

**FACTORS INFLUENCING REFERRAL RATE AMONG WOMEN ATTENDING
POST ABORTION CARE AT ST. MARY'S HOSPITAL-LACOR AND GULU
REGIONAL REFERRAL HOSPITAL, NORTHERN UGANDA**

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DECLARATION

I, Opee Jimmyy, hereby declare that the work I have submitted in this research dissertation is an original research study and has not been submitted to any university or institution for any other award whatsoever to the best of my knowledge.

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DEDICATION

I dedicate this work to my dear parents; Terezina Lalam and Odongo Alfred (RIP), My lovely wife Manano Priscilla, My sons; Opee Jeremiah and Opee Joshua.

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LIST OF ABBREVIATIONS

PAC	Post Abortion Care
COM-B	Capability, Opportunity, Motivation to Behavior
COREQ	Consolidated Criteria for Reporting Qualitative Research
COVID-19	Coronavirus disease-2019
DM	Diabetes Mellitus
GRRH	Gulu Regional Referral Hospital
GUREC	Gulu University Research Ethics Committee
HC	Health Center
HIV	Human Immunodeficiency Virus
IDIs	In-depth Interviews
KIIs	Key Informant Interviews
SDGs	Sustainable Development Goals
SOP	Standard Operational Procedure
UN	United Nations
UNCST	Uganda National Council of Science and Technology
WHO	World Health Organization

OPERATIONAL DEFINITION

- Referral:** Refers to being directed from another clinic or medical centre or health centre or hospital by medical personnel to seek post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital using a referral form or medical book.
- Post abortion care:** This was considered to be provision of one or more of the following services of post abortion care; *uterine evacuation for incomplete abortion, modern contraceptive method, provision of antibiotic therapy, linkage to other sexual reproductive health services, community rehabilitation.*

ABSTRACT

Background: Abortion related deaths account for over 75% of all maternal deaths in sub-Saharan Africa. Most abortion-related deaths and complications are preventable by appropriate post abortion care (PAC) services. Referral is a critical aspect in the chain of management of women experiencing abortion.

Objective: To assess the factors influencing referral rate among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital, Gulu, Uganda.

Methods: An embedded mixed-methods study was conducted at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital from July to December 2023. Quantitative and qualitative data were collected concurrently using structured questionnaires and one-on-one interviews were conducted with purposefully selected participants, respectively. Factors influencing referral were assessed quantitatively using logistic regression and qualitatively using thematic analysis and reported using the Capability, Opportunity, and Motivation to Behavior (COM-B) framework.

Results: Quantitatively, 152 participants with a median age of 26 (interquartile range: 21- 32) years were enrolled. Overall, 46 (30.3%) participants were referral cases. The proportion of referred cases were about 15.5-folds higher among women from rural residence compared to those from urban areas (adjusted Odd Ratio (aOR): 15.5; 95% Confidence Interval (CI): 4.44 — 53.83, $p<0.001$), compared to women between 20-34 years, those <20years old (aOR: 2.8, 95% CI: 1.02 — 7.56, $p=0.046$). Qualitatively, four themes emerged as drivers to referral: 1) lack of expertise of healthcare professionals, 2) low capacity at low-level healthcare facilities, 3) financial constraints, and 4) transport challenges.

Conclusions: Approximately one-third of women attending post abortion care were referred, with significantly higher rates among those from rural areas. There is a pressing need to enhance post abortion care services at low-level healthcare facilities especially in rural settings and among women under 20years.

CHAPTER ONE: INTRODUCTION

1.1 Background

Abortion is defined as termination of pregnancy before viability. Viability varies from country to country from 20 weeks to 28 weeks in high-income to low-income countries respectively based on its capability to manage extremely preterm babies. Due to restrictive abortion laws in many countries, unsafe abortions have become increasingly prevalent. The World Health Organization (WHO) defines unsafe abortion as “*a procedure for terminating an unintended pregnancy either by individuals without the necessary skills or in an environment that does not conform to minimum medical standards, or both*” (Cleland et al., 2006; WHO, 2019). Meanwhile, in Uganda, the term abortion refers to expulsion of products of conception before 26 weeks of gestation (Uganda, 2022).

In addition, it has been estimated that of the 227 million pregnancies each year, 1 out of 3 pregnancies end up in spontaneous abortions, induced abortions or stillbirth (Barnett; Singh, Remez, Sedgh, Kwok, & Onda, 2018). Incidence of abortions remains high globally with over 48.3 million induced abortions especially in developing countries (Bearak et al., 2020). This contributes to global and regional maternal mortality of 7.9% and 9.6% respectively (Dragoman et al., 2014; Say et al., 2014). Besides, over 75% of the maternal deaths due to abortion and its complications are in sub-Saharan Africa because of restrictive laws that bared women from receiving abortion care (Sedgh et al., 2016; Sully et al., 2018). Abortion related morbidity in Uganda include; anemia, post-abortion sepsis, maternal death (Uganda, 2022).

Most abortion related deaths are preventable if patients get timely care and intervention. Hence, referral is one of the vital forms of strategies in the chain of managing patients (Legodi & Wolvaardt, 2015). This is geared toward ensuring that patients get early and appropriate health care intended to reduce morbidity and mortality (Abraham, Linnander, Mohammed, Fetene, & Bradley, 2015). Patients are sometimes self-referred or referred by qualified health care workers from one health facility to another basing on clinical judgement (Kamau, Osuga, & Njuguna, 2017; Omole et al., 2017). The referrals are often from lower facilities to higher level health facilities that are able to offer comprehensive care for the patients (Kamau et al., 2017; Omole et al., 2017).

Despite the scarcity of data on the proportion of referral among women for post abortion care, a qualitative study conducted on women's pathway to post abortion care in South Carolina by Judy Margo and colleagues found out that of the 20 women who interfaced with healthcare personnel, 7 of them were given referral. This translates to a proportion of 35% (Margo et al., 2016). When patients are referred, there have been notable good outcomes. These include recovery from appropriate medical condition and early surgical interventions enabling survival. On the other hand, once referral has failed or not done in time; the likely complications may arise examples; massive bleeding, progression of diseases leading to morbidity and/or mortality.

There are notable factors that have been found to influence referral for healthcare. These include; lack of transport means, failure to make decision, lack of money among others (Chitsa, 2019; Conlon et al., 2020; Harris et al., 2018; Ludke, 1982; Rajman & Mahomed, 2019; van den Broek-Altenburg, Atherly, Cheney, & Fama, 2021). However, data on the factors influencing referral rate among women attending post abortion care services are scarce in Northern Uganda. Therefore, we aimed to assess factors influencing referral rate among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital, Northern Uganda.

1.2 Problem statement

Referral rate among women attending post abortion care from across facilities within the catchment areas of St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital in Northern Uganda is unknown. Abortion related cause of maternal morbidity and mortality is still high globally ranging between 4.7-13.2% of all maternal deaths every year but this has higher burden in African countries with 62% of all cases of abortion-related deaths (Say et al., 2014). The abortion-related mortality ratio ranges between 11 to 57 deaths per 100,000 live births in Uganda (Atuhairwe et al., 2021). Notable complications of abortions have been documented including incomplete abortion which is the most common complication related to medical abortions that are normally done before 12 weeks of gestation. In addition, despite antibiotics administration to women following abortion, 1.4% developed a post abortion sepsis (Carlsson, Breiding, & Larsson, 2018). Furthermore, some women experience hemorrhage with significant hemodynamic instability that require blood transfusion, uterine perforation can occur especially during uterine evacuation or induced abortion, hospitalization more often needed to stabilize the patient and some develop anesthesia related complications (White, Carroll, &

Grossman, 2015). Abortion related morbidity in Uganda include; anemia, post-abortion sepsis, maternal death (Uganda, 2022). Mitigating this impact requires appropriate timely intervention including referrals. Referral is one of the modalities in the chain of promoting definitive management of patients in health facilities. Referral of patients are often inevitable since there are facilities of different levels offering health care (Kamau et al., 2017; Omole et al., 2017). These levels of health care include health center I, II, III, IV and hospitals. These different levels of health facilities offer different range of health care because the cadres and medical supplies are also different (Organization, 2014).

Despite the presence of some of these facilities, many women still die or get complications due to failure of being referred or late referrals to a healthcare facility that could offer the post abortion care services. It is also important that women seeking post abortion care gets complete package. Others end up not getting required full package hence missing the other component of post abortion care. There is no study done on referral for post abortion care in Northern Uganda to document these scenario and intervention towards these are limited. Therefore, there is need to investigate the factors influencing the referral rate among women attending post abortion care in Northern Uganda.

1.3 Justification

Knowing the referral rate will help in increasing the necessities to strengthen referral of women for post abortion care, which would help reduce the likelihood of poor preparation and planning for care therefore promoting good service delivery in the hospitals.

Information on the factors influencing referral will help to mitigate the challenges and provide a framework for policy makers to align their efforts to proper appropriation of resources towards addressing the challenges and promoting the facilitators hence increasing uptake of post abortion care services that are geared toward reducing maternal morbidity and mortality. The study objective is in line with one of the WHO strategy of elimination of unsafe abortion, defined by WHO as *“an abortion that is carried out either by a person lacking the necessary skills or in an environment that does not conform to minimal medical standards, or both”*, which is a vital step towards achieving the UN Sustainable Development Goal (SDG) target of reducing the global maternal mortality ratio to less than 70 per 100 000 livebirths (SDG 3.1) and ensuring universal access to sexual and reproductive health-care services by 2030 (SDG 3.7) (WHO, 2019). Uganda strategies to reduce abortion related complications include putting

up Essential Maternal and Newborn Clinical Care Guidelines for Uganda that guides healthcare professionals in managing complications related to abortion (Uganda, 2022).

Findings from this study shall further provide baseline knowledge for prospective studies in the areas of referral systems and health systems strengthening across the continuum of post abortion care in low resource settings.

1.4 Research questions

1. What is the referral rate among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital, Northern Uganda?
2. What are the factors influencing referral among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital, Northern Uganda?

1.5 General objective

- To assess factors influencing referral rate among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital, Northern Uganda.

1.6 Specific objectives

1. To determine the referral rate among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital, Northern Uganda.
2. To assess the factors influencing referral among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital, Northern Uganda.

1.7 Conceptual framework

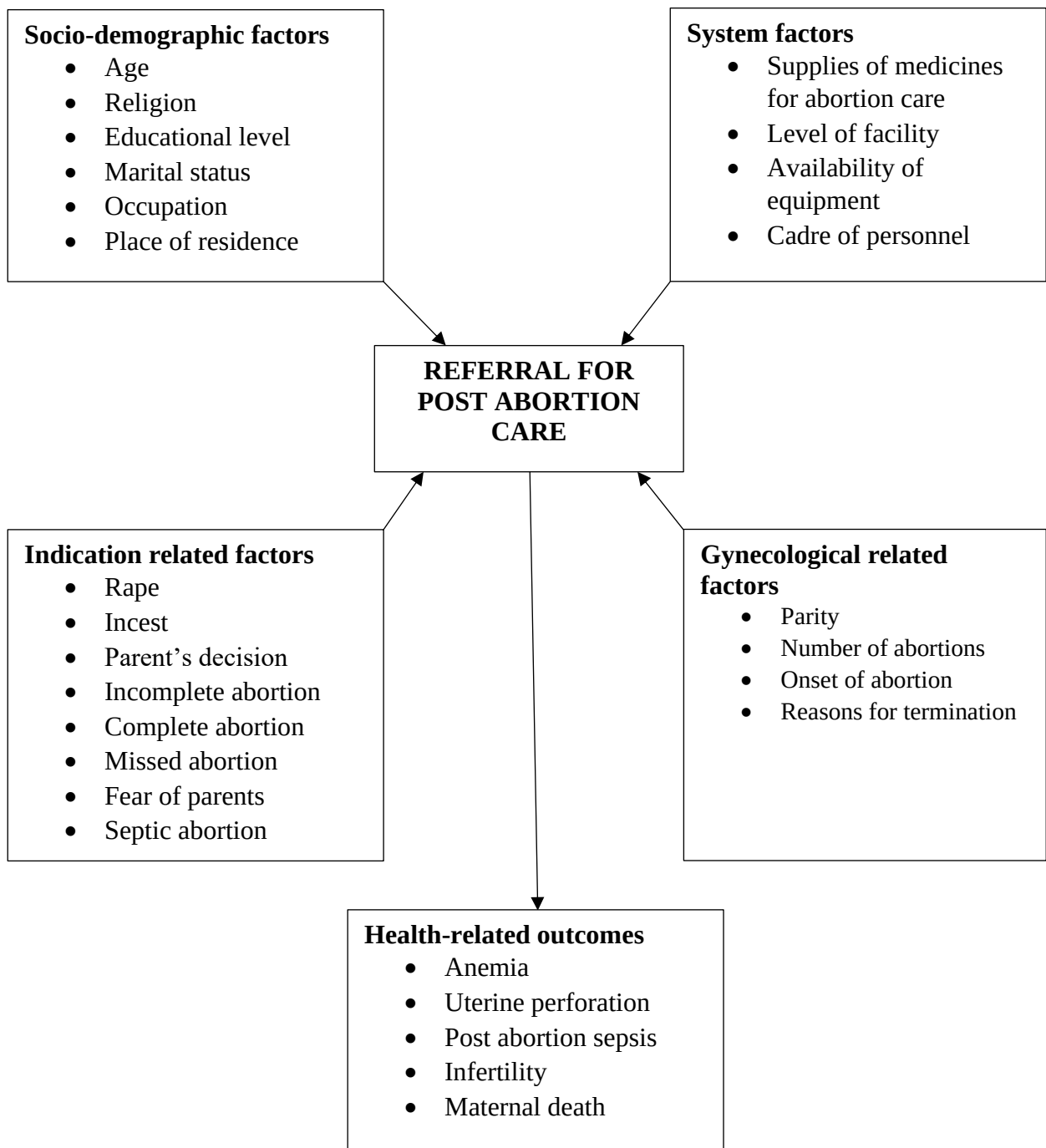


Figure 1: Conceptual Framework

Narrative of Conceptual Framework

There are many noticeable factors that are directly or indirectly associated with referral among women seeking post abortion services. These can be broadly categorized into socio-demographic factors which include age, religion, educational level, marital status, occupation and place of residence; gynecological related factors which include; parity, number of

abortions, onset of abortion and reasons for termination; system factors for examples availability of medicines and supplies for post abortion care, level of facility, availability of equipment and cadres of personnel; and indications related factors for abortion like rape, incest, parent's decision, incomplete abortion, complete abortion, missed abortion, fear of parents and septic abortion.

When post abortion care is not provided or inadequately offered, post abortion complications may arise affecting health outcomes such as; anemia, uterine perforation, post abortion sepsis, infertility and maternal death.

Theoretical model: Capability, Opportunity and Motivation for Behavior (COM-B) framework of implementation science

The COM-B framework is a theoretical model used to understand the factors enabling behaviors, such as facilitating referrals for post-abortion care. This framework is explained through three key domains (Michie, Atkins, & West, 2014).

1. Capability – Refers to the ability of healthcare facilities to provide post-abortion care services effectively at the initial point of contact.
2. Opportunity – Represents the external factors, such as resources, infrastructure, and support systems, that make referrals for post-abortion care feasible.
3. Motivation – Encompasses the internal drivers, including beliefs, intentions, and willingness, that encourage healthcare providers to initiate referrals for post-abortion care.

Using the COM-B framework allows for a systematic analysis of these interconnected factors, helping to identify and address barriers to effective referral systems for post-abortion care.

CHAPTER TWO: LITERATURE REVIEW

2.1 Abortion types and its burden

Different countries adapted the definition of abortion differently basing on the set difference in their weeks of viability that starts anytime between 20weeks to 28weeks of gestation. Besides, due to the restricted laws on abortion in many countries, unsafe abortion has become common. The World Health Organization (WHO) defines unsafe abortion as “*a procedure for terminating an unintended pregnancy either by individuals without the necessary skills or in an environment that does not conform to minimum medical standards, or both*” (Cleland et al., 2006; WHO, 2019). On the other hand, in Uganda, the term abortion is considered as expulsion of products of conception before 26 weeks of gestation (Uganda, 2022).

Abortion has many types depending on the causes and intention to have an abortion; these clinical types include: 1) Threatened Abortion where intrauterine bleeding occurs before 20th completed weeks with or without uterine contraction, without expulsion of product of conception and without dilatation of the cervix. Here, pregnancy continues, cervix remains closed, slight bleeding or cramping may be noted. 2) Inevitable Abortion where intrauterine bleeding occurs before 20th weeks with continuous and progressive dilatation of the cervix, but without expulsion of product of conception. 3) Incomplete Abortion where expulsion of some but not all product of conception occurs before 20th weeks of gestation. Retained tissue within uterus evidently continues bleeding, a patulous cervix and an enlarged boggy uterus cramps are usually present but not so severe. Bleeding is persistent and often severe enough to constitute frank hemorrhage. 4) Complete Abortion which refers to expulsion of the entire product of conception before 20th completed weeks of gestation. Slight bleeding may continue for a short while. After passing the complete conceptus there is cessation of pain as well as termination of brisk bleeding. 5) Missed Abortion is where the embryo or fetus dies in utero before 20th weeks of gestation but the product of conception is retained. Missed abortion is manifested by loss of symptoms of pregnancy and a decrease in uterine size. Pain and tenderness are unusual. There may be brownish vaginal discharge. 6) Septic Abortion is when any type of abortion is complicated with infection, the condition is known as septic abortion. Fever and generalized pelvic discomfort may indicate infected abortion. Often manifested by malodorous discharge from vagina and cervix, pelvic and abdominal pain, marked supra pubic tenderness signs of peritonitis, tenderness of movement of uterus and cervix, fever 100-105°F, although hypothermia accompanies endotoxic shock, jaundice due to hemolysis or oliguria

secondary to septicemia. Trauma to the cervix or upper vagina may be present if it is induced abortion. 7) Habitual Abortion is defined as three spontaneous pregnancy wastages before the 20th week of gestation with a fetus weighing less than 500g. 8) Induced Abortion is the deliberate termination of pregnancy in a manner that ensures that the embryo or fetus will not survive. It may be therapeutic or non-therapeutic. It is estimated that approximately one out of every four pregnancies in the world is terminated by induced abortion. 9) Therapeutic Abortion is one which is induced for legally acceptable and medically approved indications. This term is applicable when a pregnancy is terminated because it endangers the mother's life or health (physical or mental) or because there is reason to believe that the fetus is grossly abnormal. 10) Non-therapeutic Abortion is the deliberate interruption of a pregnancy for non-medical reasons (Ahmed et al., 2022; Alipanahpour, Tayebi, Taheri, & Akbarzadeh, 2021; Singh & Sedgh, 1997).

The burden of abortion varies from country to country. In most low and middle income countries, the prevalence has been high and worse in places where abortion has been considered illegal hence most cases of abortion in those countries are not reported or documented (Dellicour et al., 2016). The prevalence has previously been reported to be ranging from 10-20% across many countries (Cohain, Buxbaum, & Mankuta, 2017; Griebel, Halvorsen, Golemon, & Day, 2005; Sieiro Netto et al., 2004). However, more recent studies have revealed higher prevalence of the different types of abortion (Juárez-Chávez, Ruiz, Navarro, Vásquez, & Alvarado, 2023; Moradinazar et al., 2020). Many of these abortion cases result into morbidity and mortality especially in developing countries in which the abortion-related mortality ratio ranges between 11 to 57 deaths per 100,000 live births (Atuhairwe et al., 2021). Notable complications of abortions have been documented including incomplete abortion which is the most common complication related to medical abortions that are normally done before 12 weeks of gestation. In addition, despite antibiotics administration to women following abortion, 1.4% developed a post-abortion sepsis (Carlsson et al., 2018). Furthermore, some women experience hemorrhage with significant hemodynamic instability that require blood transfusion, uterine perforation can occur especially during uterine evacuation or induced abortion, hospitalization is often needed to stabilize the patient and some develop anesthesia related complications (White et al., 2015).

2.2 Post abortion care services and referral rate

It was estimated that of the 227 million pregnancies each year, 1 out of 3 pregnancies end up in spontaneous abortions, induced abortions or stillbirth (Barnett; Singh et al., 2018). Incidence of abortions remains high globally with over 48.3 million induced abortions especially in developing countries (Bearak et al., 2020). This contributes to global and regional maternal mortality of 7.9% and 9.6% respectively (Dragoman et al., 2014; Say et al., 2014). Besides, over 75% of the maternal deaths due to abortion and its complications are in Sub-Saharan Africa (Sedgh et al., 2016; Sully et al., 2018). Most abortion related deaths are preventable if patients get timely care or intervention. Hence, referral is one of the vital forms of strategies in the chain of managing patients (Legodi & Wolvaardt, 2015). This is geared toward ensuring that patients get early and appropriate health care intended to reduce morbidity and mortality (Abraham et al., 2015). A study done in Northern Uganda has reported that 21.1% of women had used four or more post abortion care services, and the factors associated with utilization of post abortion care included; having supportive partner, knowledge on post abortion care services, low parity, nulliparity and provision of privacy during provision of care (Jackline et al., 2024).

Patients are sometimes self-referred or referred by qualified health care workers from one health facility to another basing on clinical judgement (Kamau et al., 2017; Omole et al., 2017). The referrals are often from lower level healthcare facilities to higher level health facilities that are able to offer post abortion care for the patients (Kamau et al., 2017; Omole et al., 2017). Similarly, a qualitative study conducted on women's pathway to post abortion care in South Carolina by Judy Margo and colleagues found out that of the 20 women who interfaced with healthcare personnel, 7 of them were given referral. This translate to a referral rate of 35% (Margo et al., 2016).

2.3 Factors influencing referral among women attending post abortion care

2.3.1 Age of the woman

A systematic review of seventy articles done in fourteen countries in the Eastern and Southern Africa among women and girls showed that there is dire need to access to quality post abortion care which is lacking in most parts of the countries under study. They further found that the adolescents (aged 15-19years) suffered more making them more at risk of not getting the required post abortion care (Aantjes, Gilmoor, Syurina, & Crankshaw, 2018). A pilot project

done in Thailand-Burma border identified reasons for referral to be those younger than 15 years of age as an important group that were referred (Angel et al.). Similarly, a study done in Kenya showed that younger pregnant women are less likely to attend post abortion care early despite being referred to the next level facility for post abortion care services (Mutua, Maina, Achia, & Izugbara, 2015).

2.3.2 Use of traditional methods

In most low resource settings where post abortion care is scarce, many women resort to traditional methods which risk their lives. A qualitative study done in Burma on access to legal abortion among women showed that women were receptive of the modern abortion methods but some women who were ineligible decided to go for traditional methods to carry out abortion (Arnott, Tho, Guroong, & Foster, 2017).

2.3.3 High cost for post abortion care

The high cost for post abortion care services could potentially discourage women from attending post abortion care. A comparative analysis of four studies done on the cost of post abortion care in developing countries indicated that the cost of treating a woman for complications of abortion in Uganda and Rwanda were much higher compared to other countries like Columbia (Vlassoff, Singh, & Onda, 2016). Similarly a study done among women on ascertaining their referral pathways in South Carolina by Judy and colleagues found that most women have financial constraint when subjected to referral for post abortion care services (Margo et al., 2016).

2.3.4 Expertise of healthcare workers

The more a healthcare worker is trained in post abortion care the better in the provision of post abortion care services required. A qualitative study done in Uganda on barriers and facilitators in the provision of post-abortion care showed that midwives were the main provider of the post-abortion care services although they do not have proper training and expertise (Paul, Gemzell-Danielsson, Kiggundu, Namugenyi, & Klingberg-Allvin, 2014).

2.3.5 Indication for referral for post abortion care

When referral is prioritized among women with special condition that require post abortion care, the likelihood of increasing uptake and reducing maternal morbidity and mortality is high. A pilot study project conducted in the Thailand-Burma border on strengthening referral system

categorically uprooted the key indications that would warrant referral of women for post abortion care services in order to reduce morbidity and mortality. These include women who had rape, incest, and physical health conditions like heart diseases, HIV, Diabetes, Hypothyroidism (Angel et al.).

2.3.6 Legal framework on abortion care

In a low resource setting like Uganda, the laws restrict against abortion except for specific medical conditions that are decided by qualified healthcare professionals. This barred many people from going to access this noble post abortion care services that would improve their lives. A qualitative study conducted in Uganda among refugee revealed that there is a barrier to navigate the restricted laws to enable post abortion care services. Hence many resorted into illegal and unsafe abortion practices (Nara, Banura, & Foster, 2019).

2.3.7 Level of education

Awareness and more knowledgeable a woman is could empower her with the potential sense of urgency in attending post abortion care. Therefore, even when referred would accept and respond faster. A study done in Kenya on factors associated with delay in attending post abortion care among women showed that the more a woman is educated the more likely that she will take shorter time to reached the next level of care than those who are less educated (Mutua et al., 2015).

2.3.8 Fertility intentions

Women who had intention to conceive could be more likely to delay their referrals since they would not wish to terminate their pregnancies even with spontaneous irreversible abortion process. A study done in Kenya on factors associated with delays in referral found that women who reported use of contraception had 17% higher log of likelihood to delays of referral. In addition, those who had unintended pregnancy had 30% higher log delays of referral (Mutua et al., 2015).

2.3.9 Research gaps

Despite the availability of some facilities in the Ugandan healthcare system, many women still die or suffer complications due to failures in the referral process or late referral to healthcare facilities that can provide post abortion care. It is crucial that women attending post abortion care receive all necessary elements of such care. However, some do not receive some or all

components, missing out on essential aspects of post abortion care. In addition, factors such as the place of Residence, obstetric history (parity, previous abortions), health system factors, parent's decision, and fears that are plausible have not been studied. Studies were done on factors associated with utilization of post abortion care but no study on referral for post abortion care has been conducted in Northern Uganda to document these scenarios, and interventions remain limited. Therefore, there is need to investigate the factors influencing referral rate among women attending post abortion care services in Northern Uganda to provide evidence-based and scientifically sound interventions toward averting referral and improving post abortion care.

CHAPTER THREE: METHODS

3.1 Study design

This was an embedded mixed-methods study. This design involved collecting and analyzing both qualitative and quantitative data concurrently and comparing or integrating the findings to gain a more comprehensive understanding of the research question or phenomenon. The qualitative study used the Capability, Opportunity, and Motivation which are believed to be critical in shaping Behavior (COM-B) framework of implementation science model (Michie et al., 2014).

3.2 Study settings

This study was conducted at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital. Gulu Regional Referral Hospital is a public government aided hospital while St. Mary's Hospital-Lacor (Faith-based) is a private not for profit hospital. They are high volume facilities where more ten (10) cases of post abortion are interfaced daily. They are also the referral centers for all the major cases within the city and neighboring districts. These two hospitals have gynecology departments that run every day including weekends. There are dedicated staffs in both hospitals which include specialist obstetricians/gynecologists, medical officers, intern doctors, clinical officers, nurses, midwives, laboratory staffs among others. These doctors and midwives have required training to handle these post abortion related cases with all the resources found in the hospitals.

3.3 Study population

3.3.1 For quantitative study: All women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital and have received any one or more of the following services of post abortion care; uterine evacuation for incomplete abortion, modern method of family planning, provision of antibiotic therapy, linkage to other sexual reproductive health services, community rehabilitation was considered.

3.3.2 For qualitative study: Patients who attended post abortion care were purposively selected. In addition, the frontline healthcare workers who were actively working on patient receiving post abortion care were also considered.

3.4 Eligibility criteria

3.4.1 Inclusion criteria

3.4.1.1 Quantitative study

1. All women of reproductive age 15-49 years who attended post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital.
2. The participants who provided written informed consent.

3.4.1.2 Qualitative study

1. All women of reproductive age 15-49 years who attended post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital.
2. The professional healthcare workers of the St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital.
3. The respondents who provided written informed consent.

3.4.2 Exclusion criteria

3.4.2.1 Quantitative study

1. Unconscious women who cannot respond to the interview.
2. Women with mental disorder or very and cannot give appropriate information.

3.4.2.2 Qualitative study

1. The professional appointed healthcare workers who are not working in the units that provide post abortion care.
2. The healthcare workers who are absent and cannot be located to participate in the study.

3.5 Sample size estimation

3.5.1 For objective 1: Proportion of referral

Sample size was estimated using the Kish Leslie's formula for cross-sectional survey (Kish,

$$1965), n = \frac{Z^2 pq}{d^2}$$

p=35% (this was the referral rate among women who were attending post abortion care (Margo et al., 2016).

Therefore, substituting into the Kish Leslie's formula,

$$n = \frac{(1.96)^2(0.35 \times 0.65)}{(0.05)^2} = 350, \text{ adding 10\% to account for none response, } n=389.$$

3.5.2 For objective 2: Factors influencing referral among women attending post abortion care

3.5.2.1 Quantitative data

Sample size was estimated using the Kish Leslie's formula for cross-sectional survey (Kish,

$$1965), n = \frac{Z^2 pq}{d^2}$$

p = 30% (this was the referral rate among unintended pregnancies in Kenya (Mutua et al., 2015)

Therefore, substituting into the Kish Leslie's formula,

$$n = \frac{(1.96)^2(0.30 \times 0.70)}{(0.05)^2} = 323, \text{ adding 10\% to account for none responders, } n=359.$$

All the two sample sizes provided higher numbers than that expected from records in the gynecology register in the two hospitals within four months estimated study period.

Sample size was then estimated using the Yamane's formula for finite population.

$$n = \frac{N}{(1 + Ne^2)}$$

Where,

n = the corrected sample size (the number of participants to be involved in the study),

N = the estimated population basing on records from March- June 2023 among women attending post abortion care was about 208 (52 women per month) in both St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital for a period of four months estimated study period for data collection.

e = the margin of error (MoE), $e=0.05$ based on research conditions.

Substituting into the Yamane's formula,

$$n = \frac{208}{(1 + 208 \times (0.05)^2)} = 137, \text{ adding 10\% to account for none response, } n=152.$$

3.5.2.2 Qualitative data

The sample size was 20 respondents comprising of 10 key informant interviews (KIIs) with healthcare workers in the gynecology outpatient and clinic providing post abortion care and conducted 10 in-depth interviews (IDIs) with women who were referred for post abortion care. The sample size of 20 was chosen because theoretically it was estimated to be adequate to reach saturation of the information. The saturation for the qualitative data collection was

reached at 12 respondents. The extra 8 participants interviewed include 5 women attending post abortion care and 3 healthcare workers. This was meant to confirm saturation reached.

3.6 Sampling method

3.6.1 Quantitative sampling method

The participants were consecutively sampled until the required sample size was reached. This sampling method was chosen because the expected finite number has to be reached which the probability sampling may not provide the total calculated sample size.

3.6.2 Qualitative sampling method

The respondents were purposively selected. This sampling technique was employed because of the need to ensure that we meet the inclusion criteria of having professional healthcare workers who are involved in the management of the women seeking post abortion care and also to ensure that variation in term of age and duration of experience were factored in.

3.7 Data collection method

3.7.1 Quantitative data collection

Each day of the study period, a research assistant goes to the ward in the morning and identify new admission using respective files and gynecology register. The women were then identified. The women were then informed about the study and once accepted, were asked to sign written informed consent form. Women were then taken to a private room one by one and pretested structured questionnaire was administered to collect data on the dependent and independent variables.

3.7.2 Qualitative data collection

There were 10 key informant interviews (KIIs) conducted with healthcare workers in the gynecology outpatient and clinic providing post abortion care and carried out 10 in-depth interviews (IDIs) with women who were referred for post abortion care using well-structured interviews guide in private rooms within the hospitals. An interview guide was developed based on the Capability, Opportunity, and Motivation which are believed to be critical in shaping Behavior (COM-B) model and was used to explore factors influencing their referral, including the reasons for their referral, clinical types of abortion and preferred methods of contraception provided at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospitals. Interviews were audio recorded and the verbatim was transcribed. The interviewer took field

notes during the interview to capture non-verbal cues and any other relevant observations. The interviewer was a degree holder with proven record in qualitative data collection. The duration of individual interview was between 15-20minutes.

3.8 Data management

The data collected was compiled and kept under safe custody of the investigator. The information was entered into the computer and the electronic records are double password-protected. Only investigators have access to the data.

3.9 Data analysis

Data was entered into Microsoft excel database, coded and exported to STATA Version 17 for cleaning and analysis. Description of data are presented using simple frequencies, median and interquartile range. The data are presented in figures, tables, pie charts, and bar charts.

3.9.1 For objective 1: The referral rate was calculated as the number of women who were referred for post abortion care divided by total number of participants enrolled then multiplied by one hundred and expressed in percentage.

3.9.2 For objective 2: The factors influencing referral among women attending post abortion care.

3.9.2.1 Quantitative data analysis

At bivariate analysis level, Chi-square or Fischer's exact tests was used to compare categorical and numerical variables influencing referral for post abortion care, respectively. Variables with $p < 0.2$ and those biologically plausible were taken into multivariable logistic regression model. At multivariable analysis level, stepwise, backward, multivariable logistic regression model was constructed to determine factors independently associated with referral for post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital. Variables with $p < 0.05$ were reported as factors independently influencing referral for post abortion care.

3.9.2.2 Qualitative data analysis

Analysis was conducted using thematic approach. The data was coded using the Capability, Opportunity, Motivation for Behavior (COM-B) model as a theoretical model. The initial codes were reviewed and combined to develop themes. The themes were reviewed and refined until a final set of themes were identified. The themes were then compared across participants to identify commonalities and differences. The researchers examined the relationship between the

themes and the factors influencing referral identified in the literature review. The findings were reported using “*Consolidated Criteria for Reporting Qualitative Research*” (COREQ) guidelines (Tong, Sainsbury, & Craig, 2007).

3.10 Limitations and quality control

This was individual participant’s responses. There may be response bias. The design of the questions was done in such a way as to eliminate response bias as much as possible.

There could be hurried responses from participants due to other need to meet other demands. This was avoided by allowing participants answer at free time in private comfortable room or place and time.

3.11 Ethical considerations and informed consent

The proposal was presented to the Department of Public health, Gulu University and obtained clearance to carry out this research. Ethical approval was obtained from Gulu University Research Ethic Committee (*GUREC Ref. No: 2023-587*), Gulu University. Administrative clearances were sought from hospital administrators of St. Mary’s Hospital-Lacor (*ADMIN No: 0234/08/2023*) and Gulu Regional Referral Hospital (*ADM No: 2023/07/08*).

Women who develop mental disorder or emotional breakdown were to be referred to psychiatry ward or social worker/counselor for evaluation and assistance. Informed written consent or assent was obtain from all study participants. Participation in and withdrawal from the study was free and voluntary with no penalty. Privacy was observed by interviewing participants in a private and comfortable place. *Declaration of Helsinki* for the conduct of research involving human subjects was followed.

3.12 Disseminations of results

Study findings was presented to the department of Public Health of Gulu University. Copies will be given to Gulu University library, Department of Public Health and administrators of St. Mary’s Hospital-Lacor and Gulu Regional Referral Hospital. Presentation will be made at national and international conferences. We intend to publish in a peer-reviewed journal.

3.13 Impact

The anticipated impact of this study was to enable policy makers, healthcare facilities administrators, and healthcare providers consider realignment of resources geared toward improving access and uptake of post abortion care services.

3.14 COVID-19 mitigation plan

All WHO and Uganda Ministry of Health recommended COVID-19 prevention standard operational procedures (SOPs) were strictly observed during the study for all the participants and other patients, clinical care team in the hospitals and research team.

CHAPTER FOUR: RESULTS

4.1 Introduction

This chapter constitute presentation of results on factors influencing referral rate among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital from July to December 2023. These results are presented in figures, tables, pie charts and bar charts. The quantitative results include both objective 1 and 2. Besides that, objective 2 was further explored by qualitative study.

4.2 Characteristics of study participants

The total number of women who were attending post abortion care during the study period at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital and enrolled into the study was 152. Roughly equivalent number were from St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital. Of the total number of participants, less than one third were referred while more than two third were not referred as illustrated in a study flow diagram (**Figure 2**).

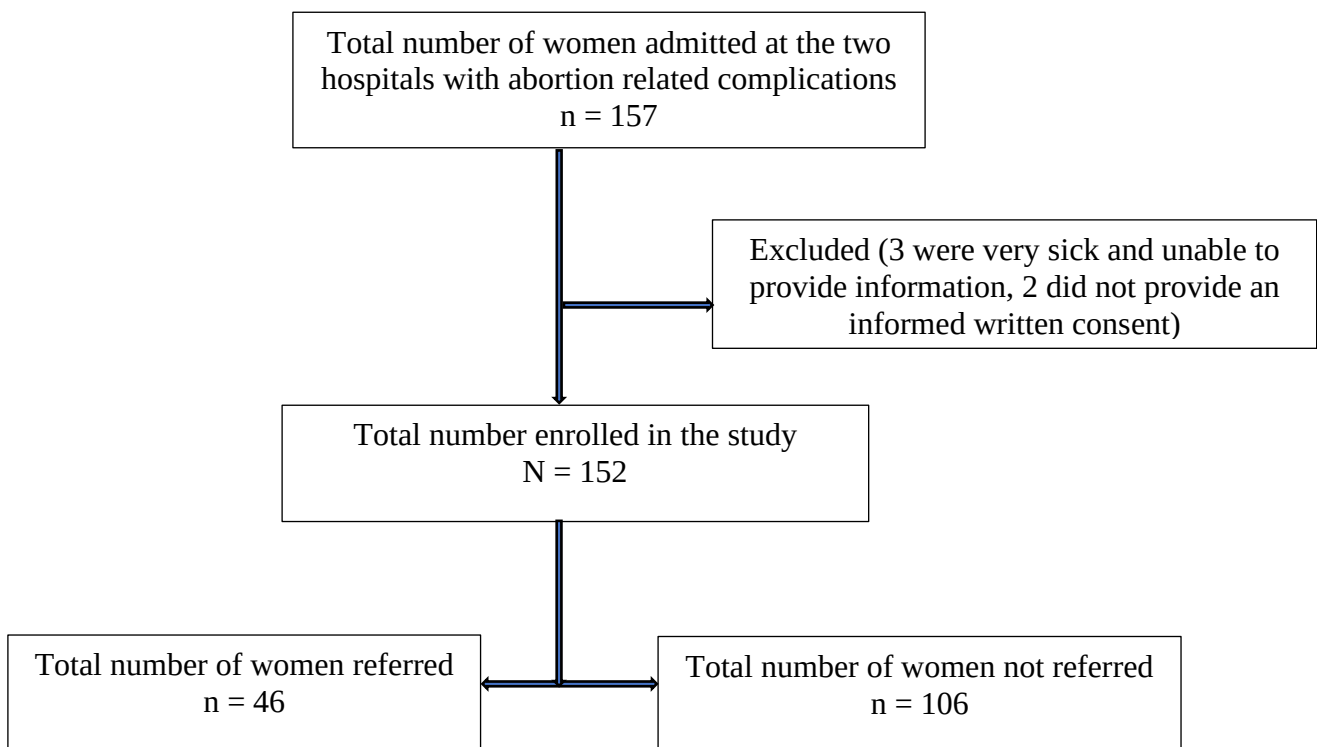


Figure 2: Study flow diagram of participants referred for post abortion care

4.3 Socio-demographic and gynaecological characteristics of study participants

The total participants enrolled into the study was 152. The median age of the participants was 26 years, with an interquartile range: 21-32 years. Most participants fell within the age range of 20-34 years 103(67.8%). Additionally, slightly more than half of the participants 87(57.2%) identified strongly with their religion. Among religious affiliations, 93(61.2%) were Protestant, 55(36.2%) were Catholic, and 4(2.6%) were Muslim. Approximately three-quarters of the participants were cohabiting and unemployed. Most participants 93(61.2%) resided in rural areas (**Table 1**). The median parity of study participants was 3, with interquartile range: 2-4; while median number of previous abortions was 1, within interquartile range: 0-1. Of the total participants, 92(60.5%) had been diagnosed with incomplete abortion, 142(93.4%) had spontaneous onset of abortion, and 117(77%) had preferred utilizing modern contraceptive methods (**Table 2**).

Table 1: Socio-demographic characteristics of the study participants (N=152)

Variables	Frequency (n)	Percentage (%)
Age, Median (IQR), years	26 (21-32)	
Age (years)		
<20	28	18.4
20-34	103	67.8
≥35	21	13.8
Religion		
Catholic	55	36.2
Moslem	4	2.6
Protestant	93	61.2
Strength of affiliation with the religion		
Neither strong nor weak	49	32.2
Strong	87	57.3
Weak	16	10.5
Level of education		
Educated	66	43.4
Uneducated	86	56.6
Marital status		
Cohabiting	117	77.0
Married	30	19.7
Single/ separated	5	3.3
Employment status		
Employed	41	27.0
Unemployed	111	73.0
Residence		
Rural	93	61.2
Urban	59	38.8

IQR; Interquartile range

Table 2: Gynecological characteristics of study participants (N=152)

Characteristics	Frequency (n)	Percentage (%)
Parity, Median (IQR)	3 (2-4)	
≤1	37	24.3
2-4	83	54.6
≥5	32	21.1
Previous abortion, Median (IQR)	1 (0-1)	
0	58	38.2
1	66	43.4
≥2	28	18.4
Diagnosis		
Complete abortion	12	8.0
Incomplete abortion	92	60.5
Inevitable abortion	23	15.1
Missed abortion.	23	15.1
Septic abortion	2	1.3
Onset of current abortion		
Spontaneous	142	93.4
Induced	10	6.6
Reasons for pregnancy termination, n=10		
A friend recommended me.	1	10
Irresponsible husband	5	50
Still a student	4	40
Uptake of modern methods of contraceptive		
No	35	23.0
Yes	117	77.0

IQR; Interquartile range

4.4 Referral rate among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital (N=152)

The referral rate among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital was 46/152 (30.3%) (**Figure 3**).

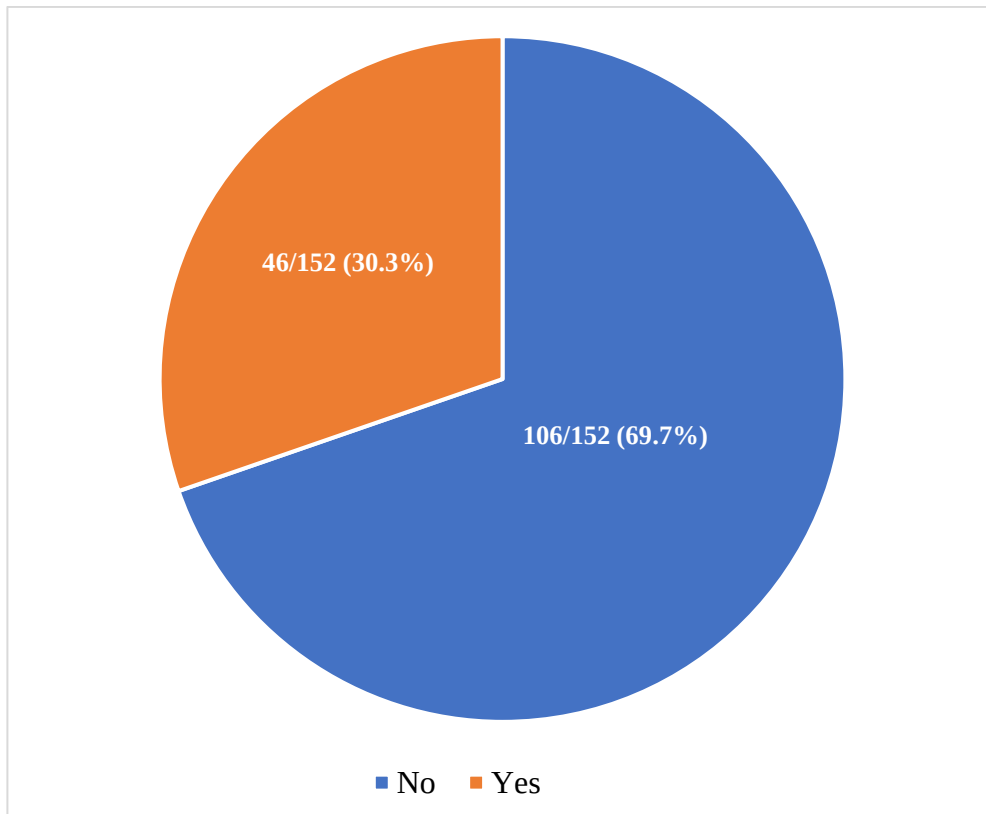


Figure 3: The referral rate among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital

4.5 Profiling the reasons for referral among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital

Of the total participants who were referred, 20 (47.6%) reported that they were referred for post abortion care because the facility is of low capacity and level and do not offer needed services. In addition, 10(23.8%) reported that there were lack of equipment at the time they were attending post abortion care while 8(19.1%) reported lack of medical supplies for post abortion care. Lack of money to meet the cost and lack of qualified healthcare workers were reported by 2(4.8%) each. There were four participants who did not have reasons for referral. (Figure 4).

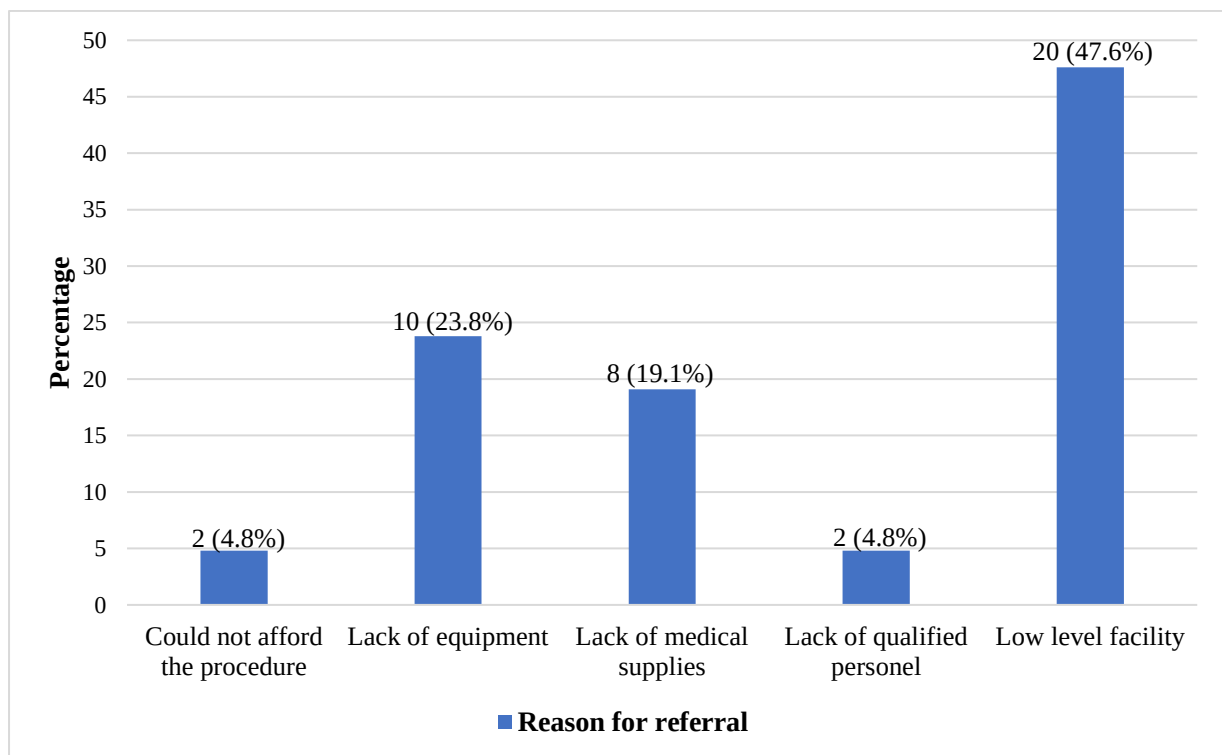


Figure 4: The reasons for referral among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital

4.6 Factors influencing referral among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital

4.6.1 Results of quantitative data

The significant factors identified at bivariate analysis level include age ($p=0.040$), employment status ($p=0.046$), strength of affiliation with their religion ($p=0.023$), and place of residence ($p<0.001$) (**Table 3**). No medical or gynecological factors in this study reached statistical significance (**Table 4**). Parity and onset of abortion were considered biologically plausible for referral for post abortion care hence were taken into multivariable logistic model for further analysis.

At multivariable analysis level, by doing the backward stepwise elimination method to develop a model which is best fit, the factors independently influencing referral among women attending post abortion at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital were rural place of residence aOR: 15.5, 95% CI: 4.44-53.83, $p<0.001$ and age less than 20years aOR: 2.8, 95% CI: 1.02-7.56, $p=0.046$. Women residing rural areas were about 15.5 folds more likely to be referred for post abortion care compared to those living within urban areas. In addition, compared to women between 20-34 years of age, those younger than 20 years were about 2.8 times increased odds of being referred for post abortion care. Meanwhile, parity, strength of affiliation with the religion, onset of abortion and undertaken modern contraceptive methods were eliminated during model development (**Table 5**).

Table 3: Bivariable analysis of socio-demographic factors significantly influencing referral for post abortion care among the participants (n=152)

Factors	Referral		P-value
	No (n=106) Frequency (%)	Yes (n=46) Frequency (%)	
Age			
<20	14(13.2)	14(30.4)	0.040*
20-34	77(72.6)	26(56.5)	
≥35	15(14.2)	6(13.1)	
Religion			
Catholic	37(34.9)	18(19.1)	0.568
Moslem	2(1.9)	2(4.4)	
Protestant	67(63.2)	26(56.5)	
Strength of affiliation with the religion			
Neither strong nor weak	27(25.5)	22(47.8)	0.023*
Strong	66(62.3)	21(45.7)	
Weak	13(12.2)	3(6.5)	
Level of education			
Educated	49(46.2)	17(37.0)	0.373
Uneducated	57(53.8)	29(63.0)	
Marital status			
Cohabiting	80(75.5)	37(80.4)	0.604
Married	23(21.7)	7(15.2)	
Single/ separated	3(2.8)	2(4.4)	
Employment status			
Employed	34(32.1)	7(15.2)	0.046*
Unemployed	72(69.9)	39(84.8)	
Residence			
Rural	50(47.2)	43(93.5)	<0.001*
Urban	56(52.8)	3(6.5)	

* Statistically significant at 95% confident level

Table 4: Bivariable analysis for gynecological factors significantly influencing referral for post abortion care among the participants (n=152)

Factors	Referral		P-value
	No	Yes	
	(n=106)	(n=46)	
	Frequency (%)	Frequency (%)	
Parity			
≤1	22(20.8)	15(32.6)	0.127
2-4	61(57.6)	22(47.8)	
≥5	23(21.7)	9(19.6)	
Previous abortion			
0	37(34.9)	21(45.7)	0.440
1	49(46.2)	17(36.9)	
≥2	20(18.9)	8(17.4)	
Onset of current abortion			
Spontaneous	101(95.3)	41(89.1)	0.171
Induced	5(4.7)	5(10.9)	
Uptake of modern methods of contraceptive			
No	20(18.9)	15(32.6)	0.092
Yes	86(81.1)	31(67.4)	

Table 5: Multivariable analysis of factors associated with referral among women seeking post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital

Variable	cOR (95% CI)	P-value	aOR (95% CI)	P-value
Age				
20-34	Ref.		Ref.	
<20	2.0 (1.20-3.26)	0.007	2.8 (1.02-7.56)	0.046*
≥35	1.1 (0.53-2.41)	0.748	1.0 (0.36-3.56)	0.990
Parity				
2-4	Ref		Ref	
≤1	1.9 (0.83-4.28)		-	-
≥5	1.1 (0.44-2.70)		-	-
Strength of affiliation with the religion				
Neither strong nor weak	Ref.		Ref.	
Strong	0.5(0.33-0.87)	0.012	-	-
Weak	0.4(0.14-1.21)	0.110	-	-
Employment status				
Employed	Ref.		Ref.	
Unemployed	2.1(0.99-4.24)	0.050	2.5(0.93-6.81)	0.070
Residence				
Urban	Ref.		Ref.	
Rural	9.1(2.94-28.09)	<0.001	15.5(4.44-53.83)	<0.001**
Onset of current abortion				
Spontaneous	Ref.		Ref.	
Induced	1.7 (0.88-3.40)	0.110	-	-
Uptake of modern contraceptive method				
No	Ref.		Ref.	
Yes	0.6(0.38-1.01)	0.054	-	-

cOR; Crude Odd Ratio, **aOR;** Adjusted Odd Ratio, **CI;** Confidence interval

*Marginally significant, ***Greatly significant

4.6.2 Results of qualitative data

A total of 20 respondents were included in the qualitative study; of the 20 responses, the saturation was reached at 12. The age of respondents ranged from 20 to 45 years. The parity of respondents varies between 0 to 7 and the number of abortions were between 1 and 2. Four themes emerged as the drivers to referral among women attending post abortion care, namely; 1) lack of expertise of healthcare professionals, 2) lack of capacity at low-level healthcare facilities 3) financial constraints, and 4) transport challenges.

4.6.2.1 Theme 1: Lack of expertise of healthcare professional

Healthcare professionals are the frontliner in the provision of post abortion care in healthcare facilities and during community outreaches. This effort can be frustrated when there are lack of expertise to provide the care to patients and hence many of such patients are referred to the higher level of the facility for definitive care. In key informant interview, several respondents acknowledge the contribution of low level healthcare professionals on the chain of referral of patients seeking post abortion care.

“The nurse told me that she cannot help me with my problem in the health center since the people who know how to work on me do not work there, that I need to go to another health care facility” (a 25years-old female patient, para 2+1 at St. Mary’s Hospital Lacor Gynecology clinic)

“I did not know that those people could not help me, the healthcare worker there whom we know to even conduct delivery told me that my problem require a doctor who is at Gulu Regional Referral hospital. So, I had to come here” (a 33years-old female patient, para 5+2 at Gulu Regional Referral hospital gynecology ward)

“I was even told by my husband that we should not waste any more time since people at the health center cannot help with my condition and they brought me directly to hospital” (a 22years-old female patient, para 0+1 at St. Mary’s Hospital Lacor Gynecology clinic)

4.6.2.2 Theme 2: Lack of capacity at low-level healthcare facilities

Many lower-level healthcare facilities lack the capacity to perform certain procedures and treatments, such as uterine evacuation for incomplete abortion, or to provide essential care to address the sexual and reproductive health needs of patients seeking post-abortion care. Many

respondents who were interviewed reported that lack of capacity at low level facilities were the reasons for their referral to next level facility for post abortion care.

“Most of these patients come from low level health centers since they do not have option, mainly health center II and III having no drugs and equipment to use on these women” (a 30years-old female healthcare worker working at St. Mary’s Hospital Lacor Gynecology clinic)

“You see, for me I come from a place far from here but we have some health center there which are not able to help us. They can treat simple condition but for this case where I was pregnant and started bleeding, they just told us their health center cannot help with that” (a 35years-old female patient, para 7+1 at Gulu Regional Referral hospital Gynecology ward)

“Doctor, you cannot believe that I was told that I should come to Gulu hospital simply because the nurse there said they operate at the level of health center II and that the main hospital could help better” (a 26years-old female patient, para 3+1 at Gulu Regional Referral hospital Gynecology ward)

4.6.2.3 Theme 3: Financial constraints

The care for most patient attending post abortion care requires some finances. Many instances the patients and or caretaker must be able to pay for services needed especially in private healthcare facilities. This is even worse in public healthcare facilities when there is stockout of medicines and supplies for providing post abortion care. Most private facilities therefore refer such patients to public healthcare facilities because the patients could not afford the care to be provided. During in-depth interviews, many respondents were able to report that financial constraint play major role in promoting referral of patients attending post abortion care.

“I had gone to the private clinic in the city but then the doctor there demanded huge sum of money for me to pay so that they can work on me. I had not known that I would be asked a lot of money to pay. I told the doctor that I did not have that money then asked him to allow me come to GRRH and try, and that is how I ended here. I am happy that I was treated without paying anything” (a 30years-old female patient, para 2+2 at Gulu Regional Referral hospital Gynecology ward)

“The reason why I came here was because the doctor from the clinic told me that I need to pay 200,000Ugx Shillings so that they can work on me. But I did not have that money so I decided to leave that place” (a 20years-old female patient, para 0+1 at Gulu Regional Referral hospital Gynecology ward)

“Those people in the clinic this time demanded a lot of money, can you imagine that I was expected to pay some good money to be treated from there. I just told them let me go somewhere else. I am here in Lacor we are paying little money with good treatment as well” (a 33years-old female patient, para 4+2 at St. Mary’s hospital Lacor, Gynecology ward)

4.6.2.4 Theme 4: Transport challenges

Transport availability and functionality is critical in facilitating referral. Many patients reach facilities late or sometime get complication because the transport system is unavailable or difficult accesss since many people stay in the rural areas inaccessible to the main healthcare facilities like hospital. The respondents were able to unearth the challenges especially on transport involving referral for post abortion care.

“For me the doctors here told me that I took long at home and that is why I am still here. But for me I looked for transport from home and it took me three days to get a boda boda because our home is very far in Amuru. These doctors are still treating me and I am getting improvement although I don’t know when I will go home” (a 31years-old female patient, para 4+1 at St. Mary’s hospital Lacor, Gynecology ward)

“You know these people come from far and sometime we have to treat the complication which might have occurred. The main reason is that they take long home or on the way because of poor road which is even worse during rainy season” (a 45years-old female In-charge of Gynecology ward of Gulu Regional Referral hospital)

“These doctors have tried to help us a lot because we came from far and transport has been disturbing us. We took long waiting for bodaboda and our road there you should ride slowly. This problem should not happen again” (a 34years-old male attendant to 26years-old female, para 2+1 at St. Mary’s hospital Lacor, Gynecology ward)

4.6.2.5 Summary of qualitative findings using the COM-B model

The COM-B model focuses on three primary components: Capability, Opportunity, and Motivation, which together influence Behavior. The qualitative study highlights several barriers to accessing post abortion care in Northern Uganda. These barriers include a lack of trained healthcare professionals, inadequately equipped healthcare facilities, financial constraints, and transportation challenges.

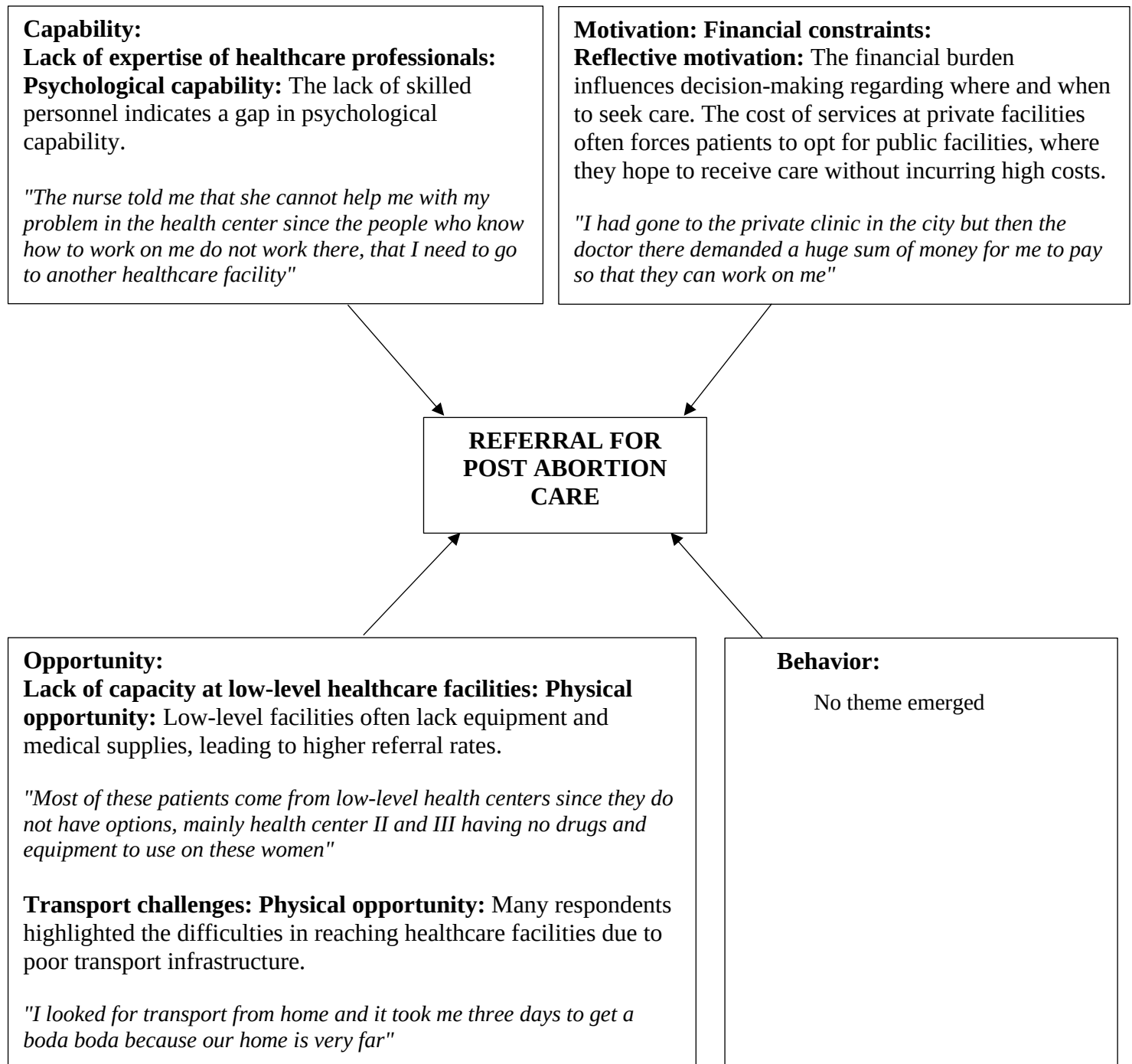


Figure 5: Summary of Qualitative findings using COM-B model

4.7 The proportion of clinical types of abortion as diagnosed among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital

Most women were diagnosed with incomplete abortion, comprising of 92/152 (60.5%). A similar proportion of cases were diagnosed with inevitable and missed abortion, accounting for 23/152 (15.1%) each. Smaller number of women were diagnosed with complete and septic abortion, at 12/152 (7.9%) and 2/152 (1.3%) respectively (**Figure 6**).

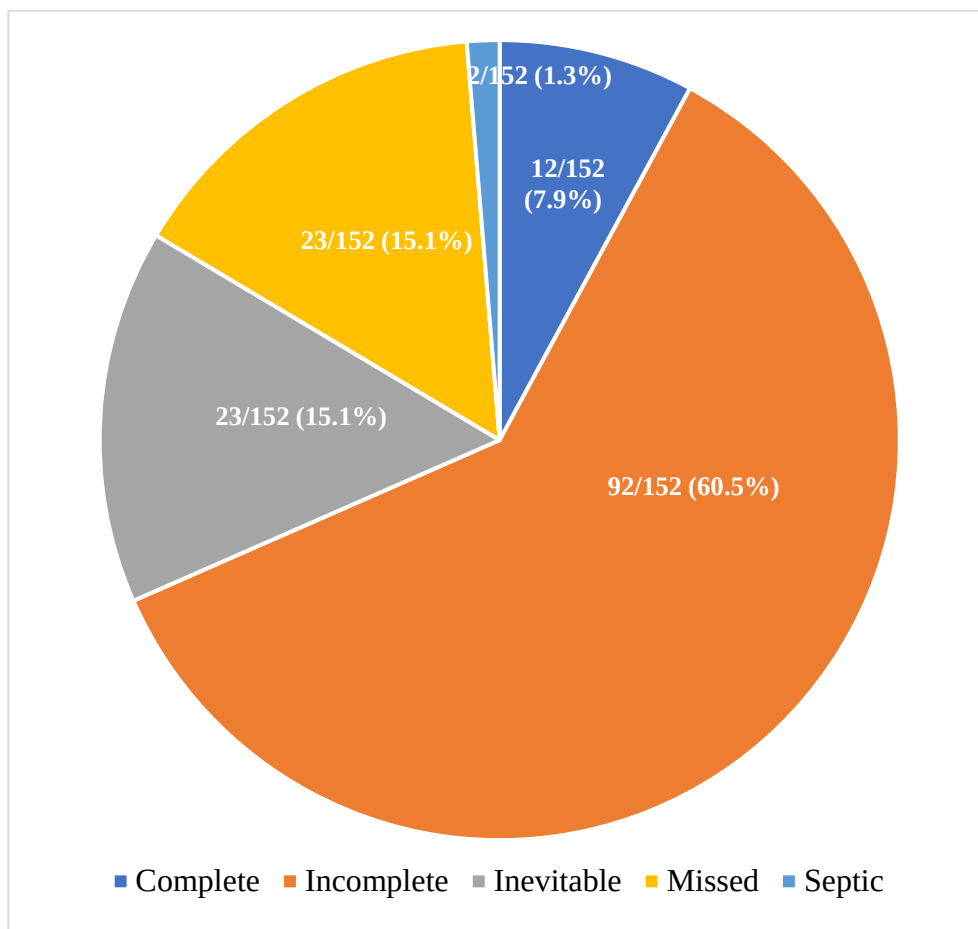


Figure 6: The clinical types of abortion diagnosed among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital

4.8 The preferred modern contraceptive methods among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital

Among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital, 117/152 (77%) expressed preference for modern contraceptive methods. The most commonly preferred methods of contraceptive was injectables chosen by 49/117 (41.9%) of the women, followed by subdermal implants 31/117 (26.5%), and condoms and intrauterine devices were 11/117 (9.4%) each. Smaller number opted for combined oral contraceptives 8/117 (6.8%) or natural methods 7/117 (6%) (**Figure 7**).

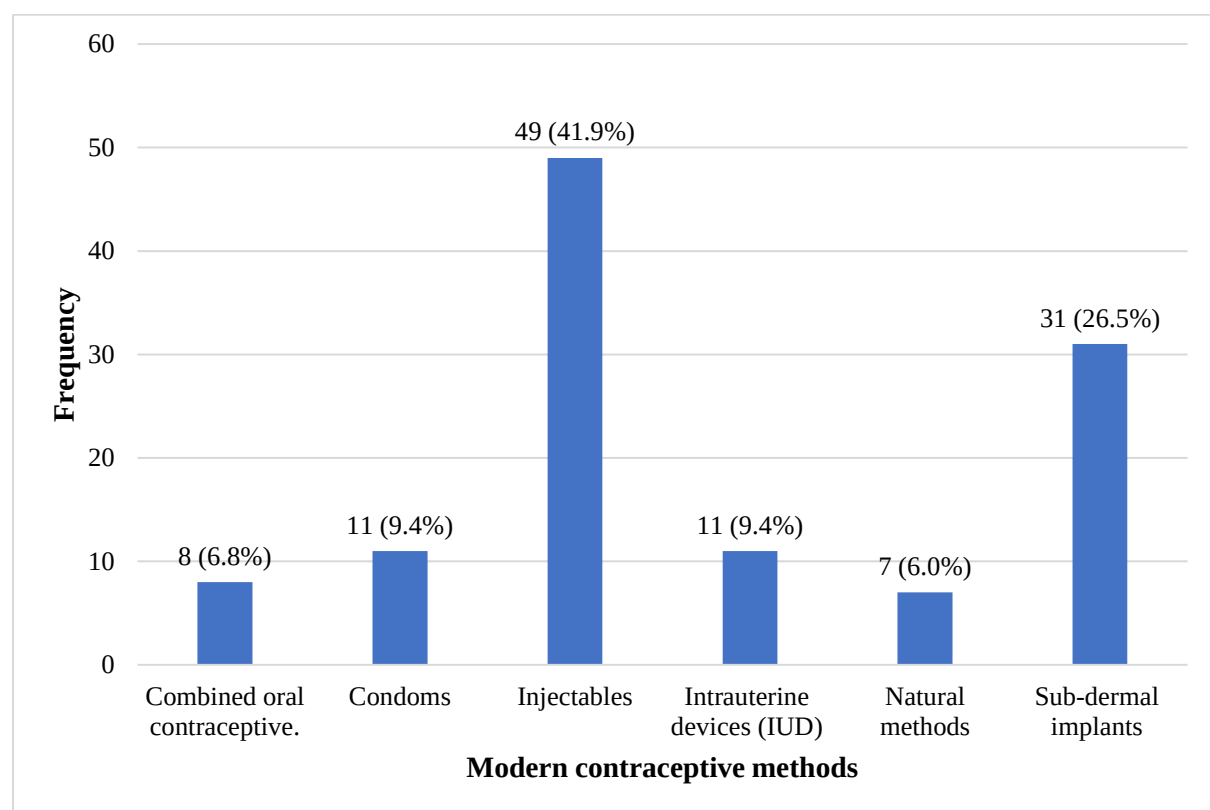


Figure 7: The preferred modern contraceptive method among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital

4.9 Triangulation of quantitative and qualitative findings

The triangulated findings suggest that improving healthcare infrastructure, providing financial support, and ensuring accessible transportation are critical to reducing the referral rate among young and rural women. Enhancing the capacity of healthcare providers in rural areas and increasing awareness about healthcare services could mitigate these challenges, leading to better health outcomes and reduced strain on referral systems (**figure 8**).

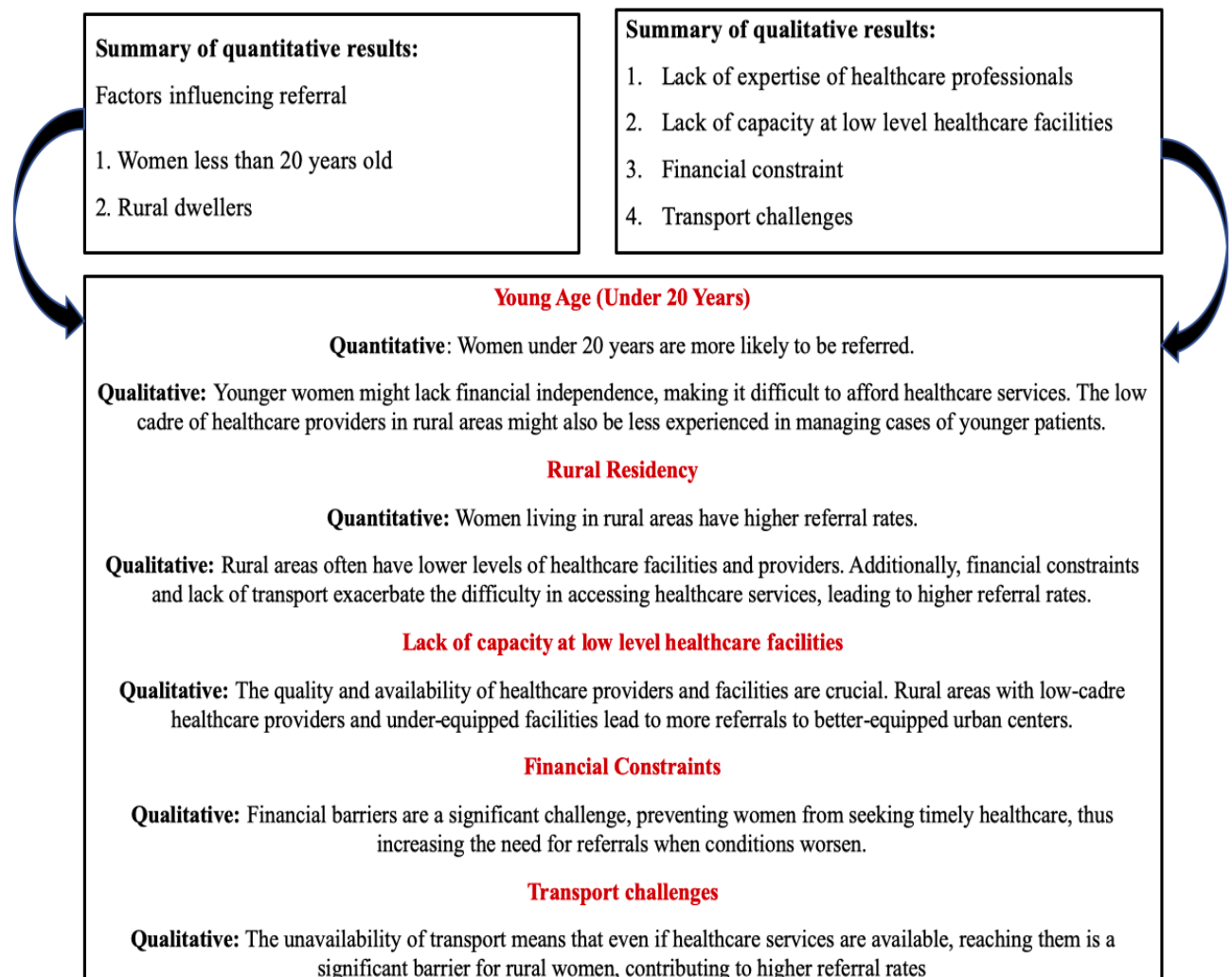


Figure 8: Triangulation of quantitative and qualitative results

CHAPTER FIVE: DISCUSSION

5.1 Introduction

This study aimed to assess the factors influencing referral rate among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital, Gulu-Uganda. Of the 152 participants included in the study, 46 (30.3%) were referral cases. Lack of capacity low level healthcare facility was reported as a reason for referral by 20 (48%) participants. The factors independently influencing referral among women attending post abortion at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital were rural place of residence ($p<0.001$) and age less than 20years($p=0.046$). Women residing in rural areas were about 15.5 folds more likely to be referred for post abortion care compared to those living in urban areas. In addition, compared to women between 20-34 years of age, those younger than 20 years were about 2.8 times increased odds of being referred for post abortion care. Qualitatively, four themes emerged as factors influencing referral: 1) lack of expertise of healthcare professionals, 2) lack of capacity at low-level healthcare facilities, 3) financial constraints, and 4) transport challenges.

5.2 Referral rate among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital, Gulu, Uganda.

In our study, 30.3% of women attending post abortion care were referred. This finding is similar to research from other studies such as the one conducted in Nebraska, United States of America (USA) (French et al., 2016), which reported a referral rate of 30%, and another study on women attending post abortion care services in reproductive health care facilities, USA (Dodge, Haider, & Hacker, 2012), which reported a proportion of 28%. These two studies have similar referral rates with ours because of similar study design and health care settings. French and colleagues utilized a cross-sectional study design among women attending abortion care at Nebraska abortion clinic, the same study design as in our case. Similarly, Dodge and colleagues did a study on simulated patient method to assess abortion referral services in the USA, reflecting similar circumstances to our country Uganda, where abortion is illegal. In addition, both cases used comparable sample size in the studies.

In contrast, a study in South Carolina reported a higher referral proportion of 35% (Margo et al., 2016), while research conducted in the selected States of USA, found even a higher referral rate of over eighty percent (Hebert, Fabiyi, Hasselbacher, Starr, & Gilliam, 2016). The disparity in the South Carolina study may be attributed to its qualitative study design involving

fewer participants compared to this study. Additionally, their study focused solely on professionally referred cases from specific centers offering abortion care services, potentially leading to an overestimation of referral rate. Meanwhile, the study in selected States of the USA reported even a higher referral rate as it exclusively examined regions offering abortion referral services, where most abortion cases are referred for specialized care, resulting into very high referral rate.

5.3 Reasons for referral among women attending post abortion care at St. Mary's

Hospital-Lacor and Gulu Regional Referral Hospital

Approximately fifty percent of the participants stated that they were referred for post abortion care because the facility lacked the necessary post abortion care services. Additionally, about twenty-four percent cited a lack of equipment at the time of attending post abortion care, while nearly twenty percent reported shortage of medical supplies. These findings mirror those of a study conducted in Ethiopia, which assessed health facilities' readiness to provide post abortion care. The study found that only three-fourth of the 30 randomly selected health facilities were capable of offering post abortion care services. Among these, only 18 had the required equipment and medicines, while 14 had the basic amenities necessary to provide post abortion care services (Gebremariam, Habtewold, Degife, Geneti, & Gebrekiros, 2023).

5.4 Factors influencing referral among women attending post abortion care at St.

Mary's Hospital-Lacor and Gulu Regional Referral Hospital, Gulu-Uganda

5.4.1 For quantitative data

Our study revealed that, the place of residence significantly influenced referral rate for post abortion care, particularly for those living in rural areas compared to those within in urban areas. Those residing rural areas were approximately 15.5 folds more likely to be referred for post abortion care than those residing within urban areas.

The demography of Gulu city is unique, situated in a highly impoverished region of the country. Most healthcare facilities, including hospitals, health centers, and major clinics capable of offering post abortion care, are concentrated within this small city area. Conversely, health care facilities in rural areas are predominantly low-level and lacking the necessary resources, such as trained staffs and medical supplies, to manage post abortion cases effectively. As a result, many women have no choice but to be referred for better care found in urban areas.

These findings align with those observed in Ethiopia regarding health facilities' readiness to provide post abortion care. Only three-fourth of the 30 randomly selected health facilities were

equipped to offer post abortion care services, with 18 having the necessary equipment and medicines, and 14 possessing basic amenities (Gebremariam et al., 2023).

In addition, this study demonstrated that, compared to women between 20-34 years of age, those younger than 20 years were about 2.8 times increased odds of being referred for post abortion at St. Mary's Hospital and Gulu Regional Referral Hospital. This is most likely because the younger women are more likely to get risk of complications unlike the older women and these adolescents (aged 15-19years) suffered more making them more at risk of not getting the required post abortion care (Aantjes et al., 2018). A similar studies done in Thailand-Burma identified factors associated with referral was the younger population (Angel et al.) and a study done in Kenya found that younger pregnant women are usually referred to the next level facility for post abortion care services although they take long to attend to care (Mutua et al., 2015)

5.4.2 For qualitative data: Four factors were identified, explored and analysed using thematic approach. The facilitators to referral for post abortion care were lack of expertise of healthcare professionals, lack of capacity at low-level healthcare facilities, financial constraints, and transport challenges.

Lack of expertise of healthcare professionals: Lack of expertise of healthcare professional normally possess limited knowledge and skills in managing women seeking post abortion care in their facilities and most of them tend to refer such patient to another facility hence increasing the proportion of referral. This is consistent with a qualitative study done in Uganda on barriers and facilitators in the provision of post-abortion care which showed that midwives were the main provider of the post-abortion care services although they do not have proper training (Matolengwe, Murray, & Okafor, 2024; Paul et al., 2014).

Lack of capacity at low-level healthcare facilities: The health care facilities in Uganda ranges from health centers II, III, IV, and hospitals. The lower health care facilities have the push system of getting medicines and supplies and have certain services that are supposed to be offered. Notably, these lower level II, and III have inadequate supplies of medicines and equipments to offer services related to post abortion care hence most cases requiring such services are referred. Other studies have confirmed that, referral are usually conducted from

lower level to higher level healthcare facilities that are able to offer post care for the patients (Kamau et al., 2017; Matolengwe et al., 2024; Omole et al., 2017).

Financial constraint: The women seeking post abortion care are sometime demanded to buy medicines and pay for the services especially those who go to private facilities and in most cases the cost of offering post abortion care services are expensive. Those who cannot afford the services and drugs are referred for care to public hospitals and health centers where people do not pay any money for the services. Similar findings were demonstrated in other studies including; a comparative analysis of four studies done on the cost of post abortion care in developing countries indicated that the cost of treating a woman for post abortion care in Uganda and Rwanda were much higher compared to other countries like Columbia (Vlassoff et al., 2016) and a study done among women on ascertaining their referral pathways in South Carolina by Judy and colleagues found that most women have financial constraint when subjected for post abortion care services (Margo et al., 2016). Similarly, a systematic review of literature in low and middle income-countries found out that financial constraint is one of the drivers to referral (Nakayuki, Basaza, & Namatovu, 2021).

Transport challenges: Availability of transport system to smoothen referral is critical especially those living far from the healthcare facilities. Women living far from healthcare facilities delay to seek post abortion care services because of lack of transport. There are studies done in Uganda which have found out that inconsistencies with ambulances for referral (Kanyesigye, Ngonzi, Mulogo, Fajardo, & Kabakyenga, 2022). Similarly, a systematic review on quality and satisfaction of maternal referral in low and middle income-countries found that women reported transport challenges in the referral system (Ameyaw, Njue, Tran, & Dawson, 2020).

Therefore, one of the findings shown by quantitative study on the factors associated with referral being rural dwellers is consistent with the qualitative whereby the respondents reported that there is lack of capacity at low level healthcare facilities and lack of expertise of healthcare professionals which are located mainly in rural areas. These lack of capacity at low-level healthcare facilities and lack of expertise of healthcare professionals renders no capacity and capability to offer post abortion care effectively and efficiently hence healthcare workers resort to referring such cases.

5.5 The proportion of clinical types of abortion as diagnosed by clinical care team among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital

In this study, majority of women were diagnosed with incomplete abortion, comprising of 60.5%. A similar proportion of cases were diagnosed with inevitable and missed abortion, accounting for 15.1% each. Fewer cases of complete and septic abortion were diagnosed, at 7.9% and 1.3% respectively. Due to the higher proportion of incomplete abortion diagnosed, most women were managed with uterine evacuation in the two healthcare facilities. These findings are consistent with a study conducted in Kenya, which reported even higher proportion of incomplete abortion cases at 80%, all of which were managed through uterine evacuation using Manual Vacuum Aspiration (Gebreselassie, Gallo, Monyo, & Johnson, 2005). This is because most of the cases of abortion occur in first trimester and majority end up in emergency unit requiring Manual Vacuum Aspiration (Upadhyay et al., 2015).

5.6 The preferred modern contraceptive methods among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital

Analyzing the reported preferences for modern contraceptive methods among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital, we found that 77% of women preferred to utilize modern contraceptive methods. This percentage is slightly higher than the utilization rate of 70.1% reported in a study conducted in Jimma, Ethiopia, focusing on safe abortion care and post-abortion contraception utilization (Erko, Abera, & Admassu, 2016). One possible explanation for this difference could be our smaller sample size compared to the study conducted in Ethiopia, potentially leading to an overestimation of the preference for post-abortion contraceptive utilization.

The most preferred contraceptive methods in our study were injectables 41.9%, followed by subdermal implants 26.5%, condoms and intrauterine devices 9.4% each. A smaller percentage preferred combined oral contraceptive (6.8%) or natural methods (6%). Interestingly, there are variations noted in other studies; for instance, Erko and colleagues found in Ethiopia that implants were the most commonly preferred method at 40%, followed by injectables, intrauterine devices, oral contraceptives, and condoms at 34%, 19%, and 7%, respectively (Erko et al., 2016).

5.7 Implications of study findings

This study found that the referral rate was 30.3% and nearly half of these due to the lack of capacity at low level of healthcare facilities, signifying that there is an evident gap in the capabilities of primary healthcare facilities. This underscores the need for improving the infrastructure and resources at these facilities to handle post abortion care more effectively, reducing the burden on referral centers. In addition, the significantly higher proportion of referral among women from rural areas compared to urban dwellers highlights disparities in healthcare access and quality. This finding suggests the need for targeted interventions to improve healthcare delivery in rural settings, including better training for healthcare professionals and enhancement of local facilities. The emergent themes such as lack of expertise of healthcare professionals, lack of capacity at low level healthcare facilities, financial constraints, and transport challenges provide a multifaceted understanding of the drivers of referral for effective post abortion care. Addressing these issues requires a holistic approach, including policy changes, resource allocation, and community-based interventions. The study also found that 93.4% of participants experienced spontaneous abortions. Therefore, there is a significant need for accessible and timely post abortion care services. This high incidence necessitates robust healthcare infrastructure and trained personnel to manage these cases effectively. Besides that, 77.0% of participants preferred modern contraceptives, there is a positive trend towards contraceptive use among women attending post-abortion care, which can help in preventing unintended pregnancies. However, the uptake of injectables by 41.9% of participants indicates a preference or availability that may need further exploration to ensure contraceptive options are accessible.

5.8 Areas of future research

This study on factors influencing referral rate among women attending post abortion care was conducted at two tertiary healthcare facilities found in Gulu city, Northern Uganda. These two healthcare facilities may not be representative of the many healthcare facilities nationwide. Therefore, there is need to scale up this similar study in Uganda in diverse geographic locations and healthcare settings with larger sample size to improve the generalizability of the findings.

In addition, this study on factors influencing referral attending post abortion care conducted at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital employed a mixed method study design utilized both quantitative and qualitative approach. Despite the exploration using

qualitative technique, there is need to conduct more study in this same area using a longitudinal study designs to explore causal relationships and changes over time.

The study did not collect other details of referral such as cadre of healthcare workers who referred them. Besides the self-referral was not explored in this study and can be areas of future research.

5.9 Stregths and limitations of the study

5.9.1 Stregths of the study

The use of both quantitative and qualitative methods provides a comprehensive understanding of the factors influencing referral among women attending for post abortion care. This approach allows for triangulation of data, enhancing the validity and depth of the findings. The quantitative component includes a robust statistical analysis, using multivariable logistic regression to identify factors associated with referral. This provides a clear and statistically significant understanding of the factors influencing referral. The qualitative component provides valuable insights into the contextual and experiential factors influencing referral. Themes such as lack of expertise of healthcare professionals, lack of capacity at low level healthcare facilities, financial constraints, and transport challenges offer a nuanced understanding that quantitative data alone might miss.

5.9.2 Limitations of the study

The study was conducted at only two tertiary hospitals in Gulu, Northern Uganda. The findings may not be representative of other regions or healthcare settings, limiting the generalizability of the results to broader populations. The method of this study tried as much as possible to mitigate this by using appropriate study design with adequate sample size. Reliance on self-reported data introduces the risk of recall bias and social desirability bias. Participants may not accurately recall details about their healthcare experiences or may provide answers they perceive as socially acceptable. This recall bias was mitigated by ensuring that participants are interviewed in a place without people at their free time and asked both open and close ended questions.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

Approximately one-third of women attending post abortion care were referred to St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital during the study period. The factors influencing referral were residing rural areas and women aged less than 20 years. Women residing rural areas and women aged less than 20 years were 15.5 and 2.8 folds more likely to be referred for post abortion care than those who reside urban areas and women aged 20-34 years respectively. The reported factors influencing referral among women attending post abortion care at St. Mary's Hospital-Lacor and Gulu Regional Referral Hospital include lack of expertise of health care professionals, lack of capacity at low level healthcare facilities, financial constraints and transport challenges.

6.2 RECOMMENDATIONS

1. This study recommends that there should be improvement in the expertise of healthcare professionals through trainings and mentorship to provide post abortion care to reduce the cases of referral to higher level facilities.
2. The district should increase supplies of medicines and equipment necessary for providing post abortion care to women in the low-level facilities to increase their capacity especially those located in rural areas.
3. This study further recommends that there should be a multi-center study with bigger sample size to assess the referral patterns, post abortion care and modifiable factors related to post abortion care.

REFERENCES

- Aantjes, C. J., Gilmoor, A., Syurina, E. V., & Crankshaw, T. L. (2018). The status of provision of post abortion care services for women and girls in Eastern and Southern Africa: a systematic review. *Contraception*, 98(2), 77-88.
- Abraham, O., Linnander, E., Mohammed, H., Fetene, N., & Bradley, E. (2015). A patient-centered understanding of the referral system in Ethiopian primary health care units. *PloS one*, 10(10), e0139024.
- Ahmed, S., Hasnat, M. A., Khair, M. A., Sharmeen, S., Choudhury, F. H., & Haque, N. (2022). Types of Abortion and its Consequences-A Study of 100 Cases in Mymensingh Medical College Hospital. *Scholars Journal of Applied Medical Sciences*, 10, 1774-1779.
- Alipanahpour, S., Tayebi, N., Taheri, M., & Akbarzadeh, M. (2021). Causes of Different Types of Abortion in Women Referring To Educational and Medical Centers in Shiraz, Iran. *Journal of Midwifery & Reproductive Health*, 9(4).
- Ameyaw, E. K., Njue, C., Tran, N. T., & Dawson, A. (2020). Quality and women's satisfaction with maternal referral practices in sub-Saharan African low and lower-middle income countries: a systematic review. *BMC Pregnancy and Childbirth*, 20, 1-16.
- Angel, M., Foster, G., Arnott, M., Zaw, H., Maung, C., Sietstra, C., & Walsh, M. Establishing a Referral System for Safe and Legal Abortion Care: A Pilot Project on the Thailand-Burma Border.
- Arnott, G., Tho, E., Guroong, N., & Foster, A. M. (2017). To be, or not to be, referred: a qualitative study of women from Burma's access to legal abortion care in Thailand. *PloS one*, 12(6), e0179365.
- Atuhairwe, S., Gemzell-Danielsson, K., Byamugisha, J., Kaharuza, F., Tumwesigye, N. M., & Hanson, C. (2021). Abortion-related near-miss morbidity and mortality in 43 health facilities with differences in readiness to provide abortion care in Uganda. *BMJ global health*, 6(2), e003274.
- Barnett, E. A. Restricted Abortion Access: Opinions About Abortion Among Reproductive-Age Women in the Cayman Islands.
- Bearak, J., Popinchalk, A., Ganatra, B., Moller, A.-B., Tunçalp, Ö., Beavin, C., . . . Alkema, L. (2020). Unintended pregnancy and abortion by income, region, and the legal status of abortion: estimates from a comprehensive model for 1990–2019. *The Lancet Global Health*, 8(9), e1152-e1161.

- Carlsson, I., Breiding, K., & Larsson, P.-G. (2018). Complications related to induced abortion: a combined retrospective and longitudinal follow-up study. *BMC Women's Health*, 18, 1-9.
- Chitsa, B. (2019). Factors affecting the provision of referral Services at the Primary Level of health Care in Zomba District in Malawi. *Texila Int J Public Health*, 10(01), Art023.
- Cleland, J., Bernstein, S., Ezech, A., Faundes, A., Glasier, A., & Innis, J. (2006). Family planning: the unfinished agenda. *The lancet*, 368(9549), 1810-1827.
- Cohain, J. S., Buxbaum, R. E., & Mankuta, D. (2017). Spontaneous first trimester miscarriage rates per woman among parous women with 1 or more pregnancies of 24 weeks or more. *BMC Pregnancy and Childbirth*, 17, 1-7.
- Conlon, C., Nicholson, E., Rodríguez-Martin, B., O'Donovan, R., De Brún, A., McDonnell, T., . . . McAuliffe, E. (2020). Factors influencing general practitioners decisions to refer Paediatric patients to the emergency department: a systematic review and narrative synthesis. *BMC Family Practice*, 21(1), 210. doi:10.1186/s12875-020-01277-9
- Dellicour, S., Aol, G., Ouma, P., Yan, N., Bigogo, G., Hamel, M. J., . . . Slutsker, L. (2016). Weekly miscarriage rates in a community-based prospective cohort study in rural western Kenya. *BMJ open*, 6(4), e011088.
- Dodge, L. E., Haider, S., & Hacker, M. R. (2012). Using a simulated patient to assess referral for abortion services in the USA. *Journal of Family Planning and Reproductive Health Care*.
- Dragoman, M., Sheldon, W., Qureshi, Z., Blum, J., Winikoff, B., Ganatra, B., & Network, W. M. S. o. M. N. H. R. (2014). Overview of abortion cases with severe maternal outcomes in the WHO Multicountry Survey on Maternal and Newborn Health: a descriptive analysis. *BJOG: An International Journal of Obstetrics & Gynaecology*, 121, 25-31.
- Erko, E., Abera, M., & Admassu, B. (2016). Safe abortion care, utilization of post abortion contraception and associated factors, Jimma Ethiopia. *J Women's Health Care*, 4(4), 5-9.
- French, V., Anthony, R., Souder, C., Geistkemper, C., Drey, E., & Steinauer, J. (2016). Influence of clinician referral on Nebraska women's decision-to-abortion time. *Contraception*, 93(3), 236-243. doi:<https://doi.org/10.1016/j.contraception.2015.10.005>
- Gebremariam, F. A., Habtewold, E. M., Degife, D. T., Geneti, H. B., & Gebrekiros, D. H. (2023). Health facilities readiness to provide comprehensive abortion care and factors

- associated with client satisfaction in Central Oromia Region, Ethiopia: a multilevel modeling approach. *Reproductive Health*, 20(1), 72. doi:10.1186/s12978-023-01610-2
- Gebreselassie, H., Gallo, M. F., Monyo, A., & Johnson, B. R. (2005). The magnitude of abortion complications in Kenya. *BJOG: An International Journal of Obstetrics & Gynaecology*, 112(9), 1229-1235. doi:<https://doi.org/10.1111/j.1471-0528.2004.00503.x>
- Griebel, C. P., Halvorsen, J., Golemon, T. B., & Day, A. A. (2005). Management of spontaneous abortion. *American family physician*, 72(7), 1243-1250.
- Harris, M., Vedsted, P., Esteva, M., Murchie, P., Aubin-Augur, I., Azuri, J., . . . Taylor, G. (2018). Identifying important health system factors that influence primary care practitioners' referrals for cancer suspicion: a European cross-sectional survey. *BMJ Open*, 8(9), e022904. doi:10.1136/bmjopen-2018-022904
- Hebert, L. E., Fabiyi, C., Hasselbacher, L. A., Starr, K., & Gilliam, M. L. (2016). Variation in pregnancy options counseling and referrals, and reported proximity to abortion services, among publicly funded family planning facilities. *Perspectives on sexual and reproductive health*, 48(2), 65-71.
- Jackline, A., Opee, J., Bongomin, F., Akello, H., Atim, S. F., & Pebolo, P. F. (2024). Exploring the utilization of postabortion care services and related factors among women at a tertiary health facility in Gulu, Northern Uganda. *Women's Health*, 20, 17455057241295896.
- Juárez-Chávez, E., Ruiz, J. H. V., Navarro, R. M. C., Vásquez, R. G., & Alvarado, S. I. C. (2023). Exploring the prevalence of abortion and its characteristics in Perú. *Contraception*, 126, 110115.
- Kamau, K. J., Osuga, B. O., & Njuguna, S. (2017). Challenges facing implementation of referral system for quality health care services in Kiambu county, Kenya.
- Kanyesigye, H., Ngonzi, J., Mulogo, E., Fajardo, Y., & Kabakyenga, J. (2022). Health Care Workers' Experiences, Challenges of Obstetric Referral processes and self-reported solutions in South Western Uganda: mixed methods study. *Risk Management and Healthcare Policy*, 1869-1886.
- Legodi, T. L., & Wolvaardt, J. E. (2015). A blank page: Feedback from first referral hospitals to primary health care clinics. *South African Family Practice*, 57(4), 282-285.
- Ludke, R. L. (1982). An Examination of the Factors That Influence Patient Referral Decisions. *Medical Care*, 20(8), 782-796. Retrieved from <http://www.jstor.org/stable/3764125>

- Margo, J., McCloskey, L., Gupte, G., Zurek, M., Bhakta, S., & Feinberg, E. (2016). Women's pathways to abortion care in South Carolina: a qualitative study of obstacles and supports. *Perspectives on sexual and reproductive health*, 48(4), 199-207.
- Matolengwe, A., Murray, D., & Okafor, U. B. (2024). The Challenges of Implementing a Health Referral System in South Africa: A Qualitative Study. *Risk Management and Healthcare Policy*, 855-864.
- Michie, S., Atkins, L., & West, R. (2014). The behaviour change wheel. *A guide to designing interventions*. 1st ed. Great Britain: Silverback Publishing, 1003, 1010.
- Moradinazar, M., Najafi, F., Nazar, Z. M., Hamzeh, B., Pasdar, Y., & Shakiba, E. (2020). Lifetime prevalence of abortion and risk factors in women: evidence from a cohort study. *Journal of Pregnancy*, 2020(1), 4871494.
- Mutua, M. M., Maina, B. W., Achia, T. O., & Izugbara, C. O. (2015). Factors associated with delays in seeking post abortion care among women in Kenya. *BMC pregnancy and childbirth*, 15(1), 1-8.
- Nakayuki, M., Basaza, A., & Namatovu, H. (2021). Challenges Affecting Health Referral Systems in low-and Middle-Income Countries: a systematic literature review. *European Journal of Health Sciences*, 6(3), 33-44.
- Nara, R., Banura, A., & Foster, A. M. (2019). Exploring Congolese refugees' experiences with abortion care in Uganda: a multi-methods qualitative study. *Sexual and Reproductive Health Matters*, 27(1), 262-271.
- Omole, V. N., Mora, A. T., Yunusa, I. U., Audu, O., Jatau, A. I., & Gobir, A. A. (2017). Knowledge, attitude, and perception of the referral system among tertiary health-care workers in Kaduna metropolis, Nigeria. *Int J Med Sci Public Health*, 6, 1481-1488.
- Organization, W. H. (2014). Management of health facilities: Referral systems. *World Health Organization*.
- Paul, M., Gemzell-Danielsson, K., Kiggundu, C., Namugenyi, R., & Klingberg-Allvin, M. (2014). Barriers and facilitators in the provision of post-abortion care at district level in central Uganda—a qualitative study focusing on task sharing between physicians and midwives. *BMC health services research*, 14(1), 1-12.
- Rajman, A., & Mahomed, O. (2019). Prevalence and determinants of self-directed referrals amongst patients at hospitals in eThekweni District, KwaZulu-Natal 2015. *South African Family Practice*, 61(2), 53-59.

- Say, L., Chou, D., Gemmill, A., Tunçalp, Ö., Moller, A.-B., Daniels, J., . . . Alkema, L. (2014). Global causes of maternal death: a WHO systematic analysis. *The Lancet Global Health*, 2(6), e323-e333.
- Sedgh, G., Bearak, J., Singh, S., Bankole, A., Popinchalk, A., Ganatra, B., . . . Johnson Jr, B. R. (2016). Abortion incidence between 1990 and 2014: global, regional, and subregional levels and trends. *The lancet*, 388(10041), 258-267.
- Sieiro Netto, L., Medina Coeli, C., Micmacher, E., Mamede Da Costa, S., Nazar, L., Galvão, D., . . . Vaisman, M. (2004). Influence of thyroid autoimmunity and maternal age on the risk of miscarriage. *American Journal of Reproductive Immunology*, 52(5), 312-316.
- Singh, S., Remez, L., Sedgh, G., Kwok, L., & Onda, T. (2018). Abortion worldwide 2017: uneven progress and unequal access.
- Singh, S., & Sedgh, G. (1997). The relationship of abortion to trends in contraception and fertility in Brazil, Colombia and Mexico. *International Family Planning Perspectives*, 4-14.
- Sully, E. A., Atuyambe, L., Bukenya, J., Whitehead, H. S., Blades, N., & Bankole, A. (2018). Estimating abortion incidence among adolescents and differences in postabortion care by age: a cross-sectional study of postabortion care patients in Uganda. *Contraception*, 98(6), 510-516.
- Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International journal for quality in health care*, 19(6), 349-357.
- Uganda, M. o. H. M.-. (2022). Essential Maternal and Newborn Clinical Care Guidelines for Uganda, May 2022. Retrieved from <https://library.health.go.ug/sexual-and-reproductive-health/essential-maternal-and-newborn-clinical-care-guidelines-uganda-may>
- Upadhyay, U. D., Desai, S., Zlidar, V., Weitz, T. A., Grossman, D., Anderson, P., & Taylor, D. (2015). Incidence of Emergency Department Visits and Complications After Abortion. *Obstetrics & Gynecology*, 125(1), 175-183. doi:10.1097/aog.0000000000000603
- van den Broek-Altenburg, E., Atherly, A., Cheney, N., & Fama, T. (2021). Understanding the factors that affect the appropriateness of rheumatology referrals. *BMC Health Services Research*, 21(1), 1124. doi:10.1186/s12913-021-07036-5

- Vlassoff, M., Singh, S., & Onda, T. (2016). The cost of post-abortion care in developing countries: a comparative analysis of four studies. *Health policy and planning*, 31(8), 1020-1030.
- White, K., Carroll, E., & Grossman, D. (2015). Complications from first-trimester aspiration abortion: a systematic review of the literature. *Contraception*, 92(5), 422-438.
- WHO, H. (2019). Preventing unsafe abortion. In: World Health Organization Geneva, Switzerland.

APPENDICES

APPENDIX IA: INFROM ASSENT (English version)

5.1 INFROM ASSENT FORM (for children 8 years to 17 years and persons incapable of self-determination) “version 3.0”

Introduction: I am Opee Jimmy, a student of Master of Public Health, department of Public Health, P.O.BOX 166, Gulu University.

I am conducting a study on “**Proportion of referrals and associated factors among women seeking comprehensive abortion care at Lacor and Gulu regional referral Hospitals**”.

Objectives of the study: This study seeks to find out the proportion and associated factors among women seeking comprehensive abortion care at Lacor and Gulu regional referral hospitals. Knowing the proportion of referral will help in increasing the necessities to strengthen referral of women for comprehensive abortion care. Information on the factors associated with referrals will help to mitigate the challenges and provide a framework for policy makers to align their efforts to proper appropriation of resources towards addressing the challenge
You have been identified as a participant for this study, and I kindly request you to take part.

Study procedure We will have an interview with you that will take about 10 minutes in a convenience room during a convenience time. This will help generate sociodemographic information and other necessary data for research. We shall also have audio recorded only when necessary to help us generate themes and subthemes for the study.

Benefits There will be no monetary benefits but participants will get feedback on findings and progress of the study, and that any new information that affects the study participants (including incidental findings) will be made available to research participants.

Compensation There will be no compensation since participation into this study is voluntary.

Risks There is no foreseeable risk of harm or discomfort that will arise from your participation in this study. The only risk is exposure to COVID 19 that will be mitigated following the standard operational procedure that is made available by research team as guided by the ministry of health. Also, discomfort will be the inconvenience in term of time spent during the interview.



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Confidentiality: Any information obtained from you that identifies you by name will be kept private and secure in a locked place and will be accessed only by the principle investigator, the research team or Gulu University Research and Ethics Committee (GUREC) members. We will not identify you by your name. The soft copy of the information obtained from you will be kept in a password-protected computer that is only accessible by the research team and the GUREC members.

Participants' rights: Your participation in this study is entirely voluntary and refusal to participate will not in any way make you be discriminated against. You are free to withdraw from the study at any stage in case you feel that your rights are not being respected or if you are not comfortable with the study procedure. If you choose to withdraw, all your information previously collected will be destroyed and not used as part of the data analysis or dissemination. In case you still have more questions regarding this study, you may call Opee Jimmyy, Telephone contact: 0775172907, Email: jimmyyopee@gmail.com In case of any questions regarding confidentiality or your rights as a study participant please contact the Chairperson of Gulu University Research and Ethics Committee, Dr. Gerald Obai on +256772305621.

Assent statement: I have been informed of this study on proportion of referral and associated factors among women seeking comprehensive abortion care at Lacor and Gulu regional referral hospitals. I have been given enough explanation about the study procedures, benefits, risks, and my rights as a participant in this study. I am aware that participation in this study is entirely voluntary and that I can withdraw, without prejudice, from the study at any stage in case I do not feel comfortable with the procedure or study. I understand that it will not affect my access to the healthcare that I will receive from this health facility or any other social services/facilities that I intend to access/visit. I therefore accept to take part in this study as a study participant.

Name of participant	Signature/ thumbprint	Date
.....		
Name of Witness	Signature/thumbprint	Date
.....		
Name of interviewer	Signature	Date
.....		



APPENDIX IB: INFORM ASSENT (Acholi version)

WARAGA ME YEYO PA LUTINO (mwaka 8 me oo mwaka 17, ki-dong jo ma peromo moko tam pi-gi ken-gi)

Nyutu: An nyinga Opee Jimmy, latin kwan me Master of Public Health, department me Public Health, P.O.BOX 166, Gulu University.

Aye katimo kwed ikom **Wel mon ma ki cwalo gi I Lacor ki Gulu regional referral hospitals ki pingo ki cwalo-gi ka gitye ka mito kony me kwanyo/onyo ic**

Miti me kwed man: kwed man tye me niang wel mon ma kiewalo gi I ot yat Lacor ki Gulu regional referral hospitals ka nongo kony me onyo ic, ki gin ma weko kiewalo. Niang wel mon ma kiewalo gi bikonyo meyilo kero me cwalo mon ma mito kony me onyo ic. Ngec ikom gin ma weko kiewalo gi bikonyo peko mabalo cwalo mon, dok ki romo tic kede me yubu cik ma konyo mon ma mito kony me onyo ic

Ki yero in me bedo I kwed man, dong alegi me ye bedo

Kit ma kwed obitime kede Wa bi penyi ka igamo lapeny kibot wa pi dakika apar I ot maber, icawa ma pore. Man bikonyo. Man bikonyo nongo lok ikom in ki ngec mukene ikom kwed man. Wa room bene mako dwon ka mite me konyo niang lok mapatpat ikom kwed man.

Adugi maber: Cul bibedo peke, ento jo ma tye ikwed man binongo aduki ne ki kit ma kwed tye kawot kede gin mo keken ma gudu kom jo ma tye ikwed, kibi weko gin ngeyo

Cul: Cul bibedo peke pien dic peke me bedo ikwed man

Gin marac Gin ma room beo rac onyo cma yelo in bibedo peke ikwed man. Gin ma room bedo rac aye two COVID 19 , ento lukwed bi-gengo kun ki tiyo ki yoo ma ministry me yotkom oketo ma juku nya pa two ni. Kono-do cawa ni aye bibale ikare me gamo

Mwung: Lok onyo ngec mo keken ma kibi gamo kiboti ma nongo nyingi tye iye, kibi pwungo dok kibi-gwoko, lakwed madit ki dul maloyo kwed I Lacor ki Gulu regional referral hospitals keken aye-bi neon Pe wabi coyo nying-gi. Lok weng ma kibi coyo ki nyonyo kibi pwungo kun ki-gwoko ki password, dok dul pa lukwed ki dul maloyo kwed I Lacor ki Gulu regional referral hospitals keken aye bineno.



Twero pa ngat ma tye ikwed: Bedo tye-ni I kwed man, dic peke iye, kadi I kwero, apoka-poka bi bedo peke. Iromo giko bedo ikwed man cawa mo-keken ka inongo ni turu twero-ni. Ka iyero me weko bedo tye Ikwed man, lok onyo ngec ma imiyo weng kibi rucu dok pekibitic kede me coyo aduki kwed. Ka-ce itye ki lapeny mo, iromo goyocim bot Opee Jimmy: 0775172907, Email: jimmyopee@gmail.com. Lapeny ikom twero-ni malube ki kwed man, iromo goyo cim bot ladit maolyo kwed I Gulu Univerciti, Dr. Gerald Obai +256772305621.

Lok me yeyo: Ki-weko angeyo lok me kwed man ma tye ikom wel mon ma ki cwalo-gi menngo kony me onyo ic I Ot yat ma tye I Gulu Univerciti, ki dong tyen lok ma oweko ki cwalo gi . Ki mio bot an ngec ma oromo ikom kwed man, kit ma obitime kede, ber-ne, ra-ce, ki twero-na calo ngat ma bibedo ikwed man. Atye ki ngec ni bedo tye pa an I kwed man tye labongo dic, bene aromo weko ca-mo keken ka anongo ni pe-ber. Aniang ni bedo tye-na I kwed man pebibalo kit me nongo kony me yot kom mamega ki I ot yat kany onyo kony ka mo keken. Ci-dong aye mebedo I kwed man.

Nying latin/ngat ma bigamo lapeny	Cing	Nino dwe
.....		
Nying Caden	Cing	Nino dwe
.....		
Nying lakwed	Cing	Nino dwe
.....		



APPENDIX IIA: INFORMED CONSENT (English version)

Title of the study: "Proportion of referrals and associated factors among women seeking comprehensive abortion care at Lacor and Gulu regional referral hospitals"

Investigators: Jimmyy Opee**, Gerald Obai and Felix Bongomin

Institution: Gulu University

Introduction

I am Opee Jimmyy, a student of Master of Public Health, department of Public Health, P.O.BOX 166, Gulu University. This informed consent explains the study to you. After the study has been explained, any questions you may have are answered. When you have decided to participate in the study, you will be asked to sign a consent, which you will be given a copy to keep.

A brief description of the sponsors of the research project

This study is not sponsored

Purpose: The study seeks to determine the proportion and associated factors among women seeking comprehensive abortion care at Lacor and Gulu regional referral hospitals. The findings of this study will help in increasing the necessities to strengthen referral of women for comprehensive abortion care.

Information on the factors associated with referrals will help to mitigate the challenges and provide a framework for policy makers to align their efforts to proper appropriation of resources towards addressing the challenge

Procedures: Your participation in this study will involve attending to the interview as will be guided by the research team. We will have an interview with you that will take about 10 minutes in a convenience room during a convenience time. This will help generate sociodemographic information and other necessary data for research. We shall also have audio recorded only when necessary to help us generate themes and subthemes for the study.



Who will participate in the study? You have been chosen to participate in this study because you are a woman referred and seeking comprehensive abortion care at Lacor and Gulu regional referral hospital. The interview will last for approximately 10-15 minutes and there will be only you and the research team during the interview.

Risks/discomforts: There is no foreseeable risk of harm or discomfort that will arise from your participation in this study. The only risk or discomfort will be the inconvenience in terms of time spent during the interview.

Benefits: There will be no monetary benefits but participants will get feedback on findings and progress of the study, and that any new information that affects the study participants (including incidental findings) will be made available to research participants.

Confidentiality: Your identity will not be revealed to any one as we shall only use codes to identify participants. Information obtained will only be accessible by the research team. Soft copies of the data will be protected by password and hard copy files will be kept under lock and key. Confidential information will only be accessed by the principal investigator.

Alternatives: You do not have to participate in this study if you are not interested. You will not lose any benefit in case of no participation.

Cost: There will not be any additional cost incurred as a result of participating in this study.

Questions: If you have any questions related to the study as a research participant, you can contact the principal investigator: Opee Jimmyy, on telephone number: 0775172907 or via email on: jimmyopee@gmail.com

Statement of voluntariness: Participation in the research study is voluntary and you may join on your own free will. You have a right to withdraw from the study at any time without penalty. If you have any issues pertaining to your rights and participation in the study, please contact the Chairperson, Gulu University Research Ethics Committee, Dr. Gerald Obai Tel: No., 0772305621;



email: lekobai@yahoo.com/lekobai@gmail.com; or the Uganda National Council for Science and Technology, on plot 6 Kimera road, Ntinda, Kampala on Tel 0414705500.

Statement of consent

..... has described to me what is going to be done, the risks, the benefits involved and my rights as a participant in this study. I understand that my decision to participate in this study will not affect me in any way. In the use of this information, my identity will be concealed. I am aware that I may withdraw at any time. I understand that by signing this form, I do not waive any of my legal rights but merely indicate that I have been informed about the research study in which I am voluntarily agreeing to participate. A copy of this form will be provided to me.

Name of participant	Signature/ thumbprint	Date
.....		
Name of Witness	Signature/thumbprint	Date
.....		
Name of interviewer	Signature	Date
.....		



APPENDIX IIB: INFORMED CONSENT (Acholi version)

WARAGA MA NYUTU YEYO

Wie madit: "Wel mon ma ki cwalo gi I Lacor ki Gulu regional referral hospitals ki pingo ki cwalo-gi ka gitye ka mito kony me kwanyo/onyo ic

Lukwed: Jimmy Opee**, Gerald Obai, ki Felix Bongomin

Gang pwonye: Gulu Univerciti

Nyutu

An Opee Jimmy, latin kwan me Master me Public Health, departmen me Public Health, P.O.BOX 166, Gulu University. Waraga man tito pi kwed man. Ka-dong ki tito pi kwed man, lapeny mo-keken ma I tye kede kibi-gamo. Ka-dong imoko tami me bedo ikwed man, kibi penyi me keto cingi, ibi-nongo waraga man acel ma-nongo iketo iye.

Lok ikom cul pi kwed man

Kwed man pe ki Culu cente pire.

Miti me kwed man: kwed man tye me niang wel mon ma kiewalo gi I ot yat Lacor ki Gulu regional referral ka nongo kony me onyo ic, ki gin ma weko kiewalo. Niang wel mon ma kiewalo gi bikonyo meyilo kero me cwalo mon ma mito kony me onyo ic. Ngec ikom gin ma weko kiewalo gi bikonyo peko mabalo cwalo mon, dok ki romo tic kede me yubu cik ma konyo mon ma mito kony me onyo ic

Ki yero in me bedo I kwed man, dong alegi me ye bedo.

Kit ma kwed obiwoto kede Wa bi penyi ka igamo lapeny kibot wa pi dakika apar I ot maber, icawa ma pore. Man bikonyo. Man bikonyo nongo lok ikom in ki ngec mukene ikom kwed man. Wa room bene mako dwon ka mite me konyo niang lok mapatpat ikom kwed man.

Ngat ma mite ni obed I kwed man: Ki yero in mededo ikwed man pien itye dako ma ki cwalo kany pi nongo kony me onyo ic it ot yat pa Lacor ki Gulu regional referral. Lapeny ki lagam bi=tero dakika 10-15, dok bibedo in ki dul pa lukwed keken ic awa me lapeny ki lagam.

Gin marac: Gin mo-marac bibedo peke itye pa in ikwed man, kono-do cawa-ni aye bibale manok



Ber-ne: Cul bibedo peke, ento jo ma tye ikwed man binongo aduki ne ki kit ma kwed tye kawot kede gin mo keken ma gudu kom jo ma tye ikwed, kibi weko gin ngeyo.

Mwung: Lok onyo ngec mo keken ma kibi gamo kiboti ma nongo nyingi pe-tye iye, kibi pwungo dok kibi-gwoko, lakwed madit ki dul maloyo kwed I Lacor ki Gulu regional referral keken aye-bi neon Pe wabi coyo nying-gi. Lok weng ma kibi coyo ki nyonyo kibi pwungu kun ki-gwoko ki password, dok dul pa lukwed ki dul maloyo kwed I Lacor ki Gulu regional referral keken aye bineno.

Alternatives: Pe-mira I bed I kwed man ka pe imito , pe ibi-keng gin mo keken kadi pe iye

Cost: Gin mo ma in ibi-rwenyo pien ni ibedo ikwed man peke.

Lapeny: I Ka itye ki lapeny mo keken ma-dok ikom kwed man, go cim bot ngat maloyo lukwed Opee Jimmy, I namba: 0775172907 onyo email: jimmyopee@gmail.com

Lok me yeyo: Dic peke me bedo ikwed man, dok iromo ye imiti mamegi. Itye ki twero me kwero onyo weko bedo tye ikwed man cawa mo keken, labongo gin mo marac madok time inge kwero. Ka itye ki lapeny onyo peko ikom ywero-ni ikwed man. Go cim bot ladit pa dul maloyo lok kom kwed I Gulu Univerciti, Dr. Gerald Obai I namba., 0772305621 onyo email: lekobai@yahoo.com/lekobai@gmail.com; onyo bot dul maloyo kwed I lobo Uganada ma tye I I plot 6 Kimera road, Ntinda, Kampala namba 0414705500.

Lok me yeyo

..... otito bota ngo ma-obitime, rac-ce, ber-ne, ki twero mamega calo ngat ma tye ikwed man, dok pe bi kelo bal iyoo mo keken. Itic ki ngec man, lok ma nyut an abedo nga pekibi kelo kamaleng. Angeyo ni aromo weko kwed cawa mo keken. Angeyo ni keto cinga pe dwoko twero-na piny ento nyuti ni kitito bota maber dok aye bedo I kwed man labongo dic. Waraga man acel bi-dong.

Nying latin/ngat ma bigamo lapeny	Cing	Nino dwe
.....		
Nying Caden	Cing	Nino dwe
.....		
Nying lakwed	Cing	Nino dwe
.....		



APPENDIX IIIA: DATA COLLECTION TOOL (English version)

Quantitative data collection tool

Participant's number..... Date of interview.....

Please tick the box where applicable or write where need be

Sociodemographic factors

1. Age (in years)

2. What is the hospital station being managed now?

☐ Gulu Regional Referral hospital ☐ Lacor hospital

3. Have you been referred for comprehensive abortion care?

☐ Yes ☐ No

4. What is your parity?

☐ 1 ☐ 2 ☐ 3 ☐ Others specify.....

6. How many abortions have you had?

☐ 1 ☐ 2 ☐ 3 ☐ Others specify.....

7. What is your religion?

☐ Catholic ☐ Protestant ☐ Born Again ☐ Moslem ☐ Others specify.....

8. If are identified with a religious preference above, how strong is your affiliation with the mentioned religion?

☐ Very strong ☐ Strong ☐ Neither strong nor weak. ☐ Weak ☐ Very weak

9. What is your educational level?

☐ Certificate ☐ Diploma ☐ Degree ☐ Master



10. What is your marital status

☐ Married ☐ Cohabiting ☐ Single ☐ Others specify

11. What is your occupation?

12. Place of residence.....

Indication related/medical related factors

13. If Yes, which one? Tick the diagnosis from below list

- | | |
|--|--|
| ☐ Rape | ☐ Hypertension |
| ☐ Incest | ☐ Diabetes |
| ☐ Parent's decision | ☐ Heart diseases |
| ☐ Incomplete abortion | ☐ Fear of parents |
| ☐ Missed abortion | ☐ Septic abortion |
| ☐ Complete abortion | ☐ Not sure of the diagnosis |

Reasons for conduct of abortion

14. Did you choose to terminate this pregnancy? (Tick one) Yes.....No.....

15. If yes, why did you choose to terminate this pregnancy?

- | | |
|--|--|
| ☐ Not married | ☐ A friend recommended me |
| ☐ Still a student | ☐ My partner chose for me |
| ☐ Irresponsible husband | Other (specify)..... |
| ☐ I am still young | |

System related factors

16. If you have been referred from another facility, what could be the reason?

- | | |
|--|---|
| ☐ Lack of medical supplies | ☐ Lack of equipment |
| ☐ Low level facility | ☐ Others (specify) |
| ☐ Lack of qualified personnel | |



Uptake of modern methods of contraceptives

17. Do you wish to take up a modern method of contraceptive? Yes.....No.....

If yes, then tick the method of choice

- | | |
|---|--|
| ☐ Intrauterine devices and systems | ☐ Emergency pills |
| ☐ Sub-dermal implants | ☐ Spermicidal agents |
| ☐ Combined oral contraceptives | ☐ Vaginal rings |
| ☐ Vaginal sponge | ☐ Patches |
| ☐ Injectable | ☐ Condoms |
| ☐ Cervical caps | ☐ Sterilization (vasectomy, tubal ligation) |

18. Why would you prefer the choice you have made above?

- ☐ Fewer side effects
- ☐ More convenient
- ☐ No specific reason
- ☐ A friend recommended to me
- ☐ My partner would like it
- ☐ Other reason, specify.....

19. If you do not prefer any method of modern method of contraceptives, please give reasons

- ☐ Fear of side effects
- ☐ I want to conceive
- ☐ My partner does not want me to use any method
- ☐ My faith/religious believe does not allow me
- ☐ Frequent stock out of contraceptives
- ☐ Any other reason, please specify.....



Qualitative data collection tool on barriers and facilitators of referral for CAC

20. Age (in years) Date of interview Name of interviewer

21. What is the hospital station being managed now?

☐ Gulu Regional Referral hospital ☐ St Mary's hospital Lacor

22. Have you been referred for comprehensive abortion care?

☐ Yes

☐ No

23. What is your parity?

☐ 1 ☐ 2 ☐ 3 ☐ Others specify

25. How many abortions have you had?

☐ 1 ☐ 2 ☐ 3 ☐ Others specify

26. What is your religion?

☐ Catholic ☐ Protestant ☐ Born Again ☐ Moslem ☐ Others specify

27. If are identified with a religious preference above, how strong is your affiliation with the mentioned religion?

☐ Very strong ☐ Strong ☐ Neither strong nor weak. ☐ Weak ☐ Very weak

28. What is your educational level?

☐ Certificate ☐ Diploma ☐ Degree ☐ Master

29. What is your marital status

☐ Married ☐ Cohabiting ☐ Single ☐ Others specify

30. What is your occupation?

Place of residence

31. For qualitative data, the following questions will be asked

- i. Did you attempt any traditional method(s) to terminate this pregnancy?
- ii. Did you get any challenges with finances to meet the cost of comprehensive abortion care?
- iii. Do you know any government policy on abortion practices?
- iv. If yes, did the government policy on abortion affected you in any way from getting comprehensive abortion care?
- v. How long did you take to get to facility after referral for comprehensive abortion care?
- vi. Did you get any challenges pertaining transport after referral for comprehensive abortion care?



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APPENDIX IIIB: DATA COLLECTION TOOL (Acholi version)

WARAGA ME COKO LOK KI NGEC IKOM KWED

Namba pa ngat ma ki yero me bedo ikwed.....Nino dwe me lapeny ki lagam.....

Gwet box onyo ico ka-mite

Lok kom ngat acel acel

31. Mwaka pa ngat ma tye ikwed.....

32. Ot yat mene ma ibedo ka nongo kony ki iye?

☐ Gulu Regional Referral hospital ☐ Lacor hospital

33. Ci-cwali menongo kony onyo ic?

Yes ☐

No ☐

34. Inywal wang-adi?

☐ 1

☐ 2

☐ 3

☐ Ka mukene wac-ci.....

36. Ic mamegi o-ony wan-adi?

☐ 1

☐ 2

☐ 3

☐ ka mukene. Wac-ci.....

37. Dini-ni obedo ngo?

☐ Katoli

☐ Protestant

☐ morokole

silam ☐

Others specify.....

38. Ka ihero dini mamalo-ni, rwom mar-ni iye tye rom mene?

☐ Tek tutwal

pe-tek tutwal. ☐

Goro ☐

☐

Goro tutwal

39. Rwom kwan-ni tye mene?

☐ Certificate

☐ Diploma

☐ Degree

☐ Master



40. Kit me nyom mamegi tye nining

☐ Anyome ☐ pe-anyome ento wabedo karacel ☐ Pe-anyome ☐ Others specify

41. Itiyo gin ango?.....

42. Ibedo kwene.....

Kit tyen lok ma kelo onyo/kwanyo ic

43. K iye ? gwet/yee tyen lok magi

- | | |
|---|---|
| ☐ Butu tek-tek | ☐ Two pressure |
| ☐ Butu ki wat | ☐ Two Cukari |
| ☐ Tam pa lunyodo | ☐ Two adunu |
| ☐ ic ocako ony/obale ento pwod tye | ☐ Lworo lunyodo |
| ☐ ic obale ma pe ki niang | ☐ ic ma obale ento two omako dul kom |
| ☐ ic obale, dong pe tye | ☐ pe angeo pi ngo |

Pingo I yero me kwanyo/onyo ic

44. I yero onyo imoko me kwanyo/onyo ic man? (gwet acel) ayero/aye.....pe aye.....

45. Ka iye, ngo ma oweko iye/ihero me onyo/kwanyo ic man ?

- | | |
|---|--|
| ☐ pe anyome | ☐ Iarema owaca |
| ☐ pwod atye latin kwan | ☐ Ngat ma awinye kede aye oyero |
| ☐ cwara pekonya | ☐ muken (waci)..... |
| ☐ Pwod atidi | |

Kit me ot yat ki jami matime iye

46. Ka kiewali ki I ot yat mukene, itamo ni/romo bedo pingo ?

- | | |
|--|---|
| ☐ Jami mamite pe romo | ☐ Jami tic peromo |
| ☐ Ot yat matidi | ☐ mukene(waci).... |
| ☐ Lutic rwom ngec-gi peromo | |



Tic ki yoo me lago nywal ma-nonge I ot yat

47. Iye me tic ki yoo me lago nywal ma nonge I ot yat? Aye.....pe aye.....

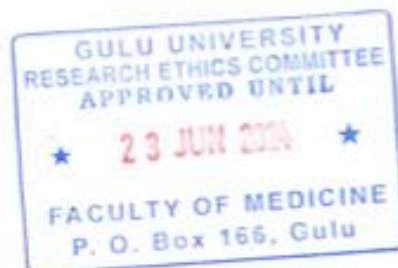
Ka iye, yer yoo ma iromo kwanyo

- ☐ Intrauterine devices and systems
- ☐ Sub-dermal implants
- ☐ Combined oral contraceptives
- ☐ Vaginal sponge
- ☐ Injectable
- ☐ Cervical caps

- ☐ Emergency pills
- ☐ Spermicidal agents
- ☐ Vaginal rings
- ☐ Patches
- ☐ Condoms
- ☐ Sterilization (vasectomy, tubal ligation)

48. Pingo imaro yoo ma iyero gi malo ni?

- ☐ Adwoki ne marac nok.
- ☐ Rwater ita
- ☐ Tyen loke peke
- ☐ Lawota aye owaco pire ita
- ☐ Lawota imar obimaro
- ☐ Tyen lok mukene (titi).....



Qualitative data collection tool on barriers and facilitators of referral for CAC

- 49 Mwaka Nino.....Lapeny.....Nying lapeny
peny.....
- 50 Itye kanongo kony ki I ot yat mene?
- ☐ Ot yat madit me Gulu ☐ Ot yat Lacor
- 51 Tika dong kicwali kanongo kony ma oromo inge onyo ic?
- ☐ Ayo ☐ Ku.
- 52 Tyen adii ma I onyo ii otum maber labongo peko mo?
- ☐ 1 ☐ 2 ☐ 3 ☐ mukene(titi)
- 53 In i onyo ii dony tyen adii?
- 1 ☐ 2 ☐ 3 ☐ Mukene (titi)
- 54 Dini ni ngo?
- katoli ☐ Cimec ☐ Morokole ☐ Cilam ☐
- mukene
- 55 Ka dini ni tye ikin mamalo ni, yeyo tye tek lakwene ikum dini ma iwaco ni?
- 56 Tek adada ☐ tek ☐ pe tek onyo goro ☐ Goro ☐ Goro adada ☐
- Rwom kwan ni ogik kwene?
- ☐ Certificate ☐ Diploma ☐ Degree ☐ Macta
- 57 In inyome?
- Anyome ☐ watye kabedo kacel ☐ Atye kena ☐ Mukene(titi) ☐
- 58 Itimo tic ango?.....
- 59 Kama ibedo I iye.....



For qualitative data, the following questions will be asked

- i. Tika itemo yoo mo me tekwaro me onyo ii?
- ii. Tika I nongo peko mo mi cente meculo pi nongo kony ma oromo inge onyo ii?
- iii. Tika ingeyo cik pa gamente mo keken ikum tim me onyo ic?
- iv. Ka ayo, ci tika cik pa gamente ikum onyo ic eno obalo it in yoo me nongo kony maromo inge onyo ii?
- v. Otero it in cawa marom mene me oo I ot yat inge ma cwalo in kanongo kony ma oromo inge onyo ii?
- vi. Tika I nongo peko mo malube ki gin wot inge cwalo in kanongo kony ma oromo inge onyo ii?



APPENDIX IV: COVID-19 MITIGATION PLAN

MEASURES FOR THE PREVENTION AND CONTROL OF RISK OF SPREAD OF COVID-19 DURING THE IMPLEMENTATION OF RESEARCH. “version 3.0”

Study Title: “Proportion of referrals and associated factors among women seeking comprehensive abortion care at Lacor and Gulu regional referral hospitals”

Principal Investigators: Jimmy Opce**, Gerald Obai and Felix Bongomin

Introduction:

The novel Coronavirus is transmitted from human to human through droplets and direct or close personal contact with an infected individual

Novel Coronavirus signs of infection include respiratory symptoms, fever, cough, shortness of breath and breathing difficulties. In more severe cases, infection can cause pneumonia, severe acute respiratory syndrome, kidney failure and even death

Implementation of the prevention and control measures

In the implementation of the research activities, the investigators are committed to ensuring the safety of its research team, research participants and communities where the study will be conducted. The study team undertakes to comply with the Standard Operating Procedures issued by the Ministry of Health, and presidential directives to mitigate against the risk of infection of COVID-19, rapidly detect and effectively respond to any COVID-19 case that may occur in the process of carrying out the study, screening, face covering, physical distancing, and good hand hygiene.

Procedures to be followed during the implementation of the research.

Prior to data collection and Training

1. **Health guidance:** There will be training sessions dedicated for COVID-19 sensitization and awareness, to equip the research team with knowledge of signs and symptoms of the COVID-19, and preventive measures such as hand hygiene before placing and removing the mask, as well as storage of the mask, social distancing. The research team will circulate



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notices, posters, charts on common signs and symptoms of COVID-19 as provided by the Ministry of Health, and develop and/or use existing plan for the appropriate referral pathway for identified and/or suspected cases.

2. **Personal Screening:** All researchers, research assistants, research participants and any other individuals engaged in research activities will screen temperature daily for fever. Screening for temperature will be carried out during planning meetings, trainings, community outreach. Any individual found with COVID 19 symptoms will be withdrawn and referred to the COVID – 19 task force for further assessment and management. The withdrawn individual will be allowed to return only if they present a valid certification of their COVID-19 status showing negative result
3. **Wearing face coverings:** All researchers and research assistants and any other individuals engaged in research activities that require interaction with fellow researchers or research participants or the community member will have to wear a face mask that fully covers the mouth and nose at all times. The study will provide face masks for individuals who do not have.
4. **Physical Distancing:** There will be social distancing during the training, meetings, community outreach of at minimum of 2 meters. During breaks, the team will not be allowed to congregate in common areas.
5. **Good hygiene:** All team members will be required to wash their hands or use hand sanitizers before and after entering the training room, and other common areas. Hand washing equipment shall be supplied and made available at all times. All surfaces and equipment shall be sanitized frequently.

During data collection

1. **Personal Protective Equipment (PPE):** All research assistants involved in tracing of respondents and in in-person interviews and research participants will use PPE including a properly fitted face mask. Enumerators/Researchers and research participants will wash hands with soap and water or use hand sanitizer prior to the interview. Handshakes and hugging are prohibited. Physical distancing of at least 2 metres in all research related activities shall be observed.
2. **Consent Process:** The Researcher /Research assistants will observe social distancing when taking consent (while 2 metres apart) upon arrival to the participant.



Enumerators/Researchers and research participants will wash hands with soap and water or use hand sanitizer prior to the interview. Participant will then be sensitized on covid-19 and presented with preventive measures.

3. **Equipment sanitization:** shared devices used to record or capture data shall be sanitized regularly.

During Dissemination/Community engagement

1. **Community Engagement:** The research team shall carry educational materials on prevention of COVID-19 in a language understood by the participants. These materials shall also have visual images to support understanding. Enumerators/Researchers and research participants will wash hands with soap and water or use hand sanitizer prior to the interview. Screening for temperature will be carried out prior to conducting community engagements.
4. **Equipment sanitization:** shared devices used during community engagements to shall be sanitized regularly.

The preventive and control measures will continuously be reviewed based on new information and guidelines communicated by the Ministry of Health



APPENDIX V: GUREC APPROVAL LETTER

**GULU UNIVERSITY**
P.O. Box 166, Gulu (U)
Website: www.gu.ac.ug
Email: gurec@gu.ac.ug
Tel: +256 471 432 096
Fax: +256 471 432 913
Mob: +256 772 305 621
+256 778 812 147

RESEARCH ETHICS COMMITTEE

23/06/2023

To: Jimmy Opee

Gulu University
+256775172907

Type: Initial Review

Re: GUREC-2023-587: PROPORTION OF REFERRALS AND ASSOCIATED FACTORS AMONG WOMEN SEEKING COMPREHENSIVE ABORTION CARE AT LACOR AND GULU REGIONAL REFERRAL HOSPITALS

I am pleased to inform you that at the 99th convened meeting on 04/05/2023, the Gulu University REC meeting voted to approve the above referenced application.
Approval of the research is for the period of 23/06/2023 to 23/06/2024.

As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the REC for review and approval prior to the activation of the changes.
3. Reports of unanticipated problems involving risks to participants or any new information which could change the risk benefit ratio must be submitted to the REC.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by participants and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Continuing review application must be submitted to the REC eight weeks prior to the expiration date of 23/06/2024 in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda.

The following is the list of all documents approved in this application by Gulu University REC:



GULU UNIVERSITY
RESEARCH ETHICS COMMITTEE
APPROVED UNTIL
★ 23 JUN 2024 ★
FACULTY OF MEDICINE
P. O. Box 166, Gulu

No.	Document Title	Language	Version Number	Version Date
1	Data collection tool	English	3.0	2023-06-23
2	Informed assent form	Acholi	3.0	2023-06-23
3	Informed assent form	English	3.0	2023-06-23
4	Informed consent form	Acholi	3.0	2023-06-23
5	Informed consent form	English	3.0	2023-06-23
6	Covid -19 Management plan	English	3.0	2023-06-23
7	MPH proposal ver. 3.0	English	3.0	2023-06-23

Yours Sincerely

Julaina A. Obika

Julaina A. Obika (PhD)

For: Gulu University REC



APPENDIX VI: GULU REGIONAL REFERRAL HOSPITAL ADMINISTRATIVE CLEARANCE LETTER

Hospital Director: +256774408228
E-mail: gulu.rh.hospital@gmail.com
mulpet@gmail.com
In any correspondence on this subject,
Please quote no: **ADM/2023/07/08**



MINISTRY OF HEALTH
GULU REGIONAL REFERRAL HOSPITAL
P. O. Box 160,
Gulu, Uganda.

Date: 26th / 7/ 2023

RESEARCH AND ETHICS COMMITTEE

OPEE JIMMY
+256775172907
Gulu University

**RE: GUREC-2023-587; PROPORTION OF REFERRALS AND ASSOCIATED FACTORS AMONG WOMEN
SEEKING COMPREHENSIVE ABORTION CARE AT LACOR AND GULU REGIONAL REFERRAL HOSPITAL**

This is to inform you that the Gulu Regional Referral Hospital, Research and Ethics Committee (GRRHREC) has approved your study documents for the above referenced research study. Note that this approval expires after one year; the current approval is therefore valid until 26th /7/ 2024. Continued approval is conditional upon your compliance with the following requirements:

1. No other consent forms, questionnaire and /or advertisement documents should be used.
2. Consent forms must be voluntarily signed by study subjects prior to commencement of data collection. Queries raised regarding consent too should be addressed.
3. Study bias aversion strategies should be employed as discussed to improve quality and reliability of findings.
4. All the protocol amendments and changes to other research documents must be re submitted to the Gulu University REC for approval and made known to the GRRHREC.
5. Significant changes to the current protocol and all anticipated problems that may involve risks to study subjects or patient information or that may affect integrity of the research must be promptly reported to Gulu University REC and GRRHREC.
6. Specification of support required from GRRH and inputs from the researcher (Research Assistants, Stationary etc.) to the Department.
7. Renewal of the study approval is upon feedback from the continuing research and will be done within 2 months prior to the expiry of the current protocol approval date.

You will be required to share the study findings with the GRRHREC and the responsible Departments to support our efforts to improve quality of patient care.

Yours faithfully

Dr. 
For: DIRECTOR
OBGY, Chair GRRHREC
For Hospital Director-GRRH
P.O. BOX 160, GULU



APPENDIX VII: LACOR HOSPITAL ADMINISTRATIVE APPROVAL LETTER



ST. MARY'S HOSPITAL LACOR

P.O. BOX 180, GULU-UGANDA
Tel: +256-471-432310, Fax: +256 - 471-432665
Email: info@lacorhospital.org, Website: www.lacorhospital.org

RESEARCH ETHICS COMMITTEE

Date: 16th August 2023

To: Jimmy Opee
Gulu University
Gulu-Uganda

RE: RESEARCH ADMINISTRATIVE CLEARANCE LETTER- ADMIN No: 034/08/2023

STUDY TITLE: GUREC-2023-587: Proportion of Referrals and Associated Factors Among Women Seeking Comprehensive Abortion Care at Lacor And Gulu Regional Referral Hospitals

This is to certify that Lacor Hospital Institutional Research Ethics Committee (LHIREC) has reviewed the above titled study and upheld the Ethical approval by Gulu University REC done on **23/06/2023**. This letter serves as an administrative clearance of your study to be conducted in Lacor Hospital.

Please note that your administrative clearance number is **034/08/2023**, and you are to reference it in any correspondence to LHIREC. If it is necessary to continue with the study beyond the expiry date of **23/06/2024**, a request in writing should be made to the secretary Lacor Institutional Research Ethics Committee.

Yours Sincerely

Dr. Cyprian Opira
Executive Director- St. Mary's Hospital Lacor

Logistic Office Kampala: Tel. +256 – 414-223014, Fax: 256 – 414 - 223013