pocket payments increased in 2021/2022 and 2022/2023, limiting access to care for the poor (27). Historically, Tanzania shifted from a fully government-funded health system to a mixed financing model. Key reforms included the introduction of out-of-pocket payments in 1993, the Community Health Fund (CHF) in 1996—a voluntary scheme targeting the informal sector, especially in rural areas where most of the population lives—and the National Health Insurance Fund (NHIF) in 1999, a mandatory scheme primarily for formal sector employees (26,28,29). Under CHF, households of six typically paid annual premiums between 5,000 and 10,000

Tanzanian Shillings (about USD 2 to 4)[1] (29). However, these mechanisms have not achieved broad coverage or adequate social health protection.

In 2016, CHF was restructured into the improved Community Health Fund (iCHF), with a flat annual premium of 30,000 Tanzanian Shillings (about USD 13) per household and an expanded benefit package, including referral-level inpatient care (28,29). Despite these reforms, by 2023, only about 15.3% of Tanzanians had health insurance, with just 8% enrolled in NHIF (26).

To reduce financial barriers and expand healthcare access, Tanzania enacted the Universal Health Coverage Act in 2023. Under this law, all residents are required to enroll in the National Health Insurance Fund, with government subsidies available for those classified as poor. This reform aims to ensure equitable access to quality care and is a critical step toward addressing the country's diverse and growing health needs (26).

The top ten causes of hospital admission in Tanzania reveal a double burden of disease, including communicable illnesses like malaria, respiratory infections, and diarrhoea, alongside non-communicable diseases such as hypertension and diabetes. Gynaecological disorders ranked ninth, but no specific details were provided (27). In addition, Tanzania is committed to implementing the International Conference on Population and Development Programme of Action (ICPD PoA) and the Sustainable Development Goals (SDGs) by integrating essential sexual and reproductive health (SRH) services[2]. Reports on reproductive cancer care, adolescent SRH, family planning, antenatal and delivery services, gender-based violence (GBV) response, and human papillomavirus (HPV) vaccination are well documented in comparison to infertility and infertility care (27). The lack of data on infertility may limit comprehensive reproductive health planning.

## 2.2 Infertility and Infertility care in Tanzania

The total fertility rate in Tanzania has shown a decline, decreasing from 5.2 in 2016 to 4.8 in 2022 (25,27). Current estimates place the national infertility in Tanzania at 16% (11), with secondary infertility being more frequently reported than primary infertility in the country (11,30). Furthermore, female infertility account for half of infertility cases in the country (14,31).

In Tanzania, female infertility is predominantly linked to tubal, ovarian, and uterine abnormalities (31–33). Among men, impaired semen quality has been identified as a leading factor in infertility (31,34). Tubal pathologies alone are responsible for over 40% of female infertility cases (14,31), often resulting from untreated sexually transmitted infections (STI), complications of unsafe abortions, and delivery-related infections (35,36).

[1] At the time of writing this thesis, 1 USD was equivalent to approximately 2,600 Tanzanian shillings.
[2] https://www.nairobisummiticpd.org/commitment/united-republic-tanzania-commitment-accelerating-icpd-promise

Infertility care is delivered through both informal and formal systems, with traditional medicine remaining a common first point of contact for many individuals (8,37,38). Formal infertility services are provided in public hospitals (8,30), private clinics (14), and facilities managed by faith- based organization (34,36,39).

Biomedical infertility care offered in formal settings encompasses a range of interventions, including fertility counselling, diagnostic assessments, surgical procedures, hormonal therapy, intrauterine insemination (IUI), and assisted reproductive technologies (ART) such as in vitro fertilization (IVF), intracytoplasmic sperm injection (ICSI) and donor egg/sperm/embryo (2,12). The success rates of these biomedical interventions vary depending on individual factors (such as age and diagnosis), the type of treatment received (for example, IVF generally has higher success than IUI), and institutional capacity (such as the availability of trained professionals and necessary equipment) (2,13,14).

Despite the higher success rates associated with IVF, two main side effects-including ovarian hyperstimulation syndrome and multiple pregnancies- have been reported (40,41). These complications often arise from the absence of national legislation and clinical guidelines governing the use of ART in the country, particularly regarding licensure, monitoring, and accreditation of clinics and fertility care professionals (42,43).

Tanzania, like many other SSA countries, continues to face persistent inequalities in the availability and accessibility of biomedical infertility care (36,44). Public fertility clinics are limited by inadequate diagnostic capabilities and restricted treatment options (35,36). While some private sector facilities offer some advanced fertility care such as ART (14,31), their distribution remains uneven across the country. For instance, the Southern Zone and Zanzibar, which have high infertility prevalence (11), lack any ART centre altogether. Currently, all ART services are concentrated in major urban centres; Dar es Salaam and Arusha. There are four known centres in Dar es Salaam and one in Arusha [3]. Due to these disparities, some individuals opt to seek fertility care abroad.

The government of Tanzania has emphasized expanding specialized services which include ART in all zonal and national hospital to reduce patient referrals abroad and promote medical tourism as documented in 2021-2026 Tanzania Health Sector strategic plan (HSSP V) (24). Although ART is mentioned in the national guideline for clinic registration (45,46) and the first ART center began operating in 2011 (14), Tanzania still lacks a specific law or operational guideline to govern the delivery, regulation, and monitoring of ART services. As a result, most ART clinics in Tanzania

[3] This information is based on my personal observation and professional experience. To date, there is no national registry that officially lists infertility centres in Tanzania.

like in other SSA countries rely on international guidelines such as the European Society of Human Reproduction and Embryology (ESHRE) (47) to guide their practices (42,48).

Individuals with infertility in Tanzania like in other parts in SSA often face significant challenges in accessing infertility care (36,44,49,50). Individuals often encounter challenges such as high costs, long travel distances, and lack of information about available services (36,50,51). It is estimated that ART services, such as IVF, cost no less than 12 million Tanzanian shillings (USD 4,600) (52).

While individuals are required to pay OPP for infertility care, many other SRH services are provided free of charge. These include antenatal and delivery care, adolescent health services, HIV and gender-based violence screening, and contraception (53). In addition, services such as post abortion care, STI management, and reproductive cancer treatment are covered under health insurance schemes. However, infertility services remain largely excluded from national policy frameworks and insurance coverage (54), reflecting a gap in how SRH services are prioritized and resourced.

# Chapter 3: Problem Statement and Justification

## 3.1 Problem Statement

Biomedical infertility care discontinuation refers to the interruption or complete cessation of biomedical fertility treatment at any stage in the care-seeking pathway before achieving pregnancy (55,3). This may occur during diagnostic assessment or active treatment (56–58). In some cases, discontinuation means leaving one biomedical center without referral and seeking care elsewhere (16,51,59); in others, it results in patients turning to alternative care such as traditional methods (16). Quantitative studies show that between one-quarter to three-quarters of individuals discontinue biomedical infertility care at some point in SSA (56–58).

Despite the magnitude of biomedical infertility care discontinuation in African contexts, most studies examining the factors influencing discontinuation have been conducted in high income countries (3,60–62). Researchers in these contexts have frequently identified financial constraints as the main reason for discontinuation (62). However, discontinuation rates remain high even where insurance partially or fully covers biomedical infertility cares (58,60,63). This suggests that beyond financial barriers, a range of other individual, interpersonal, sociocultural and institutional factors may also contribute to discontinuation.

Factors influencing infertility care discontinuation globally can be categorized at multiple levels using socio-ecological model (64). At the individual level, age (62,63,65), prolonged duration of infertility and treatment (66,62), psychological distress, poor response to hormonal stimulation, and experiences such as miscarriage (63,66) have been reported. The interpersonal level includes partner influence and lack of partner support (19,20), as well as peer influence (17,62,67). At the sociocultural level, stigma related to infertility and prevailing cultural norms around childbearing play significant roles (15,61). Finally, institutional factors such as the nature and outcomes of infertility care, limited trained staffs and specialized services, also contribute to treatment discontinuation (63,66,68).

It may not be appropriate to assume that the factors influencing biomedical infertility care in low-income countries are similar to those in high-income countries, given key differences in population structure and distribution(such as age composition and rural versus urban residence), economic context (such as income levels and the ability to pay for treatment), fertility healthcare systems (including the availability, geographic accessibility and affordability of services), and sociocultural factors (such as the societal value placed on having children and cultural attitudes toward infertility and infertility care) (17,41,69,70).

Also, some previous studies in SSA have focused on exploring factors for discontinuation in women only (19,20,56), possibly because most women are actively involved in infertility care. Given that a third of infertility cases are contributed by both male and female factors (71,72), the discontinuation of men from biomedical infertility care may not only affect their own outcomes but also hinder their partner's continuation (73). However, it is not clear what factors influence men's discontinuation in Tanzania.

Religion can influence infertility care by affecting acceptance of treatment, understanding of treatment effectiveness, and coping with poor outcomes (15,74,75). For example, some Catholics reject IVF because they believe it involves the destruction of embryos, while some Muslim men avoid semen collection due to religious beliefs (15,75). In Tanzania, the impact of such beliefs on continued use of biomedical infertility care remains unclear.

## 3.2 Justification

Discontinuation of infertility care has significant consequences, most importantly a reduced likelihood of achieving pregnancy (55). Prolonged interruptions in treatment, combined with advancing age, can lower the success rates compared to those reported in biomedical infertility interventions (76). Understanding and addressing the factors that lead to care discontinuation is therefore firstly critical to improving reproductive outcomes and optimizing the benefits of available fertility treatments in Tanzania.

Further, understanding why patients discontinue infertility care in Tanzania is crucial, as stopping treatment prematurely can prolong exposure to stigma, marital conflict, separation or divorce, and increase the risk of sexually transmitted infections including HIV due to extramarital relationships (77,78). These challenges, in turn, contribute to heightened emotional distress, hopelessness, and psychological strain (7,79,80). Such psychological consequences raise the likelihood of mental health disorders, including anxiety and depression, which negatively affect overall well-being (9,81). These impacts became particularly evident during the COVID-19 lockdown, when disruptions to infertility care significantly intensified the emotional and psychological burden experienced by affected individuals (80).

In addition to impacting pregnancy outcomes, emotional and social consequences, biomedical infertility care discontinuation often places a significant financial burden on affected Individuals. Some Individuals temporarily stop biomedical infertility care in order to save money for future treatment attempts (58,82). However, when they return, they may encounter higher treatment costs or find themselves unable to use their own gametes due to age-related fertility decline. As a result, they may require more advanced and costly interventions such as gamete donation (44,58,83).

Finally, discontinuation of biomedical infertility care also carries significant consequences for the health system. From a health system perspective, patients who drop out after only diagnostic

procedures or partial treatment contribute to wasted resources (3,44,84). Further, treatment discontinuation can affect not only patients -psychologically and socially- but also fertility care professionals. When patients discontinue care, especially after unsuccessful treatment, fertility care professionals may experience feelings of frustration or inadequacy (85,86).

Given the wide-ranging consequences of infertility care discontinuation, it is essential to explore the multiple factors influencing this issue to enhance continuity of fertility care in Tanzania. This study uses a mixed-methods approach, combining a literature review with qualitative research to investigate the reasons for discontinuation. Due to the limited number of studies focused specifically on Tanzania, the literature review will also include evidence from other sub-Saharan African countries to build a broader theoretical and empirical foundation.

The socio-ecological model (64) will guide the review, offering a comprehensive framework to examine individual, social, institutional, and policy-level factors and how they interact. To complement the review, qualitative interviews with key informants will provide in-depth, context-specific insights into the Tanzanian experience. Together, these methods aim to generate findings that inform policymakers, fertility care providers, religious institutions, and support groups in developing context-sensitive interventions that promote adherence to biomedical infertility care.

## 3.3 Objectives

### 3.3.1 General objective

To explore the factors influencing discontinuation of biomedical infertility care and to identify context-sensitive interventions to improve continuation of care in Tanzania.

### 3.3.2 Specific objectives

1. To identify factors influencing the discontinuation of biomedical infertility care in Sub-Saharan Africa through a literature review framed by the socio-ecological model.

2. To explore the perspectives of key informants (fertility care professionals, religious leaders, and infertility support group leaders) on individual, interpersonal, institutional, community and public policy factors contributing to the discontinuation of infertility care in Tanzania.

3. To explore interventions to enhance biomedical infertility care continuation in Tanzania.

4. To provide recommendations for context-sensitive interventions that promote adherence to biomedical infertility care in Tanzania based on the research findings.

# Chapter 4: Methods and Analytical framework

## 4.1 Study design

This study employed a literature review on factors influencing infertility care discontinuation in SSA in combination with a qualitative study among selected key informants from various regions in Tanzania.

## 4.2 Literature review

Literature review followed the approach described by Grant and Booth (87). Research question was constructed using the Population, Intervention, Interest, and Outcome (PICO) framework (Appendix B, Table 2). The search strategy involved developing search terms based on the research question and combining them with Boolean operators (Appendix B, Tables 3 and 4). The search words included Biomedical infertility care AND Treatment discontinuation AND Sub-Saharan Africa.

Search databases include PubMed, Google Scholar, HINARI, JSTOR, and grey literature sources, ensuring comprehensive coverage of relevant studies. Snowballing through the references of the retrieved studies identified additional articles. To ensure inclusion of relevant evidence, this review considered qualitative, quantitative, and review studies, primary and secondary research, and articles published in English between 2000 and 2025. Given the limited research specifically addressing infertility care discontinuation in Tanzania, the inclusion criteria were broadened to incorporate studies from other Sub-Saharan Africa countries, with Tanzania included as part of this regional scope. The review was conducted over a period from March to July 2025.

### 4.2.1 Analytical framework

The study applies the five-level Socio-Ecological Model (SEM), as proposed by McLeroy and colleagues in 1988 (64) (Figure 3), to explore the factors influencing discontinuation of infertility care in SSA. This model recognizes that individual health behaviors are shaped by multiple layers of influence: intrapersonal (individual), interpersonal, institutional, community, and public policy layers. For the current study, this means that at the individual level, factors such as age, duration of infertility, individual's knowledge of infertility, emotional readiness, and previous reproductive

experiences can affect their willingness to continue care. At the interpersonal level, the role of partners, family members, and close friends were considered; supportive relationships encouraged continued treatment, while stigma or pressure from relatives and the community led to withdrawal.

At the institutional level, factors such as long waiting times, high costs, inconsistent follow-up, and negative provider attitudes that can discourage continued care are considered. At the community level, stigma, religious belief, gender norms that blame women, preference for traditional remedies, and influence from peers may affect treatment continuity. Finally, at the policy level, the absence of national infertility guidelines, limited government funding, exclusion of infertility services from public health insurance, and long travel distances to fertility clinics create structural barriers to sustained biomedical infertility care.

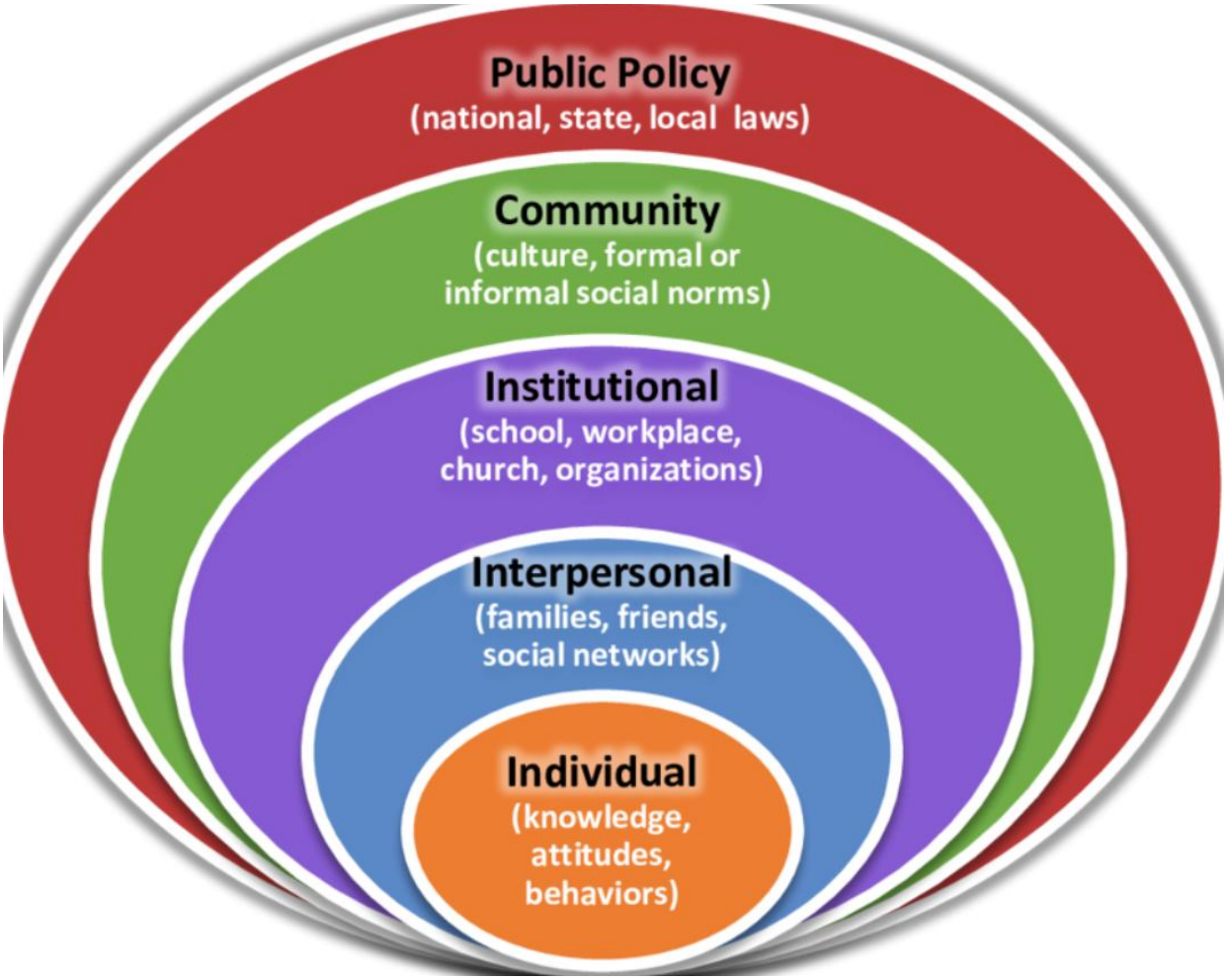

Figure 3:Socio-ecological Model *(64)*.

## 4.3 Qualitative study

A qualitative study design provided an in-depth understanding of the factors influencing discontinuation of biomedical infertility care within the Tanzanian context.

### 4.3.1 Data collection methods and techniques

Online semi structured interview with key informants (SSI-KIs) included fertility care professionals from both public and private infertility clinics, a religious leader, and an infertility support group leader. This approach captured diverse professional perspectives across different key informants (KIs) regarding individual, interpersonal, institutional, community, and public policy factors influencing infertility care discontinuation.

### 4.3.2 Sampling, identification and recruitment of study participants

A purposeful convenience sampling technique selected key informants (KIs) who were accessible, had relevant experience with individuals facing infertility, and were willing to consent. The study prioritized KI perspectives over representativeness. Seven KIs were invited, but one could not participate due to connection failure. Six SS-KIIs were conducted until saturation. The participants included four fertility care professionals, one religion leader, and one infertility support group leader. They came from various regions of Tanzania: one fertility care professional from Dar es Salaam, the religious leader and leader of infertility support group from Morogoro, two fertility care professionals from Dodoma, and one fertility care professional from Arusha. All KIs were male except one. Details are available in Appendix B, Table 5. Inclusion criteria required at least two years of experience in their roles and voluntary participation.

### 4.3.3 Data collection plan

The research team (RT) consisted of the principal investigator (PI), one research assistant (RA), an academic supervisor, and a thesis supervisor. The PI developed a topic guide (Appendix B, Table 6) based on a literature review of previous studies on factors influencing infertility care discontinuation in Sub-Saharan Africa. The guide addressed individual, interpersonal, institutional, community and public policy related factors. The RA with background in clinical medicine was responsible for transcribing and translating the audio recordings, as the interviews were conducted in Swahili, the widely spoken language in Tanzania. The PI trained the RA for one day of training to familiarize him with the transcription and translation tasks. The PI pretested the guide with one fertility care professional and the questions were appropriately framed.

In terms of positionality, The PI is a medical doctor specializing in reproductive biology, has experience working closely with fertility care professionals, interacting with infertility support group leaders, and organizing seminars with religious leaders to raise awareness about infertility in Tanzania. This background reduced the potential impact of hierarchical bias during SSI-KI (88).

One week before the interview, The PI scheduled the meeting with the KI at their convenience time and shared the link for Zoom meeting

Data collection was conducted during the first two weeks of June 2025, following the receipt of a waiver from the KIT Research Ethics Board in the Netherlands. On the day of each interview, The PI first ensured that the recording device was functional. The PI then introduced herself, explained the study objectives, and obtained verbal informed consent at the start, during, and again at the end of each SSI-KIs. Each interview began with questions drawn from the topic guide, and additional probing questions were posed when necessary to elicit deeper insights. Before concluding, The PI invited participants to share any further thoughts beyond what had been covered. The interviews range 48-56 minutes (average of approximately 50 minutes).

4.3.4 Data processing and analysis plan

The PI assigned unique identifiers to audio recordings for the fertility care professionals (FP1, FP2, FP3, FP4), the religious leader (RL) and the infertility support group leader (ISGL). The PI and RA transcribed the interviews manually using voice typing in google doc, reviewed the transcripts for accuracy, and destroyed raw data. Subsequently the transcripts were translated from Swahili into English language and back-translated to Swahili to check for translation accuracy. The PI used NVivo software for data organization, coding, and analysis. The data was coded and organized using themes in the socio-ecological model, where themes are placed in columns and participants' responses in rows.

To maintain reliability, The PI and RA double-coded the data, and any newly identified theme was incorporated into the framework. Ongoing discussions among the team refined the coding process, identified key patterns, and explored connections between themes and participants' views.

4.3.5 Ethical considerations

Since the study involved SSI-KI for professional opinions, a waiver was requested from the KIT Research Ethics Board in the Netherlands. Informed consent was obtained from all participants, ensuring voluntary participation with the right to withdraw at any time including during and after interview. Confidentiality and anonymity were maintained by using pseudonyms in the transcripts and destroying the audio recordings after transcription.

The possible fear of being interviewed was addressed by assuring participants of anonymity and the destruction of voice recordings after transcription. The study respected cultural norms, provided feedback to participants, and might have offered indirect benefits for them through their contribution to improving the understanding of factors influencing infertility care discontinuation.

4.4.5 Limitation of methods

This study used a literature review that did not follow the full systematic review process, which may introduce selection bias. It excluded non-English studies, potentially missing relevant research and causing language bias. Some included studies were over 25 years old, which may limit their relevance to current infertility care contexts. To address these gaps and gain timely, contextual insights, SSI-KIs were conducted

# Chapter 5: Results

This chapter presents evidence drawn from the literature review together with complementary narratives from SSI-KIs. The findings are organized into subsections based on the Socio-ecological model. The narratives from SSI-KIs sometimes provide entirely new perspectives not captured in the literature, at other times, they deepen understanding of the literature findings by offering concrete examples relevant to the Tanzanian context and sometimes could not give any explanation.

The study findings present evidence from various countries in SSA, including Tanzania (8,14,31,35,36,89), the Democratic Republic of Congo (20), Uganda (86), Kenya (51,72), Ethiopia (56,90), South Africa (44,58,82) , Ghana (17,19), Nigeria (57) and general SSA (6,91) as summarized in Appendix B, Table 7. Studies (8,17,19,44,51,72) were qualitative, studies (20,31,35,36,57,58,82,89) were quantitative, studies (6,91) were review and studies (14,86) were grey literatures. A clear gender imbalance was observed in the existing literature, as most studies explored factors influencing infertility care discontinuation among women only (8,19,20,72) or experience of couple jointly (14,56,57,91), with lack of study examined men's perspectives alone.

## 5.1 Individual factors

### 5.1.1 Age

Many individuals with infertility in Africa are reported to begin biomedical infertility care at a later age (14,92), often due to a preference for starting with traditional methods (17), lack of information about biomedical services (51), limited availability in their settings, or the high cost of care (72). As a result, older age has frequently been cited as a significant factor contributing to treatment discontinuation (20,56). Several studies have highlighted varying age-related patterns among those who discontinued treatment. For instance, studies in Ethiopia (56) and the Democratic Republic of Congo (20) found that discontinuation was more common among individuals aged above 35 or below 20 years.

Interestingly, a recent study from South Africa reported that some individuals over the age of 40 years remained committed to pursuing biomedical infertility care (83,93), possibly due to fear of approaching menopause (72,94). Advanced maternal age was frequently cited as a key factor influencing discontinuation of infertility treatment during the interview with KI in Tanzania. Infertility support group leader highlighted how women of advanced age are often quickly advised to stop treatment and shift their focus to other aspects of life:

*"At the hospital, they tell you, 'Your time to give birth has passed… once you've reached 40, from here on, you can't give birth anymore—just forget about it. Just live your life, enjoy yourself, have fun…." (ISGL)*

Fertility care professional supported this observation, explaining that fear of lower treatment success and higher risks with increasing age often discourages patients:

*"When you explain to a patient that as age increases, the number and quality of eggs decrease, they may also need more medication, raising costs. You can also mention that age increases the risk of complications. Some patients may feel anxious or discouraged when they hear this." (FP2)*

Another Fertility care professional emphasized that lack of adequate counselling and limited awareness of available treatment options for older women further contributes to discontinuation:

*"…if she doesn't understand the impact of advanced age and isn't properly counselled, she might discontinue treatment… if she isn't aware of all the options that could have been available to her." (FP3)*

5.1.2 Emotional status

Emotional challenges related to infertility and its treatment are well documented in several studies across SSA (9,19,36,91), often arise due to repeated treatment failures or the long duration of treatment (72,94–96). During periods of treatment failure, experiences such as embryo loss or miscarriage were identified as significant sources of grief (70,72,97).Other emotional burdens include feelings of wasted money and anxiety about future fertility prospects (9,19,95,98). These emotional stressors may contribute to the discontinuation of biomedical infertility care (40,51,72,99), particularly in the absence of proper psychological support and counselling (70,91,97). A leader from infertility support group in Tanzania explained how cumulative stress and lack of support can push individuals to discontinue infertility care:

"*…we're already under stress…you want things to happen quickly. When you get negative results, it feels like problem on top of problem. Then you feel stuck… and if there's no close support, you just leave it to God…" (ISGL)*

5.1.3 Duration of infertility and infertility care

Many studies in Sub-Saharan Africa have focused on the duration of infertility (30,36,56), with limited attention given to the duration of infertility care (95). In Tanzania (14) and the Democratic Republic of Congo (12), a shorter duration of infertility—less than five years—has been associated with higher chances of treatment success. Conversely, research from Ethiopia (56) and the Democratic Republic of Congo (20) found that individuals experiencing infertility for more than five years were more likely to discontinue care compared to those with a shorter duration. Despite this, some individuals remain in care driven by hope that they will eventually conceive (8,72,98), which can make individuals feel as though their lives are on hold while they wait for a successful

pregnancy (99). A fertility care professional reported that individuals with a long history of infertility were less likely to discontinue care, as they viewed it as their only remaining hope:

*"…Some who have been childless for many years are less likely to drop out compared to those with a shorter duration of infertility. They have a lot of hope and feel they can keep trying to succeed. So, those who have been struggling for a long time tend to be more patient and understanding. By the time they reach this point, they've tried many options…" (FP1).*

However, when treatment costs are considered, prolonged infertility care can lead to discontinuation. As another fertility care professional noted:

*"…For example, if someone has had treatment for 10 years and spent a lot, then tries an 11th time and fails, they might drop out because of the cost…" (FP3).*

5.1.4 Education level

Biomedical infertility care, such as ART, often requires a certain level of health literacy and educational background to comprehend and adhere to medical advice (100). Understanding complex information, such as the physiology of fertilization, causes of infertility, treatment options, and success rates, is essential for making informed decisions and following through with care (51,92). Education not only supports this understanding but also influences emotional well-being. For instance, higher education levels have been linked to improved quality of life (89) and reduced stigma among women with infertility (36,51). Reflecting this, most individuals seeking infertility care reportedly hold university degrees (31,83), and were more likely to continue treatment (56). Fertility care professional explained the influence of education level on treatment continuation by giving an example:

"… *but a person whom you see clearly has low education usually does not have a good depth of understanding of that matter… and may discontinue" (FP2)*

5.1.5 Occupation

The conflation of occupation and income levels is often cited (101). Some individuals were employed yet earned too little to afford ART services, forcing them to seek financial support from friends and family (58,101,102). For instance, a study in Spain described a couple working in road construction who discontinued ART in a private clinic due to financial constraints (101). Similarly, a study in Ethiopia found that housewives and bar workers were more likely to discontinue treatment compared to individuals working in offices, businesses, or farming (56). Additionally, individuals engaged in trading were less likely to continue treatment than those employed in the public sector (20), who possibly had access to higher income or insurance (58). Some SSI-KIs noted that occupation influence infertility care discontinuation due to income and time constraints.

…. "*Businesspeople may have limited time, but they often make their own decisions and try to manage. Public sector workers, however, have to follow work regulations…The 28 days of annual leave… isn't enough or convenient for attending these medical treatments." (FP1)*

*"Some employees take out loans to cover treatment costs, while business owners use their own funds. The real challenge lies with those who work but earn low wages, for whom continuing treatment is much more difficult." (FP2*)

5.1.6 Causes of infertility

ART has enabled many individuals with tubal or male infertility to conceive (14,103). Tubal infertility is commonly caused by untreated sexually transmitted infections, unsafe abortion or childbirth complications, endometriosis, or previous pelvic surgeries (36,104). Studies from SSA have reported that individuals diagnosed with tubal blockage and a history of unsafe abortion were more likely to discontinue care than those without such histories, mainly due to limited access to and the unaffordability of IVF services (12,20,51). Male-factor infertility also contributes to discontinuation, as Individuals affected were more likely to abandon non-ART treatments compared to those receiving ART such as ICSI, which has demonstrated favorable success rates (59,105). SSI-KI revealed contrasting attitudes and behaviors. Those with a history of unsafe abortion were described as more committed to treatment, demonstrating a strong determination and positive attitude toward continuing care.

*"For them, no—it's (previous history of induced abortion) not a major reason (for discontinuation). Because induced abortion happened by their own actions, they feel empowered to take control and fill the gap. If it was self-caused, it becomes a driving force, pushing them to use all available resources to compensate. So, rather than being a challenge, it becomes a motivation especially when they are aware that they were the cause." (FP1)*

## 5.2 Interpersonal factors

5.2.1 Marital status

In sub-Saharan African culture, people expect married couples to have children soon after marriage (90,95,106). As a result, most individuals who seek infertility care in different countries in the region are married (30,72,81). The strong desire for children pushes individuals to seek care even when they already have children from previous relationships. In new marriages, communities expect couples to have children of their own union (92,101) For example, a study in Ghana described a man with seven children from his first wife who still pursued infertility care because he had no children with his current wife (15). Married individuals tend to continue infertility treatment more than unmarried ones (20). However, infertility and treatment pressures often strain marriages and can lead individuals to discontinue care (107,108). In Ethiopia, researchers found that married individuals more than four times were likely to drop out of treatment more often than those in their first or second marriage, although they did not explain the reasons behind this (56).

A fertility care professional pointed out that whether being married or not, factors influence care continuation can vary depending on the specific situation.

*"Those who do not have a stable partner have faced challenges with discontinuing care because they lack that support. However, in another category, some have been more flexible and able to continue care more easily because they are not limited to just one partner." (FP1)*

5.2.2 Partner influence

During infertility treatment, some men support their partners, while others do not (72,95). This support may be financial or emotional (8,95). Men who do not provide support often report that they do not perceive any problem or oppose certain procedures, such as the use of donor sperm, which they believe means the child will not be genetically theirs (92,95). In many African cultures, where men are considered the heads of households and primary decision-makers, lack of male partner support has been identified as a significant factor contributing to discontinuation of infertility care. This has been reported in studies from Ghana (19) and Nigeria (57). Some women have resorted to hiding the use of donor material from their partners to continue treatment, fearing rejection (95).

Additionally, some men in South Africa have influenced their partners to pursue traditional methods, especially following unsuccessful biomedical treatments (16). Other factors contributing to discontinuation include polygamous unions (109), residing or working abroad (19), discomfort with masturbation for semen collection (15,75), and fear of receiving negative test results (91,100). In addition, during interview with infertility support group leader reported that being in unstable partner relationship could affect treatment continuation

"*…she might think: Let me involve this man… we can get treatment and have a child. But in the end, things turn out differently — maybe after staying together they quarrel and separate. Then she loses hope… and once she stops [treatment], she doesn't continue anymore...*" *(ISGL)*

5.2.3 Peer influence

The decision to seek infertility care and where to seek it is often strongly influenced by peer experiences, especially from those who have successfully conceived (74,101). Much of this influence spreads through word of mouth, though media such as internet stories also attract individuals living abroad to continue treatment in Africa (48). Many are advised to seek biomedical care outside their local area, traveling to countries like South Africa (93), Ghana (74) or abroad (92,95) due to the perceived superior reputation of clinics there. Conversely, some are encouraged to try traditional infertility treatments (16,17,93). Even after unsuccessful biomedical treatments, infertility support groups, such as the Joyce Fertility Support Group in Uganda and the Association of Childless Couples in Ghana, play a vital role in encouraging continued care (78). In Tanzania,

one of the fertility care professionals observed that peers actively influenced patients to continue treatment. He narrated

*"They advise each other that if you don't succeed there, it's better to go to a neighboring country… India or South Africa. This contributes to patients losing hope in continuing treatment or even starting it in the first place…"* (FP2)

5.2.4 Previous parenthood

Secondary infertility is common in SSA, where many individuals seeking infertility care already have at least one child (12,57,72), with extreme cases reporting up to seven children (15). This strong desire for more children is deeply rooted in cultural beliefs that view children not only as a blessing but also as essential for lineage continuity and marital fulfillment (8,99,106), which sometimes leads to divorce and remarriage when fertility expectations are not met (11,99,107). Studies from Tanzania (35), Democratic Republic of Congo (20), and Ethiopia (56) found that individuals with at least one child were more likely to discontinue infertility treatment compared to those without children, possibly because they face less social stigma and reduced pressure to continue care (110). However, one study revealed that some couples continued treatment when the previous children had similar sex, driven by the desire for a child of a different sex (109). Each of the fertility care professionals cited one example to support the influence of previous parenthood on discontinuation:

*"…woman with secondary infertility tend to drop out more often than those who have never had children…because those who have never had children usually try very hard. However, if one partner feels satisfied with what they already have, they (the partner) may discourage the other by saying things like, you already have children, so why spend a lot of money? It's better to invest in other things." (FP1)*

*"A man with two wives, but only one of them has children…His involvement and support (to the wife with infertility) is limited since he already has children with the other wife…" (FP2)*

## 5.3 Community factors

5.3.1 Sociocultural influences

Sociocultural factors such as the use of traditional infertility treatments, polygamous marriages, and strong expectations to have biological children have been found to influence access to and continuation of infertility care in sub-Saharan African societies (16,37,40,93). It is common for in-laws to suggest that a man take another wife or marry the younger sister or cousin of his infertile wife as a cultural response to infertility (90,93). Biomedical infertility care is sometimes viewed as a waste of money, and ART-especially those involving surrogacy or the use of donor gametes or embryos—are not always culturally accepted, as many men prefer to have their own genetic children and are therefore often unwilling to consider treatments involving donor material

(40,91,95,99). A fertility care professional confirmed that cultural background plays a role in treatment continuation. He said;

*"At the same time, there is the issue of ownership—seeing something as 'mine.' For example, telling a man that someone else's sperm might be used, or that his sperm could be given to another person, is socially, culturally, and traditionally considered unacceptable." (FP2)*

5.3.2 Social Stigma

Individuals seeking to conceive might turn to biomedical infertility care as a source of hope (51,72,92,93). However, social stigma makes them unwilling to share their treatment journey as they fear others will ask intrusive questions related to treatment success (8,90). Even so, family and friends who offer strong emotional support help individuals stay committed to treatment (8). The religious leader said that stigma and gossiping may lead to drop out from biomedical infertility care;

*"...I have observed… being discriminated by the community…talking behind their backs, saying many things about them, and they avoid looking for treatment…" (RL)*

5.3.3 Gender

Men tend to discontinue infertility treatment by refusing sperm tests or procedures due to cost concerns, fear of stigma affecting their masculinity (91,92), and discomfort with sperm collection (57,91,92,100). When infertility is related to male factors, the decision to stop treatment is usually made jointly by the couple rather than by the man alone (59). In contrast, women—motivated by the high cultural value placed on motherhood in many African societies—often continue seeking biomedical infertility care even without partner support, as long as they have the financial means (95). Furthermore, women are more likely to persist with treatment when they receive emotional and practical support from their partners (8,90). One of the fertility care professionals reported that women offer stronger support when infertility is male-related than men do when it's female-related.

*"When the father has a problem, the support from the mother tends to be much stronger. When the mother is struggling but the father is healthy, often the father doesn't support her fully and may go elsewhere to look for other options. Also, the mother often lacks the means (finance) to continue the treatment." (FP2)*

5.3.4 Religion

Studies have extensively examined the connection between religion and infertility care (15,75,105). In fact, the ART bill in Uganda failed to advance partly due to limited engagement with religious leaders (43). Many people attribute infertility to spiritual causes or view it as God's will, often citing biblical stories like Sarah and Abraham to encourage waiting for the "right time"

(90,100). Similarly, Muslim communities in Sudan consider treatments based on the Qur'an and Sunnah, administered by a Shaikh, to be the most effective (112). Additionally, some religious communities such as Catholic and Muslim reject certain procedures, such as masturbation and IVF, on moral grounds (15,75). On the other hand, religion also encourages individuals to continue biomedical infertility care, even when treatments fail (72,105). The findings from the interview of the two fertility care professionals revealed the influence of religion on treatment discontinuation in Tanzania:

"*For Catholics, IVF treatments are not allowed…even if a healthcare provider is Catholic, their religious beliefs may prevent them from offering these services. (FP2)*

***"****It's possible that after unsuccessful hospital treatment, someone might invite them to the church, saying, 'Come and you'll be helped…" (ISGL)*

## 5.4 Institutional factors

### 5.4.1 Infertility care costs

Infertility care involves both medical and non-medical costs (36,91,99). Non-medical costs include travel, food, and accommodation (58,92,102). Medical expenses—such as consultation fees, investigations, procedures, and medication—are highly variable and tend to be higher in private clinics than in public ones (19,44,57,102). For example, IVF costs around USD 4,500 in Kenya (51) and USD 5,565 in South Africa (83).

Low-income individuals are the most affected by these costs. Even when some services are subsidized, many cannot afford to continue treatment after failure (58,82). To cover the cost, most rely on savings, loans, extra jobs, or support from family (58,95). One study in Zimbabwe described a couple who raised USD 4,000—enough for treatment estimated at USD 3,500–5,000—by saving and selling their car (93). In some cases, individuals choose to pause treatment in order to raise money before resuming care (82,95). The high costs of infertility treatment – and additional costs - were also a major concern during the interview. A fertility care professional reported that the financial barriers affected people from poor backgrounds.

*"The number one challenge, I would say, is the economy — yes, the financial issue affects many patients who are from middle- and low-income backgrounds. They are unable to afford the cost of treatment." (FP1)*

He also explained that individual with infertility takes loans to finance the treatment

*" it's the financial burden that leads to giving up. Some people undergo their first treatment cycle through loans, so if they experience a miscarriage, it sets them back. If they have money, they might try again…." (FP1)*

He emphasized that travel costs are negligible, with the largest expense being the treatment itself.

*"They haven't really talked about proximity, but they do talk about the ease of payment. If the payments were lower, it would be better — but the cost is still a thorn for them, and it's something everyone mentions." (FP1)*

Another fertility care professional explained that the cost is not fixed and is unpredictable, making it difficult for people to continue with treatment.

*"The cost starts from around 12 million Tanzanian shillings (USD 4,615) and can go up to 20 million Tanzanian shillings (about 7,692 USD). Some hospitals may inform you that the cost will increase depending on additional services, such as egg storage, sperm storage, and other unforeseen procedures that might arise during treatment." (FP2)*

The infertility support group leader narrated that biomedical infertility care centres are located far away, which adds extra costs, especially for people living in villages.

*..... "In our village, Mtimbira, there is no major hospital, so you have to travel to Ifakara. The roundtrip bus fare to Ifakara can be around ten thousand to thirteen thousand Tanzanian shillings (about USD 4 to 5), so roughly twenty-six thousand Tanzanian shillings (about USD 10) just for transport. Then you still have to pay for accommodation in a guest house or hotel, plus meals. On top of that, there are the treatment and test costs—you might be asked to do tests that cost about a hundred thousand Tanzanian shillings (about USD 38). Then you will also need money for medicines. Altogether, you may need around two hundred thousand to three hundred thousand Tanzanian shillings (about USD 77 to 115) just for one visit. Now, if you're supposed to go back five or six times, would you really be able to afford that? So honestly, this discourages people a lot." (ISGL)*

5.4.2 Trained fertility care professionals

ART in SSA faces major challenges due to a shortage of qualified fertility care professionals, especially embryologists. In some cases, clinics hire embryologists seasonally to meet short-term needs and most professional training is obtained abroad (113). Even the initial setup of fertility clinics often requires technical support from outside the region (42,92). Frequent work transfers and prolonged absences of fertility care professionals—often for training abroad lasting up to two years—further disrupt the continuity of patient care, and in some cases, these professionals never return to practice (86,91). As a result, patients may be treated by general gynaecologists with limited fertility expertise or by less experienced providers (44,91).

These human resource challenges are compounded by potentially low treatment success rates (16), the use of group-based treatment strategies such as batching cycles, and inadequate counselling on treatment options (19,44). Together, these factors can erode patient trust and engagement. Consequently, many individuals experiencing infertility discontinue care at one clinic and seek treatment elsewhere—often independently and without formal referral—in the hope of finding more experienced specialists and better-organized services (44,92). During the interview, a fertility care professional explained that improper management of infertility often leads patients to discontinue treatment.

*"…Health workers often lack a clear understanding of the treatment process. They may begin with an expensive procedure, placing the patient in a difficult situation and causing them to consider stopping care from the very first visit…" (FP4)*

While in centre with trained fertility care professionals, mistrust and miscommunication can cause patients to leave care. Another fertility care professional described:

*"…For example, a woman may come in for services such as egg retrieval, with everything scheduled according to standard protocols. However, on the day of the procedure, it might be found that she has only a few mature eggs, leading the team to delay the next step of treatment. Although this delay is intended to improve her chances of success, the patient may perceive it as a sign that treatment is no longer possible. This misunderstanding often results in patients discontinuing care." (FP2)*

The infertility support group leader also emphasized challenges faced in rural areas:

*"…In rural areas, there are no doctors or fertility investigations available to determine whether the fallopian tubes are blocked. While maternity services are active, infertility issues remain a major problem." (ISGL)*

5.4.3 Fertility registry

The lack of a structured referral system and centralized fertility registry in many countries in SSA (44,91) makes it difficult to track patients and may contribute to biomedical infertility care discontinuation, especially when diagnoses are delayed. Studies have reported that some individuals visit the clinic only once (56,57), even though biomedical infertility care often requires a longer commitment (41,93). Additionally, it was noted that more than half of the patients still had no diagnosis even by their second clinic visit (20).which may influence them to terminate from biomedical infertility care. Most individuals with infertility appear to discontinue biomedical care around six weeks after initiating treatment (20) or when referred for IVF (12).One of the fertility care professional said that most patients are lost when being referred and there is no system to track

"*A woman comes in with completely blocked fallopian tubes…so she's advised to consider IVF she does not go to the IVF clinic…also "for the man with no sperm at all…we recommend that he goes to a specific hospital. However, most men don't continue with treatment." …(FP2)*

### 5.4.4 Waiting list

Long waiting times may influence infertility care discontinuation. A qualitative study with fertility care professionals from Ethiopia and South Africa reported that individuals with infertility often wait over a year to receive care in public hospitals (44). However, in the Tanzanian context, semi structured interview with key informants did not identify long waiting lists as a major challenge.

## 5.5 Public policy factors

### 5.5.1 National Legislation and Guideline on biomedical infertility care

National ART legislation typically addresses key issues such as licensure and monitoring of fertility clinics, eligibility criteria including the inclusion of minority groups, types of services offered like donation and surrogacy, treatment costs, and the rights of children born through ART and surrogate mothers (86,111). However, many countries in SSA lack comprehensive national laws governing infertility care and ART services, which limits access and quality (74,86,91,114). This lack of regulation often results in weak government support, creating space for private providers who may exploit patients due to poor oversight and inadequate care standards (92,95).

In low-income settings, infertility service costs are frequently unregulated, exposing patients to high financial burdens (40,91). Furthermore, clinical practices such as the number of embryos transferred and surrogacy arrangements remain largely unregulated, increasing health risks such as multiple pregnancies and exploitation risks (42). The absence of public-private partnerships further impedes continuity of care, as private providers are often viewed as profit-driven and disconnected from public health systems (92). A fertility care professional from a public hospital in Tanzania highlighted how the absence of national guidelines also affects service availability due to lack of proper medical equipment:

*"When you look at our countries, sperm banking is still a challenge. A person who decides to go to the hospital to store their sperm often finds that the facilities (public) are not adequately equipped to provide such services. This means that, despite the person being in good condition initially, their goal fails due to our inadequate infrastructure." (FP2)*

5.5.2 Government funded biomedical infertility care

Governments can significantly advance infertility care by recognizing it as part of reproductive health services and backing this recognition with strong political commitment and external partnerships (133). Uganda demonstrated this by establishing a public IVF centre through a loan from the Islamic Development Bank (86,111). Building on similar efforts, some SSA countries, such as South Africa, have introduced partial subsidies for infertility care to improve access (44,58). However, most SSA countries still lack national policies and receive no international support dedicated to infertility services. Countries like Kenya and Ethiopia (44), as well as Ghana (42), continue to face significant gaps in access.

In northern Tanzania, for example, patients pay OPP for infertility services due to the absence of government funding (35). Even in South Africa, where subsidies exist, studies reveal that they fail to fully support low-income couples, who still bear substantial costs and often discontinue treatment (58,82). In response, the study (82) called for increased public funding for assisted reproductive technologies (ART), particularly for people with low incomes. During the interview one of fertility care professional explained the impact of the lack of government funding on individual with low-income:

*"There is no policy in the country that adequately supports groups affected by infertility. For instance, I know people who would greatly benefit from these services, but given their poor financial situation, there is no support to help them afford the treatment." (FP4)*

The infertility support group leader highlighted the lack of support from the Ministry of Health and broader stakeholders in addressing infertility care needs.:

*"For example, IVF costs 14 million Tanzanian shillings (USD 5,385), while my monthly income is only around 100,000 to 200,000 Tanzanian shillings (USD 38 to 77). Fourteen million Tanzanian shillings is simply unaffordable for me. So, what priority does the Ministry of Health give to infertile patients regarding IVF? How are stakeholders supporting us in accessing these treatments? Many provide support for pregnant women and children…what about us?" (ISGL)*

5.5.3 Health insurance covering biomedical infertility care

Previous studies have shown that health insurance in many SSA countries either provides partial or no coverage for fertility care. For example, in Tanzania and Kenya, insurance schemes only partially cover infertility services (72,115). This limited or absent coverage often leads to high out-of-pocket expenses, which some individuals cannot afford (8,58). Given that biomedical infertility treatment typically involves multiple clinic visits, investigations, and medications before achieving success, limited health insurance coverage contributes to treatment discontinuation among those

affected (72,94). A fertility care professional explained that some individuals with infertility do not have health insurance, making it difficult to continue care:

*"Most people live at a subsistence level, just fighting to survive. Some don't even have health insurance, and while certain tests may be covered by insurance, many simply don't have access to it." (FP4)*

Infertility support group leader also narrated that some individual with infertility living in villages are often enrolled in community health insurance schemes, which provide limited coverage for biomedical infertility care:

*"For example, in rural areas like where I come from, there is a basic insurance plan that costs about 30,000 Tanzanian shillings (approximately USD 11.50). When someone goes to the hospital, they're told that while the insurance covers some services, they have to pay for certain medications themselves. This discourages people... As a result, they lose hope and give up on their care." (ISGL)*

5.5.4 Distance to biomedical infertility care centres

Infertility care at the primary healthcare level in many Sub-Saharan African countries remains inadequate and of poor quality, limiting the likelihood of successful treatment outcomes (5,91). In contrast, reproductive health services like family planning have received more attention and integration at this level (74). Fertility services are often concentrated in urban areas—such as in Zimbabwe, where both ART centres are located in cities—making access difficult for rural populations (93). High travel and accommodation costs further limit access for many individuals (44,91). This lack of nearby services contributes to discontinuation of biomedical infertility treatment (19). As a result, many people turn to traditional healers, who are easily accessible, affordable, speak the local language, and are trusted members of their communities (16,37,93). During the interview, the infertility support group leader spoke about the unavailability of infertility services in rural areas despite the presence of other reproductive health services:

"*Reaching patients is a challenge. Some treatments are located far away, and it would be much better if services were available locally. For example, maternal and child health services are provided everywhere—even in rural areas—and we hope for the same access so that we too can feel valued and cared for. Pregnant mothers receive good care, including during delivery, and there is proper follow-up..." (ISGL)*

She also talked on the availability of traditional methods close to people which often encourages them to discontinue biomedical care.

*"...In the end, they resort to traditional healers and use different kinds of herbal medicine..." (ISGL)*

# Chapter 6: Discussion

This study aims to explore the factors influencing the discontinuation of biomedical infertility care and to identify evidence-based interventions to improve the continuation of care in Tanzania. Given the cultural differences in how motherhood is perceived in African and Western contexts (5,40), this study provides important contextual insights into the factors influencing discontinuation of biomedical infertility care in Tanzania.

The study identified five categories of factors contributing to the discontinuation of biomedical infertility care. At the individual level, old age, emotional stress, and low income were key contributors. Interpersonal factors included lack of partner support, negative peer influence, and having previous children. At the community level, sociocultural norms, gender roles, and religious beliefs discouraged continued care. Institutional challenges included the high cost of treatment, shortage of trained fertility specialists, and the absence of a fertility registry and referral system.

At the public policy level, barriers included lack of government funding, limited or no health insurance coverage for infertility, poor integration of fertility care into primary health services, and the absence of national legislation and clinical guidelines. These factors do not operate in isolation but rather interact within and across different levels of the socio-ecological model, ultimately contributing to an individual's decision to discontinue biomedical infertility care. This is similar to other studies where interconnected and compounding effect lead to treatment discontinuation (3,60).

Financial barriers are among the most commonly reported reasons for discontinuation of biomedical infertility care. High treatment costs, lack of insurance coverage, and limited or absent subsidies make repeated treatment cycles unaffordable for many, especially those in informal or low-paying jobs (116,117). Previous studies in high income countries, showed that insurance coverage for infertility services helps reduce discontinuation (3,118). However, for this to happen in Tanzania, there must first be national legislation on Assisted Reproductive Technology (ART) mandating the inclusion of infertility services in insurance schemes. As an alternative, fertility clinics could adopt low-cost technologies, as proposed by Ombelet and others (119,120). While this approach may reduce costs, it would require additional training to equip fertility care professionals with the necessary skills to implement and manage these technologies effectively.

Currently, infertility services in Tanzania remain underprioritized in government funding in comparison to other SRH services such as family planning, post abortion care, and maternal care (53,27). Government-funded infertility care could help reduce overall infertility treatment costs by subsidizing expenses such as staff salaries, medicines, and equipment which account for high price of infertility care in private clinics (42). Although this study did not find waiting lists to be a major factor in treatment discontinuation, many public funded clinics reported individual are in long

waiting list (121). To address these issues and improve access, public-private partnerships supported by a centralized registry could expand service availability and promote continuity of care (122).

Emotional stress presents a major barrier to continuing infertility care. It often arises from a vicious cycle of infertility related stigma and repeated treatment failures related to infertility (123,124). Some individuals who stop biomedical treatment turn to traditional methods, often traditional healers provide emotional and counselling support (16). This evidence highlights the need to integrate counselling throughout biomedical infertility care process to address emotional, relational, and behavioural needs (125,126). Studies have cited supportive counselling after unsuccessful treatment as a low-cost intervention that boosts self-esteem and helps reduce discontinuation (127). However, fertility clinics often fail to address the practical implementation of post-treatment counselling (62,70).

Some individuals with infertility have adopted self-care strategies to cope with emotional stress through a religious lens—such as "leaving it to God"—which gives them hope and encourages them to continue treatment. Several studies have cited the role of religion in biomedical infertility care (105,128). On the other hand, key informant narratives revealed that religion can also act as a barrier, discouraging individuals from continuing treatment and limiting the ability of fertility care professionals to provide care. These findings should be interpreted with caution, as the sample size and nature of participants may have influenced the results. Given the significant role religion plays in the continuation or discontinuation of ART, programs and policies—especially during the drafting of ART legislation—should include religious leaders in consultations (6,43). Their involvement, approached with inclusivity and sensitivity, could help build trust, reduce stigma, and foster supportive environments for individuals undergoing fertility treatment.

Repeated treatment failure has been identified as a major factor influencing infertility treatment discontinuation, a finding consistent with studies from high-income countries (3,130,131). In SSA, including Tanzania, a critical shortage of embryologists contributes to this challenge and is largely due to the absence of academic training programs—South Africa being a notable exception. Strengthening the training of fertility care professionals in Tanzania could help address this gap and enable providers to offer both clinical and emotional support to patients. Nevertheless, embryology training is time-consuming, and brain drain has been reported as a persistent issue (86,113).

To mitigate this, Merck Foundation More Than a Mother program[4] launched a three-month training program in India for professionals from Asia and Africa (132). Tanzania has already benefited from this initiative, with alumni establishing a private infertility centre (Avinta Care

[4] https://merck-foundation.com/our-programs/Merck-Foundation-More-Than-a-Mother/Merck-Foundation-More-Than-a-Mother-Scholarships

Medical Centre[5]), a training facility (Medical CPD House[6]), and contributing to services in public hospitals. With continued participation, Tanzania stands to continue benefiting from such initiatives, ultimately improving care quality and promoting treatment continuity.

This study further reveals how gender dynamics contribute to the discontinuation of biomedical infertility care, with women disproportionately affected due to their reliance on male partners for financial and emotional support (133). Evidence suggests that continuation of treatment is more likely in married and when both partners are involved and supportive, as individuals with infertility tend to be more open to disclosing their condition within a trusting relationship (8,134). While limited research in Tanzania has explored discontinuation factors among men, findings from other contexts indicate that inadequate knowledge about infertility, sociocultural narratives that frame infertility as a woman's issue, and the desire for genetically related children may influence men's decisions (3). Traditional responses such as remarriage or polygamy are often viewed as solutions; however, these approaches are ineffective if infertility originates from the male partner. In such cases, biomedical treatments like ICSI or donor sperm may offer viable alternatives, though some men express resistance in using donor material (135,15,75).

This study found that women over the age of 40 years in Tanzania were often advised to discontinue treatment, likely due to limited access to ART services and the lower success rates associated with advanced maternal age. Similar age restrictions are reported in high-income countries, particularly for women seeking treatment covered by government or insurance (60,121). Despite this, some women choose to continue treatment, possibly driven by the urgency of approaching menopause and the desire to make one final attempt (72,94). Others may persist in treatment to cope with infertility-related stressors such as loneliness and social stigma (7).

Rural and low-income people in Tanzania face big challenges accessing infertility treatment because most clinics are in cities, far from their homes. This pattern is also seen in Ghana and Uganda (42,86). The long distances and high costs often cause people to stop treatment early. In addition, many rely on advice from friends, which may/may not be accurate and can lead to confusion or mistrust of medical care. Providing correct information and raising awareness in communities can help people make better decisions and continue their treatment.

Limitation of the study

There is a noticeable gap in the literature, with few studies focusing on discontinuation of biomedical infertility care in Sub-Saharan Africa, including Tanzania compared to a broader body of research from Europe, America, and Australia. Additionally, existing studies tend to focus more on women, with limited attention to male experiences. This reflects an underrepresentation of male perspectives and couple dynamics in current research on infertility care.

[5] https://www.thecitizen.co.tz/tanzania/news/national/500-women-in-arusha-conceive-through-ivf-3774852
[6] https://www.medicalcpdhouse.co.tz/

There is also a limited number of qualitative studies on discontinuation of biomedical infertility care compared to the growing number of quantitative studies. This imbalance may be due to challenges in recruiting individuals willing to share their experiences, as infertility and the use of biomedical care are often associated with stigma and social sensitivity.

The qualitative component of the study also has its limitations. It involved semi-structured interviews with a small number of key informants selected through purposive sampling, which may not reflect the broader range of perspectives across Tanzania's diverse regions. Additionally, the study did not include direct voices of individuals experiencing infertility, whose lived experiences could have offered richer insights into the factors influencing discontinuation of biomedical infertility care.

Strength of the study

This study presents several notable strengths that enhance its relevance and depth. One major strength is its grounding in real-life experience, drawing from first-hand clinical exposure at Benjamin Mkapa Hospital. This personal involvement adds authenticity and allows for a more practical and context-sensitive exploration of infertility care in Tanzania. Second, the use of the socio-ecological model also strengthens the analysis by capturing a broad range of factors; individual, interpersonal, institutional, community, and policy-related, that influence treatment discontinuation. This comprehensive framework enables a deeper understanding of the issue and helps identify points for intervention across different levels of the healthcare system.

The study also benefits from a robust mixed-methods approach, combining a systematic literature review with qualitative interviews from a diverse group of key informants, including fertility care professionals, religious leader, and infertility support group leader. This diversity adds richness to the findings and makes them more applicable across different cultural and social contexts. Additionally, the study fills an important research gap by focusing on a low-income setting often underrepresented in infertility research, while also highlighting the overlooked role of men in infertility care. I also demonstrate ethical rigor and reflexivity throughout the process, which enhances the credibility and trustworthiness of the findings. Overall, these strengths make the study a meaningful and contextually grounded contribution to reproductive health policy and practice in Tanzania

# Chapter 7: Conclusion and Recommendations

## 7.1 Conclusion

This study identifies interrelated and interlinked factors influencing the discontinuation of biomedical infertility care in Tanzania. Discontinuation is linked to barriers such as old age, emotional stress, low income, high treatment costs, long duration of infertility, untrained providers, lack of insurance or government support, long travel distances, and absence of national ART guidelines. Continuation of care is supported by higher education, marriage, and religious beliefs, often reflecting the absence of these barriers. The findings point to the need for providing holistic infertility care that goes beyond medical treatment to include emotional support, social cultural and religion considerations, and attention to broader structural challenges.

This study also highlights inequities in accessing and continuing biomedical infertility care in Tanzania. Women, rural residents, and individuals with low income face greater barriers and are more likely to discontinue treatment. Addressing these disparities requires targeted strategies that prioritize the inclusion of marginalized groups to ensure more equitable and accessible infertility services.

This study adapted the socio ecological model to reflect the specific context of infertility care discontinuation in Tanzania. While the original socio ecological model provided a useful framework, it did not capture local realities identified through literature and interviews. By moving from the generic socio ecological model to this context-specific socio ecological model, policymakers and fertility care professionals can better design targeted, multi-level strategies that reflect real barriers faced by couples with infertility, ultimately aiming to improve retention and continuity of biomedical infertility care in Tanzania.

## 7.2 Recommendations

To address the discontinuation of biomedical infertility care in Tanzania, the following multi-level recommendations are proposed to policymakers, fertility care professionals, religious institutions, and infertility support groups in developing context-sensitive interventions that promote adherence to biomedical infertility care.

Policy Level recommendations (policymakers)

- To develop and implement a national legal and regulatory framework to govern ART and infertility services.
- To integrate infertility care into existing sexual reproductive health policies and programs, including the primary healthcare system.

- To expand health insurance coverage to include infertility diagnosis and treatment services, thereby reducing the financial burden on individuals and couples.

Institutional Level recommendations (fertility care professionals and fertility clinic)

- To increase training opportunities and capacity-building for fertility care professionals to ensure competent service delivery.
- To strengthen the referral system and establish a centralized fertility registry to support continuity of care.
- To provide psychosocial support to individuals and couples undergoing biomedical infertility care.

Community and Sociocultural Level recommendations (Religious institutions)

- To raise public awareness to reduce stigma around infertility and promote understanding of biomedical options.
- To engage religious and community leaders to support evidence-based infertility care and challenge harmful beliefs.
- To promote male involvement and address gender dynamics that may hinder women's access and continuation of care.

Individual and interpersonal (Infertility support groups)

- To empower patients with fertility education and counselling such as fertility age, male factor infertility.
- To provide counselling and psychosocial support tailored to individuals and couples facing infertility, focusing on coping, decision-making, and emotional well-being.
- To support peer-led infertility groups that create safe spaces for information sharing and emotional support.

Socio Ecological Model Adaptation

- To use a context-specific socio-ecological model that incorporates Tanzania's unique barriers to guide program design, policy development, and future research.

Future research

- Future studies should explore the factors that lead couples to discontinue biomedical infertility care, as their perspectives can help shape appropriate interventions.
- A focused study on men with infertility in Tanzania is needed to address the limited representation of male experiences in current research.
- Comparing the reasons for discontinuation between individuals receiving non-ART treatment and those undergoing ART would provide deeper insight into treatment-specific challenges.

- There is also a need to explore and assess effective strategies to reduce discontinuation of biomedical infertility care in Tanzania

By implementing these recommendations, stakeholders can improve equitable access and promote sustained engagement with biomedical infertility care services in Tanzania and similar low-resource settings.

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# Appendices

## Appendix A: Figures


Figure 1: Location of Tanzania in Sub-Saharan Africa *(136)*

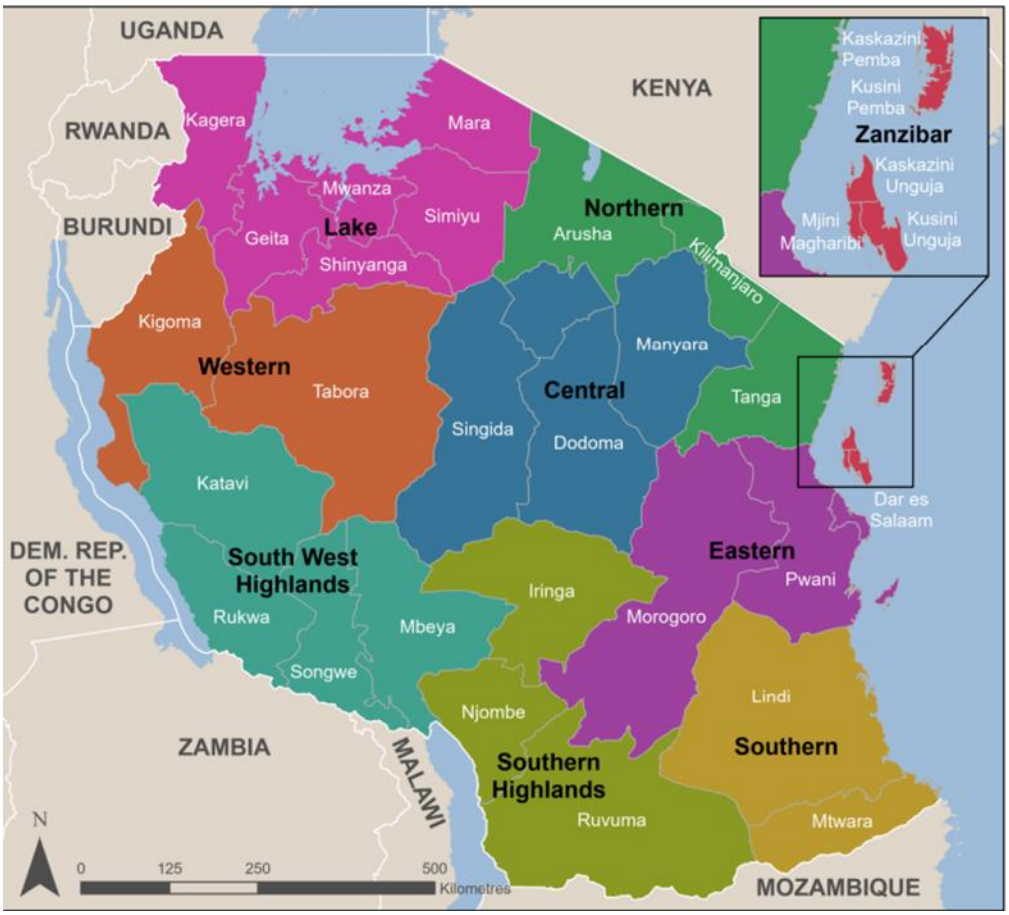


Figure 2: Tanzania Showing Administrative Regions *(25)*.

# Appendix B: Tables

Table 1: Health Facilities in Tanzania (27)

| Functional Health Facilities | Govt | FBOs | Private | Total |
|---|---|---|---|---|
| National Hospital | 1 | 0 | 0 | 1 |
| National Specialized Hospital | 6 | 0 | 0 | 6 |
| Zonal Referral Hospital | 5 | 0 | 0 | 5 |
| Hospital at Zonal level | 1 | 4 | 6 | 11 |
| Regional Referral Hospital | 28 | 0 | 0 | 28 |
| Hospital at Regional Level | 0 | 16 | 18 | 34 |
| District Hospital | 171 | 0 | 0 | 171 |
| Hospital at District level | 16 | 101 | 63 | 180 |
| **Total Hospital** | **228** | **121** | **87** | **436** |
| Health Centres | 831 | 163 | 132 | 1,126 |
| Dispensaries | 6,010 | 714 | 1,080 | 7,804 |
| **Total Health Facility (Hospital, Health Centre and Dispensary)** | **7,069** | **998** | **1,299** | **9,366** |
| Health clinics | 16 | 73 | 847 | 936 |
| Diagnostics (with stand alone Laboratory) | 1 | 5 | 1,413 | 1,419 |
| Other Facilities | 8 | 0 | 76 | 84 |
| **Total all health Facilities** | **7,094** | **1,076** | **3,635** | **11,805** |

**Table 2: Formulating research question using PICO**

| Population | Intervention | Comparison | Outcome | Geographical location |
|---|---|---|---|---|
| Individual undergoing biomedical infertility care | Exposure to individual, interpersonal, institutional, community and public policy related factors | Not applicable, as there is no comparison group in this context | Identify factors associated with biomedical infertility care discontinuation | Sub-Saharan Countries |

| | | | | |
|---|---|---|---|---|
| Research question | What perceived factors influence the discontinuation of biomedical infertility care, to improve continuity to fertility care in Tanzania as examined through the socio-ecological model? | | | |

**Table 3: Search strategy in PubMed**

Search date:30.05.2025

| **Search database** | **Search number** | **Query** | **Results** |
|---|---|---|---|
| PubMed | #1 | Biomedical infertility care OR medical assisted reproduction | 84167 |
| | #2 | Discontinuation OR dropout OR resilience | 6349 |
| | #3 | Sub-Saharan Africa countries OR Tanzania OR Kenya OR Uganda OR Democratic Republic of Congo OR South Africa OR Nigeria OR Ghana OR Gambia | 28165 |
| | | #1 AND #2 AND #3 AND English (Languages) AND (2000-2025) | 4 |

**Table 4: Search strategy in other databases.**

| | | **AND** | | | | |
|---|---|---|---|---|---|---|
| **Literature review** | **Search database** | **population** | **Influencing factors** | **Outcome** | **Place** | **Results** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Google scholar | Individual with Infertility | Barrier or risk factors or facilitators or individual or interpersonal or institutional or public policy | Infertility care AND (drop out OR discontinuation OR continuation OR resilience OR attrition | Sub-Saharan countries | 6 |
| | HINARI | | | | | 1 |
| | JSTOR | | | | | 2 |
| | Grey literatures | | | | | 2 |

**Table 5: Sociodemographic profile of key informants**

| Key informant | Age | Region | Sex |
|---|---|---|---|
| FP1 | 40-50 | Dar es salaam | Male |
| FP2 | 30-40 | Dodoma | Male |
| FP3 | 40-50 | Arusha | Male |
| FP4 | 40-50 | Dodoma | Male |
| RL | 50-55 | Morogoro | Male |
| GL | 50-55 | Morogoro | Female |

**Table 6: Topic guide**

**Semi structured Interview with Key informant Topic Guide: Factors Influencing Biomedical Infertility Care Discontinuation**

| Time | Topic /activity | Specific questions | Probes |
|---|---|---|---|
| 10min | Greet the respondent and introduce yourself.<br><br>Explain the purpose of the study and the objectives of the interview. | General Perspectives on Infertility care | |
| | | In your professional opinion, what is the role of religious leaders, fertility care professionals, and infertility support | |

| | | | |
|---|---|---|---|
| | Assure confidentiality and anonymity of responses.<br><br>Seek informed consent before proceeding with the interview. | group leaders in supporting individuals undergoing biomedical infertility care?<br><br>What do you think are the main challenges patients face that lead to discontinuation from biomedical infertility care? | |
| 5min | | Patient-Related Factors | |
| | | What do you think are the most common reasons why patients discontinue biomedical infertility care?<br><br>In your opinion, how do patients' expectations about infertility care outcomes influence their decision to continue or discontinue treatment? | How do you think financial difficulties affect a patient's decision to stop treatment?<br><br>Job with health insurance?<br><br>What do you think about the emotional and psychological impact of infertility care on patients?<br><br>Association between age and infertility |
| | | Interpersonal and Community Factors | |
| | | What do you think about the role of cultural beliefs and societal norms in influencing a patient's decision to stop biomedical infertility care? | In your opinion, how does stigma associated with infertility impact patients' willingness to complete treatment?<br><br>Association between |

| | | | |
|---|---|---|---|
| | | How do you think family pressure or partner influence affects care continuation?<br><br>What do you think about patients turning to alternative treatments like traditional or herbal medicine instead of completing medical treatment?<br><br>How do you think religious beliefs influence care adherence in infertility care? | induced abortion and infertility care? |
| 5min | | Institutional and public policy related Factors | |
| | | What do you think about the accessibility of infertility care in terms of cost, location, and availability?<br><br>How do you think healthcare providers influence patients' decisions to continue or stop treatment? | In your view, what institutional or policy-related barriers contribute to infertility care discontinuation?<br><br>Meeting appointment as schedule?<br><br>Miscarriage?<br><br>Long term effect of infertility?<br><br>What do you think about the impact of long waiting **times** and care delays on patient retention? |
| 5min | | Strategies to Improve Retention in Infertility | |

| | | | |
|---|---|---|---|
| | | care | |
| | | What do you think could be done to help patients continue biomedical infertility care?<br><br>What policy changes do you think could help improve patient retention in infertility care? | What do you think could be done to reduce financial barriers to biomedical infertility care?<br><br>In your opinion, how important is counselling and psychological support in ensuring care adherence? |
| 10min | Thank the respondent for their time and insights.<br><br>Reiterate confidentiality and how the information will be used.<br><br>Provide an opportunity for any final questions or concerns. | Is there anything else you would like to add regarding infertility care discontinuation?<br><br>Do you have any additional recommendations for improving infertility care and patient retention? | |

**Table 7: Summary of reviewed articles in the Literature review**

| **Articles** | **Type of study** | **Participants** | **Country** |
|---|---|---|---|
| (20) | Quantitative study | 3867 Women with infertility | Democratic Republic of Congo |

| | | | |
|---|---|---|---|
| (19) | Qualitative study | 14 Female and 6 male with infertility<br><br>8 Health professionals | Ghana |
| (14) | Quantitative study | 753 male and female with infertility | Tanzania |
| (31) | Quantitative study | 181 couples with infertility | Tanzania |
| (35) | Quantitative study | 2019 men and women from the community<br><br>112 couples | Tanzania |
| (36) | Quantitative study | 168 Women with infertility | Tanzania |
| (89) | Quantitative study | 340 women | Tanzania |
| (8) | Qualitative study | 12 women with infertility | Tanzania |
| (17) | Qualitative study | 45 men and women with infertility | Ghana |
| (57) | Quantitative study | 730 men and women with infertility | Nigeria |

| | | | |
|---|---|---|---|
| (44) | Qualitative study | 30 Fertility professionals | Sub-Saharan Africa |
| (86) | Qualitative study | 23 people representing 1 Government officials,7 Clinicians, 3 Hospital management ,5 Implementers (clinicians, contractors),1 Patient Advocacy representatives, 3 Private Sector ,3 International representatives, 1 Educational Institutions, 2 Professional Associations | Uganda |
| (91) | Review | - | Sub-saharan Africa countries |
| (51) | Quantitative and qualitative | 20 women and 1 man and 3 couples | Kenya |
| (83) | Qualitative study | 5 couples with infertility and 3 | South Africa |

| | | | |
|---|---|---|---|
| | | fertility professionals | |
| (56) | Quantitative study | 3380 women and 70 men with infertility | Ethiopia |
| (82) | Quantitative study | 135 couples with infertility | South Africa |
| (58) | Quantitative study | 1679 couples with infertility | South Africa |
| (6) | Review | | Low and middle income countries |
| (72) | Qualitative study | 33 women | Kenya |
| (90) | Qualitative study | 13 women with infertility | Ethiopia |

# Appendix C: Informed Consent

Introduction

I am Anna Gideon Kasililika. I am a master student from the KIT Royal Tropical Institute. I am conducting a study on future prospects regarding exploring factors influencing infertility care discontinuation individual and identify context sensitive interventions to enhance retention to fertility care services in Tanzania through a literature review and qualitative study.

Given your experience with infertility, I would like to invite you to participate in this study.

Participant code:

Gender: Female | Male| Other

Experience in working with individual with: infertility in years

Key informant: Fertility care professional | religious leader | infertility support group leader

Informed Consent

We will interview you about your professional view on perceived individual, interpersonal, institutional, community and public policy related factors influencing to discontinuation of biomedical infertility care. You can express your honest opinion freely in this interview. The interview will be conducted online via zoom meeting and a link will be shared to participants, ensuring that no one else can overhear our conversation. It will last approximately one hour.

To make sure that we do not forget or change what you are saying I will record the answers you give, if you agree with that. Everything that will be said and written down will be kept totally confidential. Your name will not be recorded or written down. Notes will be kept in a locked place. Only the team of researchers will have access to the anonymous notes. The recorded files will be deleted 6 months upon the completion of the study.

In publications, the findings will focus on Fertility care in Tanzania in general and not on your particular answers, so that nobody can recognize the setting and your opinions.

Risk, discomforts and right to withdraw

After having agreed to participate in the interview, you are still free to refuse to answer any question that makes you uncomfortable and it will not have any consequences on your education or anything

else. You can also withdraw from this study at any time. Some of the questions may trigger emotions, if so, we can stop the interview and or refer you to a counsellor in case you would like that.

Benefits

This study may not help you directly, but the results will help to inform the future improvement of fertility care in Tanzania.

Sharing the results

After the study is completed, we will share the result and workshops with stakeholders relevant to the Fertility care in Tanzania, including the Ministry of Health. In addition, the results will be available in written form through our BAIFA website: http://www.bibalex.org/baifa/en/home/index . If you would like to participate in the stakeholder meeting or would like to receive a copy of the report, please let us know and we will make this possible.

Consent and contact

Do you have any questions that you would like to ask?

Are there any things you would like me to explain again or say more about? Do you agree to participate in the interview?

DECLARATION: TO BE SIGNED BY THE RESPONDENT

Agreement respondent

The purpose of the interview was explained to me and I agree to be interviewed

……

(name of person).

Signed Date

WITNESS SIGNATURE

Signed Date

If you have any questions or want to file a complaint about the research you may contact: researchethics@kit.nl

# Appendix D: Declaration of Use of Artificial Intelligence (AI)

**KIT Institute (Masters or Short course) Participants**

**Declaration for Use of Generative AI (GenAI)**

**Check the box that applies to your completion of this assignment:**

**Yes,** I confirm that **I have used** generative AI tool(s) in accordance with the *"**Guidelines for the use of Generative AI for KIT Institute Master's and Short course participants".*** Below, I have listed the GenAI tools used and for what specific purpose:

| **Generative AI tool used** | **Purpose of use** |
|---|---|
| Perplexity AI<br>ChatGTP | For Grammar check |