PREVALENCE AND PREDICTORS TO OCCURRENCE OF REPEAT PREGNANCY AMONG ADOLESCENTS ATTENDING HEALTH FACILITIES IN SUNA EAST, MIGORI COUNTY, KENYA

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DECLARATION

This thesis was written entirely by me, without the assistance of any outside sources, and it hasn't been submitted anywhere else for consideration for a degree or other honor.

Signature:……. Date……

Oyugi O. Samuel

HNR/G/01-55722/2016

CERTIFICATION

The undersigned certify that they have read and hereby recommended for acceptance of Masinde Muliro University of Science and Technology a thesis entitled "**Prevalence and Predictors to Occurrence of Repeat Pregnancy among Adolescents attending Health Facilities in Suna East, Migori County, Kenya."**

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DEDICATION

Too all adolescent mothers- trying to balance life amidst challenges of early childbearing, I dedicate this study to you. Life indeed has a meaning! I plead that you be encouraged, for it is from the dirty neauseating humus that plants sprout to life.

ABSTRACT

In many nations, teenage pregnancies and births continue to be an issue. Recurrent teenage pregnancies contribute to the load that keeps adolescents' poor health outcomes alive. Worldwide, an estimated 20,000 or more girls under the age of 18 give birth each day. In Migori, 25 percent of girls between the ages of 15 and 19 have started having children; of them, 3 percent are expecting their first child, and 20.9% have already given birth. Compared to the 14.7% national average, a higher percentage of teenagers are already moms. Because of this, the adolescent birth rate (or age-specific fertility rate) for girls in Migori County between the ages of 15 and 19 is 136 births per 1000 girls, significantly higher than the national average of 96 births per 1000 girls. Despite popular perception, not all teenage pregnancies result in births. Teenagers who started having children early are more likely to become pregnant again when they're still young. The purpose of this study was to look at the frequency and risk factors for teenage repeat pregnancies in Suna East, Migori County. The study specifically evaluated the frequency of repeat pregnancies, investigated the relationship between individual factors and the incidence of repeat pregnancies, identified the relationship between teenage behavior and the incidence of repeat pregnancies, and investigated the impact of the social environment on the incidence of repeat pregnancies among adolescents. A cross sectional analytic mixed method approach was adopted in this study with semi-structured questionnaires administered to 381 out of the targeted 402 adolescents at health facility level. Two focused group sessions and 5 key informant interviews were also conducted. The chi-square test was used for categorical data and the t-test for continuous variables when analyzing quantitative data. The defined objectives were followed in the transcription, summarization, and theme analysis of the qualitative data. At the 0.05 threshold of significance (95% confidence interval), statistical tests were run. To investigate the factors associated with recurring pregnancies, multivariate logistic regression was employed. 69.3% of the participants experienced recurrent pregnancy, albeit the data is not definitive. The most significant individual characteristics that indicate the likelihood of repeat pregnancy are ethnicity and awareness of contraception. Adolescent girls whose moms became pregnant before turning 18 were likewise at an increased chance of becoming pregnant again, and important behavioral risk factors linked to repeat pregnancy included not using a condom and having several sexual partners. Therefore, the study suggests interdisciplinary approaches that target risky behavior as well as the social and cultural norms that shape young people's choices about their health and pregnancy.

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LIST OF ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immunodeficiency Disease
CDC	Centers for Disease Control
CGRH	Center For Global Reproductive Health

OPERATIONALIZATION OF KEY TERMS

Abortion	the intentional stopping of a human pregnancy, usually within the first 28 weeks of gestation.
Adolescent	Teenagers are defined by the World Health Organization (WHO) as individuals who are between the ages of 10 and 19.
Adolescent Pregnancy	the prevalence of pregnancy among females between the ages of 10 and 19.
Adolescent repeat pregnancy	Anything that becomes pregnant after a female under the age of 19 has had an abortion or miscarried.
Age specific fertility rate	This is the annual birth rate to women of a given age or age group divided by the total number of women in that age group.
Contraception	a purposeful use of artificial means or other strategies to avoid getting pregnant after having sex.
Child spacing	the act of organizing the time between a family's childbirths.
Maternal mortality	
Sexual debut	the intentional stopping of a human pregnancy, usually within the first 28 weeks of gestation.

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter includes an overview of the study's history, problem statement, justification, objectives, research questions, and hypothesis, as well as its constraints, conceptual framework, operationalization of variables, and research questions.

1.2 Background to the Study

Teenagers are defined by the World Health Organization (WHO) as those who are between the ages of 10 and 19.In poor nations, almost 20,000 girls under the age of 18 give birth every day, according to the United Nations Adolescent Report (2016).That's 7.3 million babies born annually.However, this data reveals that, from 23.3% in 2010 to 20% in 2016, the frequency of adolescent pregnancies has somewhat decreased globally in recent years. The countries with the biggest losses are those in Eastern Europe, Central Asia, and South Asia (20%), followed by Eastern Asia and the Pacific (13%). Nonetheless, total rates of teenage pregnancies in Latin America, the Caribbean, the Arab States, and sub-Saharan Africa have remained mostly stable over the same time span, fluctuating by less than 10% (United Nations, 2016).

In many nations, teenage pregnancies, births, and the detrimental effects they are linked to continue to be major issues. According to Norton (2017), not all teenage pregnancies result in births. In the majority of countries, this is not the case. He also makes the implication that teenagers who started having children early are more likely to become pregnant again when they are still young. According to the KDHS (2022), 15% of Kenyan women between the ages of 15 and 19 had given birth at some point. Of them, 12% gave birth to a living child, 1% experienced a miscarriage, and 3% are now carrying a child. The study also shows that the percentage of women between the

ages of 15 and 19 who have ever become pregnant rises with age, from 3% for those in their 15s to 31% for those in their 19s (KDHS, 2022).

The majority of people living in Migori County are under the age of 15, accounting for 49% of the total population. With a rate of teenage pregnancies of 24%, the county ranked in the top 7 with the highest likelihood of recurrent pregnancies. At the age of sixteen, half of the women in Migori County had their first sexual experience. Compared to the 18-year national average, this is two years sooner. Furthermore, a comparable percentage of the County's 25–49 year old female population married by the age of 17. Women in the same age range would marry at age 20 on a nationwide basis. KDHS (2022).

The purpose of this study was to examine the predictors of adolescent repeat pregnancies in Migori County. It was undertaken in recognition of the long-lasting societal impact that adolescent pregnancy has on both the teen herself and her child(ren) that would be preventable.

1.3 Statement of the Problem

Like other adolescent pregnancies, repeat adolescent pregnancy is a great concern, particularly in low- and middle-income countries. All forms of early childbearing including repeat prgegnnacy feeds into cycle of intergenerational deprivation, ill health and poverty. Adolescent repeat pregnancy evidently constitutes a medical and social problem.

4.1% of the 22.5 million teenage pregnancies overall were second or higher-order children, according to a 2017 USAID analysis that also highlighted the impact of recurrent pregnancy in 60 countries funded by USAID. According to a previous multi-country survey carried out by the Centers for Disease Control and Prevention (CDC)

in 2010, 18.3% of teenagers between the ages of 15 and 19 became pregnant again, and the bulk of these repeat births (85.7%) involved a second child. According to the study's findings, nearly one in five adolescent pregnancies were regarded as recurrent pregnancies (CDC, 2010). Accordingly, a research carried out in the South African Kwa-Zulu Natal region estimated that 19.9% of women became pregnant again (Desiree et al., 2019).

Adolescent recurrent pregnancies negatively impact society by increasing unemployment, stigma, discrimination, and depressive rates. Recurring pregnancy typically exacerbates the problem as teenagers who become pregnant more than once in a short period of time are more susceptible to negative consequences for their reproductive health (Leftwich, 2017). Pregnancy and delivery problems are among the world's leading causes of mortality for females aged 15 to 19 (WHO study, 2015). Unfortunately, 99% of maternal fatalities worldwide among women aged 15 to 49 occur in low- and middle-income nations (WHO, 2015).

In Kenya, 378,397 teenage females between the ages of 10 and 19 were pregnant between July 2016 and June 2018, according to the Center for Global Reproductive Health, which cited a 2018 United Nations Population Fund (UNFPA) study. Teen pregnancy was identified as a major issue in Kenya. Regretfully, the percentage of teenagers who become pregnant again was not included in this report (Centre for Global Reproductive Health, 2018). In Migori, 25 percent of girls between the ages of 15 and 19 have started having children; of them, 3 percent are expecting their first child, and 20.9% have already given birth. Compared to the 14.7% national average, a higher percentage of teenagers are already moms. Consequently, the age-specific fertility rate (adolescent birth rate) for females in Migori County between the ages of

15 and 19 is 136 births per 1000 girls, which is much higher than the national level (96 births per 1000 girls) (KDHS, 2014).

To address these challenges, Migori County launched a 5-year adolescent multisectoral plan to address youth and adolescent issues. A technical working group was established, adolescent focal person was appointed and more resources were allocated to support adolescent health activities. However, no significant change has been realized in reducing adolescent pregnancies. Yussif et al. (2017) imply that most studies have only highlighted the negative outcomes associated with teenage pregnancy and have not been able to identify factors that are related to the occurrence of a second or higher order pregnancy during adolescence, despite the far-reaching effects of adolescent pregnancy and the worse implications of repeat pregnancies. Therefore, this study investigated the factors associated with recurring pregnancy in teenagers who visited medical facilities in Suna East, Migori County.

1.4 Main Objective

The main objective of this study was to investigate the prevalence and predictors to occurrence of repeat pregnancy among adolescents visiting health facilities in Suna East of Migori County.

1.4.1 Specific Objectives

i. To assess the prevalence of repeat pregnancy among adolescents visiting health facilities in Migori County.
ii. To examine the association between individual factors and the occurrence of repeat pregnancy among adolescents.
iii. To determine the association between behavior of adolescents and the occurrence of repeat pregnancy

iv. To examine the influence of social environment on the occurrence of repeat pregnancy among adolescents.

1.4.2 Research Hypotheses

i. H_o: There is no association between the individual and personal factors and the occurrence of repeat pregnancy among adolescents.

ii. H_o: There is no association between the behavior of adolescents following first pregnancy and the occurrence of repeat pregnancy.

iii. H_o: There is no relationship between social environment factors and repeat pregnancy among adolescents.

1.5 Justification of the Study

Maravilla et al. (2017) claim that there is a dearth of research on recurrent pregnancies in Kenya. The majority of primary data on recurrent pregnancies have come from the United States, Europe, Australia, and Asia. A small number of studies in Africa have been done in Uganda and others in South Africa. For example, a research in South Africa looked at the incidence of teenage recurrent pregnancies in an urban context, while another study looked at the variables that can lead to repeat pregnancies. Nonetheless, it was noted that these two studies' findings were contradictory and equivocal. It is significant to highlight that in Uganda, no study looked at the factors that predicted recurring pregnancies.

In a study conducted in the same nation, Dinah et al. (2020) examined the predictors of rapid repeat pregnancy in young women and adolescents, while another study examined the frequency and temporal patterns of repeat adolescent births in Uganda by analyzing data from the Uganda Demographic Health System (UDHS) for the years 1988 to 2016.

Migori County launched an Adolescent and Youth Multi-sectoral Action plan that offered a progressive approach in tackling adolescent issues. Expectedly, adolescent pregnancy forms a key priority area in the roadmap but the document gives much emphasis on 'yet- to -be mothers' leaving out the adolescents who are already mothers. The County has proposed various strategies aimed to reduce adolescent pregnancies by 10% in 5 years including capacity building on Adolescent and youth sexual and reproductive health, integrated school health programme, community evidence-based interventions and advocacy, communication and social mobilization. However, the Action Plan lacks data on adolescent repeated adolescent pregnancies, which fall under the adolescent-friendly sexual and reproductive health (Migori multisectoral action plan, 2018).

This study envisioned to broaden the scope of focus beyond primary prevention of adolescent pregnancy and give deeper understanding of the prevalence and factors associated with repeat pregnancies among adolescents. Further, the study intended give more data to help design interventions for adolescent with more than one pregnancy, not only in Migori but also in other conuties with the similar context and problem.

1.6 Limitatation

The specific sample was obtained from only one sub county. This might limit representativeness of the results. In addition, all responses were based on the adolescents' and other participants self-report which could lead to memory bias. Similarly, even though the research assistants limited chances of any bias during focus group sessions, some comments from the adolescents and parents could have also been influenced by their peers' sessions.

1.6 Theoritical Framework

This study was based on Bandura (1986) Social Cognitive Theory (SCT) that explains how human behavior aligns to the the social environment. Maravilla *et al.*, (2017) alludes that adolescent pregnancy is a social, economic and behavioral phenomenon, highly influenced by individuals past experience, social surrounding, future expectation and reinforcements around the adolescent. In addition, it affirms that adolescents also learn new behavior patterns by watching others in their network and then imitate such behavior.

In line with the social Cognitive Theory, Bandura, (1986) explains that positive reinforcement increases the likelihood of the same behavior being repeated, while negative reinforcement tries to remove or reduce behavior through punishment or harsh negative outcomes.

In addition to SCT, this study further explored the role of Life Satisfaction, social support and Psychological Well-Being as predictors to behaviors. Liem *et al.*, (2010) and other researchers in the field of developmental pathology, highlighted the need to explore mechanisms that underlie the relationship between family stressors and other mental sicknesses. Findings from the studies revealed that life satisfaction is an important pointer to relationship between family functioning and behaviors such as adolescent pregnancy. Thus, low pwercieved family functioning is associated with lower levels of life satisfaction, which might in turn predict occurance of negative external behavior especially among adolescents (Suldo and Huebner, 2004).

This study connected all these issue togerther with personality, perception, attitude and actions towards sex and early motherhood with the external cultural and social environment and the possibility of occurance of a repeat pregnancy.

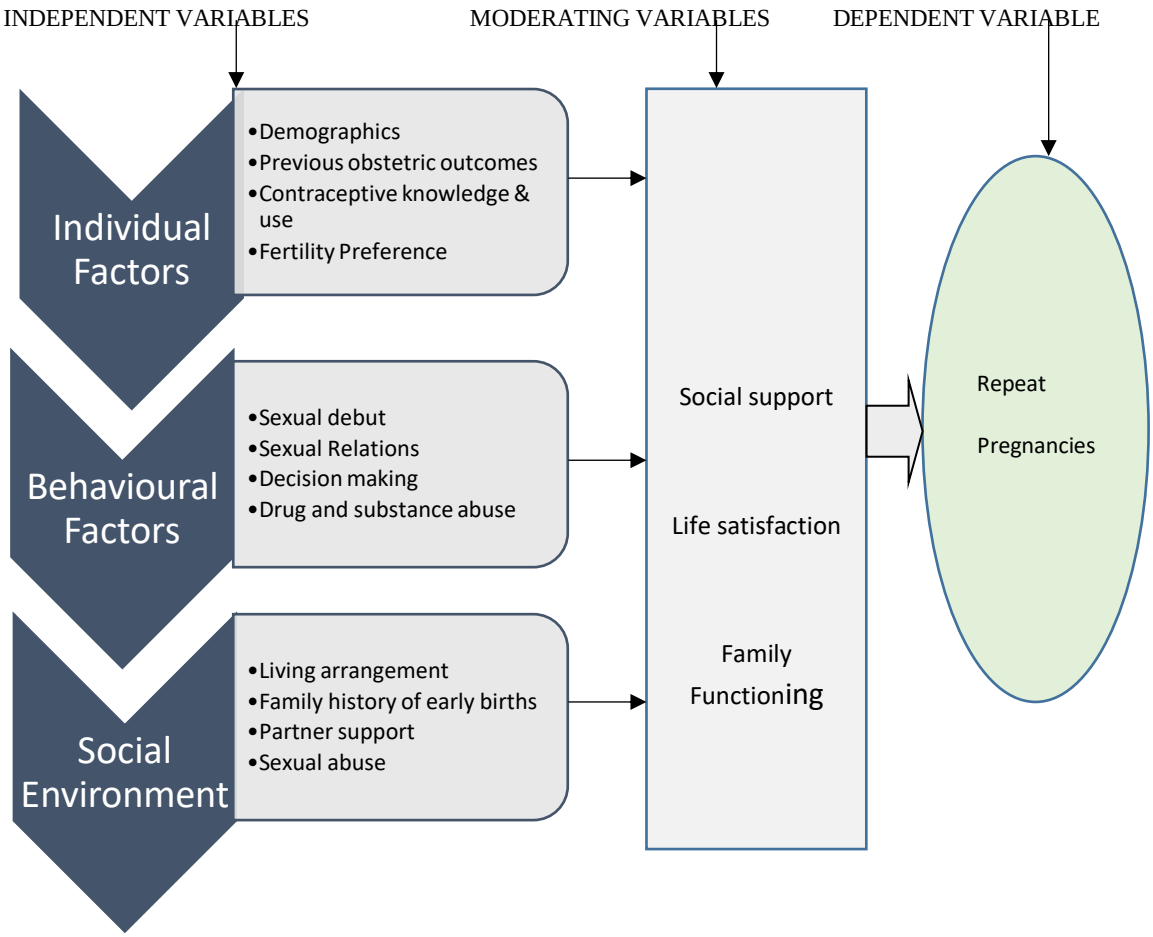

Figure 1.1 Theoretical Framework

Source: Bandura (1986) Social Cognitive Theory

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter reviews previous literature on repeat adolescent pregnancy with focus on the prevalence of adolescent repeat pregnancy and the factors associated with its occurrence. The chapter also highlights the implication of repeat births, to the adolescent and the society while also noting the challenges, risks and implication of repeat births on adolescents.

2.2 Introduction of Repeat pregnancy among adolescents

Any pregnancy that happens after a girl under the age of 19 had an abortion or miscarries is considered an adolescent repeat pregnancy (Bright et al., 2023). Studies have frequently shown a greater proportion of recurrent pregnancies among teens that are tightly spaced, despite the WHO's recommendation to space pregnancies by two or more years after the delivery of a child and at least six months following spontaneous or induced abortion (WHO, 2011). Lauren et al. (2015) observed in a prior research on repeat births that there is frequently no differentiation in the literature between quick repeat births and births that occur at any longer interval from a first pregnancy, and that the length of time following an original pregnancy may not matter.

Like any other adolescent pregnancy, repeat pregnancy may take diverse dimensions. There has been diverse information on the impact and outcomes of such pregnancies. However, one comparative study conducted by Carter *et al*., (2014), that looked at the characteristics of teens who planned and those who didnt plan their pregnancies revealed that most of those adolescents who planned for the pregnnacies were either married or living with the father of their first baby, while those whose pregnancy came

without plan would either drop out of school or majority (up to 75%) would seek for abortion services.

2.3 Prevalence of repeat pregnancies among adolescents

Adolescents who become pregnant again face a widespread problem. Maravilla et al. (2017) found that 35% of the 2,253 nationally selected women from low- and middle-income countries (LMIC) had been pregnant within 18 months after giving birth in a research on repeat births. Adolescent girls between the ages of 15 and 19 in this research were more likely to report an unplanned, quick repeat delivery. The results were consistent with previous well-established research showing that teenage moms in low-income countries have a twofold higher chance of becoming pregnant again.

Almost one in five teen births in a year are repeat births, according to a 2018 data from the maternal, child, and adolescent division of Oklahoma. This is true even though recurrent teen pregnancy rates have decreased in Canada. The survey also showed that, between 2010 and 2016, more than 38% of adolescent moms gave birth again in less than 18 months, and 56% did so in less than 24 months. This reflects the situation in other nations throughout the globe (Oklahoma, Child & Adolescent Report, 2018).

A prospective observational study of teenagers aged 13-19 years who were pregnant or had recently given birth took place at a hospital in KwaZulu-natalia, South Africa. Of the 341 participants, 281 (82.4%) were seen for a first pregnancy and 60 (17.6%) for a repeat pregnancy (Mphatwe et al., 2016).
In Uganda, 626 married or cohabiting women under the age of 22 were studied by Holly et al. (2011) using data from the Uganda Demographic Health Survey. The women had become pregnant once or twice before. The results showed that compared

to women under the age of 15, those who were 15 years old at their first union had a higher likelihood of becoming pregnant again within 24 months.

Approximately 30% of teenage females in Kenya become pregnant in towns more frequently than in rural areas, according to the KDHS (2014), which contradicts the Ugandan research that found adolescents in rural areas were more likely to have recurrent births. It also said that 18% of women between the ages of 15 and 19 had already started having children; 15% of them were moms, and 3% of them were expecting their first child (KDHS, 2014).

2.4 Socio-Economic and Health Implications of Repeat Pregnancy

Considering that adolescence is a developmental stage that marks the transition from infancy to adulthood, being pregnant during this time puts young women and their kids at serious danger. The adverse consequences of adolescent pregnancy have been widely emphasized and it is in the common domain that the situation might worsen when an adolescent becomes pregnant more than once during this period. According to UNESCO report of 2016, the socio-economic and health ramification during this period usually extend beyond the adolescent. It gets to the family and community. The report emphasiszes that the challenges facing adolescents with repeat pregnancy are quite similar to the challenges among adolescents having their first pregnancies (UNESCO 2016).

2.4.1 Health implications

According to the WHO's 2015 global health estimates, the greatest cause of mortality for females between the ages of 15 and 19 worldwide is problems related to pregnancy and delivery. Ninety-nine percent of maternal fatalities worldwide among women between the ages of 15 and 49 occur in low- and middle-income countries (LMICs).

Compared to women in their twenties, infants delivered to adolescent moms had a 50% greater rate of stillbirths and deaths within the first week of life. Furthermore, these infants are frequently more likely to have low birth weights, premature deliveries, and serious neonatal disorders (WHO, 2015).

According to the Gutmacher Institute (2016), certain urban slums in Kenya have as many as 706 fatalities per 100,000 births, despite international efforts to lower maternal and child mortalities. Studies have shown that infants delivered to adolescent mothers are exposed to additional life-threatening illnesses and have a significantly higher chance of dying, indicating that this is a regular occurrence among adolescents (Mori et al., 2013).

Medically speaking, teenage pregnancies have an impact on the physical health of the adolescent moms. This is the reason pregnant teens are more likely to have fading growth and development in addition to other issues including abortion and early birth, according to a study done in 2015 by Neal et al. It goes on to say that it is challenging for an adolescent's body to adapt to the demands of pregnancy due to its immature organ development. In addition, the immature skeleton is subjected to higher skeletal strain, which can cause irreversible musculoskeletal abnormalities, and the weak reproductive system is prone to infections. According to Neal et al. (2015), all of these may result in an atypical delivery and potential problems.

Teenage pregnancy increases the likelihood that an abortion will be obtained, which is a significant health consequence. An estimated 3.9 million girls between the ages of 15 and 19 have unsafe abortions every year. This is a significant additional factor in maternal mortality, morbidity, and long-term health issues. According to Daroch et al. (2016), the majority of individuals are capable of making difficult decisions like

deciding whether to continue or end a pregnancy. Adolescents, on the other hand, generally lack the maturity to make such difficult choices. They are more likely to experience financial hardships and pregnancy-related stigma, which prevent women from accessing safe abortion services. As a result, the majority of them turn to illegal abortion, putting their health at danger.

It has also been shown that adolescent pregnancy raises the risk of acquiring HIV/AIDS and other sexually transmitted illnesses, as well as other infections of the reproductive tract. According to Albuquerque et al. (2017), the prevalence of HIV among adolescent moms was 36.9%, whereas that of first-time mothers was 13%. As anticipated, this study found a strong correlation between intimate partner abuse and HIV positivity. This was also mentioned in a 2013 UNESCO study, which clarified that the adolescent's early marriage or involvement in several sexual relationships—sometimes with partners who are older and have more sexual experience than them—may be partially responsible for this.

2.4.2 Social and Mental effects

Adolescent pregnancy typically alters a young girl's whole life trajectory, and perhaps her partner's as well. Their futures are typically negatively impacted in both social and mental domains. Young moms had a two-to nine-fold higher frequency of prenatal mental illnesses, according to Fishers et al. (2013). According to this study, depression is quite prevalent in the perinatal period (estimates range from 11% to 18%) globally. But in low- and middle-income nations, where the rate of depression can reach 30–50%, the prevalence rises. In particular, there are several negative health consequences for both moms and their unborn children when depression occurs during or after pregnancy.

Research shows that younger ages, unstable relationships, a lack of social or familial support, and limited access to health facilities.

Adolescents who are pregnant but are not married may experience violent threats, rejection, and shame from classmates and parents. In a similar vein, females who get pregnant before turning 18 are more likely to encounter abuse in a partnership or marriage (Molborn, 2017). The UNESCO report of 2017 adds that stigmatization and neglect does not only affect adolescents but also women above 20 years. The report alluded that certain types of adolescent programs usually attach eligibility to childbearing status. In such instances, adolescent mothers miss out on such opportunities since they are seen as bad examples to the other young people (UNESCO, 2017).

2.4.3 Economic effects

The economic negative implication of adolescent pregnancy can be devastating. The world bank report of 2022, observed that the negative impact can can be worsw with repeat pregnnacy and can persist even after an adolescent adjusted to the social background and other prior setbacks. The report further revealed that early birth reduces schooling and increases later family size, reduces later labor work force, affect earnings and family income. It recommends that if the link between an early birth and school dropout could be broken, so is the link between an early birth and economic disadvantage to both new adolescent mothers and those with repeat pregnnacies. (The Social and Educational Consequences of Adolescent Childbearing, World Bank, 2022).

In terms of expenditure, the economic cost of adolescent pregnancy becomes a burden to most countries. A lot of financial resources are spent on complications resulting from adolescent pregnancy, that comes from both the mother and the health system. For example, Yazdkhasti et al. (2015) hinted that the expense of treating a woman for problems resulting from an unsafe abortion is far greater than the cost of providing medical safe abortion services in nations where the procedure is prohibited, such as Zimbabwe and Iran. In some nations, unwanted pregnancies are stopped via high-risk operations that carry a risk of permanent disability or even death for both the mother and the unborn child. According to Conroy et al. (2016), teenagers from low socioeconomic backgrounds may become pregnant again, which will probably result in higher spending constraints. The adolescent's ill health depletes the family, further impoverishing the afflicted mother, their offspring, the family, and society at large.

2.5 Predictors of Repeat Pregnancies

2.5.1 Individual factors

2.5.1.1 Age and sexual debut

In most developing countries, adolescents who engage in early sex are not only at risk of getting pregnant, but also likely to contract other sexually transmitted diseases since they mostly engage in unprotected sexual intercourse. In a study by Bernard *et al,* (2019), such adolescents are at risk of having repeat pregnnacies as well. In another population-based study in South Africa on association between sequences of sexual initiation and the likelihood of repeat adolescent pregnnacy, it was concluded that 31.4% of female adolescent respondents who initiated vaginal sex below the age of 15 years reported teen pregnancy. There was a slight difference with those who had oral sex at sexual debut with 20.5% of them also reporting a teen pregnancy because they

later started doing vaginal sex. Similarly, 7.9% of those who initiated oral–genital sex first reported repeat teen pregnancy (Bianka *et al,* 2013).

Another study in Rural Western Kenya on adolescent pregnancy revealed that age at initial sex was an important factor sincewho initiated sex below the age of 17 were four times as likely to have an early pregnancy and higher chance of repeat pregnancy (Tereza et al 2018). Correspondingly, Kenya demographic health surveys noted that, pregnancy rates among 15-year-old increased by 3% and nearly 40% among those aged 19 years (KNBS, 2015). Juma *et al,* (2014) attributes this to reduced supervision by parents and other adults as well as maturation process where girls are allowed to become more independent as they age, and are allowed to move out of the parents' home as they wish.

2.5.1.2 Adolescent marital status

There have been consistent findings on the relationship between marital status of an adolescent and the occurrence of a repeat birth. Dallas (2018) noted that adolescents who were married or receiving support from the baby's father are more likely to have repeat pregnancy. This is supported by Lewis *et al* (2013) who also confirmed that among the Australian adolescents, there were more repeat births among young girls who were cohabiting or staying with the index baby's father, even if they are not married. Similarly, a Kenyan study that was conducted among HIV positive women and assessed the risk of repeat pregnancy among this group of adolescents revealed that living with a husband within the same compound, polygamous marriage and marriages at young age were all associated with increased risk of repeat pregnancy (International Family Care, 2015).

2.5.1.3 Level of education

Attainment of higher education is a significant protective factor against teenage pregnancy and repeat births. According to Maravilla *et al* (2017), higher level of education comes with increased exposure and better decision making. This was supported in the systematic review of risk factors for rapid repeat births in the United States where low education increased the risk of rapid births (Baldwin et al 2019). Similarly, Albuquerque *et al,* (2017) noted that since most teenage pregnancies are un-intended, most of them feel stigmatized by the society, feel embarrassed and drop out of school. A good number do not get another chance to go back to school, thereby increasing their chance of early marriage and another pregnancy. In another study in Raneri et al. (2017) found that teenagers in Limpopo, South Africa, who dropped out of school before their first pregnancy were at a greater risk of being pregnant again. Thus, on both the bivariate and multivariable logistic regression analyses in their study, teenagers with greater education levels had a decreased likelihood of having recurrent pregnancies.

2.5.1.4 Personal decision and individual preference

Recurrence of pregnancies is also significantly influenced by fertility aims and preferences. Cater et al. (2018) contended that despite the World Health Organization's recommendation to space out pregnancies by two years or more after the birth of a child and at least six months after an abortion, there is evidence of a higher than previously believed level of teenage pregnancy intention in the United Kingdom. Many teenagers say they did not actively try to avoid being pregnant again or that they intended for a second pregnancy.

In Zimbabwe, Smee *et al* (2017) reported that women or girls who have not reached their desired number of children are more likely to have a repeat pregnancy. The researchers noted that such women would not actively have any motivation to use contraceptives or other pregnancy prevention mechanisms. However, Aslam *et al* (2015) argued that this might not be the case in adolescents with ambitious future plans. Such adolescents strongly perceive pregnancy as an interference with their plans. Most of them would therefore prefer contraceptives or actively abstain or use protection to avoid pregnancy.

2.5.1.5 Previous pregnancy outcomes

Like any other woman, adolescents may be forced to make decision about subsequent pregnancy. This can be based on her current health situation and previous experience. In a study on factors associated with repeat pregnancy among women living with HIV in Zimbabwe, Smee *et al,* (2017) observed that the outcome of a pregnancy such as an abortion, miscarriage or stillbirth may also influence a woman's decision to get another pregnancy. It was noted tha most of them will resort to another pregnancy after an abortion or miscarriage to compensate for the loss. Surprisingly, most HIV positive women who part of the study said they would have another pregnancy because of the desire to have many children so that some may survive being infected with HIV.

In Tanzanian study on the effects of inter- pregnancy interval and adverse outcomes, noted that adolescents and women with bad past experiences or outcomes such as losing a pregnancy usually get pregnant within 2 years of losing the pregnancy (Mohande & Obure, 2016). Similarly, Wong *et al* (2015) also noted that most women with adverse pregnancy outcomes would intentionally have repeat births.

2.5.2 Behavioral and attitudinal factors

An adolescent's behavior has been mooted by many researchers as a major factor in the occurrence of a pregnancy. Factors such as age at sexual debut, sexual relationships, type of sexual partners, nature of relationship with sexual partners, drug and substance abuse among others may also influence the occurrence of repeat pregnancies (Amy Morin, 2020).

2.5.2.1 Alcohol, drug and substance abuse:

Regular alcohol use and abuse of drugs is a common problem among many adolescents. A study by Denis, (2022) on whether abuse of substances affect decision making among teens found that there is a valid fear among parents when their young girls abuse alcohol and other drugs. According to the study, teenagers who use drugs or alcohol are more likely to participate in risky behaviors, including greater sexual activity and the potential for pregnancy, as well as other difficult choices. Most females are prone to single or recurring pregnancies because of this confused state.

In a companion research, drug usage among adolescents examined in relation to unintended pregnancies was higher than that of peers of the same age who were not pregnant (13.8%). According to the study, teenagers who abuse alcohol and other drugs have a very high chance of becoming pregnant. According to Mugisha et al. (2016), teenage males are more likely than females to take drugs and drink alcohol, although illegal drug use is typically a symptom of problems in the home, at school, and in relationships. Teenagers in slums in Kenya were found to have easy access to illegal alcohol, or "changaa," at a low cost. This raises the likelihood of having sex, lowers the likelihood of using contraception when intoxicated, and raises the risk of rape and domestic violence. Consequently, there is a rise in the likelihood of adolescent pregnancy and the frequency of recurrent pregnancies.

2.5.2.2 Contraceptive use and associated attitude

Most studies agree that contraceptive use is a major strategy in the prevention of repeat pregnancy, not only among adolescent but also in older women. However, according to UNFPA research of 2017 that identified hurdles and motives for use of contraceptives in eastern and southern Africa. It was shown that teenage unwanted births were strongly correlated with fear of the negative effects of contraceptives and the non-use of any family planning technique. The research also shows that being unable to make independent family planning decisions and not knowing enough about contraceptives were risk factors for unwanted pregnancies (UNFPA, 2017).

According to a research done in Limpopo, South Africa by Tocee et al. (2017), the majority of female teenagers (63%) had unfavorable views regarding contraceptives because of a variety of myths and misconceptions, fear of their parents, and fear of being rejected by male partners. According to the study's findings, married teens are less likely than their unmarried, sexually active counterparts to take contraception, even if the majority of them do not wish to become pregnant. This increases the chance for occurance of both single and repeat pregnancies. In another twist, an earlier study by Francoeur (2019) observed that most young people do not anticipate having sexual intercourse and getting pregnant when still young and therefore they see no need of using contraceptives. Most of them end up getting pregnant after a short time without trying to prevent such pregnancies and might have another pregnnacy if no intervention is undertaken.

2.5.3 Social and Environmental factors

The social surrounding and general environment in which an adolescent lives has been noted to have great influence in the decision making and behavior of an adolescent, with regard to sexual reproductive health. Factors such as income levels, exposure to

gender-based violence (GBV), the kind of sexual relationship with partner, the adolescents home environment, empowerment status, accessibility to contraceptives, social support, social norms and expectations have been associated with the occurrence of adolescent pregnancies.

2.5.3.1 Socio-economic status

Over the years, low- and middle-income countries have suffered the highest burden of adolescent pregnancy. Maravilla (2017) attributes this to pronounced levels of poverty, violence against women, poor health status and high prevalence of child marriages among other reasons. In this study, it is worth noting that even though poor socio-economic status has been associated with repeat births, it is also a consequence of such. Repeat pregnancy, like any other adolescent pregnancy, perpetuates the cycle of poverty through diminishing economic prospects of such adolescents. Charles *et al* (2016) asserted that adolescents from poor backgrounds and those who feel socially isolated are more likely to become pregnant more than once compared to those from economically stable backgrounds. Correspondingly Albuquerque *et al.* (2017) identified low income as a risk factor for rapid repeat pregnancy among women and adolescents in Brazil.

2.5.3.2 Sexual and gender-based violence

A study by Ranieri *et al,* (2016) on Social ecological predictors of repeat adolescent pregnancy documented that the experience of intimate partner violence is associated with occurrence of a repeat pregnancy. A similar study by Jewkes, *et al,* (2010) also affirmed that adolescents who get married early usually become victims of intimate partners violence and they tend to tolerate abusive relationships.

In Brazil, a study on effects of sexual violence and rapid repeat births among adolescents,) observed that women and girls who are exposed to sexual and gender-based violence, intimate partner violence and economically disadvantages, are more likely to have repeat pregnancy and births (Vieira *et al,*2016).

2.5.3.3 Religion

Millions of young people participate in religious services and programs, and many teens view their religious communities as significant social resources, according to a research by the Sexuality Information and Education Council of the United States (SIECUS). According to the research, religion may have a big impact on advancing sexuality education and providing a safe space for people to express ideas like equality, respect for others, love, and care (SIECUS, 2020). According to a research conducted in the US, states with higher religious index scores had lower abortion rates and greater rates of teen pregnancies. The fact that contraception is less common in more religious areas may help to explain this. This demonstrates how parents and religions may deter young people.

Similarly, a study by Pawl, (2017) on linkage between religion and teen births in Ameerica, noted that states that were considered highly religious and nicknamed “bible belt” had the highest rates of teen births. Millions of young people participate in religious services and programs, and many teens view their religious communities as significant social resources, according to a research by the Sexuality Information and Education Council of the United States (SIECUS). According to the research, religion may have a big impact on advancing sexuality education and providing a safe space for people to express ideas like equality, respect for others, love, and care (SIECUS, 2020).

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had lower abortion rates and greater rates of teen pregnancies. The fact that contraception is less common in more religious areas may help to explain this. This demonstrates how parents and religions may deter young people.

2.5.3.4 Social support and relationships

Partner relationship and support is an important factor in determining sexual behavior and adolescent repeat pregnancy. In a South African study, it was noted indicated that adolescents who perceived that their partners would provide emotional support had higher rates of repeat pregnancies. Similarly, repeat pregnancies were more common among adolescents who reported ongoing financial support from their partners. Such adolescents with deemed assurance of shared responsibility and support are less likely to resist another pregnancy because of (Desiree Govender, *et al*, 2019).

In an earlier study, Leech *et al*, (2017) explored the networks of support and potential gate keepers to care for adolescent mothers. It was noted that adolescent mothers reported that they felt more comfortable to confide in relatives such as aunts and sought emotional support from them. This gives them a sense of comfort and is likely to increase chances of getting another pregnancy.

2.5.3.5 Inter-generational relations:

For many years, adolescent girls have been found to be easily influenced or look up to other members of their family. Wall-Wieler *et al* (2017) reveal that most adolescents look upto their mother and other older siblings. For instance, an adolescent whose mother or sibling had her first child before the age of 20 had a higher risk of becoming pregnant also. This is because most of them see them as role models and therefore fail to see the wrong in early childbearing.

In other studies, marital status of the mother has also been found to influence occurrence of pregnancy among adolescents. Mchunu *et al,* (2012) alluded that, adolescent females whose mother was married, were twice as likely to have repeat pregnancies as compared to adolescent females whose mothers were single. This is contrary to numerous studies that have highlighted that being raised by a single mother increases adolescents' risk of early pregnancy and childbearing (Maravilla *et al.*, 2017).

2.5.3.6 Family Functioning and Adolescent Well-Being:

Existing research identified the need to examine how family functioning can contribute to flourishing or well-being in adolescence, as well as identifying the systemic processes which are most influential in this relationship (Rask *et al.,* 2013). Results from multiple studies have shown that family functioning had a significant and unique contribution to adolescent life satisfaction and psychological well-being. This ultimately influences external behavior that may be predictor to occurrence of adolescent repeat pregnancy (Wong *et al.,* 2017).

2.6 Summary Gap

There are many research studies that have given explicit explanation on the factors associated with adolescent pregnancy and repeat births. Generally, there is concurrence that individual and demographic factors, the social environment and behavior of an adolescent can greatly influence the occurrence of a repeat pregnancy among adolescents. However, these factors are inconclusive and further analysis is needed especially in understanding the different contexts in which the adolescent live and the factors that can predispose them to have repeat pregnancy.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

The chapter presents the research design and methodological procedures that enabled achievement of the study objectives. The first section of the chapter describes the various research design deemed to be appropriate for data collection and analysis. The research approaches used had both quantitative and qualitative phases. The second section of the chapter discusses the research methods which include the study population, sampling and sampling procedures, data tools for data collection and data analysis. The section further describes various ways of ensuring validity and reliability of the tools. To ensure scientific integrity, the chapter discusses ethical considerations for the study participants.

3.2 Study Design

The study adopted analytical cross-sectional study design using mixed methods for data collection that targeted adolescents with single or repeat pregnancy living in Suna East of Migori County. The quantitative approach helped to numerically determine the prevalence of repeat pregnancy and other factors related to occurrence of repeat pregnancy while qualitative approach was used to described the population's attitudes, patterns and opinions related to the study objectives.

3.3 Study Area

The study was conducted in Suna East Sub County of Migori County, that is situated in the South Western part of Kenya. Demographically, it is the most cosmopolitan of all the sub counties since it holds the largest part of Migori Town which is the County Headquarters and is inhabited by many tribes.

According to the Kenya National Bureau of Statistics National Census data of 2019, Suna East has a total population of 122,674 with 58,977 being Male and 63,694 Females. The population density is 353 per square kilometer and 43% of the population live below the poverty line. The age distribution was 0–14 years 49%, 15–64 years 48% and over 65 years 3%. The adolescent and Youth population (10-19 years) is 24%.

Migori County is burdened with increasing rates of unintended pregnancy among adolescents and youths, rising cases of new HIV infection among young people, early forced marriages, harmful cultural practices such as female genital mutilation (FGM) and school drop outs. Suna East and Kuria Sub Counties face the worst of these indicators (NAYS, 2015). The Sub County hosts the County referral hospital, one Sub County Hospital, 10 health centers and dispensaries. With primary school net enrolment rate at 96% but only 46% transitioning to secondary school.

3.4 Study Population

A study population is defined as elements (individuals, objects, events or substances) that meet the sampling criteria for inclusion in a study, which is sometimes referred to as the target population (Polit & Beck, 2017). The study targeted adolescent girls aged 10-19 years with single or repeat pregnancy attending health facilities in Suna East Sub-County. Based on annual estimates for ante-natal attendance at respective health facilities, a total of 7,300 girls formed the target population for quantitative interviews. In addition, two separate groups consisting of 8-12 individuals were selected from among adolescent girls and parents to Participate in focused group discussions and represent the views of others in these cohorts. Five key individuals working directly with adolescents were mapped and participated in key Informant interviews.

3.4.1 Inclusion Criteria

3.4.1.1 For quantitative interviews, adolescent girls aged 10 – 19 years who had experienced single or repeat pregnancy, births, abortion or other forms of pregnancy loss were considered for interview. Only adolescents residing in Suna East and were ready to give consent were included in the study. Adolescents below 18 years were only included after the parents written consent.

3.4.1.2 For stakeholders and parents participating in Key Informant Interviews (KII) and focus group discussions, the study considered only parents or acregivers with an adolescent between 10-19 yaers who had experienced single or repeat pregnancy, births, abortion or other forms of pregnancy. The parents r caregivers had to be from Suna East and ready to give consent to participate in the study.

The stakeholders participating in KII had to be working within Suna East and affiliated to an organization or agency recognized by the government. Further, they had to be actively engaged or supporting programs related to adolescents. They also had to be willing to consent to participate in the study.

3.4.2 Exclusion criteria

3.4.2.1 The study excluded adolescents who had just undergone termination of pregnancy or were being prepared for such a procedure. This is because the questionnaire had sensitive questions that were related to current pregnancy practices and post delivery support that would have appeared sensitive to such adolescents. The study also excluded adolescents who had experienced single or repeat pregnancy, births, abortion or other forms of pregnancy loss but presented medical diagnosis or signs of alterations in their physical, behavior and/or psychological state. were excluded from the study.

3.4.3 Sample size determination for Quantitative interviews

Sample size was determined using Fischer (1998:1) formula as follows;

$$n_0 = \frac{Z^2 pq}{e^2}$$

$$n_0 = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} = 384$$

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

$$n = \frac{384}{1 + \frac{384 - 1}{7300}} = 364.6$$

$$n = 365$$

$$N = 7300$$

Where:

n=Desired sample size

z =1.96 (standard normal deviation), confidence level at 95%

p = estimated proportion of an attribute. In this study 50% is used for maximum variability since no previous local estimates on the research problem are available.

P=0.5

q= constant usually set at 1-p (0.5)

e=margin of error was set at 5%.

The minimum required sample size was 365 and additional 10% loading population was added to cater for possible refusals giving a final sample size of 402.

3.5.1 Sampling Procedure

The Sub County hosts the County referral hospital, one Sub County Hospital, 10 health centers which provide antenatal, delivery and post-natal services. The referral and sub-county hospitals were purposively selected while five out of the 10 health centres were

randomly selected using ballot papers. The five health centres selected were Anjego, Suna Rabuor, Godjope, Midoti and Saro.

On each visit to the hospital or the slected health centres, the researcher, with the help of the health facility nursing manager identified adolescents with single or repeat pregnancy and who were selected at service delivery points within the health facility using systematic sampling method. From each facility, a list of adolescents who met the inclusion criteria was prepared. For the three months of data collection, a total 2000 adolescents were expected to be attended to in the selected health facilities. Dividing this expected total with the final sample size of 402, every 5^{th} adolescent who qualified to be in the study was selected. This approach ensured that each prospective study participant had an equal chance of being selected.

On average, from each of the seven-health facilities sample, about 57 adolescents were interviewed. The process of systematic sampling was followed until the required number of participants was obtained in each health facility. A total of 381 out of the targeted 402 were interviewed and each interview took not more than one hour.

For Focus Group Discussion (FGD) with adolescent girls, 2 mixed group of adolescents with single or repeat pregnancy were selected to participate. Adolescents who had participated in any other face-to-face interview sessions were excluded from FGD. Each group had between 8-12 participants. The two groups were drawn from the referral and sub-county hospitals.

For FGD with parents and caregivers, a minimum of 2 parents were purposively selected from each ward within Suna East Sub County.The participants were strictly those who were parents to or living with pregnant adolescents or those with a history

of pregnancy. An FGD questionnaire was administered and each session took less than 2 hours.

For Key Informant Interviews (KII), the study targeted key individuals with specific roles in adolescent health and working within Suna East Sub County. A total of 5 key leaders were interviewed (Table 3.1). A questionnaire was administered to guide the sessions and each session took less than 1 hour. The table below summarizes the characteristic of respondents for key informant interviews.

Table 3.1 Key Demographics for KII

Pseudonym	Qualification	Work Experience
KIR001	BSc Clinical Medicine	County adolescent health coordinator
KIR 002	Degree in Business Management	A policy maker: A Member of county assembly)
KIR 003	Degree in Nursing (BScN)	Service provider: A nurse working at the MCH)
KIR 004	Diploma in Agricultural Technology	Community: community leader
KIR 005	Degree in Public Health	Partners: A non-governmental partner working in adolescent health.

3.5.2 Recruitment and training of the research assistants

Eight research assistants were recruited from the local communities to assist in data collection. The recruitment criteria for the research assistants included their ability to converse in Dholuo, English or Kiswahili. Experience in conducting FGD and KII was also be considered. Upon recruitment, the research assistants signed confidentiality binding forms (See Appendix IV). Thereafter, the research assistants were trained on the contents of the questionnaire, the inclusion and exclusion criteria of adolescent girls, how to complete consent forms and the ethical issues involved in this study.

3.6 Data Collection Tools

An appropriate quaetionaire for studying adolescent repeat pregnancy was adapted from Health Policy Research Group in the University of Nigeria (Enugu Campus). The questionaire was reviewed and customized by the researcher in consultation with supervisors from Masinde Muliro University of Science & Technology, key adolescent stakeholders within Suna East.The final questionnaire was then translated into Dholuo and Kiswahili and included both structured (closed-ended) and unstructured (open-ended) questionnaires. (See Appendix II).

The questions on socio-demographic, behavioral and social characteristics were guided by an ecological perspective on adolescent pregnancy. Other aspects in the questionnaire included adolescents' characteristics, adolescent's living arrangements, family characteristics, socio-economic status, schooling and employment, social and financial support, Knowledge and practice of sexual and reproductive health, pregnancy preferences and family environment. Additionally, this study adopted the multidimensional scale of perceived social support (MSPSS) by Leigh, (2019), life satisfaction scale by Huebner, (1994) and family functioning assessment tool by Butler, (2015), to help explore on other mediating factors as predictors to the occurrence of a repeat pregnancy.

For Focus group Discussions, open ended questions were applied to help give a broader understanding of the factors associated with occurrence of repeat pregnancy. The questions elicited participants feeling about adolescent pregnancy, personal experiences, decision making and how the community treats the issue of adolescent pregnancy (See Appendix V).

The questions for Key Informant interview questionnaire sought to get the views of key stakeholders with regard to adolescent repeat pregnancy. The open-ended questions explored stakeholder view on adolescent pregnancy, support for the adolescent girls who get pregnant or has children and policy environment for adolescent with single and repeat pregnancy (See Appendix V1).

3.7 Pre-testing the tool

Pre-testing of the tools was conducted at Homa Bay sub-county within Homa Bay County. The pre-testing site was deemed to be having the same context as Suna East Sub-County and was appropriate to reduce chances of meeting same clients during the actual study implementation. A total of 40 adolescent girls with single or repeat pregnancy were interviewed using the study questionnaire. This represented 10% of the targeted sample size. Additionally, 1 key informant was also interviewed and 1 group of adolescents participated in an FGD. The researcher sought permission from the relevant authorities to allow for the pretest. After conducting pretest data analysis, the questionnaires were adopted without adjustments as they were fit for measuring the research problem.

3.8 Validity and reliability of the tool

Burns and groove (2013) define internal validity as the extent to which the effect detected in the study are true reflection of reality rather than being the result of mined effects of extraneous variables. In this study, content validity was enhanced by obtaining inputs from the study supervisors from Masinde Muliro University of Science & Technology (MMUST), and two senior peer mentors working with adolescents within Migori County.

To ensure reliability, the questionnaire was tested using analysis of the pilot study results conducted at the neighboring Homa Bay County. To ascertain the reliability of the research instrument, a reliability analysis test was conducted and a Cronbach's alpha of more than 0.8 was achieved.

3.9 Data Management

3.9.1 Data Collection

After approval by Ethics and Research Committee of Masinde Muliro University of Science and Technology (MMUST)permission was sought from Health administrators at Suna East sub-county to conduct the study. Eight research assistants were recruited and introduced to the unit in charges and focal persons. Data collected between 8th September 2022 to 6th November 2022. Each reserch Assistant administered a minimum of 3 questionaires per day. The Community focal person supported the research assistants in recruiting participants for focus group discussions and setting appointments with key stakeholders for key informant interviews.

3.9.2 Data Privacy

Every precaution was taken to preserve the privacy of the client data during the study. The research assistant signed confidentiality agreement which was administered by the researcher. Unique codes were assigned to every client to preserve their identity and all client files were kept in lockable cabinets within the hospital. All client data was entered into encrypted personal computers with passwords and data for all clients was published in aggregates without mentioning individual details.

3.9.3 Data Analysis

Quantitative Data Analysis: Data was entered in statistical software, SPSS Version 16 and coded awaiting analysis. Basic demographic characteristics were evaluated in comparison with the possible predictors to occurance of repeat pregnancies. The factors that might determine the occurrence of a repeat pregnancy were determined using t-test for continuous variables while other categorical data were analyzed using chi-square test. All statistical tests were performed at 0.05 level of significance (95% confidence interval). Multivariate logistic regression was used to examine the predictors of repeat pregnancy.

Qualitative Data Analysis: The qualitative information was collected through KII and FGD and analyzed through content analysis using emerging themes and issues highlighted by different stakeholders. This helped to generate a detailed report on issues related to repeat pregnancies. Qualitative data was transcribed, summarized and thematically analyzed according to the specific objectives. During data collection, research assistants categorized and recorded the information collected as per the laid-out format and then analyzed by end of the day.

3.10 Ethical Considerations

According to Devos (2002), ethics refers to a set of accepted moral principle that are suggested by an individual and group that offers rules and behavioral expectations towards respondents. In line with this, the study was submitted to MMUST Institutional Review Committee. During data collection in the field, written consent was sought to administer the questionnaires. All study respondents did so under voluntary informed consent while minors aged below 18 years were only interviewed after their assent or parental/guardian consented to their participation. The rights to withdraw from the study at any stage and freedom to decline to answer all or part of

the questions was guaranteed. Each study participant was given adequate information about the study before administering the questionnaire. Assurance of anonymity and safety was emphasized to clients before engaging in the study. All respondents were identified by a unique code and personal data could only be accessed by the researcher to ensure confidentiality of the respondents.

CHAPTER FOUR

RESULTS

4.1 Overview

This chapter provides the results obtained from the survey. The findings include both quantitative and qualitative data. The analyzed data was interpreted to provide meaning to each of the scores obtained quantitatively while qualitative data was summarized and presented using interpretative analysis. Quantitative analysis relied on data from 381 out of 402 respondentswho completed the questionnaire. This represented 94.8% response rate.

4.2 Socio-demographic profile of adolescent females

Table 4.1 shows socio-demographic profile of respondents. Majority of the respondents (97.6) were aged between 15 – 19 years with a mean age of 18.2 and a SD of ± 1.0 and a range of 12.0 – 19.0. More than half (53.0% were married compared to 45.9 who were single. The proportion of those with primary (48.0%) and secondary (47.0%) education was comparable. The respondents were predominantly Christians (98.2%) and were rural residents (90.8%). Nearly three-quarters (73.2%) were of Luo ethnicity. Majority (76.9%) indicated that they were unemployed. Most of those who were working had been on the job for more than 12 months (47.7%) with majority (90.0%) making own decision on how to spend their income.

Table 4.1 Socio-demographic characteristics of respondents

Variable	Catégories	N	%
Age group in years	15 – 19	372	97.6
	10 - 14	9	2.4
Mean age in years ± SD (Range)		18.2 ± 1.0 (12.0 – 19.0)	
Marital status	Single	175	45.9
	Married	202	53.0
	Divorced	1	0.3
	Separated	3	0.8
Level of education	None	8	2.1
	Primary	183	48.0
	Secondary	179	47.0
	College/University	11	2.9
Religion	Christian	374	98.2
	Muslim	7	1.8
Residence	Rural	346	90.8
	Urban	35	9.2
Ethnicity	Luo	279	73.2
	Kuria	19	5.0
	Luhya	63	16.5
	Somali	3	0.8
	Other	17	4.5
Employment status	Not working	293	76.9
	Yes, full-time	19	5.0
	Yes, part-time	29	7.6
	Other	40	10.5
If working, duration of employment	< 6 months	18	20.5
	7 – 12 months	28	31.8
	> 12 months	42	47.7
If employed, who decides on how you spend your income	Self	80	90.9
	Parents	4	4.6
	Partner	4	4.6

4.3 Prevalence of repeat pregnancy and obstetric history of adolescent females

Table 4.2 presents prevalence of repeat pregnancy and obstetric history of adolescent females. More than two-thirds (69.3%) had visited the health facility for ANC services. Nearly seventy percent (69.6%) had experienced repeat pregnancy while 30.4% had their first pregnancy. Forty-one percent had had an abortion or miscarriage. More than half (54.0%) of those who had more than one pregnancy had two children, most of whom had birth interval of 1 – 2 years between preceding child and current case/pregnancy (65.3%). Fifty-five percent rated the experience with previous

pregnancy as very bad or bad while another 44.9% had no complications during the previous pregnancy. Notable complications included abortion-related pain (8.7%) while 18.5% had pregnancy-related stress.

Table 4.2 Prevalence of repeat pregnancy, obstetric history of adolescent females

Variable	Categories	N	%
Reason for visiting health facility	General treatment	111	29.1
	ANC	264	69.3
	Others (consultation)	6	1.6
First pregnancy	Yes	116	30.4
	No	265	69.6
Has had an abortion or miscarriage	Yes	109	41.1
	No	156	58.9
If has more than one child, number alive	One	117	44.1
	Two	143	54.0
	Three	5	1.89
Birth interval between preceding child and current case/pregnancy	Less than one year	71	26.8
	1 – 2 years	173	65.3
	3 – 5 years	20	7.6
	> 5 years	1	0.4
Rating your experience with previous pregnancy	Very bad	51	19.2
	Bad	96	36.2
	Fair	40	15.1
	Good	78	29.4
	Very good	0	0.0
Why the rating	No complications	119	44.9
	Pregnancy-related complications	50	18.9
	Pregnancy-related stress	49	18.5
	Abortion-related pain	23	8.7
	Not ready for pregnancy	9	3.4
	Sent away from school	10	3.7
	Other (operated, sent away from home, led to eary marriage, rape)	5	1.9

4.4 Intention to have another pregnancy/ child

Table 4.3 shows study findings on the intention to have another pregnancy. Most of the respondents (63.3%) did not intend to have another child after the current pregnancy/childbirth. For those with intention of having another child 62.9% preferred having the child within two years with majority being motivated by the feeling that

having a baby would help them keep the baby ‘s father (62.9%). After the first pregnancy, most of the respondents stated that they tried to prevent another pregnancy (59.1%) mostly by using family planning methods (79.1%). However, those who did not make any effort either did not know how (34.6%) or lacked someone to advise them (35.9%).

Table 4.3 Intention to have another pregnancy/child

Variable	Categories	N	%
Do you intend to have another child after this pregnancy / childbirth ?	Yes	140	36.7
	Not at all	241	63.3
If Yes, when	Within 2 years	88	62.9
	After 2 years	9	6.4
	Unsure of the timing	35	25.0
	No response	8	5.7
If Yes, what motivates you ?	Having a baby would make me feel significant as a lady	8	5.7
	Having a baby would aid me keep the baby‘s father	88	62.9
	baby‘s father	9	6.4
	Having a baby could get me out of a bad state	35	25.0
After the first pregnancy, did you make any effort to prevent another pregnancy ?	Yes	225	59.1
	No	156	40.9
If Yes, what did you do ?	I abstained	6	2.7
	I used condoms	37	16.4
	I used family planning methods	178	79.1
	I became faithful to one sexual partner	4	1.8
If No, why didn′t you make an effort	I lost hope	25	16.0
	I didn′t know how	54	34.6
	I lacked someoen to advise me	56	35.9
	Others	21	13.5

4.5 Contraceptive knowledge and utilization

Table 4.4 displays results on respondents’ knowledge and utilization of contraceptives. Only 56.7% knew all methods of family planning with 7.1% not knowing any of the methods. Majority (86.6%) had ever used any of the FP methods, the leading two

methods being Implanon (31.8%) and Depo-Provera (31.2%). The male condom was the least used (3.3%). Utilization of FP methods was majorly own decision (41.8%) with the influence of parents (10.3%) and friends (10.6%) being comparable. Majority were able to access the FP methods easily (92.6%). Among those who were not able to access, the two main reasons were hospital being far (42.9%) or having no time (32.1%).

Table 4.4 Contraceptive knowledge and utilization

Variable	Categories	N	%
Do you know of any family planning methods?	Knows no method	27	7.1
	Knows only traditional methods	80	21.0
	Knows all the modern methods	216	56.7
	Knows more than one method	58	8.7
	Knows more than 3 methods	25	6.6
Have you ever used any Family planning method?	Yes	330	86.6
	No	51	13.4
If Yes, which ones	IUCD	8	2.4
	Implanon	105	31.8
	Jadelle	74	22.4
	Depo-Provera	103	31.2
	Pills	26	7.9
	Male Condom	11	3.3
	Female Condom	0	0.0
	Others	3	0.9
Who influenced you to use the family planning ?	It was my decision	138	41.8
	My partner	85	25.8
	My parents	34	10.3
	Friends	35	10.6
	Others	38	11.5
Able to access FP methods easily	Yes	353	92.6
	No	28	7.4
If No, what are the reasons ?	I have no time	9	32.1
	Hospital is far	12	42.9
	Health staff are not friendly	1	3.6
	Parents don′t allow	6	21.4

4.6 Behavioural factors

4.6.1 Sexual debut and sexual relationships

Table 4.5 shows study findings on respondents' sexual debut and sexual relationships. The mean age at which the adolescents started having sexual intercourse was 13.9 and ranged from 8.0 to 19.0 years. Most of them were prompted to start having sex at that

age because of influence from friends (61.2%) or due to personal needs (25.2%). Majority (86.1%) were still in active sexual relationship during the time of the study. Most of those in active sexual relationship had one sexual partner (82.0%) with 17.9% having more than one. The leading reason for having more than one partner was for upkeep and support (59.3%) and less for sexual pleasure (5.1%). Most of the adolescents (55.6%) had partners with an age gap of between 5 – 10 years with more than half (55.1%) still having a stable relationship with the partner responsible for the pregnancy. Among those who had separated, the leading two reasons were disagreements (52.6%) and the partner being married (34.5%).

Table 4.5 Behavioural factors: Sexual debut and sexual relationships

Variable	Categories	N	%
Mean ageat which you started having sexual intercourse ± SD (Range)		13.9 ± 1.8 (8.0 – 19.0)	
What prompted you to start having sex at that age	Influence from friends	233	61.2
	Sexual abuse	12	3.2
	Poverty	20	5.2
	Personal needs	96	25.2
	Other	20	5.2
Are you in any active sexual relationship currently ?	Yes	328	86.1
	No	53	13.9
If Yes, number of sexual partners you have	One	269	82.0
	Two	50	15.2
	More than two	9	2.7
If more than one partner, what prompts you to have more than one sexual partner?	For upkeep and support	35	59.3
	For sexual pleasure	8	13.6
	Peer pressure	3	5.1
	Others	13	22.0
Approximate age gap between you and your partner	< 5 years	147	38.6
	5 – 10 years	212	55.6
	> 10 years	22	5.8
Are you still in a relationship with the partner responsible for the pregnancy	Yes	210	55.1
	No	171	44.9
If No, what was the reason for your separation	He is in school	16	9.4
	He is married	59	34.5
	Disagreements	90	52.6
	Abuses	1	0.6
	Other	5	2.9

4.6.2 Individual risky behaviours for occurance of repeat pregnancy

Table 4.6 presents study results on the respondents' individual risky behaviours. Nearly two-thirds (63.5%) used sometimes compared to 32.6% who did not use it at all. Slightly more than half (54.6%) reportedly had courage to refuse sex or ask their partners to use condom while21.3% lacked such acourage. Whereas 20.7% have ever had sex with somebody they did not know so well, 56.4% had been in multiple relationships in their life. Less than half (44.6%) have been involved in nightclub or discos in their life with an even smaller proportion (11.8%) having been involved in some form of drug abuse. Alcohol was the most abused drug (80.0%).

Table 4.6 Behavioural factors: Individual risky behaviours

Variable	Categories	N	%
How often do you use a condom with your sex partner?	Every time	9	2.4
	Sometimes	242	63.5
	Not at all	124	32.6
	Can′t remember	6	1.6
Do you feel you have courage to refuse sex or ask your partner to use condom	Yes	208	54.6
	Somehow	92	24.1
	No	81	21.3
Have you ever had sex with somebody you didn′t know so well?	Yes	79	20.7
	No	299	78.5
	Can′t remember	3	0.8
Have you been in multiple relationships in life?	Yes	215	56.4
	No	162	42.5
	Can′t remember	4	1.0
Have you been involved in nightclub or discos in your life	Yes	170	44.6
	No	211	55.4
Have you ever been involved in any form of drug abuse?	Yes	45	11.8
	No	332	87.1
	Can′t remember	4	1.0
If Yes, which one?	Alcohol	36	80.0
	Smoking bhang	6	13.3
	Smoking cigarettes	3	6.7

4.6 Social and environmental factors

4.6.1 Family characteristics and living arrangement

Table 4.7 shows results on respondent's family characteristics and living arrangements. Majority (93.4%) reported having other siblings. Most of the respondents (53.3%) were living with their partners. Less than a quarter (23.6%) had siblings aged under 20 years with a child. Most of respondents' mothers had their first child when they were more than 20 years of age (42%). More than half (52.2%) were staying with husband/partner compared to 31.5% who were staying with both mother and father. Slightly more half (50.9%) were sleeping in the same house. Most of the respondents (41.7%) had parents who were self-employed.

Table 4.7 Family characteristics and living arrangement

Variable	Categories	n	%
Living arrangement in the family	I live with my partner	203	53.3
	I live together with parents and siblings	117	30.7
	My parents live separately	17	4.5
	Children live in a separate room	44	11.6
Have other siblings	Yes	356	93.4
	No	25	6.6
Other siblings under 20 has a child	Yes	84	23.6
	No	272	76.4
Approximate age when mother had her first child	10 – 14	12	3.1
	15 - 17	30	7.9
	18 - 20	69	18.1
	> 20	160	42.0
	Don't know	110	28.9
Whom respondent stays with currently	Both mother and father	120	31.5
	Mother	43	11.3
	Father	5	1.3
	Husband/Partner	199	52.2
	Relative	14	3.7
Sleeping arrangement in the family	Sleep in the same house	16	4.2
	Has separate bedroom	194	50.9
	Sleeps elsewhere	64	16.8
	Sleeps at partner's house	69	18.1
	Other	38	10.0
Main source of income for parents	None	91	23.9
	Employed	100	26.2
	Self-employed	159	41.7
	Other	31	8.1

4.6.2 Social factor; Daughter-parent/caregiver relationship

Respondents who were staying with their parents were positive and satisfied about their relationship with their parents (Table 4.8). More than three quarters were either quite much (23.8%) or very much (58.3%) emotionally close or connected to their parent or caregiver. Slightly less than a quarter like spending time with their parent or caregiver quite much (29.2%) or very much (44.6%). Majority look up to or admire my parent or caregiver quite much (42.3%) or very much (44.6%). Equally, majority trust their parent or caregiver to be faithful loyal to them quite much (27.4%) or very much (61.3%).

Table 4.8 Daughter-parent/caregiver relationship

Variable	Categories	n	%
I am emotionally close or connected to my parent or caregiver	Very little	0	0.0
	A little	10	5.9
	Moderate	20	11.9
	Quite much	40	23.8
	Very much	98	58.3
I like spending time with my parent or caregiver	Very little	2	1.2
	A little	23	13.7
	Moderate	19	11.3
	Quite much	49	29.2
	Very much	75	44.6
I look up to or admire my parent or caregiver	Very little	4	2.4
	A little	1	0.6
	Moderate	17	10.1
	Quite much	71	42.3
	Very much	75	44.6
I trust my parent or caregiver to be faithful loyal to you	Very little	1	0.6
	A little	4	2.4
	Moderate	14	8.3
	Quite much	46	27.4
	Very much	103	61.3

4.6.3 Social factors; Potential partner and family support

Table 4.9 presents data on potential partner and family support. Over half (53.3%) were self-employed compared to 17.1% who were unemployed. Majority (82.4%) were getting monetary support which was rated by most of the respondents as moderate (43.1%) or adequate (31.3%). A third (33.6%) had received some form of motivation or advice from someone to get pregnant again and this mostly came from partners (63.3%) and least from parents (5.5%).

Table 4.9 Potential partner and family support

Variable	Categories	n	%
What is the source of income for your current sexual partner ?	None	65	17.1
	Still in school	32	8.4
	Employed	81	21.3
	Self-employed	203	53.3
Kind of support do you get from your current partner	None	42	11.0
	Money	314	82.4
	Goods	21	5.5
	Other	4	1.0
If Yes, How would you rate the kind of support you receive from your partner	Adequate	106	31.3
	Moderate	146	43.1
	Inadequate	54	15.9
	Very inadequate	33	9.7
Have you received any motivation or advice from anyone to get pregnant again	Yes	128	33.6
	No	253	66.4
If yes, who has motivated or advised you about it?	My friends	17	13.3
	My parents	7	5.5
	My partner	81	63.3
	Relatives	12	9.4
	Others	11	8.6

4.6.4 Social factor; Sexual violence and abuse

Table 4.10 shows results on reported sexual violence and abuse. More than half (54.9%) reported having experienced sexual violence and abuse most of which was emotional (41.2%) and in some cases physical (39.8%). Among those who reported cases of sexual violence and abuse, 10.7% agreed that such experience led to the pregnancy by conceiving in the process (23.1%), losing hope in life (19.2%) or engaging in unprotected sex thereafter (11.5%).

Table 4.10. Sexual violence and abuse

Variable	Categories	n	%
Have you experienced any form of violence from your parents or partner ?	Yes	209	54.9
	No	172	45.1
If yes, which form of violence have you experienced ?	Physical	84	39.8
	Sexual	13	6.2
	Verbal	23	10.9
	Emotional	87	41.2
	Other	4	1.9
If Yes, did that experience contribute to any of your pregnancies ?	Yes	26	10.7
	No	217	89.3
If yes, how ?	I conceived in the process	6	23.1
	I lost hope in life	5	19.2
	I engaged in unprotected sex thereafter	3	11.5
	Others	12	46.1

4.6.5 Social factor; Perceived Social Support

This study adopted the Multidimensional Scale of Perceived Social Support (MSPSS) to measure the adolescent females' perception of support from family, friends and significant others, as a possible predictor to occurance of a repeat pregnancy. This was done by assessing six out of the 12 MSPSS items. Results are presented in Table 4.11 Majority (94.2%) agreed that there is a special person with whom they can share their joys and sorrows. Family support was high as agreed on by 98.2% of the respondents as well as 96.3% and equal proportion who agreed that they could talk about their problems with their family and that the family is willing to help them make decisions, respectively. Friends were equally supportive as expressed by 86.9% who agreed that friends really try to help the respondents.

Table 4.11. Perceived Social Support

Variable	Categories	n	%
There is a special person with whom I can share my joys and sorrows	Agree	359	94.2
	Disagree	22	5.8
My family really tries to help me.	Agree	374	98.2
	Disagree	7	1.8
My friends really try to help me	Agree	331	86.9
	Disagree	50	13.1
I can talk about my problems with my family	Agree	367	96.3
	Disagree	14	3.7
My family is willing to help me make decisions	Agree	367	96.3
	Disagree	14	3.7
People around me try to help	Agree	320	84.0
	Disagree	61	16.0

4.6. 6 Social factors; Life satisfaction scale

Respondents were asked how they feel about life and how satisfied they were with their overall life (Table 4.12). Most of the respondents (97.6%) reported that they thought they were good looking. Nearly all respondents except one (99.7%) like themselves while 89.0% feel good at school or home. Again majority (97.6%) felt that their family is better than most and they get along well. Likewise, most of the respondents (97.1%) like their neighborhood while 96.6% feel that their parents treat them well. While majority (95.0%) enjoy spending time with their parents and family members, a relatively smaller proportion (71.1%) reported that most people like them.

Table 4.12. Life satisfaction

Variable	Categories	n	%
I think Im good looking	Agree	372	97.6
	Disagree	9	2.4
I like myself	Agree	380	99.7
	Disagree	1	0.3
I feel good at school/home	Agree	339	89.0
	Disagree	42	11.0
My family is better than most and get along well	Agree	372	97.6
	Disagree	9	2.4
There are a lot of things I can do well	Agree	377	98.9
	Disagree	4	1.1
I like my neighborhood	Agree	370	97.1
	Disagree	11	2.9
My parents treat me fairly	Agree	368	96.6
	Disagree	13	3.4
I enjoy spending time with my parents and family members	Agree	362	95.0
	Disagree	19	5.0
Most people like me	Agree	271	71.1
	Disagree	110	28.9

4.6.7 Social factor and family functioning

Table 4.13 shows how respondents perceived the level of family functioning. This was was assessed using a Likert Scale tool. Three sub-domains were assessed, namely: strengths and adaptability, overwhelmed by difficulties, and disrupted communication. On strengths and adaptability77.2%, of the respondents reported that their families talk to each other about things which matter, 70.1% trust each othe in their family, while 68.0% reported that they get looked after by their family members when upset. About 75.1% reported that they were good at finding new ways to deal with things that are difficult.

Regarding being overwhelmed by difficulties, majority stated that they didn't see naything wrong with their families84.8%) and that in their family they do not blame each other when things go wrong (72.7%). Concerning disrupted communication, 73.0% of the respondents rated that people in their families often told each other the truth while 76.6% reported that it does not feel risky to disagree in their family.

Majority (89.5%) confirmed that people in their family do not interfere too much in each other lives.

Table 4.13. Family functioning

Variable	Categories	n	%
In my family we talk to each other about things which matter to us	Well	294	77.2
	Not at all	87	22.8
People often tell each other the truth in my family	Well	278	73.0
	Not at all	103	27.0
It does not feel risky to disagree in our family	Well	292	76.6
	Not at all	89	23.4
We trust each other	Well	267	70.1
	Not at all	114	29.9
When one of us is upset they get looked after within the family	Well	259	68.0
	Not at all	122	32.0
Things dont seem to go wrong for my family	Well	323	84.8
	Not at all	58	15.2
People in my family do not interfere too much in each other lives	Well	341	89.5
	Not at all	40	10.5
In my family we dont blame each other when things go wrong	Well	277	72.7
	Not at all	104	27.3
We are good at finding new ways to deal with things that are difficult	Well	286	75.1
	Not at all	95	24.9

Adopted from Family functioning assessment tool by Butler (2015)

4.7 Relationship Between Variables and Occurance of Repeat Pregnancy

4.7.1 Relationship between socio-demographic characteristics of respondents and repeat pregnancy

Table 4.14 shows results on the relationship between socio-demographic characteristics and repeat pregnancy. Out of the 381 respondents, 69.3% had experienced repeat pregnancies. Among the socio-demographic characteristics that were considered, ethnicity was associated with occurance of repeat pregnancies, where females from Luo tribe were 50% less likely to have reported repeat pregnancies compared to their counterparts from other tribes within the study area (OR: 0.5; 95% CI: 0.3 – 0.9; p = 0.02). Although not statistically significant, level of education was another important factor in the findings. Respondents with none or primary education level were upto 2.2 times more likely to have had repeat pregnancies than those with

higher level education (p = 0.11). This was also confirmed during key informant interview, where stakeholders agreed that higher level education gives a girl a better ability to reason and make decision regarding their sexuality and life in general.

> "*If all girls would go through secondary education, adolescent pregnancy can reduce by a bigger percentage. They will be empowered to make better decisions and not easily get lured to risky sexual relationships that lead to pregnnacy*. Said key informant, ID KIR 002.

Table 4.14. Relationship between socio-demographic characteristics of respondents and repeat pregnancy

Independent variable	Categories	N	Repeat pregnancy		OR	95% CI	P value
			Yes	No			
Age in years	< 18	80	67.5	32.5	0.9	0.5 – 1.5	0.65
	≥ 18	301	70.1	29.9			
Marital status	Single	175	71.4	28.6	1.2	0.7 – 1.8	0.46
	Married / Others	206	68.0	32.0			
Level of education	None / Primary	191	73.3	26.7	1.4	0.9 – 2.2	**0.11**
	Secondary and above	190	65.8	34.2			
Residence	Rural	346	69.4	30.6	0.9	0.4 – 1.9	0.80
	Urban	35	71.4	28.6			
Ethnicity	Luo	279	66.3	33.7	0.5	0.3 – 0.9	**0.02**
	Other tribes	102	78.4	21.6			
Employment	Not working	293	70.3	29.7	1.2	0.7 – 1.9	0.56
	Working	88	67.1	32.9			
Who decides on how you spend your income	Self	80	67.5	32.5	0.9	0.5 – 1.5	0.65
	Others	301	70.1	29.9			

4.7.2 Relationship between adolescent female contraceptive knowledge, utilization and repeat pregnancy

Table 4.15 presents results on bivariate analysis on the relationship between female adolescents' contraceptive knowledge, utilization and repeat pregnancy. From the findings, adolescents who knew one method of FP were 40% less likely to have repeat pregnancy, the rate being significantly lower than those who knew more than one method (OR: 0.6; 95% CI: 0.3 – 1.0; p = 0.04).

Those who had not used any FP method were upto twice higher rates of repeat pregnancy compared to those who had not, although the relationship was not statistically significant (OR: 1.0; 95% CI: 0.6 – 2.0; p = 0.88). Expectedly, adolescents who had ever used male condom were 60% less likely to have had repeat pregnancy than those who had ever used other methods, the results being non-statistically significant (p = 0.10).

Whereas this study did not ask about current use of contracepticves among the adolescents, it was confirmed during qualitative interview that contraceptives play a huge role in reducing adolescent pregnancy.

> "*We have managed to reduce adolescent pregnancy within the county from 36% in 2018 to 24% in 2021 because we increased uptake of family planning among adolescent & youth. The main challenge is that only a few facilities are friendly enough for young people and a number of them shy away from seeking services there. We therefore do a lot of targeted outreaches to increase contraceptive acess.* Said Key Informant ID KIR 001.

Table 4.15 Relationship between adolescent female contraceptive knowledge, utilization and repeat pregnancy

Independent variable	Categories	n	Repeat Pregnancy		OR	95% CI	P value
			Yes	No			
Knowledge of any family planning methods	Knows one method	80	60.0	40.0	0.6	0.3 – 1.0	**0.04**
	None or more than one method	301	72.1	27.9			
Ever used any FP method	Yes	330	69.7	30.3	1.0	0.6 – 2.0	0.88
	No	51	68.6	31.4			
Type of FP ever used	Male condom	11	45.4	54.6	0.4	0.1 – 1.2	0.10
	Others	370	70.3	29.7			
Who influenced your decision to use FP ?	My own decision	138	65.9	34.1	0.8	0.5 – 1.2	0.25
	Partner, parents, others	243	71.6	28.4			
Able to access FP services easily	Yes	353	69.1	30.9	0.7	0.3 – 1.8	0.51
	No	28	75.0	25.0			

4.7.3 Relationship between sexual debut, sexual relationships and repeat pregnancy

Table 4.16 presents results on Relationship between sexual debut, sexual relationships and repeat pregnancy. There was significant association between number of sexual partners and the reason for having more than one sexual partner to the occurance of repeat pregnancy. Adolescents who had more than two sexual partners had significantly higher odds of repeat pregnancy than those how had one or two (OR: 2.5; 95% CI: 1.1 – 5.6; p = 0.02). More importantly, adolescents who had more than one sexual partner for upkeep and support were almost three times more likely to have experienced repeat pregnancy than those whose reasons were for sexual pleasure, peer pressure, among others (OR: 2.8; 95% CI: 1.1 – 7.5; p = 0.03). Notably, respondents who attributed what prompted them to start having sex at that age to peer influence

from friends and peers were upto two times more likely to have reported repeat pregnancy, results being non-significant (p = 0.26).

During qualitative interviews, both parents and the adolescents interviewed in the focus group discussions agreed that starting sex early is a factor that can make a girl to have more than one pregnancy while still young.

> *"While in class six, my elder sister used to bring her boyfriends at night to where we used to sleep. Our parents were sleeping in a separate house and we were two ladies sleeping together. Sometimes the boy could bring her gifts and spend the nights in our room. I got persuaded to also get a boyfriend and that is how I got pregnant the same year. I then got married a year later and now I have 2 children".* Said an adolescent mother, ID -AR008.

Though non-statistically significant, there was an association between being still in active sexually relationship and repeat pregnancy where such adolescents were almost upto three time as likely to have reported repeat pregnancy as those who were not in active relationship (p = 0.21). Perhaps this is related to the fact that a significant number of the adolescents interviewed were already married (54%).

Table 4.16. Relationship between sexual debut, sexual relationships and repeat pregnancy

Independent variable	Categories	N	Repeat Pregnancy		OR	95% CI	P value
			Yes	No			
Age at which sexual intercourse was started	< 15 years	224	68.7	31.3	0.9	0.6 – 1.4	0.68
	≥ 15 years	157	70.7	29.3			
What prompted you to start having sex at that age	Influence from friends and peers	233	71.7	28.3	1.3	0.8 – 2.0	0.26
	Sexaul abuse, personal needs, etc	148	66.2	33.8			
Still in active sexual relationship	Yes	328	70.7	29.3	1.5	0.8 – 2.7	0.21
	No	53	62.3	37.7			
Number of sexual partners	More than two	50	84.0	16.0	2.5	1.1 – 5.6	**0.02**
	One or Two	331	67.4	32.6			
Reason for having more than one sexual partner	For upkeep and support	35	85.7	14.3	2.8	1.1 – 7.5	**0.03**
	Sexual pleasure, peer pressure	346	67.9	32.1			
Approximate age gap between you and your partner	< 5 years	147	64.6	35.4	0.7	0.4 – 1.1	0.10
	≥ 5 years	234	72.6	27.4			
Still in a relationship with the partner responsible for the pregnancy	Yes	210	70.0	30.0	1.0	0.7 – 1.6	0.83
	No	171	69.0	30.1			
Reasons for separation	Disagreements	90	67.8	32.2	0.9	0.5 – 1.5	0.67
	He is in school, he is married, abuses	291	70.1	29.9			

4.7.4 Relationship between individual adolescent behavior and repeat pregnancy

Table 4.17 shows results on the relationship between individual risky behaviours and repeat pregnancy. Adolescents who used condom 'sometimes' with sexual partners were about twice as likely to report repeated pregnancy compared to their colleagues who used condom every time or never used at all (OR: 1.7; 95% CI: 1.1 – 2.7; p = 0.01). Non use of condom can be attributed to pressure from male counterparts. The adolescent girls interviewed during focused group discussion said most men do not prefer using condom and they feel girls do not trust them when they refuse sex without a condom. They pile pressure on the girls and sometimes threaten to dump them. This makes the girls to give into sex without condom which eventually leads to pregnancy.

> "*One time I insisted on him using a condom. He became violent and beat me up. He chased and locked me out of his house in the night. I had to beg him to let me in since it was late and I coud not go back home. We then did sex without a condom and I feared asking him to use a condom any other time. I later became pregnant while in form two.* Said an adolescent respondent (ID AR 011).

Similarly, those who had been in multiple sexual relationship in life had higher odds of experiencing repeat pregnancy. (OR: 1.7; 95% CI: 1.1 – 2.6; p = 0.02). Though not statistically significant, adolescents who had been to nightclubs or discos and those who had been involved in drug abuse were upto 2.2 (p = 0.13) and 2.9 (p = 0.35) odds of experiencing repeated pregnancy than their counterparts, respectively.

Table 4.17 Relationship between individual risky behavior and repeat pregnancy

Independent variable	Categories	N	Repeat Pregnancy		OR	95% CI	P value
			Yes	No			
Frequency of condom use with sexual partner	Sometimes Every time, Not at all	242 139	74.0 61.9	26.0 38.1	1.7	1.1 – 2.7	**0.01**
Has courage to refuse sex or ask partner to use condom	Yes Somehow, No	208 173	71.6 67.1	28.4 32.9	1.2	0.8 – 1.9	0.33
Has had sex with a stranger	Yes No	79 302	69.6 69.5	30.4 30.5	1.0	0..6 – 1.7	1.00
Has been in multiple sexual relationships in life	Yes No	215 166	74.4 63.2	25.6 36.8	1.7	1.1 – 2.6	**0.02**
Has been to nightclubs or discos	Yes No	170 211	73.5 66.4	26.5 33.6	1.4	0.9 – 2.2	0.13
Has been involved in drug abuse	Yes No	45 336	75.6 68.7	24.4 31.3	1.4	0.7 – 2.9	0.35
Has been taking alchohol	Yes No	36 345	75.0 69.0	25.0 31.0	1.3	0.6 – 3.0	0.46

It is important to note that another important finding during focused group discussion was related to Personal choices, individual preferences and outcome of previous pregnancy. Adolescent girls who had done an abortion reported that there was presseure from their male partners to confirm whether they were still fertile after the procedure.

> "*My boyfriend used to tell me that sometimes girls become barren after an abortion. He had put a lot of pressure and he also promised to support the child. That is why I didn't use any family planning method and I soon became pregnant*." Said an adolescent participant (ID AR 001).

4.7.5 Relationship between living arrangement, family characterisics and repeat pregnancy

Table 4.18 presents study findings on the relationship between living arrangement, family characteristics and repeat pregnancy. There was borderline significant relationship between adolescents whose mothers had the first child at less than 18 years and repeat pregnancy. Adolescents of such mothers were 50% less likely to have reported repeat pregnancy (OR: 0.5; 95% CI: 0.3 – 1.0; p = 0.06). While not statistically significant, adolescents who were currently staying with their mothers were less likely to have reported repeated pregnancy (p = 0.08). Again, even though not statistically significant, adolescents who reported that they all sleep in the same room with parents were upto seven times more likely to have experienced repeated pregnancy (p = 0.41).

Relatedly, qualitative interviews also explored the association between family environment and occurance of repeat pregnancy. Poverty and inability by parents to provide adequately for the girls featured prominently among adolescents and parents as a factor that pushes girl into risky sexual behaviors. The Adolescent girls who were interviewed felt that parents were not mindful of their needs while parents feel under pressure to meet their own needs and that of their babies.

> "*It is a big burden. Parents are paying school fee and at the same time trying to meet the needs of the girl and her baby. It becomes more difficult when she has more than one child at home. That is why we prefer she gets married so that the man can provide for their needs*" said a parent participant (ID PR 004).

There were also issues of culture and negative perception from the society where parents disowned girls who become pregnant. Such girls were seen as outcasts subjecting them mental anguish. This is particularly worse for adolescent girls with two or more children who are commonly seen as a disgrace to the family.

"In our culture, such girls can not be married as first wives. They are usually married a second or 3rd wife or get married to an old man. They are seen as a disgrace and this also makes our girls to lose focus and become miserable" Said a parent respondent, (ID PR 002).

Table 4.18 Relationship between living arrangement and repeat pregnancy

Independent variable	Categories	n	Repeat Pregnancy		OR	95% CI	P value
			Yes	No			
Family living room arrangement	Children live in a separate room	17	70.6	29.4	1.0	0.4 – 3.1	0.92
	Other arrangements	364	69.5	30.5			
Have siblings	Yes	356	68.8	31.2	0.6	0.2 – 1.5	0.24
	No	25	80.0	20.0			
Has other siblings under 20 with child	Yes	84	72.6	27.4	1.2	0.7 – 2.1	0.49
	No	297	68.7	31.3			
Approximate age of mother when she had first child	< 18 years	42	57.1	42.9	0.5	0.3 – 1.0	**0.06**
	≥ 18 years	339	71.1	28.9			
Whom currently stays with	Stays with mother	43	58.1	41.9	0.6	0.3 – 1.1	0.08
	Others : both parents, alone, father, etc	338	71.0	29.0			
Family sleeping arrangement	We all sleep in the same room with parents	16	81.2	18.8	1.9	0.5 – 7.0	0.41
	Other sleeping arrangements	365	69.0	31.0			
Main source of income	None	91	71.4	28.6	1.1	0.7 – 1.9	0.66
	Employed, Self-employed	290	69.0	31.0			

4.7.6 Relationship between potential partner, family support and repeat pregnancy

Table 4.19 displays results on the relationship between potential partner, family support and repeat pregnancy. Only one independent variable on potential partner and family support had a statistically significant association with adolescent repeat pregnancy. Respondents who rated support they get from partner as inadequate were twice as likely to report repeat pregnancy as opposed to their counterparts who thought the support was adequate (OR: 2.1; 95% CI: 1.0 – 4.3; p = 0.04). This was also noted by key informants who indicated that most parents had abdicated their roles and are nolonger present in the lives of their girls. The study underscored that the pressing need for the adolescent girls to fend for themselves and their babies pushed them into transactional sex with men. Majority of the girls said they got pregnant for a second or third time to help them keep the man responsible for the preceeding pregnancy, largely for financial support.

> "W*hat else could I do? The child needed a lot of things and didn't have any way to support her. I had to remain close to my boyfriend so that he could continue to support us. That is how I got my second born"* said adolescent respondent (AR 005).

Table 4.19 Relationship between potential partner, family support and repeat pregnancy

Independent variable	Categories	n	Repeat Pregnancy		OR	95% CI	P value
			Yes	No			
Source of income for current partner	None	65	67.7	32.3	0.9	0.5 – 1.6	0.72
	In school, employed, business	316	69.9	30.1			
Kind of support getting from current partner	None	42	69.1	30.9	1.0	0.5 – 1.9	0.94
	Money, goods	339	69.6	30.4			
Rating of support received from partner	Inadequate	54	81.5	18.5	2.1	1.0 – 4.3	**0.04**
	Adequate	327	67.6	32.4			
Has received any motivation or advice from anyone to get pregnant again	Yes	128	71.1	28.9	1.1	0.7 – 1.8	0.64
	No	253	68.8	31.2			
Who motivated you?	Partner	81	66.7	33.3	0.8	0.5 – 1.4	0.52
	Parents, Friends, Relatives	300	70.3	29.7			

4.7.7 Relationship between sexual violence and abuse and repeat pregnancy

Table 4.20 shows results on the relationship between sexual violence and abuse and repeat pregnancy. Whereas none of the independent variables examined had any significant relationship with the outcome, adolescent reporting any form of violence or abuse as contributor to any of the pregnancies were upto five times higher odds of experiencing repeat pregnancy (OR: 1.9; 95% CI: 0.7 – 5.2; p = 0.2). Similar sentiments were shared during FGD where it was noted that violence within the family wasalso a major factor propagating occurance of repeat pregnnacies.

"My father used to drink alchol a lot and would beat us together with our mother. We ran away and stayed together at Oruba slums in Migori. Life became difficult and I had to drop out of school in class seven. I then resorted to getting married to my boyfriend and now I have two children" said adolescent respondent, (ID AR008).

Table 4.20 Relationship between sexual violence and abuse and repeat pregnancy

Independent variable	Categories	n	Repeat Pregnancy		OR	95% CI	P value
			Yes	No			
Have you experienced any form of violence from your parents or partner ?	Yes	209	72.2	27.8	1.3	0.9 – 2.0	0.21
	No	172	66.3	33.7			
Form of violence experienced	Physical	84	66.7	33.3	0.8	0.5 – 1.4	0.51
	Sexual, Verbal, Emotional	297	70.4	29.6			
Did the form of violence contribute to any of the pregnancies	Yes	26	80.8	19.2	1.9	0.7 – 5.2	0.20
	No	355	68.7	31.3			

Whereas most adolescent girls interviewed reported bad experiences during pregnancy and delivery, it did not stop them from getting pregnant again. From the interviews, psychological stress was the most experienced form of violence among adolescents. Surprisingly, this was not a detterent factor in the occurance of a repeat pregnancy. Even though

"My pregnancy was very stressful. My father was harsh and disowned me. My peers made fun of me and worst of all labour became complicated and I was taken to theatre for caesarean section. Thereafter the wound took long to heal and sometimes it could ooze pus and I couldn't do any work. However, after I healed, we started having sex again with my boyfriend. I was not on any family planning method and I soon got pregnant again after one year. Said adolescent girl during focused group discussion (ID AR006).

4.7.8 Predictors of repeat pregnancy among female adolescents

Multiple logistic regression analysis indicated that Ethinicity (aOR: 0.5; 95% CI: 0.3 – 0.9; p = 0.03), Frequency of condom use with sexual partner (aOR: 1.8; 95% CI: 1.0 – 3.0; p = 0.04) were significantly associated with occurance of repeat pregnancy. The association between approximate age of mother when she had first child and repeat pregnancy among adolescents after controlling for counfounder resulted in marginal statistical association with the outcome (p = 0.06). Lower-level education and irregular (sometimes) use of condoms with sexual partner increased the chances of adolescent experiencing repeat pregnancies while the younger the age of the mother when she had first child decreased the odds of adolescent females reporting repeat pregnancies.

Table 4.21 Multiple logistic regression analysis on determinants of repeat pregnancy

Independent variable	Estimate	OR	95% CI	P value
Level of education	0.5510	1.7	1.0 – 2.9	**0.03**
Ethnicity	- 0.6369	0.5	0.3 – 0.9	**0.03**
Frequency of condom use with sexual partner	0.5679	1.8	1.0 – 3.0	**0.04**
Approximate age of mother when she had first child	-0.6834	0.5	0.2 – 1.1	0.07

CHAPTER FIVE

DISCUSSION

5.1 Overview

The study aimed to establish the predictors for the occurrence of repeat pregnancy among adolescents attending health facilities within Suna East of Migori County. The objectives were to; assess the prevalence of repeat pregnancy among adolescents visiting health facilities in Migori County; examine the association between the individual factors and the occurrence of repeat pregnancy among adolescents; determine the association between the behavior of adolescents and the occurrence of repeat pregnancy and to examine the influence of social environment on the occurrence of repeat pregnancy among adolescents.

5.2 Prevalence of repeat pregnancy among adolescents visiting health facilities in Migori County

Whereas this study only focused on adolescents attending health facilities, there was evidence of high prevalence of repeat pregnancy at 69.6% and 30.4% had experienced first pregnancies. The prevalence reported in this study was higher than that reported in another study conducted in Brazil where 42.6%. of the 204 pregnant adolescents interviewed had repeat pregnancy. The Brazilian study observed that non-use of contraceptive methods was the main reasons for the occurrence of repeat pregnancies (Ana, *et al.*, 2013). The findings of the current study are equally higher than the outcome of another study conducted in South Africa by which showed a prevalence rate of 19.9% for adolescents with repeat pregnancy (Desiree, 2019). Since a quarter of girls aged 15-19 in Migori had began childbearing and the adolescent age specific fertility rate was 136 per 1000 births, it was likely that a bigger number of adolescent girls could be having high order pregnancies and births. The same data indicated a

large proportion (20.9%) of adolescents in Migori who were already mothers compared to the national average of 14.7%.

It is important to note that due to purposive selection of the respondents for this study and the target population which was limited only those attending the health facilities, the findings might not conclusively reveal the actual prevalence of repeat pregnancy in Suna East Sub County. However, unlike the Brazilian study, the current study did not ask participants about their current use of family planning, butmajority (86.6%) reported having used a contraceptive method at one point. The study can not therefore attribute the high prevalence of repeat pregnancy to non-use of family planning as was the case in Brazil.

5.3 Association between individual factors and the occurrence of repeat pregnancy among adolescents

From the socio-demographic data, ethnicity was significantly associated with occurance of repeat pregnancy, where adolescent girls from Luo tribe were 50% less likely to have repeat pregnancies compared to their counterparts from other tribes within Suna East (OR: 0.5; 95% CI: 0.3 – 0.9; p = 0.02). The study attributes this to cultural practices such as rites of passage activities like Female Genital Cut (FGC). The Luo tribe does not particularly practice female genital cut (FGC) while other dominant tribes like Kuria and Somalis living in Suna east regard FGC as a rite of passage. As such, girls who have undergone the rite, are given an early sense of womanhood and are ready for marriage and childbearing. This exposes the girls to having more than one child when they are still young and contributing to the worrying statistics of repeat pregnancies among adolescents.

While conducting a study by on the influence of Female genital cut (FGC) and school retention, Gesare, (2013) confirmed that female Genital Cut was a major contributor to early marriage among the Kuria nd Somali tribes. Thus, girls who have undergone the cut are generally regarded as women and they get married off. Early marriage often leads to early pregnnacies and this adds to the statistics of adolescent pregnancies.

A similar study conducted by McCall *et al,* (2014) in Aberdeen, Scotland noted that cultures that tolerate or encourage young parenthood contribute significantly to repeat adolescent pregnancy. In such cultures, a teenager who gives birth is never rebuked but is seen to be in line with past generational rite of passage. Nguyen *et al,* (2016) adds that in such tolerating societies, young mothers are taken care of by parents hence encouraging the yet- to- be mothers and adolescent who are already mothers to get pregnant again. This might be the case among some communities in Migori where such girls are celebrated as having proven that they are fertile.

Although not statistically significant, respondents with none or primary education level were up to 2.2 times more likely to have repeat pregnancies compared to those with higher level education ($p = 0.11$). Uromi (2014) revealed that girl's education is the most important factor in pregnancy prevention. It was argued that education empowers a girl to make important day to day decisions. In addition, education enables one to make decisions about family planning, postponement of marriage and when to make sexual relationships. An interview with key stakeholders in Migori also affirmed that if more girls would get to higher education, less teen pregnancies would be realized.

> *"The problem is with parents who do not see the need to educate girls. They do not know that when girls get educated, they are empowered not to fall into the trap of repeat pregnancy. Even girls who dropped out of school due to pregnancies should be given a chance to complete their education."* Said the county adolescent coordinator (KII, 05).

On a similar note, Akella, and Jordan (2015) noted that education is a protective factor, and revealed that childbearing is more likely among teenagers with lower education attainment compared to their age mates who have attained higher education. The study affirms that higher level of education enables girls to have more focus and can reasonwell before engaging in sex.

Regarding the knowledge on Family planning, adolescents who knew at least one method of FP were 40% less likely to have repeat pregnancy. This rate is significantly lower than those who knew more than one method. Those who had ever used any FP method were up to twice less vulnerable to repeat pregnancy compared to those who had not, although the relationship was not statistically significant. This finding is in line with many previous studies that have blamed occurrence of repeat pregnancy to non-use of family planning. A study conducted in Caruaru Province, Brazil revealed that non-use of contraceptive methods increased the chances of adolescents' pregnancy by up to seven times (Ana *et al*, (2017). Similarly, in Kwa Zulu natal, South Africa, researchers noted that the discontinuation of Family planning among adolescents and youth contributed to the occurance of adolescent pregnancies. In this study, Msphatwe (2018) alludes that although many adolescents may present history of using contraceptive before pregnancy, the use of family planning is generally not supported after the pregnancy. Most adolescents usually interrupt its use within a year (Msphatwe, 2018). It is possible that due to many health partners working in Migori and many community sensitization meetings being conducted, most young people are aware of family planning methods. However, like in oter areas, it is possible that adoelscents in Migori are also less tolerant of the side effects and they often stop using family planning. This can predispose them to early pregnancy.

Encouragingly, the study also revealed that parents and peers had little influence on adolescent choices of family planning. Majority said it was their own decision to use the family planning method. This was confirmed during FGD where adolescent respondents said they did not want their parents or peers to know because they were on a method. The main reason was fear of being judged or they would discourage them with scary stories about family planning.

5.4 Association between behavior of adolescents and the occurrence of repeat pregnancy

The study found significant relationship between multiple sexual partners and use of condom to the occurance of repeat pregnancy. Adolescents with two or more sexual partners had higher odds for repeat pregnancy. Whereas only 20.7% confirmed to having ever had sex with someone they did not know so well, 56.4% agreed to have had multiple sexual partners at any given time. Interestingly, 54.6% of the respondents said they had the courage to refuse sex or ask a partner to use a condom, but most of them said they only did this when they felt they are unsafe and at risk of getting pregnant. Majority (59.3%) alluded that this is driven by financial need with only a small proportion doing it for sexual pleasure.

The present findings underscore how socioeconomic vulnerability is associated with unplanned pregnancy and poor adolescent reproductive health outcomes. It is possible that adolescents in Suna East who havemultiple sexual partners are less likely to practice safe sex making it easy for them to have un intended pregnancy. This finding relates to themes from Uganda and other countries in the East African region where young women engage in transactional sex with older male partners in exchange for school fees, pocket money and basic necessities (Dinah *et al,* 2020).

Regarding condom use, data in this study revealed that adolescents who had ever used male condom were 60% less likely to have repeat pregnancy compared to those who had ever used other methods. Remarkably, 63.5% of adolescents reported using condoms only sometimes and 32.6% not using it at all. George *et al,* (2019) affirmed that condom use among the adolescents is the most effective behavioral methods for the prevention of HIV and unplanned pregnancies. However, the prevalence of condom non-use among adolescents is low. For instance, in South Africa it was estimated to be lower than 60% and the researcher alluding that though many young people are sexually active, condom use was inconsistent. (George *et al,* 2019).

This study confirmed gaps in condom use during FGD with adolescent girls, where condom use is seen as boy's duty and girls are never bothered to carry or discus more about it during sexual activity.

> *"As a girl, I have no control on condom use. I cannot go to the shop and buy a condom. People will see you as immoral. We leave it to men but they also feel that we do not trust them when we insist that they have to use them. The Female condoms that is meant for us is never available and most of us don't know how to use it.".* Said an adolescent mother, 17 Years ID: AR004)

5.5 Influence of social environment on the occurrence of repeat pregnancy among adolescents

This study found significant relationship between level of support for the adolescents and the age of her mother when she first had her pregnancy, as being related to occurance of a repeat pregnancy. Respondents who rated the support they get from their partner as inadequate were twice as likely to report repeated pregnancy as opposed to their counterparts who perceived the support was adequate (OR: 2.1; 95% CI: 1.0 – 4.3; p = 0.04). This study attributes this to the need to get additional support to supplement what they are getting from their partners. Because of this, most adolescent mothers will be pushed to engage in risky sexual behavior for financial

help. Expectedly, majority of the respondents (82.4%) indicated that they received monetary support from the partners who also encouraged them to get pregnant again. About 63.3% got this motivation from their sexual partners while only 5.5% got such an advice from their parents.

There was borderline significant relationship between adolescents whose mothers had the first child at less than 18 years and repeat pregnancy. Adolescents of such mothers were more than 50% likely to have repeat pregnancy. Correspondingly, Wall-Wieler *et al* (2017) alluded those those adolescent girls who had at least one older sister or mother who experienced a pregnancy before the age of 20, had a higher risk of becoming pregnant between the ages of 14 to 19 years.

A study in South Africa on The Association Between Household and Community Single Motherhood and Adolescent Pregnancy in South Africa, Mkwananzi, (2019) confirms the likelihood of daughters of such mothers suffering the same fate and becoming pregnant early in life.

This was also confirmed during qualitative interviews.

> *"I felt bad when my girl got pregnant. I related it to my experience as a girl when I also got pregnant while in school. I could not bear the shame and I got married while still very young. Two of my daughters have become pregnant while still in school. This is not good at all and their father think am the one encouraging them to get pregnant"* said a female parent during parents' interview ID- PR OO2.

Whereas none of the independent variables that were examined showed any significant relationship between gender-based violence with the outcome, adolescents who reported any form of violence or abuse as contributor to any of their pregnancies were up to five times higher rate of experiencing repeat pregnancy. From the study, most respondents had experienced emotional abuse (41.2%) and a significant proportion (39.8%) had also experienced physical abuse. The study attributes this to the inability

of girls who are victims of gender-based violence having no power to make important decisions about pregnancy and other reproductive health issues.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS OF THE STUDY

6.1 Overview

This chapter presents the overall conclusions of the study drawn from the findings. The chapter further proposes recommendations to help reduce the occurrence of repeat pregnancies among adolescent girls. The strengths and contributions of the study are also outlined together with possible areas of future research in relation to repeat pregnancy among adolescents.

6.2 Conclusion

The study sought to answer four research questions namely; what is the prevalence of repeat pregnancy among adolescents in Suna east, what is the association between individual factors and the occurrence of repeat pregnancy among adolescents, what is association between behavior of adolescents and the occurrence of repeat pregnancy and what is the influence of social environment on the occurrence of repeat pregnancy among adolescents.

On the prevalence of repeat pregnancy among adolescents in Suna east sub county, this study reveals a high prevalence of repeat pregnancy among adolescents living in Suna East Sub County, with 30.4% having repeat pregnnaceies. Most of which are second babies.

On association between individual and demographic factors and occurance of repeat pregnancy, the study confirms significant relationship between ethnicity and knowledge on contraceptives as predictors to occurance of a repeat pregnnacy.

On association between adolescent behavior and occurance of a repeat pregnancy, the study found significant relationship between lack of condom use and having multiple sexual partners as a predictor for the occurance of a repeat pregnancy.

On the influence of social environment, the study found evidence of a relationship between inadequate partner support, gender-based violence and being a daughter to a mother who had her first pregnancy while under 18 years as major predictors to occurance of repeat pregnancy.

6.3 Recommendations

1. The government and adolescent stakeholders to expand the scope of interventions to include approaches to address repeat pregnancies.
2. State and non state actors to establish culturally appropriate measures to address rites of passage that gives girls early sense of womanhood.
3. Behavioural interventions on safer sexual relationships to target condom use, particularly female condoms
4. Effective health programming to focus more on linkage to safety net opportunities to reduce vulnerabilities.

6.4 Strengths and Suggestions for Future Research

The study drew its strength from the mixed method approach that was able to corroborate both quantitative and qualitative findings. Since separate cohorts participated in both phases, the research was able to authenticate and expound on quantitative issues that would have remained unclear. To ensure inclusion of divergent opinions on predictors of repeat pregnancy, adolescents from diverse areas within the sub county were involved.

6.5 Proposal for future research

From this study, there is need for a large-scale household-based study on repeat pregnancy among adolescent in rural and urban areas of Kenya. It is possible that health-facility-based study might have missed out on adolescents who could not have had access to health facilities.

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APPENDICES

Appendix I: Assent Form

Adolescent assent Form (Aged 10-17 years)

Hello, I'm……. from Masinde Muliro University of Science & Technology. I'm conducting a study on circumstances that can make an adolescent girl have more than one pregnancy while still young. I am inviting you to join this study and I picked you for this study because you are less than 20 years old, you reside in Suna East and you got pregnant while still young. I feel you can help me find out more about this situation.

You are free to ask any questions that you might have before you decide to participate in this study. Your participation is voluntary and you are free to opt out at any time of this study. Since some of the questions in this study might be personal and sensitive, you are also free to skip any question that you feel uncomfortable with. You will not be penalized in any way if you don't participate in this study or if you stop mid-way.

I want to assure you that everything you tell me during this study will be kept private and no one else will know your name or what answers you gave apart from those who are directly involved in this study. Again, no form of compensation will be given for your participation in this study.

You can ask me any questions now or any other time through my phone number: 0720-704-369 or through my supervisor, Mr. John Arudo- 0725-430-572 or Dr. Millicent-0721244432I. will also give you a copy of this form.

Statement of declaration:

I state that I have read and adequately understood the above information regarding this study. I have also received answers to any questions that I had. I therefore consent to participate in this study.

Sign: ---------- Date of Consent _____

Researcher's Signature_____ Date: ----------

PARENT CONSENT FORM

Hello, I'm…….and I'm a master's student at Masinde Muliro University of Science & Technology. I'm doing a study to learn about circumstances that can make an adolescent girl have more than one pregnancy. I would like to include your daughter, along with other girls to participate in this research project. I picked your daughter because she is less than 20 years, resides in Suna East and also had a pregnancy when still young.

You are free to ask any questions on her behalf before she participates in the study or in the course of the study. Her participation will be voluntary and she is free to opt out at any time in the course of this study. Since some of the questions in this study might be personal and sensitive, your daughter is free to skip any question she feels not comfortable answering. Your daughter will not be penalized in any way if she doesn't participate in this study or if she decides to stop mid-way. Similarly, there will be no form of compensation for her participation in this study.

I assure you that everything your daughter will tell me during this study will be kept private and no one else will know her name or what answers she gave apart from those who are directly involved in this study.

Once again, feel free to ask me any questions now or any other time through my phone number: 0720-704-369 or through my supervisors, Mr. John Arudo- 0725-430-572 or Dr. Millicent-0721 244 32I. I will also give you a copy of this form.

Statement of declaration:

I ……, being parent/ caregiver to……..(number will be assigned), state that I have read and adequately understood the above information regarding this study. I have also received answers to any questions that I had. I therefore consent that my daughter participates in this study.

Parent/ caregiver Sign: ---------- ID No…… Date_____

Researcher's Signature_____ Date: ----------

CONSENT TO PARTICIPATE IN FGD

Good Morning/Afternoon,

My name is _____, and I am a student at Masinde Muliro University of Science & Technology (MMUST) undertaking my Masters' program. I would like to invite you to participate in a research study that aims to understand the factors that can lead to the occurrence of repeat pregnancy among teenage girls. You are being invited because we feel you can help us understand more about this issue.

If you agree to participate, I will ask you to participate in a group discussion with other people of your category. You will be asked to describe your personal experiences and other issues that can make teenage girls become pregnant or have more than one pregnancy while still young. The discussion will take about one hour.

I assure you that the conversation about your experiences will be confidential and your individual responses will not be shared with anyone. Anything produced using information you share will not include your name or any information giving away your identity. You have the right to decline to participate and you will not be penalized for declining to participate or opting out in the course of the sessions.

"Do you have any questions?.....

Are you interested in participating in this study?" 1. YES 2. NO

Declaration

I have read and understood the above considerations regarding my participation in the study. I have been given a chance to ask questions and the questions have been answered to my satisfaction.

I understand that my records will be kept private and that I can stop the discussion at any time. I also understand that my decision to stop the discussion will not affect me adversely.

I agree/ decline to this discussion.

Signature of participant _____ Date……

Signature of interviewer ----------Date _____

Appendix II: Questionnaire

CONFIDENTIAL

QUESTIONAIRE

Questionnaire Number: ☐☐☐☐

Participant Code: ☐☐☐

Interview location: _____

Date of Interview: ☐☐/☐☐/☐☐☐☐

Interviewer Name: _____

Team Leader Name: _____

Date Checked: ☐☐/☐☐/☐☐☐☐

Predictors of repeat pregnancy among adolescents attending Migori County referral Hospital

SECTION 1: Personal Factors

No.	Questions and filtres	Coding Variables
Personal & demographic information		
1.	How old are you ? *(Age of the last birthday)*	_____
2.	What is your ethnicity?	1 = Luo 2 = Kuria 3=Luhya 4= Somali 5=Others (Specify)
3.	What is your Marital Status *(Circle one category)*	1. Single 2. Married 3. Divorced 4. Widowed

		5. Separated
4.	What is the highest level of education you attained?	1. None 2. Primary 3. Secondary 4. College/University
5.	Where do you live?	1. Rural 2. Urban
6..	What is your religious affiliation ?	1. Catholic 2. Protestant 3. SDA 4. Muslim 5. Hindu 6. Other (specify):_____
7.	Are you currently working for pay, either full-time or part-time?	1. Not working 2. Yes, Full-time 3. Yes, Part-time 4. Other (specify):_____ *(Skip to Q10 if not employed)*
8.	If employed, How long have you been in the above job?	1. Less than 6 months 2. 7 to 12 months 3. More than 12 months
9.	If employed, Who decides how you spend your income?	1. Self 2. Parents 3. Partner 4. Others
Obstetric history & previous birth outcomes		
10.	What service brings you to the clinic today?	1. General treatment 2. ANC 3. To see a patient

		4. Other (specify)
11.	Is this your first pregnancy/child?	1. Yes 2. No
12.	Have you had any abortion or miscarriage before?	1. Yes 2. NO (*If No, skip & go to Q17)*
13.	If you have more than one child, How many are alive?	1. One 2. Two 3. Three 4. More than three
14.	What is the Birth interval between the preceding child and the current (case) pregnancy?	1. Less than 1 year 2. 1-2 Year 3. 3-5 years 4. More than 5 years
15.	How would you rate your experience with the previous pregnancy?	1=Very bad 2=Bad 3=Fair 4=Good 5=Very good
16.	What makes you rate it so:	.....
17.	How would you rate your experience during the previous delivery?	1=Very bad 2=Bad 3=Fair 4=Good 5=Very good
18.	What makes you rate it so?	.....

	Fertility preference	
19.	Do you intend to have another child after this pregnancy/childbirth and by when?	1. Not at all 2. Within 2 years 3. After 2+ yrs. 4. Unsure of the timing 5. Undecided
20.	If Yes, what motivates you to have another child?	1. Having a baby would provide me somebody to adore. 2. Having a baby would make me feel significant as a lady. 3. Having a baby would aid me keep the baby‘s father. 4. Having a baby would aid me get cash from the baby‘s father. 5. Having a baby could get me out of a bad state. 6. Other (Specify)
21.	After the first pregnancy, did you make any effort to prevent another pregnancy?	1. Yes 2. No *(Skip for those with 1st child or first pregnancy-go to Q 22)*
22.	If yes, what did you do?	1. I abstained 2. I used condoms 3. Used family planning 4. I became faithful to one man 5. Others (specify)
23.	If No, why didn′t you make any effort?	1. I lost hope 2. I didn′t know how 3. I lacked someone to advise me

		4. Others (specify)
	Contraceptive knowledge and utilization	
24.	Do you know of any family planning methods?	1. Knows no method 2. Knows only traditional methods 3. Knows all the modern methods 4. Knows more than two methods 5. Knows more than 3 methods
25.	Have you ever used any Family planning method?	1. Yes 2. No
26.	If yes which one?	1. Intra uterine Device (IUCD) 2. Implanon 3. Jadelle 4. Depo-Provera 5. PILLS 6. Male condom 7. Female condoms 8. Other (Specify)
27.	Who influenced you to use the family planning	1. It was my decision 2. My partner 3. My parents 4. Friends 5. Others (specify).....
28.	What is the reason that made you discontinue Family planning before you got pregnant?	1. Side effects 2. Partner preference 3. Wanted another child 4. Method not available 5. Others (Specify

	Are you able to access Family planning services easily from the health facility near to you?	1. Yes 2. No
29.	If No, what are the reasons?	1. I have no time 2. Hospital is far 3. There are no FP Commodities 4. Health Staff are not friendly 5. Parents don't allow
SECTION 2: Behavioral factors		
Sexual debut and sexual relationships		
30.	At what age did you start having sexual intercourse?	----------
31.	What prompted you to start having sex at that age?	1. Influence from friends and peers 2. Sexual abuse 3. Poverty 4. Personal needs 5. Others (specify)
32.	Are you in any active sexual relationship currently?	1. Yes 2. No (If No, skip to Q35)
33.	If YES, how many sexual partners do you have?	1. One 2. Two 3. More than two
34.	If more than one partner, what prompts you to	1. For upkeep &support 2. For sexual pleasure 3. Peer pressure

	have more than one sexual partner?	4. others
35.	What can be the approximate age gap between you and your partner (s)?	1. Less than 5 years 2. 5-10 years 3. More than 10 years
36.	Are you still in a relationship with the partner responsible for the pregnancy ?	1. Yes 2. No
37.	If No, what was the reason for your separation	1. He is in school 2. He married 3. Disagreements 4. Abuses 5. Others

Individual Risky behaviors		
38.	How often do you use a condom with your sex partner	1. Every time 2. Sometimes 3. Not at all 4. Can't remember
39.	Do you feel you have courage to refuse sex or ask your partner to use condom	1. Yes 2. Somehow 3. No
40.	Have you ever had sex with somebody you didn't know so well?	1. Yes 2. No 3. Can't remember

41.	Have you been in multiple relationships in life?	1. Yes 2. No 3. Can't remember
42.	Have you been involved in night club or discos in your life? 1. Yes2. No	1. Yes 2. No 3. Can't remember
43.	Have you ever been involved in any form of drug abuse?	1. Yes 2. No 3. Can't remember
44.	If Yes, which one	1. Alcohol 2. Smoking Bhang 3. Smoking cigarettes 4. Others (Specify)
SECTION 3: Environmental factors		
Family Living arrangement		
45.	Whom do you stay with currently ?	1. Alone 2. With both mother and father 3. With my mother 4. With my father 5. Husband/ partner 6. With my relative 7. Others
46	If staying with parent(s), Give your response on a scale of 1 to 4 by ticking in the appropriate box. Where: 1=Very Little; 2=A little;	I'm emotionally close or connected to my parent/caregiver?

	3=Moderate; 4=Quite Much; 5=Very Much	I like spending time with my parent/caregiver?				
		I look up to or admire my parent/caregiver?				
		I trust my parent/caregiver to be faithful/loyal to you?				
47.	How is the living arrangement in your family?	1. I live with my partner 2. We all live together with parents and siblings 3. My parents live separately 4. Children live in a separate room 5. Other (specify)				
48.	How is the sleeping arrangement in your family?	6. Sleep in the same house 7. Has separate bedroom 8. Sleeps elsewhere 9. Sleeps at partners house 10. Others				
49.	What is the main source of income for the parent (s) (*for those staying with parents)*	1. None, 2. employed, 3. self-employed 4. Other (specify)				
Family history of early births						
50.	Dou you have other siblings?	1. Yes 2. No				
51.	Does any of your other siblings under 20 have a child?	3. Yes 4. No				

52.	Do you remember approximate age when your mother had her first child?	1. 10-15 years 2. 15-17 years 3. 18-20 years 4. Above 21 years 5. I don't know

Potential partner and family support		
53.	What is the source of income for your current sexual partner?	1. None, 2. still in school, 3. employed, 4. business(self-employed
54.	What kind of support do you get from your current partner?	1. None 2. Money 3. Goods 4. Others (Specify)
55.	If Yes, How would you rate the kind of support you receive from your partner	1. Adequate 2. Moderate 3. Inadequate 4. Very inadequate
56.	Have you received any motivation or advice from anyone to get pregnant again?	1. Yes 2. No
57.	If yes, who has motivated or advised you about it?	1. My friends 2. My parents 3. My partner 4. Relatives 5. Others (specify
Sexual violence & abuse		

58.	Have you experienced any form of violence from your parents or partner?	1. Yes 2. No
59.	If yes, which form of violence have you experienced?	1. physical 2. sexual 3. verbal 4. Emotional 5. Others (specify)
60.	If yes, did that experience contribute to any of your pregnancies?	1. Yes 2. No *(If No, skip Q61)*
61.	If YES, how?	1. I conceived in the process 2. I lost hope in life 3. I engaged in unprotected sex thereafter 4. Others (specify)

MEDIATING FACTORS

a) Multidimensional Scale of Perceived Social Support (MSPSS)

We would wish to know how you feel about the following statements. Kindly indicate how you feel about each statement using the scale below. 1 = Very Strongly Disagree 2 = Strongly Disagree 3 = Mildly Disagree 4 - Neutral 5 = Mildly Agree 6 = Strongly Agree 7 = Very Strongly Agree

	How would you rate these statements?	1	2	3	4	5	6	7
53.	There is a special person who is around when I am in need.							
54.	There is a special person with whom I can share my joys and sorrows.							
55.	My family really tries to help me.							
56.	I get the emotional help and support I need from my family.							
57.	I have a special person who is a real source of comfort to me.							
58.	My friends really try to help me.							
59.	I can count on my friends when things go wrong.							
60.	I can talk about my problems with my family.							
61.	I have friends with whom I can share my joys and sorrows.							
62.	There is a special person in my life who cares about my feelings.							
63.	My family is willing to help me make decisions.							
64.	I can talk about my problems with my Friends.							

b) LIFE SATISFACTION SCALE

Now we would wish to know how you feel about life and how satisfied you are with your overall life. Tick the word next to the statement that indicate the extent to which you agree or disagree with each statement. Kindly indicate the way you REALLY feel and not how you think it should be.

1=strongly disagree 2=Disagree 3=Agree 4= strongly agree

	How would you rate these statements?	1	2	3	4	5
65.	I think I′m good looking					
66.	I like myself					
67.	My friends are nice to me and help me when in need					
68.	I feel fun to be around					
69.	I feel good at school/home					
70.	There are a lot of things I can do well					
71	My parents treat me fairly					
72.	I enjoy spending time with my parents and family members					
73.	My family is better than most and get along well					
74.	Most people like me					
75.	I like my neighborhood					

c) FAMILY FUNCTIONING

We would wish to ask you about your views concerning your family. Kindly help us rate the extent to which you agree with the following statements.

(1=very well 2=well 3=partly 4=not well 5=not at all

	For each line, would you say that this describes our family?:	1.	2.	3.	4.	5.
1	In my family we talk to each other about things which matter to us					
2	People often don't tell each other the truth in my family					
3	Each of us gets listened to in our family					
4	It feels risky to disagree in our family					
5	We find it hard to deal with everyday problems					
6	We trust each other					
7	It feels miserable in our family					
8	When people in my family get angry they ignore each other on purpose					
9	We seem to go from one crisis to another in my family					
10	When one of us is upset they get looked after within the family					
11	Things always seem to go wrong for my family					
12	People in the family are nasty to each other					
13	People in my family interfere too much in each other lives					
14	In my family we blame each other when things go wrong					
15	We are good at finding new ways to deal with things that are difficult					

Appendix III: FGD Cover Page

Predictors of repeat pregnancy among adolescents living in Suna East Sub County, Migori County

FGD #1: FGD Guide for Young mothers

Group Type (circle): [Girls, age 13-19] [Parents of adolescent mothers]

Group Discussion Code : |___||___||___||___|

FGD Site : _____

Sub County : _____

Discussion by: _____

Date of Discussion: [___|___] [___|___] [___|___|___|___]
D D M M Y Y Y Y

Time Discussion Began: [___|___]: [___|___]
Hour Minute

Time Discussion Ended: [___|___] : [___|___]
Hour Minute

Results of Discussion: Completed 1
Partially Completed 2
Refused 3

Name and Signature of Supervisor _____

Date Checked: [___|___] [___|___] [___|___|___|___]
D D M M Y Y Y Y

Section 1: Demographic Information

	(Code)	Age (Years)	Education	Occupation	Marital status
A					
B					
C					
D					
E					
F					
G					
H					
I					
J					

Code:

Education	0: No education / 1: Primary / 2: Secondary / 3: University / 4: Vocational training / 96: Other (Specify)
Occupation	1: Student / 2: Service / 3: Business / 4: Farming / 96: Other (Specify)
Marital status	1: Unmarried / 2: Married or in Union / 3: Separated / 96: Other (Specify)

FGD # 1: FGD Guide for Adolescent Mothers

Preliminaries: Introduction of Group Members

Could you please share your name and where you come from (ward)? Feel free to tell us if you have children and what are their ages? If still pregnant, would you tell us when the baby is due?

General feeling about motherhood and factors related to occurrence of pregnancy

Now I would like to as you question related to your feelings about being a mother and general factor that can make a girl to have single or repeat pregnancy. Feel free to share your feelings because no answer is wrong.

1. How does it feel to be a young mother? What are your thoughts about becoming a parent and starting a family?
2. In your opinion, when is the ideal time to start having children? Why?
3. How do teenage girls arrive at the decision to have a baby?
4. How do you know when it's a good time to have a second child? What factors motivate/ force them to have another pregnancy?
5. Do you think that people in this community treat young mothers differently from mothers aged more than 20 years? In what ways? Why?

FGD # 2: FGD Guide for parents of adolescent mothers

Preliminaries: Introduction of Group Members

Could you please share your name and where you come from (ward)? Feel free to tell us if you have a girl who is a young mother and how many they are. If your daughter is still pregnant, feel free to share if you know when the baby is due.

General feeling about motherhood and factors related to occurrence of pregnancy

Now I would like to as you question related to your feelings about young motherhood and general factor that can make a girl to have single or repeat pregnancy. Feel free to share your feelings because no answer is wrong.

1. What is your feeling about adolescent mothers? What came into your mind when you realized your daughter is a teen mother?

2. In your opinion, when is the ideal time to start having children? Why?

3. In your opinion, how do teenage girls arrive at the decision to get pregnant?

4. For adolescents with repeat pregnancies, how do you think the adolescents get to know the time to have a second child? What factors motivate/ force them to have a repeat pregnancy?

5. Do you think that people in this community treat young mothers differently from mothers aged more than 20 years? In what ways? Why?

Appendix IV: Key Informant Interviews (KII)

Target Participants: 1 County adolescent health coordinator, 1 policy maker, 1 administrator, 1 youth leader and 1 non-governmental partner working in adolescent health

Now I would like to as you question related to your feelings about young motherhood and general factor that can make a girl to have single or repeat pregnancy. Feel free to share your feelings because no answer is wrong.

1. What is your feeling about adolescent pregnancy in Suna East Sub County? What comes into your mind when you see an adolescent mother?

2. In your opinion, when is the ideal time to start having children? Why?

3. In your opinion, how do adolescent girls arrive at the decision to get pregnant?

4. For adolescents with repeat pregnancies, how do you think the adolescents get to know the time to have a second child? What factors motivate/ force them to have a repeat pregnancy?

5. Do you think that people in this community treat adolescent mothers differently from mothers aged more than 20 years? In what ways? Why?

6. Do you think adolescent mothers are getting enough support that can prevent them from getting pregnant again? What are the barriers? What are the successes?

Appendix V: Directorate of Postgraduate Studies

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

Tel: 056-30870
Fax: 056-30153
E-mail: directordps@mmust.ac.ke
Website: www.mmust.ac.ke

P.O Box 190
Kakamega – 50100
Kenya

Directorate of Postgraduate Studies

Ref: MMU/COR: 509099

10th December, 2021

Oyugi Samuel,
HNR/G/01-55722/2016,
P.O. Box 190-50100,
KAKAMEGA.

Dear Mr. Oyugi,

RE: APPROVAL OF PROPOSAL

I am pleased to inform you that the Directorate of Postgraduate Studies has considered and approved your Masters Proposal entitled: ***"Predictors of repeat Pregnancy among Adolescents Attending Health Facilities in Suna East, Migori County, Kenya"*** and appointed the following as supervisors:

1. Mr. John Arudo - SONMAPS, MMUST
2. Dr. Millicent Ambetsa - SONMAPS, MMUST

You are required to submit through your supervisor(s) progress reports every three months to the Director of Postgraduate Studies. Such reports should be copied to the following: Chairman, School of Nursing & Midwifery Graduate Studies Committee and Chairman, Department of Nursing Research, Education and Management and Graduate Studies Committee. Kindly adhere to research ethics consideration in conducting research.

It is the policy and regulations of the University that you observe a deadline of two years from the date of registration to complete your master's thesis. Do not hesitate to consult this office in case of any problem encountered in the course of your work.

We wish you the best in your research and hope the study will make original contribution to knowledge.

Yours Sincerely,

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY
DIRECTORATE OF POSTGRADUATE STUDIES
P.O. Box 190 – 50100, KAKAMEGA (K)
Date:..... Sign:.....

Prof. Stephen O. Odebero, PhD, FIEEP
DIRECTOR, DIRECTORATE OF POSTGRADUATE STUDIES

Appendix VI: Institutional Ethics Review Committee

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY

Tel: 056-31375
Fax: 056-30153
E-mail: ierc@mmust.ac.ke
Website: www.mmust.ac.ke

P. O. Box 190,
50100.
Kakamega,
KENYA

Institutional Ethics and Review Committee (IERC)

REF: MMU/COR: 403012 Vol 5 (01)

Date: February 11th, 2022

To: Mr. Sam Oyugi.

Dear Sir,

RE: PREDICTORS OF REPEAT PREGNANCY AMONG ADOLESCENTS ATTENDING HEALTH FACILITIES IN SUNA EAST, MIGORI COUNTY, KENYA

This is to inform you that ***Masinde Muliro University of Science and Technology Institutional Ethics and Review Committee (MMUST-IERC)*** has reviewed and approved your above research proposal. Your application approval number is **MMUST/IERC/002/2022.** The approval period is ***February 11th, 2022-February 11th, 2023.***

This approval is subject to compliance with the following requirements;

i. Only approved documents including informed consents, study instruments, MTA will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***MMUST-IERC.***
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***MMUST-IERC*** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to ***MMUST-IERC*** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to ***MMUST-IERC***.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

Yours Sincerely,

Prof. Gordon Nguka
Chairperson, Institutional Ethics and Review Committee

Copy to:
- The Secretary, National Bio-Ethics Committee
- Vice Chancellor
- DVC (PR&I)

Appendix VII: License from NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **426356**

Date of Issue: **09/April/2022**

RESEARCH LICENSE

This is to Certify that Mr.. Samuel Ochieng Oyugi of Masinde Muliro University of Science and Technology, has been licensed to conduct research in Migori on the topic: Predictors of repeat pregnancy among adolescents attending health facilities in Suna East, Migori County, Kenya for the period ending : 09/April/2023.

License No: **NACOSTI/P/22/16805**

426356

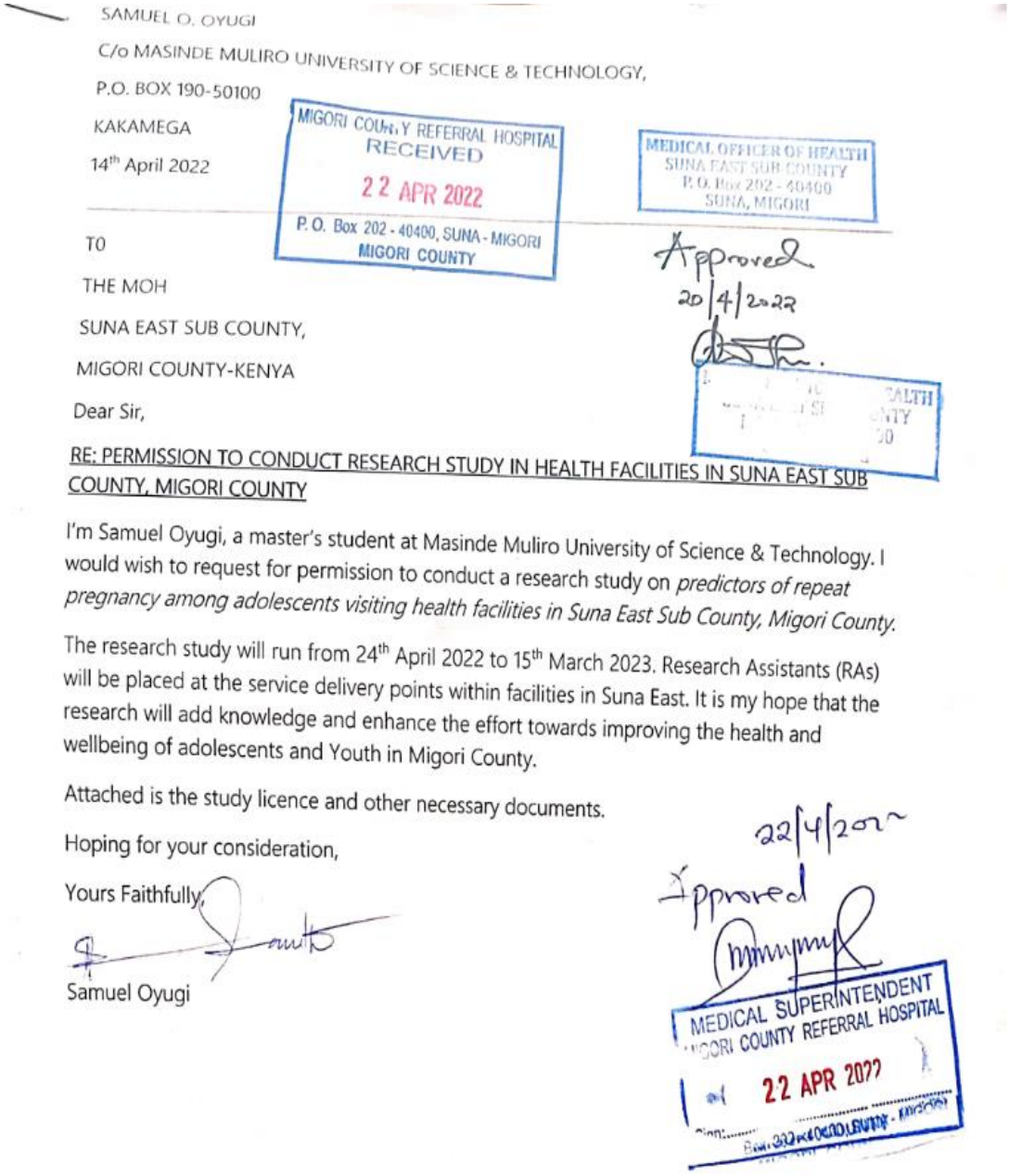
Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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

Appendix VIII: Approval Letter from Health Facility in Suna Sub County



SAMUEL O. OYUGI

C/o MASINDE MULIRO UNIVERSITY OF SCIENCE & TECHNOLOGY,

P.O. BOX 190-50100

KAKAMEGA

14th April 2022

MIGORI COUNTY REFERRAL HOSPITAL
RECEIVED
22 APR 2022
P.O. Box 202 - 40400, SUNA - MIGORI
MIGORI COUNTY

MEDICAL OFFICER OF HEALTH
SUNA EAST SUB COUNTY
P. O. Box 202 - 40400
SUNA, MIGORI

Approved
20/4/2022

TO

THE MOH

SUNA EAST SUB COUNTY,

MIGORI COUNTY-KENYA

Dear Sir,

RE: PERMISSION TO CONDUCT RESEARCH STUDY IN HEALTH FACILITIES IN SUNA EAST SUB COUNTY, MIGORI COUNTY

I'm Samuel Oyugi, a master's student at Masinde Muliro University of Science & Technology. I would wish to request for permission to conduct a research study on *predictors of repeat pregnancy among adolescents visiting health facilities in Suna East Sub County, Migori County.*

The research study will run from 24th April 2022 to 15th March 2023. Research Assistants (RAs) will be placed at the service delivery points within facilities in Suna East. It is my hope that the research will add knowledge and enhance the effort towards improving the health and wellbeing of adolescents and Youth in Migori County.

Attached is the study licence and other necessary documents.

Hoping for your consideration,

Yours Faithfully,

Samuel Oyugi

22/4/2022
Approved

MEDICAL SUPERINTENDENT
MIGORI COUNTY REFERRAL HOSPITAL
22 APR 2022

Appendix IX: Map of Study Area