

**DETERMINANTS OF TEENAGE PREGNANCIES IN TIGANIA CENTRAL
SUB-COUNTY, MERU COUNTY, KENYA**

MWIRABUA STANLEY LINTARI

**A Thesis Submitted to the Graduate School in Partial Fulfillment of the
Requirements for the Award of the Degree of Master of Science in Nursing
(Midwifery) of Chuka University**

CHUKA UNIVERSITY

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DECLARATION AND RECOMMENDATIONS

Declaration


This thesis is my original work and has not been presented for an award of diploma or conferment of degree in any institution.

Signature:  Date: 18/10/2024
Mwirabua Stanley Lintari
HM10/57550/22

Recommendations

This thesis has been examined, passed and submitted with our approval as University supervisors.

Signature:  Date: 18/10/24
Prof. Lucy Kawira Gitonga, PhD
Chuka University

Signature:  Date: 18/10/24
Dr. Mukhwana Eugene Sundays, PhD
Chuka University



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DEDICATION

I dedicate this thesis to my family for being my biggest cheerleaders throughout my study period and to all persons and entities involved in the fight against teenage pregnancies for their courage and devotion to this noble cause.

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ABSTRACT

Teenage pregnancy has harmful consequences on the health and wellbeing of adolescent girls. It can lead to severe complications during delivery which can result into their own morbidity and mortality and that of their infants. Though a high prevalence of teenage pregnancies was noted in Tigania Central Sub-County in Meru County, the factors behind this trend were unclear. Consequently, this study assessed the determinants of teenage pregnancies in Tigania Central Sub-County, Meru County, Kenya. The study evaluated the sociodemographic, socioeconomic and cultural factors associated with teenage pregnancies in the sub-county. This study utilized an analytical cross-sectional study design. An aggregate of 161 teenage girls and nine community health promoters (CHPs) from Tigania Central Sub-County, Meru County constituted the study sample. The teenage girls were recruited using cluster and simple random sampling methods while the CHPs were selected using purposive sampling method. The teenage girls responded to a researcher-administered structured questionnaire while the CHPs responded to an interview guide. The questionnaire was pretested among 12 teenage girls whereas the interview guide was pretested among one CHP at Amwathi in Igembe North, Meru County. The study's quantitative data were analyzed using descriptive measures that included percentages and frequencies. The data was further subjected to bivariable logistic regression analysis to establish associations between the study variables. In addition, odds ratios were used to determine the likelihood of the independent variables influencing the dependent variable. Quantitative data analysis was performed using the Statistical Package for Social Science version 28 with the results presented in tables, charts and graphs. Qualitative data was analyzed using thematic analysis with findings reported verbatim. Ethical principles of study approval, participants' consent, voluntary participation, confidentiality and anonymity in data handling and reporting were observed. A total of 142 teenage girls and 7 CHPs took part in the study. Most (56.3%, n = 80) of the teenage girls indicated that they had ever been pregnant. Early menarche ($\beta = -1.615$, $p = 0.000$, OR = 5.03), initiation to sex at an early age ($\beta = -1.264$, $p = 0.011$, OR = 3.54), poor awareness of contraceptives ($\beta = -1.202$, $p = 0.015$, OR = 3.33) and low use of contraceptives ($\beta = -0.938$, $p = 0.016$, OR = 2.56) were the sociodemographic factors found to be associated with teenage pregnancies in the sub-county. Teenage girls' poor education background ($\beta = -1.024$, $p = 0.003$, OR = 2.78), their parents' lack of an income source ($\beta = 1.366$, $p = 0.000$, OR = 3.92), living with non-parents ($\beta = 1.093$, $p = 0.002$, OR = 1.66) and being exposed to work labour at an early age ($\beta = -2.774$, $p = 0.000$, OR = 16.03) were the socioeconomic factors found to be associated with teenage pregnancies in the sub-county. Early marriages ($\beta = 2.587$, $p = 0.000$, OR = 13.29), adverse peer influence ($\beta = 1.381$, $p = 0.013$, OR = 3.98), exposure to sexual abuse or violence ($\beta = 1.327$, $p = 0.001$, OR = 3.77) and involvement in cultural initiation ceremonies ($\beta = 0.824$, $p = 0.017$, OR = 2.28) were the cultural factors found to be associated with teenage pregnancies in the sub-county. The study concludes that a wide range of sociodemographic, socioeconomic and cultural factors led to teenage pregnancies in Tigania Central Sub-County. The study recommends that teenage girls should be educated on the dangers and repercussions of teenage pregnancy and should be counselled against engaging in irresponsible sexual conduct. On policy, authorities should take firm legal actions against perpetrators of teenage pregnancies. Further research on the effects and outcomes of teenage pregnancies in the sub-county would equally be informative.

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LIST OF ACRONYMS AND ABBREVIATIONS

ANC	Antenatal Care
CHPs	Community Health Promoters
CI	Confidence Interval
HCPs	Health Care Providers
IERC	Institutional Ethics Review Committee
KDHS	Kenya Demographic and Health Survey
KNBS	Kenya National Bureau of Statistics
LAC	Latin American and Caribbean
LMICs	Low- and Middle-Income Countries
NACOSTI	National Commission for Science, Technology and Innovation
SDGs	Sustainable Development Goals
SPSS	Statistical Package of Social Sciences
SRH	Sexual and Reproductive Health
SSA	Sub-Saharan Africa
UK	United Kingdom
USA	United States of America
WHO	World Health Organization

CHAPTER ONE INTRODUCTION

1.1 Background of the Study

Globally, every year, an estimated 21-24 million adolescents become pregnant representing one fifth of all pregnancies (WHO, 2023). Developing countries in parts of Asia, Latin American and Caribbean (LAC) and sub-Saharan Africa (SSA) bear the greatest burden of adolescence pregnancy (WHO, 2023). Global statistics also indicate that at least 12 million adolescent girls give birth every year, mostly in low- and middle-income countries (LMICs), with the SSA and LAC regions having the highest adolescents' fertility, pregnancy and birth rates in the world (WHO, 2023). Among the developed nations, the United States of America (USA) has the second-highest rate of adolescent pregnancy behind the United Kingdom (UK), and has also the highest incidence of teen births in the industrialized world (Hegde et al., 2022). Sustainable development goal number 3 (SDG 3) aims to end preventable deaths of mothers, newborns and children under 5 years of age, with all countries aiming to reduce maternal mortality ratio to less than 70 per 100,000 live births; neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births by 2030 (WHO, 2023). It also seeks to ensure universal access to sexual and reproductive health (SRH) services, including family planning, information and education, and the integration of reproductive health into national strategies and programmes (WHO, 2023).

Evidence from SSA shows that approximately 50% of pregnancies among 13-19-year-olds are unplanned, unwanted, or untimed (Ahinkorah et al., 2023). About 55% of these unintended pregnancies end in abortions which are often unsafe in most of the SSA countries (WHO, 2023). Though differences exist in teenage pregnancy rates among the different SSA countries and even within regions in individual countries, it is apparent that teenage pregnancies are highly prevalent in most of the SSA countries (Ahinkorah et al., 2023; Maharaj, 2022). Research evidence indicates that a number of factors are linked to teenage pregnancies including personal, sociodemographic, familial and relational traits, poverty and threats to livelihood, social and cultural norms and practices of early sexual experience and child marriages, gender based sexual abuse and

violence, poor parenting, parents' illiteracy, barriers to access and use of contraceptives among adolescents, peer pressure, young girls' lack of autonomy in decision-making within sexual relationships, religion, legal gaps and lack of or low educational status have been linked to teenage pregnancy (Gunawardena et al., 2019; Kassa et al., 2018). Evidence also shows that even within countries, there are enormous variations, with the teenage pregnancy burden significantly higher in rural and economically deprived areas (Maharaj, 2022).

Kenya has initiated various efforts to eliminate teenage pregnancies (Njogu 2019) These include the adoption of the National Adolescent Sexual and Reproductive Health Policy - which supports the provision of youth friendly services to young persons to empower and facilitate them to make the right choices pertaining to their sexuality; the Kenya Youth Development Policy which seeks to improve the social and economic wellbeing of youth in the country by removing obstacles that impede their participation in social and economic activities; a return to school policy which allows girls to return to school and continue with their education after childbirth; various programs such as those advocating for adolescent and sexual reproductive health issues, upscaling guidance and counselling services in schools, provision of sanitary towel to girls both in and out of schools and gender based violence rescue centres; and various legislations such as the Children Act (2002), Sexual Offences Act (2006), Prohibition of Female Genital Mutilation Act (2011), and the 2010 Constitution of Kenya (Constitution of Kenya, 2010). Despite all these initiative, teenage pregnancies remain prevalent in the country which clearly signifies that more needs to be done especially in the areas of socioeconomic and cultural dimensions of the problem (Olenja et al., 2020).

In Kenya, 25% of the population is between the ages of 13 and 19 (KNBS, 2023). These young people confront enormous obstacles as they enter adulthood, just as in other regions of Africa and the rest of the globe (Olenja et al., 2020). Current data from the 2022 Kenya Demographic and Health Survey (KDHS) released by the Kenya National Bureau of Statistics (KNBS) reveals that teenage pregnancies remain an area of concern for the country (KNBS, 2023). The survey shows that teenage pregnancy rate in Kenya was 15% in 2022. However, huge variations exist with the highest rates of teen pregnancy recorded in the counties of Samburu at 50%, West Pokot at 36%, Marsabit

at 29%, Narok at 28%, and Meru at 24% while Nyandarua and Nyeri counties reported the lowest rates at 5% each (KNBS, 2023).

Meru County is one of the counties with a high proportion of teenage pregnancies in Kenya (KNBS, 2023). The 2022 KDHS report indicated that the county had a teenage pregnancy rate of 24% which was significantly higher than the national average of 15% (KNBS, 2023). Tigania Central Sub-County in Meru County led in the number of teenage pregnancies in Meru County with statistics from the Meru County's Health Department indicating that almost 5 out of 10 teen girls in the sub-county become pregnant at least once before turning 20 (Meru County Department of Health Services, 2023). This was also shown by data from Tigania Central Sub-County which showed that pregnant teenage girls made up 44.3% of all its antenatal care (ANC) clients in 2022 (Tigania Central Sub-County ANC Records, 2022). This clearly illustrated a challenge with teenage pregnancies in Tigania Central Sub-County. However, the factors behind this trend were unclear hence the need for the current study.

1.2 Statement of the Problem

The teenage period is an important growth period for young girls and it is when they are maturing developmentally including physically, socially and psychologically. Preventing pregnancy and pregnancy-related mortality and morbidity among teenage girls is foundational to achieving positive health outcomes across the life course and is imperative for achieving the sustainable development goals related to maternal and newborn health. Hence, action is needed to address teenage pregnancy cases especially given that teenage pregnancy has detrimental health, social and economic consequences to young girls and to their families and communities including increased risk of morbidity and death to the teenage mothers and their newborns. Increased risk of early marriages, impaired educational progress and social stigma, isolation and physical abuse are other unacceptable effects of teenage pregnancy.

Records in Tigania Central Sub-County showed that out of 4,000 clients who visited ANC clinics for the first time in 2022, 1,777 were aged 19 years or younger, making up 44.4% of all the ANC clients in 2022. Further, the sub-county's maternal delivery reports also showed that out of 2,224 births in 2022, 1,332 births were of mothers who

were aged under 20 years old, hence indicating that approximately 59.9% of all births in 2022 in Tigania Central Sub-County were to teenage girls. Additionally, 1,880 of the 3,550 postnatal mothers who attended postnatal care clinics in the same year in the sub-county were 19 years of age or younger, accounting for 52.9% of the postnatal care visits. This clearly illustrated that teenage pregnancies were a concern in Tigania Central Sub-County, Meru County. However, the factors behind this trend were unclear. Consequently, the current study investigated the determinants of teenage pregnancies in Tigania Central Sub-County, Meru County, Kenya.

1.3 Objectives of the Study

1.3.1 Broad objective

To assess the determinants of teenage pregnancies in Tigania Central Sub-County, Meru County, Kenya

1.3.2 Specific Objectives

- i. To establish sociodemographic factors that lead to teenage pregnancies in Tigania Central Sub-County, Meru County.
- ii. To determine the socioeconomic factors that lead to teenage pregnancies in Tigania Central Sub-County, Meru County.
- iii. To examine the cultural factors influencing teenage pregnancies in Tigania Central Sub-County, Meru County.

1.4 Research Questions

- i. What are the sociodemographic factors that lead to teenage pregnancies in Tigania Central Sub-County, Meru County?
- ii. What are the socioeconomic factors that lead to teenage pregnancies in Tigania Central Sub-County, Meru County?
- iii. What are the cultural factors influencing teenage pregnancies in Tigania Central Sub-County, Meru County?

1.5 Significance of the Study

The results of this study shall be provided to the departments of Health and that of Gender and Children Affairs of Meru County to inform formulation of appropriate policies, strategies and interventions aimed at reducing teenage pregnancy incidences in the county. The study findings will also be helpful to policy makers in the public health and education sectors in Meru County and the country in general, in aiding them to make the right policy decisions around prevention of teenage pregnancies. To primary health care providers (HCPs), results of this study will inform their nursing care knowledge and practices with respect to caring for pregnant teens especially in acknowledging circumstances leading to these adolescent pregnancies and the need to treat them with respect and dignity. The study findings will also be used to create awareness of the teenage pregnancy problem to the general community at large including among parents, teachers, religious and political leaders and local government administrators hence supporting the fight against this scourge to our children. Further, for scholars, this study offers literature for those who could wish to undertake additional research on the study subject.

1.6 Scope of the Study

This study focused on the determinants of teenage pregnancies with sociodemographic, socioeconomic and cultural factors as the independent variables and occurrence of teenage pregnancy as the dependent variable. The study adopted an analytical cross-sectional study design. The study was carried out in Tigania Central Sub-County of Meru County, Kenya, with the participants drawn from the wards that constitute the sub-county. Respondents for the study included teenage girls of ages 13 to 19 who responded to the study questionnaire and community health promoters who responded to the interview guide. The teenage girls were selected using cluster and simple random sampling techniques while the community health providers were selected using purposive sampling method. The study was carried out between January and September 2024.

1.7 Operational Definition of Terms

Adolescence:	Is the period between the ages of 10 and 19 years.
Teenage:	Is the period between the ages of 13 and 19 years.
Pregnancy:	Period during which an offspring develops inside the teen girls' uterus
Teenage pregnancy:	Refers to pregnancy in girls aged 13 to 19 years.
Sociodemographic factors:	Are the personal attributes of the teenage girls which may influence teenage pregnancy in them.
Socioeconomic factors:	Are the attributes related to the livelihood status of the teenage girls' families and which may influence occurrence of teenage pregnancy in them.
Cultural factors:	Are the attributes related to the cultural norms, values and practices held by the teenage girls' communities and which may influence occurrence of teenage pregnancy in them.
Substance use:	Refers to the use of harmful products such as alcohol, bhang and miraa among the teenage girls.
Self-esteem:	Denotes the level of perceived self-appreciation or worth among the teenage girls.
Determinants:	Refers to the various factors being examined that influence pregnancy among teenage girls.
Sexual behaviour:	Refers to the way persons experience and express their sexuality
Risky sexual behaviours:	Are sexual practices that increase the susceptibility of a person to sexually transmitted infections, unplanned pregnancies and psychological disorders.

CHAPTER TWO

LITERATURE REVIEW

2.1 Sociodemographic Factors associated with Teenage Pregnancies

2.1.1 Awareness and Use of Contraception

Low awareness and use of contraception is cited as being a contributing factor to teenage pregnancies. For instance, Oduor and Kithuka (2020) in a study on teenage pregnancy cases in Nyatike Sub-County in Migori County attributed the high rates of teenage pregnancies among girls in the sub-county to lack of awareness and low use of contraception largely due to inadequate sexual reproductive health education. In an analysis of teenage pregnancy in Namibia, Indongo (2020) reported that teenage pregnancy in Namibia was significantly influenced by use of contraceptives among the teenage girls with higher cases reported in communities with low usage and vice-versa. Likewise, Chakole et al. (2022) observed that teenage pregnancy cases were much more likely to be seen among adolescents unaware of contraceptives compared to those who were aware of and utilized contraceptives. Participants in these studies were majorly teenage girls while the current study expanded participation to community health promoters (CHPs) as key informants.

In a study carried out in Zambia to examine the factors contributing to teenage pregnancies in one of the local districts, higher number of teenage pregnancies was associated with poor knowledge of contraception with increased knowledge regarding contraception correlating with reduced cases of teenage pregnancies (Musonda, 2022). A study examining the factors contributing to pregnancies among teenage girls in Kenya also observed that history of pregnancy among teens was much more likely among those who utilized contraceptives compared to those who had never used contraception (Njogu, 2019). In their study, Worku et al. (2021) noted that the high prevalence of teenage pregnancies in East African nations was attributable to lack of awareness about contraception particularly in rural settings. Similarly, in studies by Baale (2023) in Uganda and Belay et al. (2021) in Ethiopia, low use of contraceptives was the most common cause of teenage pregnancy among surveyed teenage girls. The current study sought to validate the reported findings utilizing an analytical cross-sectional approach. Aforementioned studies used other study designs and not the one used in the current study.

In a cross-sectional study done in Ethiopia, the high rates of teenage pregnancy observed among the surveyed communities were attributed to sexual activity among teenage girls without use of contraception (Yalew, 2018). Non-use of contraceptives among teenagers therefore notably contributed to the teenage pregnancy cases (Habitu et al., 2018). Letaru (2023), note that in many settings, parents are hesitant to provide their kids with sex education and contraception because they worry that they may be seen as giving them permission to engage in sexual activity. Consequently, the absence of sex education and especially around contraception appears to boost teenage pregnancy. Mbachu et al. (2020) in a study carried out in Nigeria noted that a significant proportion of adolescents seemed to lack knowledge on topics including puberty, pregnancy, and contraception and that this deficiency in knowledge inevitably put them at risk of early unwanted pregnancies. Having good knowledge of contraceptives and where to access them was also found to correlate to lower incidences of teenage pregnancy in an Ethiopian study by Kumma et al. (2023). These studies utilized quantitative data approaches while the current study utilized both quantitative and qualitative data approaches.

2.1.2 Time of Sexual Activity Initiation

Initiation of sexual activity at an early age has also been noted as contributing to teenage pregnancies. According to a cross-sectional study conducted in Zimbabwe on factors contributing to teenage pregnancies, a statistically significant association was found between teenage pregnancy and early initiation of sexual activity among surveyed teenage girls (Mutanana & Mutara, 2021). Similar views were espoused in a study carried out in Ghana which noted that there was a notable relationship between teen pregnancy and time of initiation of sexual activity. The study noted that there was increased odds of unwanted pregnancies among teenage girls who began engaging in sexual activities at an early age [12 years or younger] compared to those who had delayed in sex initiation (Bedzo & Manortey, 2019). Oduor and Kithuka (2020) also attributed the large number of teenage pregnancy cases seen in Nyatike Sub-County in Kenya to young girls beginning to engage in sexual activities from an early age. Indongo (2020) also reported that teenage pregnancy in Namibia was significantly influenced by early age at first sex among the teenage girls. These studies analyzed their data

quantitatively while the current study incorporated and utilized both qualitative and quantitative data analysis methods.

In a cross-sectional study done in Uganda, age at the first sexual intercourse was established to relate to teenage pregnancy. The study noted that coitarche at an early age significantly correlated with teenage pregnancy while the odds of teenage pregnancy reduced with coitarche initiated at a delayed age (Chemutai et al., 2022). Similarly, in a study that explored the attributes related to increases in the proportion of Pregnancies in teenagers in a local district in Zambia, initiation of sexual activity at an early age was cited as one of the factors that occasioned teenage pregnancy in the country (Musonda, 2022). In a case control study carried out in Nepal, teenage pregnancy was found to be associated with early age of coitarche among the surveyed participants. The study concluded that parents and teachers had an important role of educating teenage girls on the need not to engage in sexual activities while at a young age (Neupane, Bhandari & Kaphle, 2019). Studies by Ahinkorah et al. (2023), Gunawardena et al. (2019) and Njogu (2019) also identified initiation of sexual intercourse at an early age as being a major predictor of teenage pregnancies in the SSA region. Current study sought to validate these findings in the local context. Views of CHPs as key informants, missing in the aforementioned studies, were included in the current study.

2.1.3 Early Menarche

Early menarche has been cited as a determinant of teenage pregnancy. In a review of the relationship between age at menarche and first pregnancy, early menarche, defined as first menstruation before the age of 12, was identified as a risk factor for an earlier coitarche and as a significant predictor of early and unintended pregnancies in teens (Hinojosa-Gonzalez et al., 2023). In a study done in Brazil on the association between age at menarche and age at first pregnancy among adolescent girls, it was established that there was a notable statistical association between a younger age of menarche and teenage pregnancy. Most of the teenage mothers were found to have younger age at menarche compared to their counterparts that did not experience pregnancy during their teenage (Cezimbra et al., 2020). A positive association between early menarche and poor adolescent health including increased risks of teenage pregnancy was also reported

in a Korean study as reported by Yu et al. (2020). These studies were quantitative in nature while the current study utilized both quantitative and qualitative data analysis techniques.

A study carried out in Ghana examined whether early menarche was associated with any SRH outcomes in sampled teenage girls. Results showed that early menarche was significantly associated with several major SRH outcomes in teenage girls including early sexual initiation, sexual abuse, having multiple sexual partners, transactional sex, and teen pregnancy (Ibitoye et al., 2024). Similarly, in a study evaluating the covariates of age at first pregnancy among women in Iran, a consequential relationship was noted between having pregnancy during teenage and early menarche (Dehesh, Malekmohammadi & Dehesh, 2022). Reviews by Sayegh (2021) and Dewau et al. (2021) also singled out early menarche as a potential risk factor for teen pregnancies hence denoting the significance of providing SRH education to teenage girls to avoid these unwanted pregnancies at an early age. Current study utilized views of teenage girls and CHPs to validate these findings in the local context.

2.1.4 Place of Residence

A cross-sectional descriptive study evaluating factors associated with adolescent pregnancy in Ghana reported that place of residence was found to be associated with adolescent pregnancy. Results revealed that adolescents who came from urban settings had decreased odds of adolescent pregnancy compared to their counterparts residing in rural settings (Asare et al., 2019). A systematic review of correlates of teenage pregnancy in Africa reported an aggregate pooled prevalence of adolescent pregnancy in Africa of 18.8% and a rate of 19.3% for the SSA region. Young girls residing in rural areas were twice as likely to get pregnant during adolescence compared to their counterparts who lived in urban areas (Kassa et al., 2018). In another study conducted in Ethiopia, young girls who resided in urban areas were found to be less likely to experience a teenage pregnancy compared to their colleagues who resided in rural areas (Belay et al., 2021). While these studies analyzed their data descriptively, current study analyzed its data both descriptively and inferentially.

In a study investigating the socioeconomic variables associated with adolescent pregnancy in Ghana, a statistically significant association was established between place of residence and adolescent pregnancy. Young girls who resided in urban coastal areas had higher odds of experiencing adolescent pregnancy compared to those who resided in non-coastal rural areas (Senkyire et al., 2022). In a cross-sectional descriptive study carried out in Ethiopia evaluating teenage pregnancy and its associated attributes, young girls who lived in rural areas were found to be four times likely to experience teenage pregnancy compared to their counterparts who lived in urban areas (Habititu et al., 2018). Another study conducted in Ghana did also establish that residing in rural areas increased the risk of teenage pregnancy among young girls as statistically higher numbers who had experienced teenage pregnancy were found to be living in rural settings (Bedzo & Manortey, 2019). Equally, in studies by Ochen et al. (2019) and Chemutai et al. (2022) in Uganda and Ali et al. (2022) in Pakistan, rural residence was singled out as being a leading determinant of teen pregnancies. The current study sought to validate these findings in the local context using the views of both teenage girls and CHPs who helped these girls in addressing any SRH issues that the girls faced.

2.2 Socioeconomic Factors associated with Teenage Pregnancies

2.2.1 Education Level

Education level of young girls is one of the commonly identified factors linked to teenage pregnancy. A study exploring trends in teenage pregnancy in Ethiopia established that teenage pregnancy incidences were significantly lower among girls with secondary or above educational status compared to those with primary or no formal education (Zemene et al., 2024). Likewise, low literacy levels were also found to have a significant influence on occurrence of teenage pregnancy among young girls in Kajiado West Sub-County in Kenya (Olenja et al., 2020). In a review exploring factors contributing to teenage pregnancy in SSA region, Maharaj (2022) also identified low educational status of adolescents as being a major predictor of teenage pregnancy among young girls in SSA countries. Though relevant, these studies analyzed their data descriptively while the current study applied both descriptive and inferential statistics in its analysis.

In an empirical study on teenage pregnancy and its related factors done among school going adolescents in Ethiopia, teenagers with no formal and primary education were found to be more likely to become pregnant than those with secondary or college education (Mathewos & Mekuria, 2018). Similarly, in a study exploring the factors behind teenage pregnancy in a rural Zimbabwean community, low education background was established as a major contributing factor (Mutanana & Mutara, 2021). In a mixed methods study carried out in India on factors leading to adolescent pregnancy, secondary and higher secondary education level of surveyed participants, correlated with decreased likelihood of adolescent pregnancy while primary or lack of formal education correlated with increased likelihood of adolescent pregnancy (Shukla et al., 2023). The current study sought to validate the reported findings using a cross-sectional analytical approach while the aforementioned studies adopted cross-sectional descriptive approach.

In a study examining the magnitude of teenage pregnancy and associated variables in Somaliland, evidence drawn from the Somaliland Health and Demographic Survey showed that having lower educational attainment had a significant association with teenage pregnancy (Gensa Geta et al., 2023). Similarly, in a cross-sectional study carried out in Uganda, the odds of having a teenage pregnancy were found to be significantly higher among girls with primary level education compared to their counterparts with college level education (Chemutai et al., 2022). Likewise, in Zambia, having a low education background was also found to be a significant predictor of pregnancy among teenage girls as reported by Musonda (2022). Similar sentiments were also reported in studies by Mezmur et al. (2021) in Ethiopia and Njogu (2019) in Kenya. While these studies were descriptive in nature, the current study was analytical in nature.

2.2.2 Poverty

In most settings, teenage pregnancy is linked to poverty. For instance, in a study examining the attributes that contributed to teenage pregnancies among Maasai girls in Kajiado West Sub-County, Kenya, high levels of poverty were identified as being a leading factor that increased the vulnerability of young girls to teenage pregnancy (Olenja et al., 2020). Similarly, in a study investigating the variables related to teenage

pregnancy trends in Ethiopia, Zemene et al. (2024) identified an inverse relationship between teenage pregnancy rates and households' wealth index with teenage pregnancy rates reducing with increasing household income level and vice-versa. Gunawardena et al. (2019) observed that girls living in poverty often engaged in sexual relations with older men in exchange for money so as to meet their basic needs or support their families and which put them at increased risk of teenage pregnancy. The current study sought to validate these findings in the local context. The missing voice of CHPs on the subject in highlighted studies was included in the current study.

In an empirical study conducted in South Africa, women and young girls from households of low-income status were found to be at an increased risk of teenage pregnancy compared to their counterparts from relatively high-income households (Amoateng, Ewemooje & Biney, 2022). In a Kenyan study exploring the correlates of pregnancy among teenage girls in Nyatike Sub-County, poverty was found to have a significant influence on early pregnancy among teenage girls (Oduor & Kithuka, 2020). Household wealth status was also cited as one of the factors that influenced teenage pregnancy in Namibia. Young girls from poor households were four times as likely to get pregnant during teenage compared to those from high income households (Indongo, 2020). Gensa Geta et al. (2023) in a study conducted in Somaliland did also establish lower household wealth quintile as being a determinant of increased risk of pregnancy among teenage girls in that location. These studies were quantitative in nature while the current study utilized both quantitative and qualitative data analysis techniques.

2.2.3 System of Family Support

In most settings, lack of parental support and poor parent-adolescent rapport are associated with teenage pregnancy. For instance, in a systematic review study exploring determinants of teenage pregnancy in Africa, Kassa et al. (2018) noted that young girls who did not have conversations on SRH issues with their parents had significantly increased odds of experiencing teenage pregnancy compared with those who had these conversations with their parents. Chakole et al. (2022) also pointed to absence of protection of adolescent girls and young women from sexual abuse and violence at the family level as being a significant predictor of teenage pregnancy in India. In another study conducted in Ethiopia and which examined teenage Pregnancy and associated

attributes, poor parent-daughter interactions were established to be significant predictors of teenage pregnancies (Mathewos & Mekuria, 2018). The current study expanded the scope of these studies by including community health promoters as key informants and whose voices were missed in the aforesaid studies.

In a community-based cross-sectional study carried out in Ethiopia on teenage pregnancy causes, young girls who received inadequate support to meet their basic personal needs from their parents especially in cases of parental divorce were found to be at increased risk of teenage pregnancy (Mezmur et al., 2021). Similarly, absence of financial, material, psychological, social, or emotional support from the family emerged as a dominant theme of the factors contributing to teenage pregnancies among young girls in Tanzania (Te Lindert et al., 2021). In Namibia, a study examining the factors behind teenage pregnancy did also identify lack of parental care and control and parents' failure to provide some basic material needs for their adolescent daughters as being a significant contributor to teenage pregnancies in the country (Maemeko et al., 2018). In Uganda, family neglect also emerged as one of the factors that contributed to teenage pregnancy among surveyed adolescents drawn from the Arua district (Letaru, 2023). Current study explored this subject using both quantitative and qualitative data approaches unlike the above studies which used either approach.

In Uganda, lack of support for teenage girls from their parents or guardians, whether socially, emotionally and materially, was found to be a significant predictor of teenage pregnancy among young girls (Ochen et al., 2019). A study conducted in Rwanda focusing on contextual determinants of teenage pregnancy, results indicated that parental social and economic support to their teenage girls in the form of parental guidance and supervision as well as financial support to meet their essential needs was instrumental in reducing rates of teenage pregnancy (Uwizeye et al., 2020). According to Tabei et al. (2021) adolescent girls who were at increased risk of teenage pregnancy were those who did not live with their parents. On their part, Gunawardena et al. (2019) and Maharaj (2022) identified adolescent girls who experienced parental neglect and those who lacked parental support and guidance as being at an increased risk of teenage pregnancy. Baale et al. (2023) also noted that parent-child connectedness, parental supervision and support and parents' stand against teen intercourse help decrease the

risk of teenage pregnancy. Current study explored this subject using both quantitative and qualitative data approaches unlike the above studies which used either approach.

2.3 Cultural Factors associated with Teenage Pregnancies

2.3.1 Early/Child Marriages

In a study reviewing the various attributes that influenced pregnancies in adolescents in SSA, Yakubu and Salisu (2018) established early marriages as one of the factors that contributed to teenage pregnancies in a notable way in many of the SSA countries. In India, an empirical evaluation exploring the causes of unwanted teenage pregnancies did also establish early marriages as being a leading cause of untimely and unwanted pregnancies among young teenage girls in the country (Chakole et al., 2022). In a review of the causes behind teenage pregnancy in the SSA region, Maharaj (2022) also identified early marriage as a factor with significant influence on cases of pregnancies among teenage girls in the region. In a study done in South Africa Amoateng et al. (2022) also noted that young girls subjected to early marriages were deprived of economic empowerment and self-efficacy which increased their risk of early pregnancies. Studies by Shukla et al. (2023) in India and Dehesh et al. (2022) also pointed to early marriage as being a key predictor of teenage pregnancies. The study design used in the current study - analytical cross-sectional study design was not applied in the highlighted studies which utilized descriptive cross-sectional design.

In Kenya, the act of parents marrying off their daughters at a tender age was also found to significantly contribute to high rate of teenage pregnancies in western parts of the country (Oduor & Kithuka, 2020). A cross-sectional descriptive study conducted in Uganda did also establish that the odds of teenage pregnancy were significantly higher among adolescents who were married off at an early age compared to their counterparts not exposed to early marriage (Chemutai et al., 2022). Being married, especially at an early age, also emerged as a leading predictor of untimely and unwanted pregnancies among adolescent girls in eastern Ethiopia as reported by Mezmur et al. (2021). This was also the case in another Ethiopian study carried out among 601 randomly selected teenage girls in Wolaita Sodo town, where being exposed to early marriages was cited as being a major determinant of teenage pregnancy among the sampled teenage girls (Kumma et al., 2023). Forced early marriage also emerged as the most important

contributor of teenage pregnancy according to a study by Musyoki and Kisimbii (2019). Current study explored this subject using both quantitative and qualitative data approaches unlike the above studies which used either approach.

2.3.2 Sexual Abuse and Violence

A systematic review study was carried out to assess predictors of pregnancy among young girls in the SSA region. Results of the review identified sexual abuse and coercion from male partners as one of the leading factors behind the rampant teenage pregnancies in the region (Gunawardena et al., 2019). In an empirical evaluation of the causes of unwanted teenage pregnancies in India, Chakole et al. (2022) also identified sexual violence and abuse of both married and unmarried adolescent females as well as rape as being leading causes of untimely and unwanted pregnancies among young teenage girls in the country. Sexual harassment and coercion from men was also cited as one of the major factors that led to teenage pregnancies among young Maasai girls in one of the sub-counties of Kajiado County in Kenya. This showed need for action from all relevant stakeholders to protect young girls from coerced and abusive sexual activities (Olenja et al., 2020). Current study utilized a different study design from the one utilized in the highlighted studies.

In a review that aimed to assess factors that led to teenage pregnancies among adolescents in SSA region, gender-based violence manifesting in the form of sexual violence, abuse and coercion emerged as one of the leading factors behind the teenage pregnancy scourge in the region (Maharaj, 2022). In a qualitative study examining the views on factors which played a role in advancing teenage pregnancy in a rural setting in Tanzania, sexual harassment, violence, abuse and/or coercion emerged as one of the leading themes representing an aspect that contributed to unwanted pregnancies among teenage girls in the country (Te Lindert et al., 2021). In an evaluation of the attributes occasioning teenage pregnancy among teenage girls in Uganda, sexual abuse and lack of control over sex was noted to be one of the attributes that increased the likelihood of teenage pregnancy in teenage girls (Ochen et al., 2019). Yakubu and Salisu (2018) did also unwanted sexual advances from adult males, rape and coercive sexual relations as being significant determinants of teenage pregnancies in numerous settings in the SSA

region. However, while these studies were descriptive in nature, current study was analytical in nature.

2.3.3 Peer Influence

In a cross-sectional study conducted in Zimbabwe, factors leading to teenage pregnancies among young girls in a rural community were assessed. Results demonstrated that peer influence was a major cause behind teenage pregnancy in the setting with a significant proportion of the interviewed girls citing peer pressure as one of the reasons they got pregnant (Mutanana & Mutara, 2021). This was also noted in a qualitative study carried out in Tanzania to evaluate the aspects that led to teenage pregnancies in a rural set up with peer pressure, limited decision-making power and influence from peers emerging as a major theme. The study established that peer groups promoted engaging in sexual activities from an early age in turn increasing their risks of teenage pregnancy (Te Lindert et al., 2021). Ochen et al. (2019) in a study evaluating attributes that occasioned teenage pregnancy among young girls in Uganda, also identified peer pressure as being one of the attributes that increased the likelihood of teenage pregnancy among these girls. Unlike these studies, in addition to teenage girls, the current study also included community health providers as study participants.

In a cross-sectional descriptive study carried out among 416 adolescents in Nigeria's Abia State, more than half of the surveyed adolescent girls reported that peer pressure influenced their sexual behaviour and was the main reason why they had fallen pregnant at a young age (Elekeh, Enwereji & Odina, 2021). A cross-sectional study carried out in Ghana evaluated the factors that influenced teenage pregnancy in one of the local districts east of the country. Results showed that peer pressure increased the probability of teenage pregnancy among teenage girls in the area (Achiaa, 2023). Similar findings were evident from a Ugandan study whose findings revealed that peer pressure played an influential role in teenage pregnancy cases in the country especially through encouraging young girls to begin engaging in sexual activities from an early age (Letaru, 2023). In a case study undertaken in Uganda investigating the link between peer influence and teenage pregnancy among school going adolescents, results demonstrated that undesirable peer interactions and unhealthy teen friendships increased the chances of teenage pregnancy and vice-versa (Kukundakwe, 2021).

However, while these studies analyzed their data descriptively, current study did so analytically utilizing varied descriptive and inferential statistics.

2.3.4 Gender roles

Results from a Zimbabwean study on factors leading to teenage pregnancies among young girls in a rural community demonstrated that traditional gender roles were a major cause behind teenage pregnancy in the setting. A significant proportion of the interviewed teenage girls cited engaging in family caring activities such as cooking and washing and pressure to demonstrate their fertility as women as a reason as to how they got pregnant (Mutanana & Mutara, 2021). A disadvantaged social position where girls are perceived as being valuable only when they are serving men and hence being relegated to household-based roles also served to exacerbate the teenage pregnancy crisis in India as reported by Shukla et al. (2023). According to a study exploring the prevalence of teenage pregnancy and related attributes in the East African region, it was noted that the odds of teenage pregnancy among adolescent girls who were spouse/head within the family were found to be significantly higher compared to among adolescent girls who were just a daughter (Worku et al., 2021). However, while these studies relied heavily on qualitative data approaches, current study utilized both qualitative and quantitative data approaches for a broader review of the study subject.

In a cross-sectional descriptive study evaluating the correlates of teenage pregnancy in one of Kenya's eastern counties, participants unanimously agreed that traditional gender roles did influence the likelihood of teenage pregnancy among adolescent girls in the county (Musyoki & Kisimbii, 2019). Bedzo and Manortey (2019) in a cross-sectional study examining variables that influenced teenage pregnancy among teenage girls from Ghana's eastern region did also identify gender roles based on cultural traditions and norms as playing an influential role in driving teenage pregnancies among teen girls in the region. In a cross-sectional study conducted in Uganda, it was established that cultural norms including gender roles had an instrumental influence on teenage pregnancy cases in the country especially through perceived value of girls as being home carers and at the service of men (Letaru, 2023). Olenja et al. (2020) also established that gender roles based on traditional norms did also contribute to teenage pregnancies among young Maasai girls in Kenya, hence calling for more concerted

efforts towards empowerment of women and the girl child. Achiaa (2023) and Mezmur et al. (2021) did also identify gender roles, norms and expectations as being a key driver of early and unintended pregnancies among adolescent girls in Ghana and Ethiopia respectively. However, while these studies were descriptive in nature, current study was analytical in nature.

2.3.5 Religion

In an analytical study undertaken in Ethiopia, trends of teenage pregnancy and their associated factors were examined. Results of the study indicated that young girls who were followers of the Muslim religion were more likely to get married and become pregnant earlier. As such, being of Islam religion was positively associated with teenage pregnancy in the country (Zemene et al., 2024). In a study undertaken in Tanzania to explore the factors occasioning teenage pregnancy among young girls in a rural setting, being a Muslim was identified as being a contributor to teenage pregnancy as the religion tended to promote marriage of the girls at an early age (Te Lindert et al., 2021). Participants in the study by Musyoki and Kisimbii (2019) focusing on correlates of teenage pregnancy in one of Kenya's eastern counties also unanimously agreed that one's faith had a significant influence on their sexual behavior in turn influencing whether they became pregnant at an early age or not. However, while these studies relied heavily on numerical data, current study utilized both numerical and non-numerical data approaches to probe the study subject.

In Ethiopia, a study was carried out to assess sociodemographic and community-based factors that influenced cases of under-age girls' pregnancies. Results demonstrated that religion was a crucial factor with being Muslim and Christian protestant increasing the odds of teenage pregnancy compared to being an Orthodox Catholic (Bitew et al., 2023). In studies conducted in Nigeria by Elekeh et al. (2021) and in Rwanda by Uwizeye et al. (2020), results demonstrated that there were lower odds of teenage pregnancy among female adolescents who held strong religious beliefs during their teen years when compared to their peers who were not religiously affiliated. Maharaj et al. (2022) also observes that having strong religious beliefs especially those that forbid use of contraception and sexual immorality has been shown to be associated with greater abstinence and lower teen pregnancy rates. In an empirical review of adolescent

pregnancy in the East African region, possessing a religious faith and a strong moral sense were found to play an instrumental role in protecting teenage girls from too-early sexual activity and teen pregnancy (Worku et al., 2021). However, while these studies were descriptive in nature, current study was analytical in nature.

2.4 Theoretical Framework of the Study

This study was guided by the socio-ecological model. This theoretical model was developed by psychologist Urie Bronfenbrenner in the 1970s as a way to recognize that individuals affect and are affected by a complex range of individual and social influences and nested environmental interactions (Bronfenbrenner, 1989). The socio-ecological model emphasizes the importance of understanding the social, economic, cultural, political, and historical contexts that individuals are situated within, and the influence that these environmental factors have on their behaviors and interactions. These interactions can be examined at different levels such as intrapersonal, interpersonal, organizational, community, environmental, and public domain (Bousquet et al., 2015). The socioecological framework emphasizes multiple levels of influence and supports the idea that behaviors both affect and are affected by various contexts (Veer, Golf-Papez & Zahrai, 2019).

The model considers the complex interplay between individual, community and societal factors that influence human behaviour and interactions. It therefore offers a useful framework for understanding the range of factors that define human experiences in a community or social context (Kilanowski, 2017). When applied to human health and wellbeing, the social-ecological model states that health is affected by the interaction between the characteristics of the individual, the community, and the environment that includes the physical, social, and political components (Veer et al., 2019). Hence, this theoretical model postulates that in order to understand human development and interactions, the entire socio-ecological system in which growth occurs, and the interactions that occur within the system, need to be taken into account (Aura, Sormunen & Tossavainen, 2016).

In the current study, the socio-ecological model was used as a tool to gain a deeper understanding of the individual, social, economic and cultural contexts of young girls'

sexual and reproductive health and how this impacted teenage pregnancy. By considering the complex interplay of sociodemographic, socioeconomic and cultural factors, the socio-ecological model provided a valuable approach to understanding and addressing the myriad influences of these factors on teenage pregnancy. Teenage pregnancy should therefore be understood as occurring within a context of social norms, including norms which shape and normalize sexual behavior.

2.5 Conceptual Framework

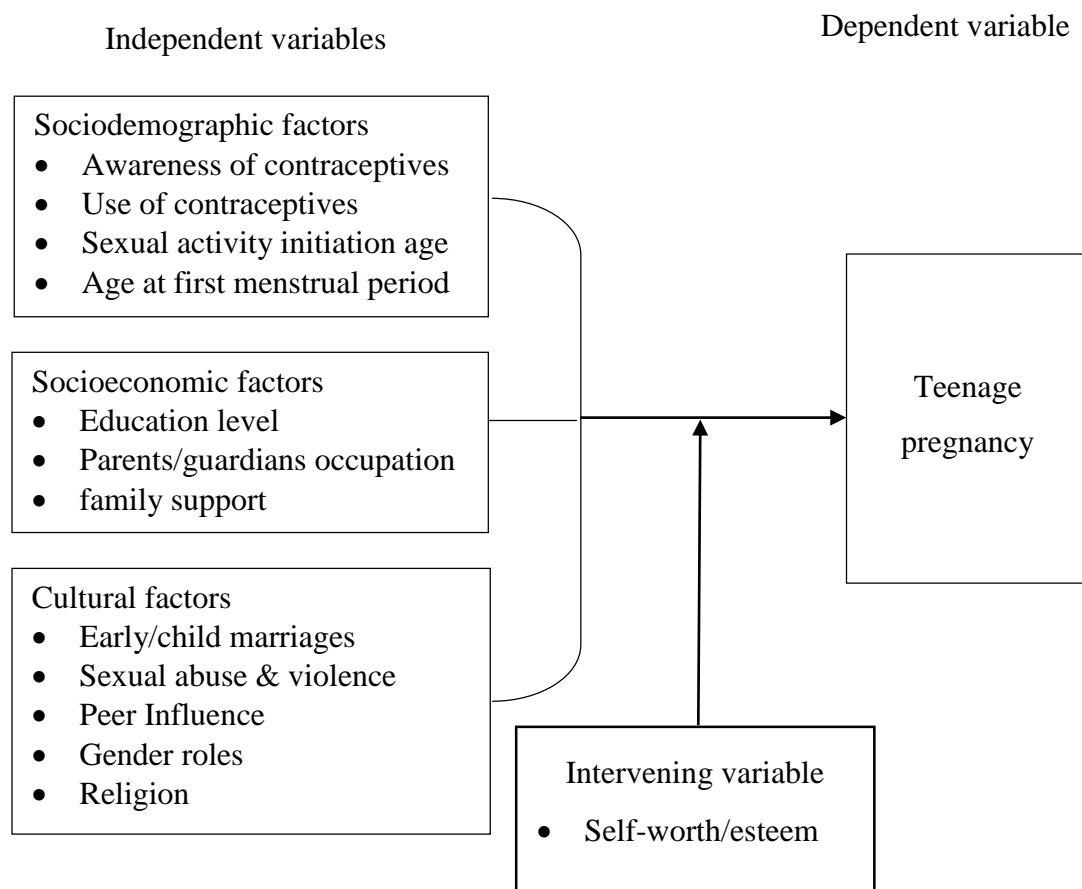


Figure 2.1: Conceptual framework

This study focused on the determinants of teenage pregnancies in Tigania Central Sub-County, Meru County, Kenya. The independent variables of the study included sociodemographic factors whose indicators included awareness and use of contraception, age at sexual activity initiation and age at first menstrual period; socioeconomic factors whose indicators were the teenage girls' education level, their parents/guardians' occupational status and family support and cultural factors whose indicators included early/child marriages, sexual abuse and violence, peer influence,

gender roles and religion). Teenage pregnancy was the dependent variable of the study while the teenage girls' self-esteem constituted the study's intervening variable.

This study hypothesized that these factors had a profound influence on teenage pregnancies among young girls in the study area. On the sociodemographic factors, the study hypothesized that low awareness and use of contraceptives, early menarche and coitarche did contribute to teenage pregnancy among teenage girls in the study area. Likewise, on the socioeconomic factors, the study hypothesized that the girls' low educational status, high levels of poverty and lack of family support did contribute to teenage pregnancy among teenage girls in the study area. Further, on the cultural factors, the study hypothesized that early/child marriages, exposure to sexual abuse and violence, adverse peer influence, gender roles and religion did also contribute to teenage pregnancy among teenage girls in the study area.

CHAPTER THREE RESEARCH METHODS

3.1 Study Area

The study was carried out in Tigania Central Sub-County in Meru County, Kenya. Tigania Central is a sub-county of Meru County and is a proposed parliamentary constituency. It is the smallest in size among the sub-counties of Meru County. Latest statistics from the 2022 KDHS indicated that the sub-county had an estimated population of 17,121 of which 8,638 were females of reproductive age with 30% (n = 2,592) being teenage girls. The incidence of teenage pregnancy in the sub-county was 11.9% according to the 2022 KDHS. Tigania Central Sub-County has three wards namely Mikinduri, Kiguchwa and Thangatha. This study was conducted in health facilities in the sub-county which included Mikinduri Sub-County Hospital in Mikinduri Ward, Kiguchwa Health Centre in Kiguchwa Ward and Kunati Health Centre in Thangatha Ward. The three health facilities were purposively selected as the study areas as it was where teenage girls in Tigania Central Sub-County sought various sexual and reproductive health services.

3.2 Study Design

A cross-sectional analytical study design was adopted. This research design was appropriate for determining the prevalence of the phenomena being investigated in the study population as well as evaluating the association between the different variables of the phenomena (Denscombe, 2014). An analytical approach was appropriate as this study sought to assess associations between the sociodemographic, socioeconomic and cultural factors as predictor variables and the study's dependent variable (teenage pregnancy) without making causal inferences.

3.3 Study Population

The target population in this study comprised of all teenage girls aged between 13 and 19 years, with or without children, from Meru County's Tigania Central Sub-County. In addition, nine community health promoters (that is, 3 each from Mikinduri, Kiguchwa and Thangatha wards) also formed part of the study population. Community health promoters were included as they worked with the teenage girls at the local level addressing the various sexual and reproductive health needs and issues affecting these girls and were also well known to the girls. They were also well versed with the various

issues affecting teenagers. The number for the targeted community health promoters was nine as there were three community health promoters situated in each of the 3 study sites who dealt with issues affecting teenage girls. The population of teenage girls in the sub-county was 2,592 out of whom 11.9% experience teenage pregnancy (KNBS, 2023).

3.4 Inclusion and Exclusion Criteria

3.4.1 Inclusion Criteria

The study included;

- i. Teenage girls aged 13 to 19 years
- ii. Adult community health promoters
- iii. Residing in Tigania Central Sub-County
- iv. Consenting to take part in the study

3.4.2 Exclusion Criteria

- i. Teenagers who were away from home or inaccessible in the study locale at the time of the study such as those in boarding schools or those visiting far away relatives.
- ii. Teenagers and community health promoters who declined to participate in the study.

3.5 Sample Size Determination

The sample size, for the teenage girls, was calculated using Cochrane's formula as cited by Pandey and Pandey (2021).

$$n = \frac{z^2 pq}{d^2}$$

Where n = the sample size required

Z = Percentage point of the normal distribution corresponding to the level of significance. For 5% level of significance, Z = 1.96.

p = Incidence of teenage pregnancy among teenage girls in the study area taken to be 11.9%. This was from the 2022 KDHS.

$$q = 1 - p$$

d = maximum likely error (taken to be 0.05)

$$n = [(1.96)^2 (0.119) (0.881)] / (0.05)^2$$

n = 161.09, that was, about 161 teenage girls

Computed sample size = 161 teenage girls

Hence, the sample size for the study comprised of 161 teenage girls and 9 community health promoters from Tigania Central Sub-County, Meru County. The 9 CHPs were the 3 lead CHPs in each ward who were in – charge of the other CHPs in their wards. They were better experienced and were more knowledgeable on teenage pregnancy as well as teenage SRH issues in the study area.

3.6 Sampling Procedure

The study utilized cluster sampling method in selection of the teenage girls as study participants. Cluster sampling is a probability sampling technique where the study population is categorized into multiple smaller groups (clusters) for easier analysis (Pandey & Pandey, 2021). In this study, the teenage girls were organized on the basis of wards in which they resided and therefore the clusters were the respective wards that constituted Tigania Central Sub-County. Hence, there were three clusters with 1,296 teenage girls in the Mikinduri cluster, 778 teenage girls in the Kiguchwa cluster and 518 teenage girls in the Thangatha cluster. The girls were then randomly selected from within the clusters. Eighty-one girls were sampled from the Mikinduri cluster, 48 girls were sampled from the Kiguchwa cluster and 32 girls were sampled from the Thangatha cluster. Cluster sampling ensured that the teenage girls that constituted the study sample were drawn from all the wards of Tigania Central Sub-County and hence the sample was representative while random selection within the clusters ensured that every teenage girl had an equal chance of being selected into the study sample. Additionally, purposive sampling method was used in the selection of the 9 community health promoters as part of the study sample. Purposive sampling enabled the researcher to target key informants who possessed requisite knowledge on teenage pregnancy in the study area.

3.7 Research Instruments

A structured questionnaire and an interview guide were used as the research instruments for this study. The questionnaire (Appendix IV) was responded to by the teenage girls while the interview guide (Appendix V) was for the community health promoters. Both

tools were researcher administered and both contained questions guided by the study aims. On its part, the questionnaire was structured into 5 parts. Part A covered the respondents' background information such as age, schooling, religion and marital status. Part B had questions on sociodemographic factors such as their place of residence, awareness and use of contraceptives and their menarche and coitarche status. Part C had questions on socioeconomic factors such as their household's income status, education level and family support system. Part D had questions on cultural factors such as on early marriages, gender roles, peer influence and exposure to sexual abuse or violence while Part E covered the girls' teenage pregnancy status. On its part, the interview guide also captured the participants' demographic information on its first part while the rest of the sections sought to gather detailed insights of the key informants on the study subject guided by the study's aims. The structured questionnaire was deemed appropriate given its ease of application and for being both time and cost effective to administer to the study sample. The interview guide was deemed appropriate for gathering data from the key informants as it offered the researcher a viable way of probing them about the study subject in greater detail than the questionnaire could.

3.8 Data Collection

Teenagers who accepted to take part in the study were given participant assent (for those aged below 18 years) or consent form (for those aged 18 years and above) and where necessary parent consent form (for those aged below 18 years and residing with their parents/guardian) while the community health promoters signed an informed consent form. Interviews with the participants were undertaken at their respective wards in the selected health facilities in a confidential manner. Interviews with the community health providers were audio-recorded. At the end of each data collection session, the researcher checked to ensure that the study tool had been completely filled. Each day, 9 to 10 questionnaires were given out while a single interview was held with the community health providers every two days. Three interpreters helped translate the questionnaire into the local language, using the forward backward translation, for ease of administration to those participants not conversant with the national language. The data collection exercise was performed during the daytime between 8 am and 4 pm. The entire data collection exercise took 2 weeks.

3.9 Pretesting

Pre-testing of the study tools was conducted at Amwathi at Mutuati sub county hospital in Igembe North, Meru County as the area had similar health and demographic characteristics as the study area including a high prevalence of teenage pregnancies (KDHS, Meru County Statistics, 2022). A total of 12 questionnaires and one interview guide, representing 10% of the study sample, were used. According to Pandey and Pandey (2021), 10% of the sample size was sufficient for pre-testing the study tools. After the pretest, the two study tools were adjusted as necessary and their final version was created.

3.10 Validity and Reliability

Validity addresses the accuracy of the data obtained in the study meaning that the data is a true reflection of the variables under study. The validity of the research tools was assessed through subject matter professional review by the supervising lecturers and other experts who were proficient with the study subject.

Reliability of the study questionnaire was assessed using the test - retest method in which the study tools were administered to the same respondents within a one-week interval and their responses in the two tests compared to ascertain their consistency. A reliability coefficient of at least 0.70 at $\alpha=0.05$ significance level was accepted. Necessary adjustments were made in case of a low co-efficient in order to improve the study questionnaire.

3.11 Data Analysis and Presentation

The quantitative data, derived from the questionnaires, was analyzed as per the study objectives, utilizing descriptive statistics that included frequencies and percentages. The data was further subjected to bivariable logistic regression analysis to establish association between the independent variables and the dependent variable. The odds ratios were also used to determine the likelihood of the independent variable influencing the dependent variable. The level of statistical significance was at 95% confidence interval which implied that a p-value of ≤ 0.05 denoted presence of a statistically significant relationship while p-values > 0.05 denoted that the existing relationship between the study variables was not statistically significant. Results of the study were

presented in the form of tables, charts and graphs. The analysis was performed using the Statistical Package for Social Science (SPSS) version 28.

Qualitative data was probed via thematic-analysis. This followed clear steps relating to recognizing, discerning as well as conveying ascertained themes as espoused by Braun and Clarke (2006). The approach applied was inductive. The steps that were utilized included (a) transcribing together with reviewing of the taped discussions numerous times to ensure the accuracy of the transcriptions and to achieve familiarity with the data; (b) developing of initial codes for the transcribed data; (c) categorization of the codes to potential themes followed by creating a theme map as part of ensuring that derived themes matched earlier developed codes; (d) continued appraisal of the themes till; (e) suitable definitions and labels of themes and subthemes were created, and (f) compiling and reporting of the qualitative study findings. Probing of the qualitative data was accomplished using NVivo v.14. Qualitative data findings were reported verbatim.

The two data sets (qualitative and quantitative) were triangulated, at the interpretation and reporting level, through a process referred to as narrative integration. In integration through narrative, a researcher uses narratives to describe the quantitative and qualitative data findings. This approach allowed for a more holistic understanding of the research question and provided a more comprehensive view of the phenomenon being studied. In this study, the contiguous approach of narrative integration was used in which the quantitative and qualitative results were presented together in a single report in various parts based on the study aims. The data analysis plan was as summarized in Table 3.1.

Table 3.1: Data analysis plan

Type of variable	Variable	Nature of data	Data analysis measures
Independent variable	Sociodemographic factors	Quantitative	Descriptive statistics (Frequencies and percentages) Inferential analysis - Bivariable logistic regression analysis [at 95% confidence interval]
		Qualitative	Thematic analysis (verbatim excerpts)
Independent variable	Socioeconomic factors	Quantitative	Descriptive statistics (Frequencies and percentages) Inferential analysis - Bivariable logistic regression analysis [at 95% confidence interval]
		Qualitative	Thematic analysis (verbatim excerpts)
Independent variable	Cultural factors	Quantitative	Descriptive statistics (Frequencies and percentages) Inferential analysis - Bivariable logistic regression analysis [at 95% confidence interval]
		Qualitative	Thematic analysis (verbatim excerpts)
Dependent variable	Teenage pregnancies	Quantitative	Descriptive statistics (Frequencies and percentages)
		Qualitative	Thematic analysis (verbatim excerpts)

3.12 Ethical Considerations

To collect the study data, the researcher first obtained ethical approval for the study from the Chuka University Research and Ethics Review Committee (Appendix VII). This was followed by obtaining the research permit from the National Commission for Science, Technology and Innovation [NACOSTI] (Appendix IX). The researcher then sought permission for data collection from the Sub-County Health Coordinator

(Appendix X). The study participants offered their informed assent or consent and where applicable parental consent to take part in the study. The information gathered was treated with utmost confidentiality and was processed and reported anonymously. Individual names of the participants or anything that could identify them was not used as the study applied pseudo names to represent the key informants' responses. Anonymity was observed by coding the information obtained. All filled questionnaires were kept safely under lock and key in readiness for data entry and analysis.

CHAPTER FOUR RESULTS AND DISCUSSION

4.1 Response Rate

A total of 161 teenage girls and 9 community health promoters were targeted as study respondents. The study's response rate is shown in Table 4.1.

Table 4.1: Response rate

	For the teenage girls		For the community health promoters		
	Freq.	%	Freq.	%	
Responses	142	88.2	Responses	7	77.8
Non responses	19	11.8	Non responses	2	22.2
Total	161	100.0	Total	9	100.0

As shown in Table 4.1, the response rate for the teenage girls was 88.2% while that of the community health promoters was 77.8%. Pseudo names were adopted for the CHPs and hence the names indicated were not their real names. This feedback rates were considered to be adequate and representative based on Mugenda and Mugenda (2003) proposition that response rates of 70% or more are exceptional while rates of 50% and above are sufficient for data analysis and reporting.

4.2 Demographic Profile of the Respondents

4.2.1 Demographic Profile of the Teenage Girls

Background information of the teenage girls as study respondents was evaluated. The results are shown in Table 4.2.

Table 4.2: Demographic attributes of the teenage girls

Attribute	Category	Frequency (n)	Percent (%)
Age	13 - 15 years	36	25.4
	16 - 19 years	106	74.6
	Total	142	100.0
Schooling status	Primary	30	21.1
	Secondary	52	36.6
	College	15	10.6
	Not in school	45	31.7
	Total	142	100.0
Whether married?	Yes	53	37.3
	No	89	62.7
	Total	142	100.0
Religion	Christianity	136	95.8
	Islam	6	4.2
	Total	142	100.0

On the teenage girls' age, most (74.6%, n = 106) were aged 16 - 19 years while 25.4% (n = 36) were aged over 13 - 15 years. Being teenagers, they were best placed to offer their views concerning the factors that influenced teenage pregnancies in the study area as they were the age group affected by the phenomenon being investigated in the current study. Similarly, in studies by Elekeh et al. (2021), Bitew et al. (2023) and Achiaa (2023), the primary study respondents were teenage girls, same as was in studies by Ibitoye et al. (2024) and Kumma et al. (2023).

On schooling status of the teenage girls, 36.6% (n = 52) were in secondary school, 21.1% (n = 30) were in primary school while 10.6% (n = 15) were in college. Additionally, 31.7% (n = 45) were not in school. This showed that a significant proportion of the teenage girls were at different levels of education. Given that most of the teenage girls were in school, it meant that schools, at the different levels, can be used as an important medium for offering the teenage girls education on sexual and reproductive issues including educating them on the dangers of teenage pregnancy. Similar observations were made by Uwizeye et al. (2020) and Shukla et al. (2023), with most of the teenage girls who took part being in elementary level of education while a considerable proportion were also out of school.

On whether the teenage girls were married or not, most 62.7% (n = 89) said they were not married while 37.3% (n = 53) indicated that they were married. This clearly demonstrated that a significant proportion of the teenage girls suffered early marriages. This also signified that early-marriages among young girls was an issue of concern in the study area. Similarly, in studies by Amoateng et al. (2022) and Baale (2023) in South Africa and Uganda respectively, the proportion of teenage girls who were married was significant. Likewise, a significant proportion of teenage girls that took part in studies by Bedzo, and Manortey (2019), Belay et al. (2021) and Habitu et al. (2018) were married.

On religion, majority (95.8%, n = 136) of the teenage girls were Christians while few (4.2%, n = 6) were Muslims. This denoted the teenage girls predominantly professed the Christian faith. Likewise, in studies by Asare et al. (2019), Kukundakwe (2021) and Chemutai et al. (2022), the participating teenage girls were mostly Christians by

religion. In contrast, majority of the teenage girls who took part in studies by Dehesh et al. (2022) and Bitew et al. (2023) were Muslims while in Shukla et al. (2023) most professed Hindu religion.

4.2.2 Demographic Profile of the Community Health Promoters

The demographic characteristics of the community health promoters as study participants were also explored. The results are presented in Table 4.3.

Table 4.3: Demographic attributes of the community health promoters

Attribute	Category	Frequency (n)	Percent (%)
Gender	Female	5	71.4
	Male	2	28.6
	Total	7	100.0
Age	20 - 29 years	1	14.2
	30 - 39 years	3	42.9
	40 - 49 years	3	42.9
	Total	7	100.0
Education level	Primary	1	14.2
	Secondary	3	42.9
	College	3	42.9
	Total	7	100.0

According to Table 4.3, most (71.4%, n = 5) of the community health promoters (CHPs) were female while 28.6% (n = 2) being male. Majority of the CHPs were aged 30 years and above with 42.9% (n = 3) aged 30 - 39 years and a similar number being aged 40 - 49 years. On education level, 42.9% (n = 3) had college education, 42.9% (n = 3) had secondary education while 14.2% (n = 1) had primary education. Additionally, all the 7 CHPs were married and were all Christians by religion. This indicated that adult male and female CHPs took part in the study though female CHPs were more prevalent. The CHPs had a sound education background, were married and professed Christian faith. Similar demographic profile of community health promoters and social health workers whose views on teenage pregnancies were sought was evident in studies by Amoateng et al. (2022) in South Africa and Baale (2023) in Uganda. Likewise, adult male and female CHPs who were majorly married and with basic education level offered their views on teenage pregnancies in reviews by Habitu et al. (2018) and Belay et al. (2021) in Ethiopia, Ochen et al. (2019) in Uganda alongside Oduor and Kithuka (2020) in Kenya. In all these studies, including the current study, the CHPs were recruited to offer

their expert opinion relating to determinants of teenage pregnancies in their local contexts given their regular engagements with teenage girls and their experience with teenagers' SRH matters.

4.3 Teenage Pregnancy among the Teenage Girls

The study sought to establish the teenage pregnancy status among the teenage girls who took part in the study. To determine the incidence of teenage pregnancy, the teenage girls were requested to indicate whether they were pregnant or had ever been pregnant. Consequently, the teenage girls were categorized into two groups – teenage pregnancy group and non-teenage pregnancy group. The teenage pregnancy group included those currently pregnant and those who had ever been pregnant while the non-teenage pregnancy group included teenage girls who had never been pregnant.

The results are illustrated in Figure 4.1.

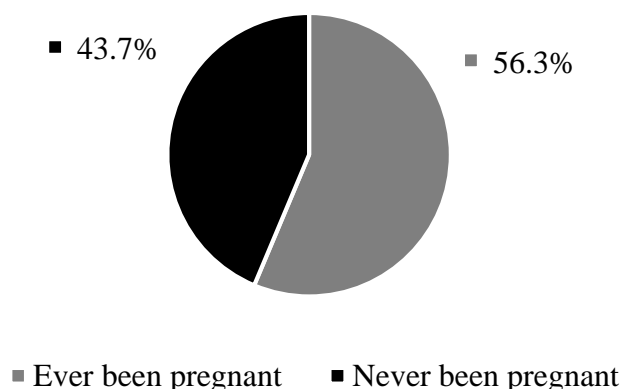


Figure 4.1: Teenage pregnancy among the teenage girls

From the findings shown in Figure 4.1, over half (56.3%, n = 80) of the teenage girls indicated that they had ever been pregnant while 43.7% (n = 62) said they had never been pregnant. This clearly illustrated that most of the teenage girls who took part in the study had experienced teenage pregnancy.

Teenage pregnancies as a serious and persistent challenge affecting many teenage girls in the study area also emerged as a key theme among discussions with the community health promoters. The CHPs unanimously acknowledged that a significant proportion

of young girls in the area suffered teenage pregnancies, as clearly demonstrated in the following few excerpts;

“Teenage pregnancy is a serious problem here. Way too many young girls who should be in school get impregnated in our community and it’s a matter of serious concern.” Ann*

“In my work as a community health promoter, I have come to realize just how big a problem, teenage pregnancies are in this community. It’s disheartening that so many teenage girls are affected.” Lucy*

“To be honest, to say we have a problem with teenage pregnancies in our community is a huge understatement. This is a serious challenge here as the number of young girls affected is significant and is likely to even increase if urgent interventions to address this scourge are not taken.” Dan*

“I do agree that a significant proportion of teenage girls in our community do get pregnant. It’s a challenge we are all working to address.” Alice*

“I cannot lie and there’s no hiding in this. We do have a serious problem with teenage pregnancies in our community here to the extent that it’s worrying.” Chloe*

The findings signified that teenage pregnancies were common in Tigania Central Sub-County within Meru County, Kenya. The findings corroborate those of the 2022 Kenya Demographic and Health Survey (KDHS) which identified Meru County as one of the counties with a high prevalence of teenage pregnancies as reported by the KNBS (2023). Likewise, in a study conducted in Ghana, Achiaa (2023) reported the incidence of teenage pregnancies among surveyed teenage girls was high. Baale (2023) in a study conducted in Uganda also found that teenage pregnancies were common among teenage girls attending a local healthcare facility. A high prevalence of teenage pregnancy among teenage girls was also reported in Ethiopia in studies by Belay et al. (2021), Bitew et al. (2023) and Kumma et al. (2023). Teenage pregnancies were also noted to be highly prevalent among teenage girls in Kajiado West Sub-County in Kenya as reported by Olenja et al. (2020) with a similar observation made among teenage girls in Kenya’s Nyatike Sub-County in Migori County as established by Oduor and Kithuka (2020). Other studies which reported a significant proportion of surveyed teenage girls as having experienced teenage pregnancy included those by Ochen et al. (2019) and Baale (2023) in Uganda; Elekeh et al. (2021) in Nigeria; Uwizeye et al.(2022) in Rwanda; Ali et al. (2022) in Pakistan; Tabei et al. (2021) in Philippines and Shukla et al. (2023) in India. It was therefore evident that teenage pregnancy was a widespread

problem across numerous and diverse settings in Africa and beyond and hence remained a subject of grave concern across the globe.

4.4 Sociodemographic Factors associated with Teenage Pregnancies

The first objective of the study investigated sociodemographic factors that led to teenage pregnancies in Tigania Central Sub-County, Meru County. The sociodemographic factors evaluated included age at first menstrual period, sexual intercourse experience and age at first sexual intercourse as well as awareness and use of contraceptives. Results are as described in the subsequent subsections.

4.4.1 Age at First Menstrual Period

The teenage girls were asked whether they experienced menstrual period. From the findings, all the teenage girls acknowledged that they experienced menses (100%, n = 142).

The girls were then requested to indicate how old they were when they experienced the first menstrual period, results of which are depicted in Figure 4.2.

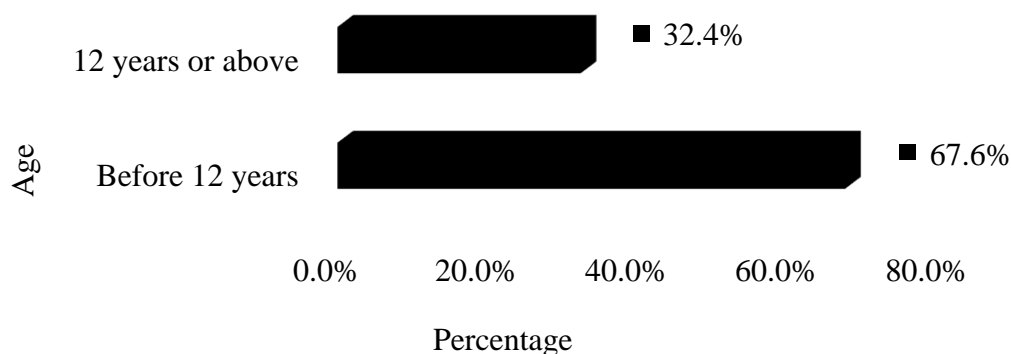


Figure 4.2: Age at first menstrual period among the teenage girls

From Figure 4.2, most (67.6%, n = 96) of the teenage girls indicated that they had their first menstruation before they were 12 years old while 32.4% (n = 46) indicated that they had their first menses when they were 12 years or above. The findings denoted that most of the teenage girls had or experienced early menarche, defined as first menstruation before the age of 12.

To ascertain the proportion of the teenage girls that had experienced teenage pregnancy or not on the basis of the age at first menstrual period, the researcher performed cross tabulation between the teenage girls' age at first menstrual period and teenage pregnancy, results of which are shown in Table 4.4.

Table 4.4: Cross-tabulation results - age at first menstrual period vs. teenage pregnancy

		Ever been pregnant?		Total
		Yes	No	
Age at first menstrual period	Before 12 years	66 (68.8%)	30 (31.3%)	96
	12 years or above	14 (30.4%)	32 (69.6%)	46
Total		80	62	142

The findings in Table 4.4 clearly indicate that, of the teenage girls that had experienced early menarche [first menstruation before age 12 years], a significant proportion had experienced teenage pregnancy (68.8%). However, among teenage girls whose first menstrual period occurred at age 12 years or older, the proportion that had experienced teenage pregnancy was significantly lower at 30.4% (n = 14).

Further, to establish whether there was an association between age at first menstrual period and teenage pregnancy among the teenage girls, bivariate logistic regression analysis was performed at 95% confidence interval. Results are presented in Table 4.5.

Table 4.5: Association of age at first menstrual period with teenage pregnancy

Overall model fit				
-2 Log likelihood	175.783 ^a			
Chi-square	18.783			
df	1			
Significance level (p)	0.000			
Coz & Snell R ²	0.124			
Nagelkerke R ²	0.166			
Regression coefficients				
Variable	Coefficient	Std. Error	Wald	Sig. (p)
Age at first menstrual period	-1.615	.389	17.257	.000
Constant	.788	.220	12.822	.000
Odds ratio at 95% confidence interval				
Variable	Odds ratio	95% CI		
Age at first menstrual period	5.03	2.35 - 10.77		

a. Variable(s) entered on step 1: age at first menstrual period

From Table 4.5, a logistic regression coefficient of -1.615 denoted that there existed an inverse relationship between age at first menstrual period and teenage pregnancy among the surveyed teenage girls. A p value of 0.000 showed that the relationship was statistically significant. The study therefore concluded that there was a statistically significant negative relationship between the girls' age at first menstrual period and teenage pregnancies. An odds ratio of 5.03 [2.35 - 10.77, 95% CI] indicates that teenage girls who experienced early menarche were 5 times more likely to experience teenage pregnancy compared to their counterparts whose menstruation started at a later or delayed age. The implication of the finding is that early menarche was a significant predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County. This observation was corroborated by views offered by the community health promoters during the interviews and who acknowledged that early menarche was a notable predictor of teenage pregnancies. The CHPs noted that young girls whose menses began at an early age were much more likely to experience teenage pregnancy compared to others whose menses began at a delayed or later age. They attributed this to a higher likelihood of teenage girls beginning to engage in sexual activities after beginning to have menstruation compared to their pre-menstruation period. This is clearly demonstrated in the following few excerpts;

“My observations are that teenage girls whose menses begin at an early age are more inclined to get impregnated than when the menses come at a later age.”

Mary*

“It's true beginning to menstruate at an early age increases the risk for teenage girls to get pregnant possibly due to their increased likelihood of starting to engage in sexual activity”. Alex*

“... looking at teenage pregnancies pattern on the basis of the age at which the girls start to menstruate, we observe higher numbers of teenage pregnancy in girls whose first menses began at an earlier age rather than at a later age.” Ann*

“Indeed, I would agree that teenage pregnancies tend to positively correlate with initiation of menstruation at an early age which I would attribute to the tendency of young girls beginning to engage in sexual activity once they begin having their menstruations.” Dan*

It was evident from the findings, therefore, that early menarche was acknowledged as being a significant predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County of Meru County. The increased risk of teenage pregnancy with

early menarche could be attributed to possible initiation of sexual activity among the young girls with the onset of their menstruation. This could be driven by them wrongly believing that they are now mature enough and can do things that adults do, in this case, engaging in sexual activity, which in turn exposes them to increased risk of teenage pregnancy. Similar findings were reported by Cezimbra et al. (2020) and Yu et al. (2020) who in studies conducted in Brazil and South Korea respectively reported that there was a notable statistical association between early menarche and teenage pregnancy as most of the teenage mothers found to have experienced teenage pregnancy had their first menstruation at an earlier age. Likewise, Hinojosa-Gonzalez et al. (2023) did also establish early menarche as being a significant predictor of teenage pregnancy among teenage girls with the study observing increased odds of teenage pregnancy the earlier a girl began to menstruate. In Ghana, teenage pregnancy was identified as being one of the major sexual and reproductive health outcomes of early menarche among surveyed teenage girls as reported by Ibitoye et al. (2024). Similarly, in a study evaluating the covariates of teenage pregnancy among teenage girls in Iran, a consequential relationship was noted between having pregnancy during teenage and early menarche as reported by Dehesh et al. (2022), an observation also echoed by Sayegh (2021) and Dewau et al. (2021). In all these studies, the close link between early menarche and sexual activity initiation among teenage girls was noted as occasioning the increased risk of teenage pregnancies in these young girls.

4.4.2 Sexual Intercourse Experience

The teenage girls were asked whether they had ever had sexual intercourse. From the findings, all the teenage girls acknowledged that they had had sexual intercourse (100%, n = 142). The girls were then requested to indicate how old they were when they had their first sexual intercourse encounter. Results are illustrated in Figure 4.3.



Figure 4.3: Age at first sexual intercourse

From Figure 4.3, majority (80.3%, n = 114) of the teenage girls indicated that they had their first sexual intercourse when they were 13 years or older while 19.7% (n = 28) indicated that they had their first sexual intercourse when they were aged below 13 years.

To ascertain the proportion of the teenage girls that had experienced teenage pregnancy or not on the basis of the age at first sexual intercourse, the researcher performed cross tabulation between the teenage girls' age at first sexual intercourse and teenage pregnancy, results of which are depicted in Table 4.6.

Table 4.6: Cross-tabulation results - age at first sexual intercourse vs teenage pregnancy

		Ever been pregnant?		Total
		Yes	No	
Age at first sexual intercourse	Before 13 years	22 (78.6%)	6 (21.4%)	28
	13 years or above	58 (50.9%)	56 (49.1%)	114
Total		80	62	142

Findings in Table 4.6 clearly indicate that, of the teenage girls that had had their first sexual intercourse before the age of 13 years (n = 28), a significant proportion had experienced teenage pregnancy (78.6%, n = 22). However, among teenage girls whose first sexual intercourse occurred while they were 13 years or older, the proportion that had experienced teenage pregnancy was lower at 50.9% (n = 58).

Further, to establish whether there was an association between age at first sexual intercourse and teenage pregnancy among the teenage girls, bivariate logistic regression analysis was performed at 95% confidence interval. Results are presented in Table 4.7.

Table 4.7: Association of age at first sexual intercourse with teenage pregnancy

Overall model fit				
-2 Log likelihood	187.099 ^a			
Chi-square	7.467			
df	1			
Significance level (p)	0.006			
Coz & Snell R ²	0.051			
Nagelkerke R ²	0.069			
Regression coefficients				
Variable	Coefficient	Std. Error	Wald	Sig. (p)
Age at first sexual intercourse	-1.264	.497	6.465	.011
Constant	1.299	.461	7.958	.005
Odds ratio at 95% confidence interval				
Variable	Odds ratio	95% CI		
Age at first sexual intercourse	3.54	1.34 - 9.38		

a. Variable(s) entered on step 1: age at first sexual intercourse

From Table 4.7, a logistic regression coefficient of -1.264 denoted that there existed an inverse relationship between age at first sexual intercourse and teenage pregnancy among the surveyed teenage girls. A p value of 0.011 showed that the relationship was statistically significant. The study therefore concluded that there was a statistically significant negative relationship between the girls' age at first sexual intercourse and teenage pregnancies. An odds ratio of 3.54 [1.34 - 9.38, 95% CI] indicates that teenage girls who experienced sexual intercourse at an early age were 3.54 times more likely to experience teenage pregnancy compared to their counterparts whose first sexual intercourse started at a later or delayed age. The implication of the finding is that initiation of sexual intercourse or activity at an early age was a significant predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County.

The findings on initiation of sexual activity at an early age being a significant predictor of teenage pregnancies were corroborated by insights offered by the CHPs in which they unanimously agreed that one of the major reasons behind the rampant teenage pregnancy cases in the study area was young girls beginning to indulge in sexual activity from an early age. As such, age at which the teenage girls began to have sexual

intercourse emerged as an overarching theme in relation to sociodemographic factors associated with teenage pregnancy. There was concurrence among the CHPs that the earlier the girls got initiated into sexual activity the higher the increased likelihood of teenage pregnancy, as is clearly demonstrated in the following few excerpts;

“I have noted in my interactions with young school going girls that the earlier they begin to engage in sexual activity, the more likely they are to suffer from teenage pregnancy.” Chloe*

“Indeed, I agree that one of the major reasons behind the rising cases of teenage pregnancies in our community is young girls beginning to engage in sexual activity from an early age. Can you imagine that girls as young as 12, that’s pre-teen, do have sex. How then can we not have the teenage pregnancy problem with this kind of behaviour?” Alice*

“I have no doubt that initiation of sexual activity among teenage girls from an early age is a major contributor to the prevailing teenage pregnancy cases we are witnessing in our community.” Dan*

“How can we not have a challenge with teenage pregnancy cases when young girls out here are beginning to have sex at a very young age? I mean, it’s obvious that such behaviour has consequences, teenage pregnancy being one of them.” Mary*

“I completely agree that young girls beginning to engage in sexual activity, from an early age, constitutes one of the many causes behind the rampant cases of teenage pregnancies among young girls.” Ann*

It was therefore evident from the findings that initiation of sexual activity from an early age was a significant predictor of teenage pregnancy among young girls in Tigania Central Sub-County. Similar views were espoused by Mutanana and Mutara (2021) who attributed the high number of teenage pregnancy cases in a local Zimbabwean community to the behaviour of teenage girls beginning to engage in sexual activity from an early age. Similarly, in a study conducted in Ghana a notable relationship was observed between teen pregnancy and time of initiation of sexual activity with increased odds of unwanted teenage pregnancies among teenage girls who began engaging in sexual activities at an early age [12 years or younger] compared to those who had delayed in sex initiation as reported by Bedzo and Manortey (2019). Oduor and Kithuka (2020) also attributed the large number of teenage pregnancy cases seen in Nyatike Sub-County in Kenya to young girls beginning to engage in sexual activities from an early age. Similarly, in Namibia, Indongo (2020) also reported that teenage pregnancy was significantly influenced by early age at first sex among teenage girls while in Uganda

sex initiation at an early age was also found to significantly correlate with teenage pregnancy with teenage girls who began having sex from an early age having higher odds of teenage pregnancy compared to those who had sex initiation at a delayed age as reported by Chemutai et al. (2022). Musonda (2022) in a study carried out in Zambia also identified initiation of sexual activity at an early age as one of the factors that occasioned teenage pregnancy in the country. Other studies that also recognized initiation of sexual activity at an early age as a leading determinant of teenage pregnancy among teenage girls included those by Neupane et al. (2019), Gunawardena et al. (2019) and Njogu (2019). From these studies, it was apparent that in many settings across SSA and beyond, initiation of sexual intercourse at an early age among teenage girls constituted a major predictor of teenage pregnancies.

4.4.3 Awareness of Contraceptives

The teenage girls were asked whether they knew what contraceptives were. Results are shown in Figure 4.4.

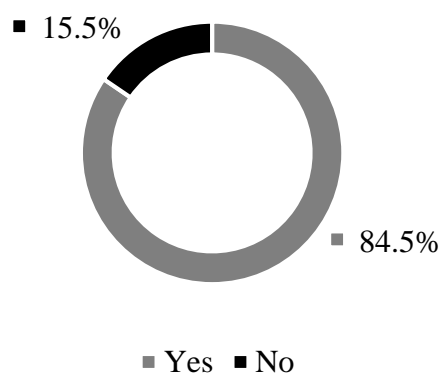


Figure 4.4: Whether the teenage girls knew what contraceptives were

From Figure 4.2, majority (84.5%, $n = 120$) of the teenage girls indicated that they knew what contraceptives were. However, 15.5% ($n = 22$) indicated that they did not know what contraceptives were. The findings denoted that a considerable proportion of the teenage girls were aware of what contraceptives were. To ascertain the proportion of the teenage girls that had experienced teenage pregnancy or not on the basis of their awareness of contraceptives, the researcher performed cross tabulation between the teenage girls' awareness of contraceptives and teenage pregnancy, results of which are presented in Table 4.8.

Table 4.8: Cross-tabulation results – awareness of contraceptives vs teenage pregnancy

		Ever been pregnant?		Total
		Yes	No	
Do you know what contraceptives are?	Yes	73 (60.8%)	47(39.2%)	120
	No	7 (31.8%)	15(68.2%)	22
Total		80	62	142

From Table 4.8, the findings indicate that, of the teenage girls that were not aware of what contraceptives were (n = 22), close to a third had experienced teenage pregnancy (31.8%, n = 7). The findings also showed that a significant proportion of the teenage girls who indicated being aware of contraceptives had also experienced teenage pregnancy (60.8%), signifying that teenage pregnancy occurred in teenage girls including those with and without knowledge/awareness of contraceptives. Further, to establish whether there was an association between awareness of contraceptives and teenage pregnancy among the teenage girls, bivariate logistic regression analysis was performed at 95% confidence interval. Results are outlined in Table 4.9.

Table 4.9: Association of awareness of contraceptives with teenage pregnancy

Overall model fit				
-2 Log likelihood	188.199 ^a			
Chi-square	6.367			
df	1			
Significance level (p)	0.012			
Cox & Snell R ²	0.044			
Nagelkerke R ²	0.059			
Regression coefficients				
Variable	Coefficient	Std. Error	Wald	Sig. (p)
Awareness of contraceptives	-1.202	.494	5.914	.015
Constant	.440	.187	5.543	.019
Odds ratio at 95% confidence interval				
Variable	Odds ratio	95% CI		
Awareness of contraceptives	3.33	1.26 - 8.77		

a. Variable(s) entered on step 1: awareness of contraceptives

From Table 4.9, a logistic regression coefficient of -1.202 denoted that there existed an inverse relationship between awareness of contraceptives and teenage pregnancy among the surveyed teenage girls. A p value of 0.015 showed that the relationship was statistically significant. The study therefore concluded that there was a statistically significant negative relationship between the girls' awareness of contraceptives and teenage pregnancies. An odds ratio of 3.33 [1.26 - 8.77, 95% CI] indicates that teenage

girls who lacked awareness or knowledge of contraceptives were 3.33 times more likely to experience teenage pregnancy compared to their counterparts who were aware or had knowledge of contraceptives. Hence according to this finding, an increase in awareness about contraceptives would lead to a decrease in teenage pregnancy cases and vice-versa. The implication of the finding is that lack of awareness about contraceptives was a significant predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County. The findings were corroborated by insights offered by the community health promoters who unanimously agreed that lack of awareness about contraceptives among teenage girls was a leading reason behind the high cases of teenage pregnancies in the study area as is clearly demonstrated in the following few excerpts;

“I would also attribute the prevailing teenage pregnancy cases in our community to the teenage girls’ low awareness about contraception.” Alex*

“In majority of the instances of teenage pregnancy I have been involved with, the affected girls had poor knowledge of contraceptives. I am sure this contributed in a significant way to the pregnancy as they did not know how to protect themselves from becoming pregnant in the first place” Lucy*

“Personally, I strongly believe that ignorance on contraception among young girls is to blame for the high number of teenage pregnancies we see. I mean you have young girls engaging in sex, yet they are not empowered with information on how to protect themselves from unwanted pregnancies. The result - teenage pregnancies.” Mary*

“We’ve got to start educating teenage girls on contraception. I am sure teenage pregnancy cases could be drastically reduced if young people and mainly girls were educated about contraceptives. Unfortunately, in rural settings as ours, not many girls know about contraceptives leave alone using them.” Alice*

It was therefore evident that low awareness about contraceptives was a factor that contributed to teenage pregnancy cases among teenage girls in Tigania Central Sub-County. The findings agreed with those of Oduor and Kithuka (2020) who attributed the high rates of teenage pregnancies among girls in Nyatike Sub-County to lack of awareness of contraception among young girls largely due to inadequate sexual reproductive health education. Similarly, in an analysis of teenage pregnancy in Namibia, Indongo (2020) reported that low knowledge of contraceptives among the teenage girls was associated with higher teenage pregnancy rates in local communities and vice-versa. Likewise, Chakole et al. (2022) observed that teenage pregnancy cases were much more likely to be seen among adolescents who were unaware of

contraceptives compared to those who were aware of contraceptives. In a study conducted in Zambia, Musonda (2022) also established that higher number of teenage pregnancies was associated with teenage girls' poor knowledge of contraception with increased knowledge regarding contraception correlating with reduced cases of teenage pregnancies. Njogu (2019) also identified poor knowledge of contraceptives as one of the leading factors contributing to pregnancies among teenage girls in Kenya signifying the need for SRH education in Kenya's primary and secondary schools. Similarly, in their studies, Worku et al. (2021) and Belay et al. (2021) in Ethiopia alongside Baale (2023) in Uganda also noted that low awareness of contraceptives among teenage girls was one of the factors that contributed to teenage pregnancies in these girls as they are inadequately informed and ill equipped on how to protect themselves from unwanted pregnancies at their age.

4.4.4 Use of Contraceptives

The teenage girls were asked whether they used contraceptives. The results are outlined in Figure 4.5.

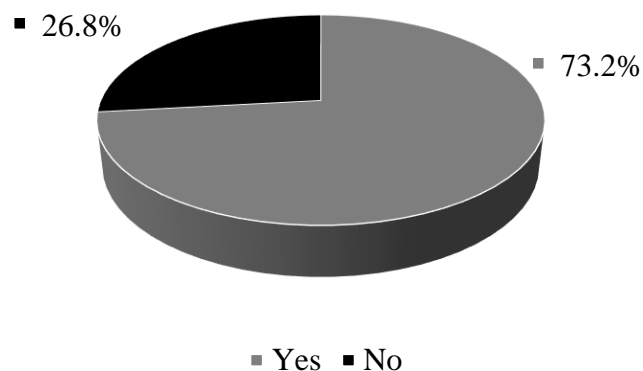


Figure 4.5: Whether the teenage girls used contraceptives

According to Figure 4.5, most (73.2%, n = 104) of the teenage girls indicated that they did use contraceptives while 26.8% (n = 38) indicated that they did not use contraceptives. Additionally, for those that used contraceptives, they were requested to indicate the contraceptives they used, findings of which are shown in Table 4.10.

Table 4.10: Kinds of contraceptives that the teenage girls used (n = 104)

Contraceptives used	Frequency (n)	Percent (%)
Pills	21	14.8
Injectable	49	34.5
Condom	45	31.7
Natural method/rhythm	11	7.7
Others	3	2.1

Based on Table 4.10, the commonly used contraceptives among the teenage girls were injectables (34.5%, n = 49), condom (31.7%, n = 45) and pills (14.8%, n = 21). The findings therefore showed that a considerable proportion of the teenage girls used contraceptives.

To ascertain the proportion of the teenage girls that had experienced teenage pregnancy or not on the basis of their use of contraceptives, the researcher performed cross tabulation between the teenage girls' use of contraceptives and teenage pregnancy, results of which are shown in Table 4.11.

Table 4.11: Cross-tabulation results – use of contraceptives vs teenage pregnancy

		Ever been pregnant?		Total
		Yes	No	
Do you use contraceptives	Yes	65 (62.5%)	39 (37.5%)	104
	No	15 (39.5%)	23 (60.5%)	38
Total		80	62	142

Based on Table 4.11, the findings indicate that, of the 104 teenage girls that used contraceptives, 62.5% (n = 65) had experienced teenage pregnancy while among the teenage girls that indicated that they did not use contraceptives, 39.5% (n = 15) had experienced teenage pregnancy.

Further, to establish whether there was an association between use of contraceptives and teenage pregnancy among the teenage girls, bivariate logistic regression analysis was performed at 95% confidence interval. Results are presented in Table 4.12.

Table 4.12: Association of use of contraceptives with teenage pregnancy

Overall model fit				
-2 Log likelihood	188.587 ^a			
Chi-square	5.978			
df	1			
Significance level (p)	0.014			
Cox & Snell R ²	0.041			
Nagelkerke R ²	0.055			
Regression coefficients				
Variable	Coefficient	Std. Error	Wald	Sig. (p)
Use of contraceptives	-.938	.389	5.824	.016
Constant	.511	.203	6.360	.012
Odds ratio at 95% confidence interval				
Variable	Odds ratio	95% CI		
Use of contraceptives	2.56	1.19 - 5.48		

a. Variable(s) entered on step 1: use of contraceptives

From Table 4.12, a logistic regression coefficient of -0.938 denoted that there existed an inverse relationship between use of contraceptives and teenage pregnancy among the surveyed teenage girls. A p value of 0.016 showed that the relationship was statistically significant. The study therefore concluded that there was a statistically significant negative relationship between the girls' use of contraceptives and teenage pregnancies. An odds ratio of 2.56 [1.19 - 5.48, 95% CI] indicates that teenage girls who did not use contraceptives were 2.56 times more likely to experience teenage pregnancy compared to their counterparts who used contraceptives. The findings indicated that use of contraceptives among the teenage girls helped prevent teenage pregnancies. The implication of the finding is that use of contraceptives was a significant predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County.

The findings were corroborated by responses offered by the community health promoters in interview discussions and who pointed that teenage pregnancies were more prevalent among teenage girls with low use of contraceptives compared to those who used contraceptives. The CHPs unanimously acknowledged that the high unmet need for contraceptives among teenage girls and which occasioned low use of contraceptives among the girls was a leading contributor to the high incidences of teenage pregnancies reported in the study area. This is clearly demonstrated in the following few excerpts;

“A large number of the teenage pregnancy cases we have in our community are due to the high unmet need of contraceptives among the teenage girls and young mothers.” Mary*

“Many of the teenage girls who would want to prevent unintended pregnancies are unable to do so due to the high unmet need of contraceptives and its resultant low usage of contraceptives in this category.” Dan*

“I do agree that low use of contraceptives among young people does contribute to teenage pregnancies.” Alice*

“Prevailing cases of teenage pregnancies could possibly be lowered if more teenage girls and mothers used contraceptives. Unfortunately, in our setting, the use of contraceptives among young girls and mothers remains quite low.” Lucy*

“I can attest to the fact that there’s low uptake of contraceptives among teenage girls including among teenage mothers which in turn contributes to rising teenage pregnancy cases in the community.” Alex*

The findings therefore signified that there was low use of contraceptives among teenage girls in the study area and which contributed to the prevailing high incidence of teenage pregnancies. Incidences of teenage pregnancies would be unavoidable especially where teenage girls continued to engage in sexual activity without using appropriate contraception. The findings agreed with those of Yalew (2018) who in a study carried out in Ethiopia attributed the high rates of teenage pregnancy observed in local communities to sexual activity among teenage girls without use of contraception. Similarly, in studies by Oduor and Kithuka (2020) in Kenya and Indongo (2020) in Namibia teenage pregnancy was found to be significantly influenced by use of contraceptives among the teenage girls with higher cases reported in communities with low usage and vice-versa. Likewise, Chakole et al. (2022) observed that teenage pregnancy cases were much more likely to be seen among adolescents who did not use contraceptives while engaging in sexual activity compared to those who utilized contraceptives. In Zambia, Musonda (2022) attributed the evidently high number of teenage pregnancies to poor or low use of contraception among teenage girls and mothers with increased use of contraception correlating with reduced cases of teenage pregnancies. Low use of contraceptives among teenage girls was also highlighted as one of the reasons behind the high rates of teenage pregnancies observed in studies by Bedzo and Manortey (2019) as well as Achiaa (2023) in Ghana along with Amoateng et al. (2022) in South Africa. Similarly, in studies by Baale (2023) in Uganda and Belay et al. (2021) in Ethiopia, low use of contraceptives was the most common cause of teenage pregnancy among surveyed teenage girls, an observation also echoed by Habitu et al. (2018). Ahinkorah et al. (2023) also identified low uptake of contraceptives among young women as a major determinant of repeat pregnancies among adolescent girls and

young women in sub-Saharan Africa. In contrast, though, history of pregnancy among teens was established to be much more likely among those who utilized contraceptives compared to those who had never used contraception in a study by Njogu (2019).

4.5 Socioeconomic Factors associated with Teenage Pregnancies

The second objective of the study sought to determine socioeconomic factors that led to teenage pregnancies in Tigania Central Sub-County, Meru County. The socioeconomic factors evaluated included the teenage girls' education level, occupational status of their parents/guardians, family support and the teenage girls' working status. Results are as described in the subsequent subsections.

4.5.1 Education Level of the Teenage Girls

From the findings shown in Table 4.2, it was clear that most of the teenage girls were either in secondary schools (36.6%, n = 52) or in primary schools (21.1%, n = 30) while fewer (10.6%, n = 15) were in college. In addition, a considerable number of the teenage girls were not in school (31.7%, n = 45). The findings denoted that most of the teenage girls had a basic education background.

To ascertain the proportion of the teenage girls that had experienced teenage pregnancy or not on the basis of their education level, the researcher performed cross tabulation between the teenage girls' education level and teenage pregnancy, results of which are shown in Table 4.13.

Table 4.13: Cross-tabulation results – education level vs teenage pregnancy

		Ever been pregnant?		Total
		Yes	No	
Education level	Primary & not in school	51 (68%)	24 (32%)	75
	Secondary or higher	29 (43.3%)	38 (56.7%)	67
Total		80	62	142

According to Table 4.13, of the teenage girls that were in Primary schools and not in school, 68% (n = 51) had experienced teenage pregnancy. However, among teenage girls that were in Secondary schools and in college, the proportion that had experienced teenage pregnancy was lower at 43.3% (n = 29). The findings denoted that teenage pregnancy cases were lower among teenage girls with higher education level and vice-

versa. Further, to establish whether there was an association between education level and teenage pregnancy among the teenage girls, bivariate logistic regression analysis was performed at 95% confidence interval. Results are presented in Table 4.14.

Table 4.14: Association of the girls' education level with teenage pregnancy

Overall model fit				
-2 Log likelihood	185.700 ^a			
Chi-square	8.866			
df	1			
Significance level (p)	0.003			
Cox & Snell R ²	0.061			
Nagelkerke R ²	0.081			
Regression coefficients				
Variable	Coefficient	Std. Error	Wald	Sig. (p)
Education level	-1.024	.349	8.591	.003
Constant	.754	.248	9.273	.002
Odds ratio at 95% confidence interval				
Variable	Odds ratio	95% CI		
Education level	2.78	1.40 - 5.52		

a. Variable(s) entered on step 1: education level

From Table 4.14, a logistic regression coefficient of -1.024 denoted that there existed an inverse relationship between the education level and teenage pregnancy among the surveyed teenage girls. A p value of 0.003 showed that the relationship was statistically significant. The study therefore concluded that there was a statistically significant negative relationship between the teenage girls' education level and teenage pregnancies. An odds ratio of 2.78 [1.40 - 5.52, 95% CI] indicates that teenage girls with lower education level (Primary education or those not in school) were 2.78 times more likely to experience teenage pregnancy compared to their counterparts who had a higher education level (Secondary or college education). The findings implied that keeping teenage girls in school could help in reducing teenage pregnancies cases. The implication of the finding is that girls' education was a significant predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County.

The findings were corroborated by insights offered by the community health promoters in interview discussions, who were of the view that low education background among girls was a leading factor that significantly contributed to teenage pregnancies in the study area. According to the CHPs, teenage pregnancy cases were likely to be highly

prevalent among teenage girls who lacked proper education such as those who never went to school or those who dropped out of school at the primary level compared to girls with a sound education background. As such, it was clear that a low education level among teenage girls was a significant predictor of teenage pregnancies in Tigania Central Sub-County. This is clearly demonstrated in the following few excerpts;

“Failure to educate girls does certainly increase their chances of suffering teenage pregnancies.” Alex*

“Yes, I agree that low education background contributes in a notable way to teenage pregnancy cases. For example, girls who drop out of school often decide to engage in casual sex or get married early to support themselves which in turn lead to increased risk of teenage pregnancies.” Mary*

“No doubt that teenage pregnancy cases are related with girls’ education. Teenage pregnancies are more evident among girls who refuse or drop out of school and much less among girls who are supported to advance their education.” Alice*

“Education level is certainly an imperative with regard to teenage pregnancy cases. Increased likelihood of teenage pregnancy is often evident in teenage girls with low education status.” Dan*

“I have observed that most of the girls affected by teenage pregnancies have a poor educational background in the sense that they likely did not complete basic education.” Chloe*

It was therefore evident from the findings that low education background played a significant role in perpetuating teenage pregnancies among teenage girls in Tigania Central Sub-County. The findings agreed with those of Zemene et al. (2024) who in a study carried out in Ethiopia established that teenage pregnancy incidences were significantly lower among girls with secondary or above educational level compared to those with primary or no formal education. Likewise, low literacy levels were also found to have a significant influence on occurrence of teenage pregnancy among young girls in Kajiado West Sub-County in Kenya as reported by Olenja et al. (2020). Similar views were shared by Maharaj (2022) who also identified low educational status of adolescents as being a major predictor of teenage pregnancy among young girls in SSA countries. According to a study undertaken in India on teenage pregnancy determinants, Shukla et al. (2023) observed that primary or lack of formal education correlated with increased likelihood of teen pregnancies while secondary or higher education levels

correlated with decreased likelihood of teen pregnancies. In studies conducted by Mathewos and Mekuria (2018) in Ethiopia as well as Mutanana and Mutara (2021) in rural Zimbabwe, teenagers with no formal and primary education were found to be more likely to become pregnant than those with secondary or college education. Other studies that identified having a low education background to be a significant predictor of teenage pregnancy among teenage girls were those by Mezmur et al. (2021) in Ethiopia, Njogu (2019) in Kenya, Chemutai et al. (2022) in Uganda along with Gensa Geta et al. (2023) in Somaliland.

4.5.2 Occupation Status of the Teenage Girls' Parents/Guardians

The teenage girls were requested to indicate the occupation status of their parents or guardians. The responses were categorized as *working* for those employed, self-employed or in business and *not working* for those that were unemployed. Results are demonstrated in Figure 4.6.

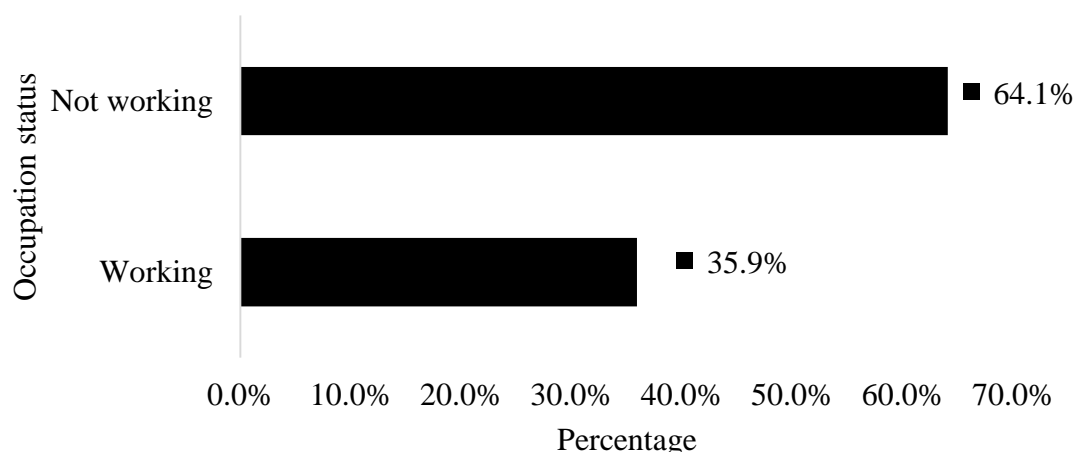


Figure 4.6: Occupation status of the teenage girls' parents/guardians

From Figure 4.6, a significant proportion of the teenage girls indicated that their parents or guardians were not working (64.1%, n = 91) while 35.9% (n = 51) indicated that their parents or guardians worked. This denoted that, for most of the teenage girls, their parents/guardians were unemployed or lacked an income source.

To ascertain the proportion of the teenage girls that had experienced teenage pregnancy or not on the basis of the occupation status of their parents or guardians, the researcher

performed cross tabulation between the occupation status of the teenage girls' parents/guardians and teenage pregnancy, results of which are depicted in Table 4.15.

Table 4.15: Cross-tabulation results – parents'/guardians' occupation status vs teenage pregnancy

		Ever been pregnant?		Total
		Yes	No	
Occupation status	Not working	62 (68.1%)	29 (31.9%)	91
	Working	18 (35.3%)	33 (64.7%)	51
Total		80	62	142

Findings in Table 4.15 indicate that, of the teenage girls whose parents or guardians were unemployed or not working, a significant proportion had experienced teenage pregnancy (68.1%, n = 62) while among teenage girls whose parents or guardians did work, the proportion that had experienced teenage pregnancy was lower at 35.3% (n = 18). The findings denoted that teenage pregnancies were more prevalent among teenage girls whose parents or guardians were unemployed or who lacked an income source. Further, to establish whether there was an association between occupation status of the girls' parents/guardians and teenage pregnancy among the teenage girls, bivariate logistic regression analysis was performed at 95% confidence interval. Results are outlined in Table 4.16.

Table 4.16: Association of occupation status of the parents/guardians with teenage pregnancy

Overall model fit					
-2 Log likelihood		180.132 ^a			
Chi-square		14.434			
df		1			
Significance level (p)		0.000			
Cox & Snell R ²		0.097			
Nagelkerke R ²		0.130			
Regression coefficients					
Variable		Coefficient	Std. Error	Wald	Sig. (p)
Occupation status of parents/guardians		1.366	.369	13.672	.000
Constant		-.606	.293	4.279	.039
Odds ratio at 95% confidence interval					
Variable		Odds ratio	95% CI		
Occupation status of parents/guardians		3.92	1.90 - 8.09		

a. Variable(s) entered on step 1: occupation status of parents/guardians

From Table 4.16, a logistic regression coefficient of 1.366 denoted that there existed a positive relationship between the occupation status of parents or guardians and teenage pregnancy among the surveyed teenage girls. A p value of 0.000 showed that the relationship was statistically significant. The study therefore concluded that there was a statistically significant positive relationship between the teenage girls' parents/guardians lack of an income source and teenage pregnancies. An odds ratio of 3.92 [1.90 - 8.09, 95% CI] indicates that teenage girls whose parents or guardians did not work or have an income source were 3.92 times more likely to experience teenage pregnancy compared to their counterparts whose parents or guardians had an income source or were working. These findings therefore denote that low socioeconomic status among parents or guardians of teenage girls did positively influence the likelihood of teenage pregnancies among teenage girls in Tigania Central Sub-County. The implication of the finding is that poverty or low socioeconomic status of the teenage girls' families was a significant predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County.

The findings were corroborated by responses offered by the community health promoters in interview discussions and who held that the teenage girls' family socioeconomic status did also significantly influence teenage pregnancy cases in the study area. The CHPs were unanimous that teenage girls from poor households were at a greater risk of suffering from teenage pregnancies relative to those who came from households of higher socioeconomic status. Indeed, from discussions with the CHPs, household poverty emerged as a leading theme among factors that contributed to teenage pregnancies with the CHPs noting that teenage girls whose needs were not met at the family level were likely to get the needs met by other persons outside the family in exchange for sex as payment in turn exposing them to greater risk of teenage pregnancy. This is clearly demonstrated in the following few excerpts;

“The teenage girl's family socioeconomic status affects the likelihood of the teenage girls getting pregnant. This is so because those who come from a poor background and lack basic commodities like pads are likely to be lured by men who can give them those basic commodities on condition that they have sex with these men.” Lucy*

“Family socioeconomic status of the teenage families does affect their likelihood of getting pregnant such as in instances where a teenager comes from

a family that is struggling financially, they can easily fall for men who can give them money for upkeep in exchange for having sex with them or even to get married to older wealthy men.” Mary*

“A family’s socioeconomic status may also increase chances of teenage girls getting pregnant. For instance, in situations where parents marry off their daughters due to lack of funds to take them to colleges even when the girls performed well in their Form 4 exams.” Ann*

“Poverty also causes risk of becoming pregnant as those who cannot support their daughters with basic commodities are provided with them by strangers for sex as payment.” Chloe*

“The family’s socioeconomic status also affects and may increase the chances of a teenage girl becoming pregnant. For example, in a family that is not able to provide their daughters with basic commodities, they are likely to be lured to sex by those who can give them these basic things. Also, families that are not able to pay school fees for their daughters, they drop out of school, become pregnant and get married early.” Alex*

It was therefore evident that poverty or low socioeconomic status among the teenage girls’ families was a significant factor that led to teenage pregnancies in Tigania Central Sub-County. The findings agreed with those of Olenja et al. (2020) who noted that high levels of poverty were a leading factor that increased the vulnerability of young Maasai girls to teenage pregnancy in Kajiado West Sub-County, Kenya. Similarly, in a study investigating the variables related to teenage pregnancy trends in Ethiopia, Zemene et al. (2024) identified an inverse relationship between teenage pregnancy rates and households’ wealth index with teenage pregnancy rates reducing with increasing household income level and vice-versa. Gunawardena et al. (2019) observed that girls living in poverty often engaged in sexual relations with older men in exchange for money so as to meet their basic needs or support their families and which put them at increased risk of teenage pregnancy. In South Africa, women and young girls from households of low-income status were found to be at an increased risk of teenage pregnancy compared to their counterparts from relatively high-income households in a study by Amoateng et al. (2022). Poverty was also found to have a significant influence on early pregnancy among teenage girls in studies by Oduor and Kithuka (2020) in Kenya and by Gensa Geta et al. (2023) in Somaliland. In Namibia, young girls from poor households were four times as likely to get pregnant during teenage compared to those from high income households as reported by Indongo (2020).

4.5.3 Who the Teenage Girls Lived With

The teenage girls were asked to indicate the person(s) who they lived with. Results are shown in Figure 4.4.

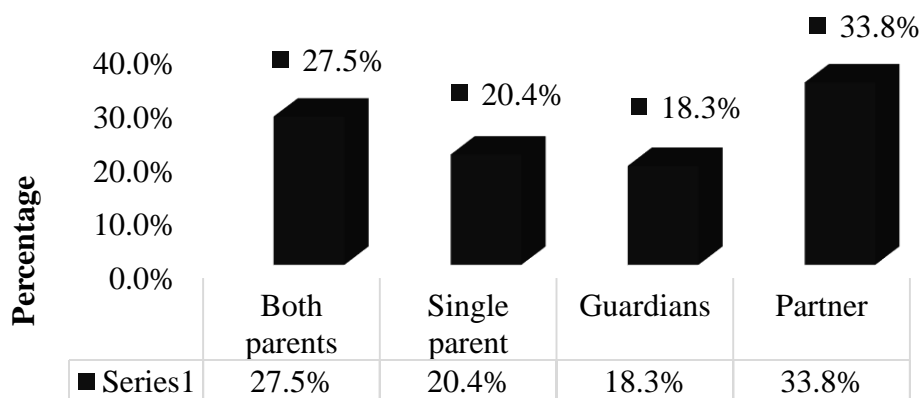


Figure 4.7: Who the teenage girls lived with

From Figure 4.7, 27.5% (n = 39) of the teenage girls indicated that they lived with both parents, 20.4% (n = 29) lived with a single parent, 18.3% (n = 26) lived with their guardians while 33.8% (n = 48) lived with their marital partner. This showed that close to half of the teenage girls lived with a parent while slightly more than half lived with guardians or partners.

To ascertain the proportion of the teenage girls that had experienced teenage pregnancy or not on the basis of the person(s) they lived with, the researcher performed cross tabulation between the person(s) they lived with and teenage pregnancy, results of which are presented in Table 4.17.

Table 4.17: Cross-tabulation results – who they lived with vs teenage pregnancy

Whom do you live with?	Ever been pregnant?		Total
	Yes	No	
Parent (whether both or one)	29 (42.6%)	39(57.4%)	68
Guardian or partner	51 (68.9%)	23(31.1%)	74
Total	80	62	142

From Table 4.17, the findings indicate that, of the teenage girls that lived with a guardian or partner, a considerable number had experienced teenage pregnancy (68.9%, n = 51). However, the number of teenage girls that had experienced teenage pregnancy was lower among teenage girls that lived with their parents at 42.6% (n = 29). The

findings therefore denoted that teenage pregnancies were higher among teenage girls that lived with persons who were not their parents.

Further, to establish whether there was an association between the persons with whom the teenage girls lived with and teenage pregnancy among the teenage girls, bivariate logistic regression analysis was performed at 95% confidence interval. Results are illustrated in Table 4.18.

Table 4.18: Association of living with a non-parent with teenage pregnancy

Overall model fit				
-2 Log likelihood			184.515 ^a	
Chi-square			10.051	
df			1	
Significance level (p)			0.002	
Coz & Snell R ²			0.068	
Nagelkerke R ²			0.092	
Regression coefficients				
Variable	Coefficient	Std. Error	Wald	Sig. (p)
Who they lived with	1.093	.351	9.689	.002
Constant	-.296	.245	1.460	.227
Odds ratio at 95% confidence interval				
Variable	Odds ratio		95% CI	
Who they lived with	1.66		1.05 - 3.21	

a. Variable(s) entered on step 1: who they lived with

From Table 4.18, a logistic regression coefficient of 1.093 denoted that there existed a positive relationship between living with a non-parent and teenage pregnancy among the surveyed teenage girls. A p value of 0.002 showed that the relationship was statistically significant. The study therefore concluded that there was a statistically significant positive relationship between living with other persons other than one's parents and teenage pregnancies. An odds ratio of 1.66 [1.05 - 3.21, 95% CI] indicates that teenage girls who lived with other persons who were not their parents were 1.66 times more likely to experience teenage pregnancy compared to their counterparts who lived with their parents. Hence, according to this finding, living with one's parents led to a decrease in teenage pregnancies cases among the teenage girls while living with a non-parent seemed to lead to increased likelihood of teenage pregnancy among the teenage girls. The implication of the finding is that family support was a significant predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County.

The findings were corroborated by responses offered by the community health promoters who affirmed that the level of family support was integral in perpetuating or diminishing the likelihood of teenage pregnancies in the community. The CHPs noted that teenage pregnancy incidences were evidently lower among teenage girls who were adequately supported by their families while being higher among teenage girls who lacked family support. Teenage pregnancies were especially seen in instances where teenage girls lived with persons who did not care much about them. According to the CHPs, family support plays a crucial role in meeting the physical, psychological and emotional needs of teenagers and hence its lacking is likely to expose the teenagers and particularly young girls to unhealthy behaviour such as risky sexual conduct as they seek the much-needed support, attention and comfort. This is clearly demonstrated in the following few excerpts;

“From my experience with dealing with teenage girls, I have noted that family support is very important in keeping girls away from early pregnancies.” Lucy*
“I would also attribute teenage pregnancies to deficiencies in family support. Teenage girls who lack parental love and support are more vulnerable to external influence which exposes them to greater risk of getting impregnated at an early age.” Alice*

“I do agree that teenage girls who get the support and care they need from their families are less likely to suffer teenage pregnancy compared to ones who do not have a family to care for them.” Dan*

“Presence of sufficient parental love and support does help to protect teenage girls from teenage pregnancies while parental neglect of the physical/material, mental and social needs of their teenage daughters along with lack of rapport and supervision fosters reckless behaviour on the part of the teenagers which can lead to teenage pregnancies.” Dan*

“Relative to the neglected ones, teenage girls who experience love, support and protection from their loved ones are, no doubt, less likely to suffer from teenage pregnancies.” Ann*

It was therefore evident from the findings that lack of family support was a significant predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County. Similar findings were espoused by Mezmur et al. (2021) who in a study on causes of teenage pregnancy in Ethiopia observed that young girls who received inadequate support to meet their basic personal needs from their parents especially in cases of parental divorce were found to be at increased risk of teenage pregnancy. Similarly,

absence of financial, material, psychological, social, or emotional support from the family emerged as a dominant theme of the factors contributing to teenage pregnancies among young girls in Tanzania as reported by Te Lindert et al. (2021). In Namibia, Maemeko et al. (2018) espoused that lack of parental care and control and parents' failure to provide basic material needs for their teenage daughters was identified as being a significant contributor of teenage pregnancies in the country. In Uganda, family neglect also emerged as one of the factors that contributed to teenage pregnancy among surveyed adolescents drawn from the Arua district as espoused by Letaru (2023). On their part, Uwizeye et al. (2020) also acknowledged that parental social and economic support to their teenage girls in the form of parental guidance and supervision as well as financial support to meet their essential needs was instrumental in reducing rates of teenage pregnancy in Rwanda. Likewise, Gunawardena et al. (2019), Tabei et al. (2021) and Maharaj (2022) also identified adolescent girls who experienced parental neglect and those who lacked parental support and guidance as being at an increased risk of teenage pregnancy, sentiments also echoed by Ochen et al. (2019) and Baale et al. (2023).

4.5.4 Working Status of the Teenage Girls

The teenage girls were asked whether they were working. Figure 4.8 shows the findings.

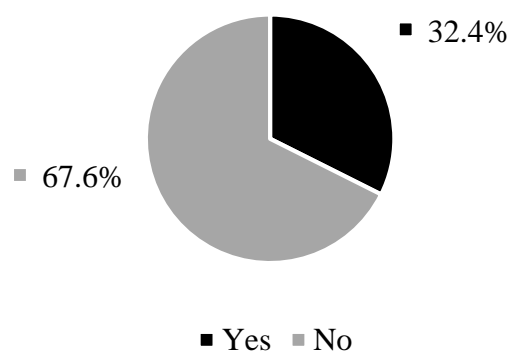


Figure 4.8: Whether the teenage girls were working

According to Figure 4.8, two-thirds (67.6%, $n = 96$) of the teenage girls indicated that they were not working while about a third (32.4%, $n = 46$) indicated that they were working. The results depicted that a considerable proportion of the teenage girls were working at an age at which they should be schooling.

To ascertain the proportion of the teenage girls that had experienced teenage pregnancy or not on the basis of their working status, the researcher performed cross tabulation between the teenage girls' working status and teenage pregnancy, results of which are shown in Table 4.19.

Table 4.19: Cross-tabulation results – whether working vs teenage pregnancy

		Ever been pregnant?		Total
		Yes	No	
Whether working?	Yes	42 (91.3%)	4 (8.7%)	46
	No	38 (39.6%)	58 (60.4%)	96
Total		80	62	142

From Table 4.19, the findings indicate that majority of the teenage girls who were working had experienced teenage pregnancy at 91.3% (n = 42) while among the teenage girls who were not working, the proportion that had experienced teenage pregnancy was much lower at 39.6%.

Further, to establish whether there was an association between working status and teenage pregnancy among the teenage girls, bivariate logistic regression analysis was performed at 95% confidence interval. Table 4.20 contains the results.

Table 4.20: Association of the girls working status with teenage pregnancy

Overall model fit				
-2 Log likelihood	156.067 ^a			
Chi-square	38.499			
df	1			
Significance level (p)	0.000			
Coz & Snell R ²	0.237			
Nagelkerke R ²	0.318			
Regression coefficients				
Variable	Coefficient	Std. Error	Wald	Sig. (p)
The girls' working status	-2.774	.563	24.251	.000
Constant	2.351	.523	20.193	.000
Odds ratio at 95% confidence interval				
Variable	Odds ratio	95% CI		
The girls' working status	16.03	5.31 - 48.35		

a. Variable(s) entered on step 1: the girls' working status

From Table 4.20, a logistic regression coefficient of -2.774 denoted that there existed an inverse relationship between working status and teenage pregnancy among the

surveyed teenage girls. A p value of 0.000 showed that the relationship was statistically significant. The study therefore concluded that there was a statistically significant negative relationship between the girls' working status and teenage pregnancies. An odds ratio of 16.03 [5.31 - 48.35, 95% CI] indicates that teenage girls who were working (instead of being at school) were 16.03 times more likely to experience teenage pregnancy compared to their counterparts who were not working (or who were in school). The findings denoted that starting to work at an early stage for the teenage girls exposed them to teenage pregnancies in a significant way. The implication of the finding is that making teenage girls work, instead of schooling, was a significant predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County. Similar views were espoused by Zemene et al. (2024) who noted that teenage pregnancy cases in Ethiopia were significantly associated with girls starting to work from an early age when instead they would be in school. Similar findings were also reported by Yakubu and Salisu (2018) who posited that young girls being exposed to economic labour at an early age was a significant determinant of teenage pregnancies in sub-Saharan Africa. They further observed that so many young girls get pregnant during their teenage owing to being exposed to adult interactions in the market place and where many adult men take advantage of the young girls' economic vulnerabilities and naivety. Similarly, in studies by Worku et al. (2021) in Ethiopia and Uwizeye et al. (2020) in Rwanda, teenage girls involved in working at a young age were found to be at significantly increased risk of teenage pregnancy compared to their counterparts who remained in school. According to a study by Te Lindert et al. (2021) young girls who were forced to work to feed for themselves and even their younger siblings, such as the case for orphaned children, were at an increased risk of teenage pregnancies owing to their vulnerable economic position.

4.6 Cultural Factors associated with Teenage Pregnancies

The third objective of the study sought to determine cultural factors that influenced teenage pregnancies in Tigania Central Sub-County, Meru County. The cultural factors evaluated included the influences of early marriages, cultural initiation ceremonies, peer pressure, sexual abuse and/or violence and religion. Results are as described in the subsequent subsections.

4.6.1 Perception on Gender Equality

To ascertain the influence of gender roles on teenage pregnancies, the teenage girls were asked whether they felt that both genders were viewed equally in their society. Results are presented in Figure 4.9.

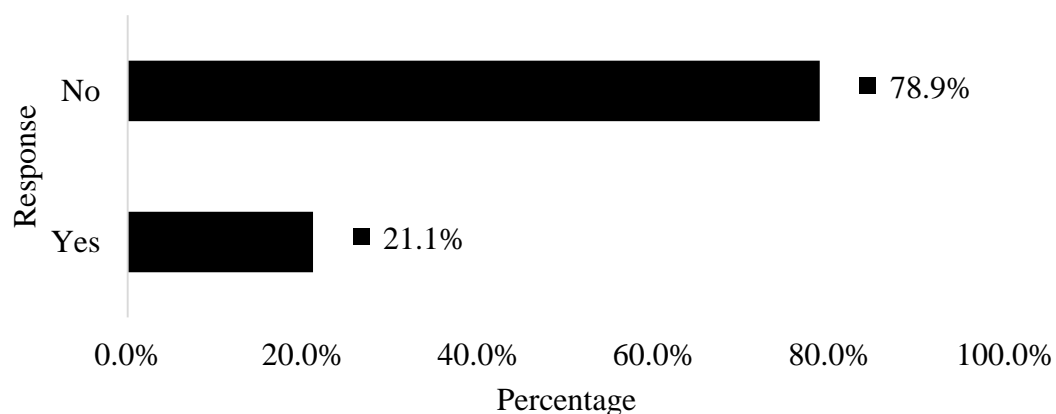


Figure 4.9: Whether the teenage girls felt that both genders were viewed equally in their society

According to the findings in Figure 4.9, majority (78.9%, $n = 112$) of the teenage girls shared the view that males and females were not viewed equally in their culture while 21.1% ($n = 30$) were of contrary opinion. Asked to elaborate, they pointed to the differences in traditional gender roles for girls and boys in their community. The girls observed that, in their community, boys were perceived as being more valuable than girls and that often girls were relegated to undertaking household-based roles while the boys were kept in school to study. The girls also noted that, even when taken to school alongside their brothers, they were still expected to perform family caring activities such as cooking and washing and to serve the male folk in the family. The girls acknowledged that they felt less empowered than their male counterparts and felt that girls held a disadvantaged social position in their community.

The findings were supported by responses offered by the community health promoters who also attributed teenage pregnancy cases in the study area to glaring gender inequality between sons (or boys) and daughters (or girls) in the community where girls/daughters held a disadvantaged social position. As a consequence of gender roles based on cultural traditions and norms, lesser emphasis was placed on education of daughter/girl child compared to education of the boy child (or sons). Often, teenage

girls were relegated to performing household-based roles such as cooking and washing, being home careers and at the service of men and which often left them less empowered. The disempowerment in turn leads to the teenage girls being at a vulnerable position which can easily result into early unintended pregnancies. This is clearly demonstrated in the following few excerpts;

“I feel that the girl child is not given the same prominence as a boy child in our community. This places the girls in a vulnerable position resulting in some getting pregnant at an early age.” Mary*

“I strongly agree that there are inequalities between sons and daughters which are perpetuated by our culture with more emphasis placed on the welfare of sons than daughters. This in turn perpetuates harmful practices like FGM, early marriages and sexual abuse against women and young girls increasing the chances for teenage pregnancy among the teenage girls.” Alex*

“Part of the problem with teenage pregnancies in our community is due to the lack of voice among women and girls. I strongly feel that, as women, we are not adequately empowered to stand for our rights including our SRH rights.” Ann*

“How can the rampant teenage pregnancy rates go down when cultural traditions and norms tend to favor boys over girls in our community? We must accept that existing gender inequalities are a significant contributor to the prevailing scourge of teenage pregnancies.” Alice*

It was therefore evident from the findings that gender roles deeply ingrained in cultural traditions and norms alongside gender inequalities that disempower and disadvantage girls while empowering the boys were a significant predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County. Similar observations were made in India, in which a disadvantaged social position where girls are perceived as being valuable only when they are serving men and hence being relegated to household-based roles also served to exacerbate the teenage pregnancy crisis in India as reported by Shukla et al. (2023). Worku et al. (2021) in a study conducted in the East African region also noted that the odds of teenage pregnancy among adolescent girls who were spouse/head within the family were found to be significantly higher compared to among adolescent girls who were just a daughter. On their part, Mutanana and Mutara (2021) equally observed that a significant proportion of teenage girls in Zimbabwe cited engaging in family caring activities such as cooking, washing, child caring and the pressure to demonstrate their value and fertility as women as a reason as to how they

got pregnant at an early age. In a study exploring the correlates of teenage pregnancy in Kenya, participants unanimously agreed that traditional gender roles did influence the likelihood of teenage pregnancy among adolescent girls in the county as reported by Musyoki and Kisimbii (2019). Olenja et al. (2020) also established that gender roles based on traditional norms did also contribute to teenage pregnancies among young Maasai girls in Kenya, hence calling for more concerted efforts towards empowerment of women and the girl child. Achiaa (2023) and Mezmur et al. (2021) did also identify gender roles, norms and expectations as being a key driver of early and unintended pregnancies among adolescent girls in Ghana and Ethiopia respectively.

4.6.2 Early Marriages

From the findings shown in Table 4.2 (under the teenage girls' demographic profile section), it was evident that, though most (62.7%, n = 89) of the teenage girls were not married, a significant proportion of the teenage girls were married (37.3%, n = 53). Hence, the problem of early marriages among teenage girls was evident in the study area. Further, to ascertain the proportion of the teenage girls that had experienced teenage pregnancy or not on the basis of their marital status, the researcher performed cross tabulation between the teenage girls' marital status and teenage pregnancy, results of which are presented in Table 4.21.

Table 4.21: Cross-tabulation results - teenage marital status vs teenage pregnancy

		Ever been pregnant?		Total
		Yes	No	
Are you married?	Yes	47(88.7%)	6(11.3%)	53
	No	33(37.1%)	56(62.9%)	89
Total		80	62	142

From Table 4.21, of the teenage girls that were married, majority had experienced teenage pregnancy (88.7%, n = 47). However, among teenage girls that were not married, the proportion that had experienced teenage pregnancy was significantly lower at 37.1% (n = 33). Further, to establish whether there was an association between early marriages and teenage pregnancy among the teenage girls, bivariate logistic regression analysis was performed at 95% confidence interval. Results are presented in Table 4.22.

Table 4.22: Association of early marriages with teenage pregnancy

Overall model fit				
-2 Log likelihood			154.804 ^a	
Chi-square			39.762	
df			1	
Significance level (p)			0.000	
Coz & Snell R ²			0.244	
Nagelkerke R ²			0.327	
Regression coefficients				
Variable	Coefficient	Std. Error	Wald	Sig. (p)
Early marriages	2.587	.486	28.351	.000
Constant	2.058	.434	22.544	.000
Odds ratio at 95% confidence interval				
Variable	Odds ratio		95% CI	
Early marriages	13.29		5.13 - 34.45	

a. Variable(s) entered on step 1: early marriages

From Table 4.22, a logistic regression coefficient of 2.587 denoted that there existed a positive relationship between early marriages and teenage pregnancy among the surveyed teenage girls. A p value of 0.000 showed that the relationship was statistically significant. The study therefore concluded that there was a statistically significant positive relationship between the girls' being exposed to early marriages and teenage pregnancies. An odds ratio of 13.29 [5.13 - 34.45, 95% CI] indicates that teenage girls involved in early marriages were 13.29 times more likely to experience teenage pregnancy compared to their counterparts who were not involved or exposed to early marriages. The findings denoted that engagement of young girls in early marriages fostered teenage pregnancies in the study area. The implication of the finding is that early marriages were a significant positive predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County.

The findings were corroborated by responses offered by the community health promoters in interview discussions and who unanimously agreed that early marriages among young girls were a leading determinant of teenage pregnancies in the study area. The CHPs decried the rampant cases of young girls being married off at an early age and which they argued were a major cause of noted teenage pregnancies in the community, as is clearly demonstrated in the following few excerpts;

“In our community, we have many cases of girls being married off while still very young which in turn leads them to become mothers while still teenagers.”

Lucy*

“It’s a shame that in this age, we still have so many girls dropping out of school to get married while still very young. This is no doubt a major driving force of teenage pregnancies in our area.” Mary*

“How can we address the teenage pregnancy menace while there are still parents marrying off their teenage daughters? Early marriages are both a cause and result of the teenage pregnancy menace.” Chloe*

“I do agree that early marriages among our young daughters contribute significantly to the prevailing scourge of teenage pregnancies in our community.” Alex*

“With so many girls getting married off at an early age, teenage pregnancies will remain a challenge. We need to keep our girls in school to keep them away from these early marriages.” Alice*

It was therefore evident that a significant proportion of the teenage pregnancy cases were as a result of early marriages among teenage girls in the sub-county. Early marriages were therefore a significant predictor of teenage pregnancies in Tigania Central Sub-County. Similar observations were made by Yakubu and Salisu (2018) who established early marriages as one of the factors that contributed to teenage pregnancies in a notable way in most of the SSA countries. The findings also agreed with those of Chakole et al. (2022) who also identified early marriages as being a leading cause of untimely and unwanted pregnancies among young teenage girls in India. In a review of the causes behind teenage pregnancy in the SSA region, Maharaj (2022) also identified early marriage as a factor with significant influence on cases of pregnancies among teenage girls in the region. Likewise, studies by Shukla et al. (2023) in India and Dehesh et al. (2022) also pointed to early marriage as being a key predictor of teenage pregnancies. Similar sentiments being shared by Amoateng et al. (2022) who also noted that, in South Africa, young girls subjected to early marriages were deprived of economic empowerment and self-efficacy which increased their risk of early pregnancies. In a study carried out in Uganda Chemutai et al. (2022) did also establish that the odds of teenage pregnancy were significantly higher among adolescents who were married off at an early age compared to their counterparts not exposed to early marriage. Being married, at an early age, also emerged as a leading predictor of untimely and unwanted pregnancies among teenage girls in Ethiopia as reported by Mezmur et al. (2021) and Kumma et al. (2023), with similar observations also made in

Kenya in studies by Oduor and Kithuka (2020) along with Musyoki and Kisimbii (2019).

4.6.3 Being Culturally Initiated

The teenage girls were asked whether they had undergone through cultural initiation events while growing up. Results are presented in Figure 4.10.

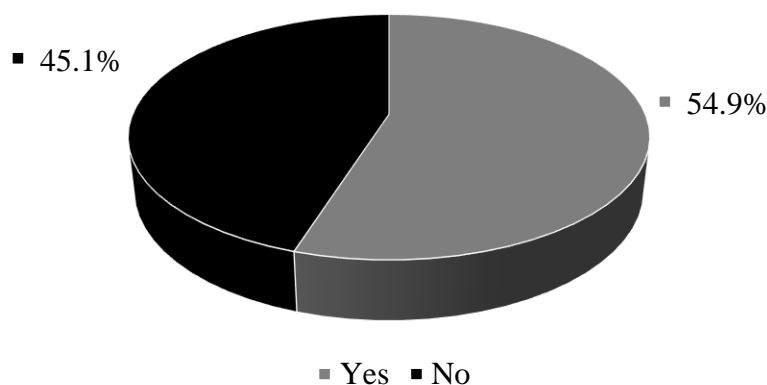


Figure 4.10: Whether the teenage girls had undergone cultural initiation

From Figure 4.10, slightly over half (54.9%, n = 78) of the teenage girls indicated that they had undergone cultural initiation ceremonies while growing up while 45.1% (n = 64) indicated that they had not undergone any cultural initiation events while growing up. For the teenage girls who answered affirmatively, the cultural initiation ceremony they had gone through was a rites of passage cultural event.

To ascertain the proportion of the teenage girls that had experienced teenage pregnancy or not on the basis of having undergone or not through a rites of passage cultural event, the researcher performed cross tabulation between cultural initiation and teenage pregnancy, results of which are depicted in Table 4.23.

Table 4.23: Cross-tabulation results – cultural initiation vs. teenage pregnancy

		Ever been pregnant?		Total
		Yes	No	
Whether they underwent a rites of passage cultural initiation event?	Yes	51(65.4%)	27(34.6%)	78
	No	29 (45.3%)	35 (54.7%)	64
Total		80	62	142

Table 4.23 indicates that, of the teenage girls that had undergone rites of passage cultural initiation events, a significant proportion had experienced teenage pregnancy (65.4%, n = 51). However, among teenage girls who had not undergone the rites of passage cultural initiation events, the proportion that had experienced teenage pregnancy was lower at 45.3% (n = 29). The findings therefore indicated that teenage pregnancies were more common among teenage girls taken through cultural-based rites of passage initiation ceremonies compared to their counterparts who did not participate in these events.

Further, to establish whether there was an association between undergoing cultural initiations and teenage pregnancy among the teenage girls, bivariate logistic regression analysis was performed at 95% confidence interval. Results are presented in Table 4.24.

Table 4.24: Association of participating in cultural initiations with teenage pregnancy

Overall model fit				
-2 Log likelihood			188.785 ^a	
Chi-square			5.781	
df			1	
Significance level (p)			0.016	
Coz & Snell R ²			0.040	
Nagelkerke R ²			0.053	
Regression coefficients				
Variable	Coefficient	Std. Error	Wald	Sig. (p)
Involved in cultural initiation events	.824	.346	5.673	.017
Constant	.636	.238	7.141	.008
Odds ratio at 95% confidence interval				
Variable	Odds ratio		95% CI	
Involved in cultural initiation events	2.28		1.16 - 4.49	

a. Variable(s) entered on step 1: involved in cultural initiation events

From Table 4.24, a logistic regression coefficient of .824 denoted that there existed a positive relationship between undergoing rites of passage cultural initiation ceremonies and teenage pregnancy among the teenage girls. A p value of 0.017 showed that the relationship was statistically significant. The study therefore concluded that making teenage girls undergo rites of passage cultural initiation events positively correlated with teenage pregnancies among them. An odds ratio of 2.28 [1.16 - 4.49, 95% CI] indicates that teenage girls who underwent rites of passage cultural initiation ceremonies were 2.28 times more likely to experience teenage pregnancy compared to

their counterparts who did not partake in such events. The findings implied that rites of passage cultural initiation events were linked to teenage pregnancies among teenage girls in Tigania Central Sub-County. The implication of the finding is that cultural initiation ceremonies for teenage girls were a significant positive predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County.

The findings were corroborated by responses offered by the community health promoters who acknowledged that cultural beliefs and traditions such as cultural initiation rites such as FGM positively influenced teenage pregnancy cases in the sub-county. According to the CHPs, these cultural initiation ceremonies were often used as a pathway for initiating young girls into womanhood and to promote other practices such as early marriages all of which perpetuated teenage pregnancies. This is clearly demonstrated in the following few excerpts;

“Part of the teenage pregnancy problem we have here is attributable to cultural initiation rites such as FGM as they serve to initiate the young girls into womanhood. Consequently, some get married off and others begin engaging in sexual activities resulting into teenage pregnancies.” Ann*

“Teenage girls being culturally initiated through traditional practices such as FGM remain an area of concern because initiated girls are less likely to continue with their studies and instead get married off at a young age which leads to them becoming mothers at an early age.” Lucy*

“The community’s cultural beliefs and traditional norms and practices do play a role in perpetrating teenage pregnancies as some parents’ belief that girls should get married to bring more wealth to the family through dowry.” Dan*

“Indeed, cultural beliefs and practices around girls’ initiation rites such as through FGM open the doors for girls getting married off at a young age which in turn leads to teenage pregnancy cases.” Alice*

It was therefore evident that the communities’ cultural beliefs and traditional norms and practices especially those around girls’ initiation practices such as FGM played a significant role in perpetrating teenage pregnancies in Tigania Central Sub-County. It was apparent that girls who underwent cultural initiation ceremonies such as FGM were much more likely to get pregnant at a young age signifying the effect that cultural beliefs and practices had on teenage pregnancy incidence in the sub-county. Similar views were shared by Elekeh et al. (2021) who in a study conducted in Nigeria identified

retrogressive cultural practices including girls' initiation ceremonies such as female 'cut' as significantly contributing to teenage pregnancy cases in the country. In a study exploring the magnitude of teenage pregnancies and its associated factors in Somaliland, Gensa Geta et al. (2023) observed that exposing teenage girls to female genital mutilation as part of cultural initiation ceremonies significantly increased the odds of the girls getting pregnant at an early age. Similar observations were also made by Habitu et al. (2018) who also identified cultural initiation practices including FGM as playing a significant role in perpetuating teenage pregnancies in Northeast Ethiopia. The findings also concurred with those of Indongo (2020) in whose study traditional cultural practices of girls' initiation to womanhood were found to influence teenage pregnancy rates in Namibia in a significant way, an observation also echoed in a Ugandan study conducted by Kukundakwe (2021). In rural Zimbabwe and Kenya, cultural initiation ceremonies for young girls and particularly FGM were reported to influence teenage pregnancy incidences significantly in studies by Mutanana and Mutara (2021) and Olenja et al. (2020).

4.6.4 Peer Pressure

The teenage girls were asked whether peer pressure influenced their sexual behaviour. Results are illustrated in Figure 4.11.

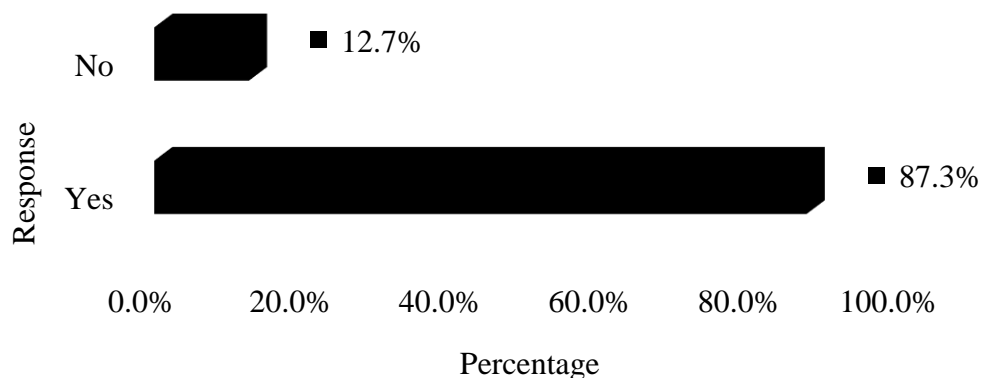


Figure 4.11: Whether peer pressure influenced the teenage girl's sexual behaviour

From Figure 4.11, majority (87.3%, $n = 124$) of the teenage girls agreed that peer pressure influenced their sexual behavior while 12.7% ($n = 18$) indicated that their sexual behaviour was not influenced by peer pressure. The findings denoted that a

considerable proportion of the teenage girls did acknowledge that their sexual behaviour was influenced by peer pressure.

To ascertain the proportion of the teenage girls that had experienced teenage pregnancy or not on the basis of the influence of peer pressure on their sexual behaviour, the researcher performed cross tabulation between peer pressure influence and teenage pregnancy, results of which are presented in Table 4.25.

Table 4.25: Cross-tabulation results – peer pressure vs. teenage pregnancy

		Ever been pregnant?		Total
		Yes	No	
Peer pressure influence?	Yes	75(60.5%)	49(39.5%)	124
	No	5(27.8%)	13(72.2%)	18
Total		80	62	142

From Table 4.25, the findings indicate that, of the teenage girls whose sexual behaviour was influenced by peer pressure, most had experienced teenage pregnancy (60.5%, n = 75). However, among the teenage girls whose sexual behaviour was not influenced by peer pressure, the proportion that had experienced teenage pregnancy was lower at 27.8% (n = 5). The findings therefore denoted that peer pressure was an important factor in relation to teenage pregnancies among teenage girls. Further, to establish whether there was an association between peer pressure influence and teenage pregnancy among the teenage girls, bivariate logistic regression analysis was performed at 95% confidence interval. Results are outlined in Table 4.26.

Table 4.26: Association of influence of peer pressure with teenage pregnancy

Overall model fit				
-2 Log likelihood	187.679 ^a			
Chi-square	6.887			
df	1			
Significance level (p)	0.009			
Coz & Snell R ²	0.047			
Nagelkerke R ²	0.063			
Regression coefficients				
Variable	Coefficient	Std. Error	Wald	Sig. (p)
Peer pressure influence	1.381	.557	6.141	.013
Constant	.426	.184	5.370	.020
Odds ratio at 95% confidence interval				
Variable	Odds ratio	95% CI		
Peer pressure influence	3.98	1.33 - 11.87		

a. Variable(s) entered on step 1: peer pressure influence

From Table 4.26, a logistic regression coefficient of 1.381 denoted that there existed a positive relationship between influence of peer pressure and teenage pregnancy among the surveyed teenage girls. A p value of 0.013 showed that the relationship was statistically significant. The study therefore concluded that there was a statistically significant positive relationship between the influence of peer pressure and teenage pregnancies. An odds ratio of 3.98 [1.33 - 11.87, 95% CI] indicates that teenage girls whose sexual behaviour was influenced by peer pressure were 3.98 times more likely to experience teenage pregnancy compared to those whose sexual behaviour was not influenced by peer pressure. Hence according to this finding, increased levels of peer pressure among the teenage girls, particularly negative peer pressure, would lead to an increase in teenage pregnancies cases and vice-versa. The implication of the finding is that peer pressure influence was a significant positive predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County.

The findings were supported by responses offered by the community health promoters during the interview discussions and who singled out negative peer influence among teenage girls as another reason behind the prevailing teenage pregnancies in the area. According to the CHPs, the odds of teenage girls getting pregnant at an early age increased when they associated themselves with the wrong company such as acquaintances involved in sexual misconduct and vice-versa. This is clearly demonstrated in the following few excerpts;

“When young girls keep the wrong company, it does influence their behaviour including sexual behaviour and definitely if they engage in reckless sexual behaviour then teenage pregnancy is the outcome.” Alex*

“In our community we have a saying that he/she who walks with an ill-mannered/behaved person, misbehaves like them. This applies to teenage girls’ sexual behaviour and therefore keeping the wrong company often leads them to engage in devious sexual behaviour and then they end up getting impregnated at an early age.” Ann*

“From my experience interacting with teenagers, no doubt peer pressure has a significant effect on their behaviour including sexual conduct.” Mary*

“I do agree that peer pressure has an influence on teenage pregnancy rates. Teenage girls who keep the wrong company, such as of other girls who engage in sex, are more likely to suffer teenage pregnancies than girls who are upright and who keep company with other upright girls.” Lucy*

Hence, it was evident that peer pressure had a significant influence on teenage pregnancies in the study area mainly through influencing the teenage girls' sexual behaviour. According to the findings, negative peer pressure was likely to spur teenage pregnancy cases through girls' involvement in sexual misconduct while positive peer pressure was likely to reduce teenage pregnancy cases through promoting responsible sexual conduct such as abstinence. The findings were in agreement with those of Mutanana and Mutara (2021) who established that peer influence was a major factor behind teenage pregnancy with a significant proportion of the surveyed girls citing peer pressure as the reason they got pregnant. Te Lindert et al. (2021) in a study done in Tanzania also noted that some peer groups promoted engaging in sexual activities from an early age in turn increasing their risks of teenage pregnancy. In their study, Ochen et al. (2019) did also identify negative peer pressure as one of the attributes that increased the likelihood of teenage pregnancy among young girls in Uganda. This was the case in studies by Letaru (2023) and Kukundakwe (2021) whose findings revealed that peer pressure played an influential role in teenage pregnancy cases in the country especially through encouraging young girls to begin engaging in sexual activities from an early age. In Nigeria's Abia State, more than half of the surveyed adolescent girls reported that peer pressure influenced their sexual behaviour and was the main reason why they had fallen pregnant at a young age as reported by Elekeh et al. (2021). Similarly, in Ghana, peer pressure was found to increase the probability of teenage pregnancy among teenage girls in the area according to Achiaa (2023).

4.6.5 Sexual Abuse and Violence

The teenage girls were asked whether they had ever suffered any form of sexual abuse or violence. The results are outlined in Figure 4.12.

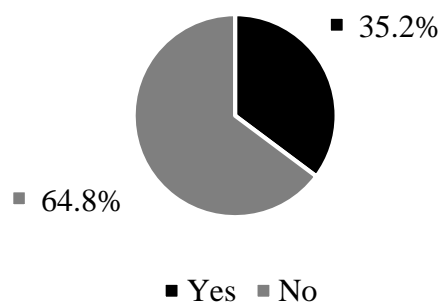


Figure 4.12: Whether the teenage girls had suffered any form of sexual abuse or violence

According to Figure 4.12, most (64.8%, n = 92) of the teenage girls indicated that they had not suffered any form of sexual abuse or violence. However, 35.2% (n = 50) of the teenage girls acknowledged that they had suffered a form of sexual abuse or violence. It was therefore evident that a considerable number of the surveyed teenage girls had suffered sexual abuse or violence.

To ascertain the proportion of the teenage girls that had experienced teenage pregnancy or not on the basis of having suffered sexual abuse or violence, the researcher performed cross tabulation between the teenage girls' experience of sexual abuse or violence and teenage pregnancy. Results are shown in Table 4.27.

Table 4.27: Cross-tabulation results – sexual abuse or violence experience vs. teenage pregnancy

		Ever been pregnant?		Total
		Yes	No	
Sexual abuse or violence experience	Yes	38 (76%)	12 (24%)	50
	No	42 (45.7)	50 (54.3%)	92
Total		80	62	142

Findings in Table 4.27 indicate that, of the teenage girls that had suffered any form of sexual abuse or violence, a significant proportion had experienced teenage pregnancy (76%, n = 38). However, among the teenage girls that had not suffered any form of sexual abuse or violence, the proportion that had experienced teenage pregnancy was lower at 45.7% (n = 42). The findings indicate that exposure to sexual abuse or violence could possibly be linked with teenage pregnancies among the teenage girls.

Further, to establish whether there was an association between having suffered sexual abuse or violence and teenage pregnancy among the teenage girls, bivariate logistic regression analysis was performed at 95% CI. Results are presented in Table 4.28.

Table 4.28: Association of sexual abuse or violence with teenage pregnancy

Overall model fit				
-2 Log likelihood			181.951 ^a	
Chi-square			12.615	
df			1	
Significance level (p)			0.000	
Coz & Snell R ²			0.085	
Nagelkerke R ²			0.114	
Regression coefficients				
Variable	Coefficient	Std. Error	Wald	Sig. (p)
Suffered sexual abuse/violence	1.327	.392	11.476	.001
Constant	1.153	.331	12.117	.000
Odds ratio at 95% confidence interval				
Variable	Odds ratio		95% CI	
Suffered sexual abuse/violence	3.77		1.75 - 8.12	

a. Variable(s) entered on step 1: suffered sexual abuse/violence

From Table 4.28, a logistic regression coefficient of 1.327 denoted that there existed a positive relationship between suffering sexual abuse or violence and teenage pregnancy among the teenage girls. A p value of 0.001 showed that the relationship was statistically significant. The study therefore concluded that there was a statistically significant positive relationship between the girls' exposure to sexual abuse or violence and teenage pregnancies. An odds ratio of 3.77 [1.75 - 8.12, 95% CI] indicates that teenage girls who suffered any form of sexual abuse or violence were 3.77 times more likely to experience teenage pregnancy compared to their counterparts who had never experienced any form of sexual abuse or violence. The findings imply teenage pregnancies among teenage girls in Tigania Central Sub-County could partly be attributable to their exposure to sexual abuse and/or violence. The implication of the finding is that exposure to sexual abuse and/or violence was a significant positive predictor of teenage pregnancies among teenage girls in Tigania Central Sub-County.

The findings were supported by responses offered by the community health promoters in interview discussions who pointed that some of the teenage pregnancy incidences were linked to sexual abuse and violence against teenage girls. This is clearly demonstrated in the following few excerpts;

“Just how cruel sexual abuse and violence of teenage girls can be is all too evident here as so many cases of teenage pregnancies are the result of the girls being sexually abused.” Ann*

“Indeed, sexual abuse and violence against young girls by close family members, friends or even strangers do contribute to teenage pregnancy cases in our community.” Lucy*

“I have dealt with numerous cases where the girls’ pregnancy was as a result of being sexually abused, in most cases, by persons known to them including family members. So, it’s true that sexual abuse of teenage girls contributes to them getting pregnant at an early age.” Alice*

“No doubt, sexual abuse and violence against young teenage girls constitutes part of the forces that drive teenage pregnancy incidences in our community.” Chloe*

“I would agree that a large number of teenage girls get impregnated as a result of sexual abuse and violence circumstances.” Alex*

It was therefore evident that exposure of young girls to sexual abuse and violence could be partly to blame for teenage pregnancy cases in Tigania Central Sub-County. It is therefore crucial that teenage girls are protected from any form of sexual abuse, violence or exploitation if teenage pregnancy cases in the sub-county were to be reduced. This agreed with Gunawardena et al. (2019) whose review identified sexual abuse and coercion from male partners and close family members as one of the leading factors behind the rampant teenage pregnancies in the SSA region. In an empirical evaluation of the causes of unwanted teenage pregnancies in India, Chakole et al. (2022) also identified sexual violence and abuse of both married and unmarried adolescent females as well as rape as being leading causes of untimely and unwanted pregnancies among young teenage girls in the country. Similarly, Olenja et al. (2020) also established sexual harassment and coercion from men as one of the major factors that led to teenage pregnancies among young Maasai girls in one of the sub-counties of Kajiado County in Kenya. This showed need for action from all relevant stakeholders to protect young girls from coerced and abusive sexual activities. According to Maharaj (2022), gender-based violence manifesting in the form of sexual violence, abuse and coercion emerged as one of the leading factors behind the teenage pregnancy scourge in sub-Saharan Africa, an observation also shared by Te Lindert et al. (2021) in a Tanzanian study as well as Ochen et al. (2019) in a Ugandan study. It is therefore clear that sexual harassment, violence, abuse and/or coercion of young girls remains a leading factor perpetuating unwanted teenage pregnancies in numerous African settings.

4.6.6 Influence of Religion on Character and Behavior

The teenage girls were asked whether religion played a significant role in their character and behavior. Figure 4.13 contains the findings.

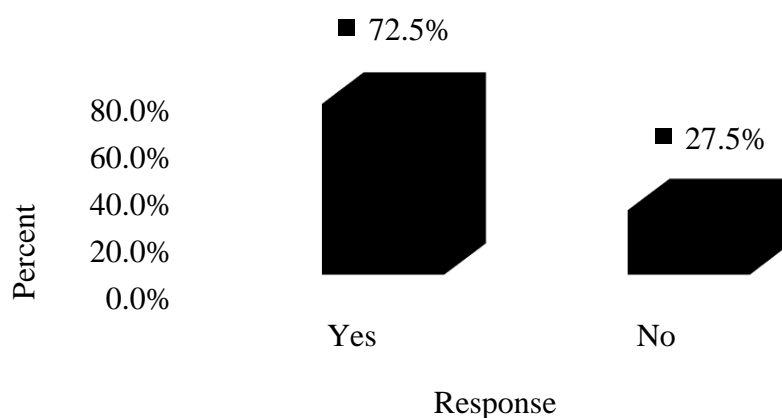


Figure 4.13: Whether religion played a significant role in the teenage girls' character and behavior

As depicted in Figure 4.13, there was acknowledgment that religion played a significant role in their character and behavior among most of the teenage girls (72.5%, $n = 103$). However, 27.5% ($n = 39$) of the teenage girls shared the view that religion did not play a significant role in their character and behavior. Among the ways in which religion influenced the character and behaviour of the teenage girls was in instilling a strong moral sense in them, advocating against sexual immorality and for greater sex abstinence and creating awareness on the dangers of irresponsible sexual behaviour including the ills of teen pregnancies. Hence, the findings showed that religion was instrumental in shaping the character and behavior of most of the teenage girls. To ascertain the proportion of the teenage girls that had experienced teenage pregnancy or not on the basis of the belief in the influence of religion on their character and behavior, the researcher performed cross tabulation between the influence of religion on character and behaviour and teenage pregnancy, results of which are summarized in Table 4.29.

Table 4.29: Cross-tabulation results – influence of religion vs. teenage pregnancy

		Ever been pregnant?		Total
		Yes	No	
Whether religion played a major role in their character and behaviour	Yes	51 (49.5%)	52 (50.5%)	103
	No	29 (74.4%)	10 (25.6%)	39
Total		80	62	142

Findings in Table 4.29 indicate that, of the teenage girls that held the belief that religion played a significant role in their character and behavior, half had experienced teenage pregnancy (49.5%, n = 51). However, the proportion that had experienced teenage pregnancy among teenage girls who indicated that religion did not play a significant role in their character and behavior was higher at 74.4% (n = 29). The findings indicate that religion could possibly be used to advocate against teenage pregnancies among the teenage girls.

Further, to establish whether there was an association between influence of religion on character and behaviour and teenage pregnancy among the teenage girls, bivariate logistic regression analysis was performed at 95% confidence interval. Results are presented in Table 4.30.

Table 4.30: Association of influence of religion on character and behaviour with teenage pregnancy

Overall model fit				
-2 Log likelihood			187.182 ^a	
Chi-square			7.384	
df			1	
Significance level (p)			0.007	
Coz & Snell R ²			0.051	
Nagelkerke R ²			0.068	
Regression coefficients				
Variable	Coefficient	Std. Error	Wald	Sig. (p)
Religion's influence on character and behaviour	-1.084	.416	6.781	.009
Constant	1.172	.354	5.029	.004
Odds ratio at 95% confidence interval				
Variable	Odds ratio		95% CI	
Religion's influence on character and behaviour	0.34		0.15 - 0.76	

a. Variable(s) entered on step 1: religion's influence on character and behaviour

From Table 4.28, a logistic regression coefficient of -1.084 denoted that there existed an inverse relationship between influence of religion on character and behaviour and teenage pregnancy among the teenage girls. A p value of 0.009 showed that the relationship was statistically significant. The study therefore concluded that there was a statistically significant inverse relationship between influence of religion on character and behaviour and teenage pregnancies. An odds ratio of 0.34 [0.15 - 0.76, 95% CI]

indicates that teenage girls whose character and behaviour was shaped by their religious beliefs were less likely to experience teenage pregnancy compared to their counterparts whose character and behaviour was not significantly influenced by religious beliefs. The findings imply that religion's role in positively influencing or shaping the character and behaviour of teenage girls could help reduce teenage pregnancy cases in the society. The implication of the finding is that religion can play a significant role in reducing teenage pregnancy incidences among teenage girls in Tigania Central Sub-County through shaping their character and behaviour in the right way. Similarly, participants in the study by Musyoki and Kisimbii (2019) also unanimously agreed that one's religious faith had a significant influence on their sexual behavior and character in turn influencing whether they became pregnant at an early age or not. Bitew et al. (2023) in a study conducted in Ethiopia also established that religion was a crucial factor in influencing higher odds of teenage pregnancy among Muslim and Christian protestant girls compared to those who were Orthodox Catholic. In studies by Elekeh et al. (2021) and Uwizeye et al. (2020), in Nigeria and Rwanda respectively, results demonstrated that there were lower odds of teenage pregnancy among female adolescents who held strong religious beliefs during their teen years when compared to their peers who were not religiously affiliated. Maharaj et al. (2022) also observes that having strong religious beliefs especially those that forbid use of contraception and sexual immorality has been shown to be associated with greater abstinence and lower teen pregnancy rates. According to Worku et al. (2021), possessing a religious faith and a strong moral sense were found to play an instrumental role in protecting teenage girls from too-early sexual activity and teen pregnancy. In studies by Te Lindert et al. (2021) and Zemene et al. (2024) young girls who professed Islam were found to be more likely to get married and become pregnant earlier hence signifying that religion was an important factor in efforts at eradicating the teenage pregnancy menace.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.2 Summary of the Findings

This section outlines the summary of the study's key findings as per the study objectives. Results of the study indicated that most (67.6%) of the teenage girls had their first menstruation before they were 12 years old while the remaining (32.4%, n = 46) had their first menstruation when they were 12 years or older. The results also indicated that majority of the teenage girls had their first sexual intercourse when they were 13 years or older (80.3%, n = 114) while 19.7% (n = 28) had their first sexual intercourse when they were aged below 13 years. Further, results showed that majority of the teenage girls indicated that they knew what contraceptives were (84.5%, n = 120) and that most of the teenage girls did use contraceptives (73.2%, n = 104). In addition, a statistically significant association was established between teenage pregnancies and sociodemographic variables including age at first menstrual period ($\beta = -1.615$, $p = 0.000$, OR = 5.03); age at first sexual intercourse ($\beta = -1.264$, $p = 0.011$, OR = 3.54); awareness of contraceptives ($\beta = -1.202$, $p = 0.015$, OR = 3.33) and use of contraceptives ($\beta = -0.938$, $p = 0.016$, OR = 2.56) which implied that beginning to have menstruations at an early age, initiation to sexual intercourse at an early age, low awareness of contraceptives and low use of contraceptives were significant predictors of teenage pregnancies in Tigania Central Sub-County. This was also affirmed by the community health promoters who also acknowledged that teenage girls who experienced early menarche, who were initiated to sex at an early age and who had poor awareness and low use of contraceptives were at increased risk of suffering teenage pregnancies.

Results of the study indicated that most of the teenage girls had a basic education background as 36.6% (n = 52) were in secondary schools while 21.1%, (n = 30) were in Primary schools. In addition, a considerable number of the teenage girls were not in school (31.7%, n = 45). The results also indicated that a significant proportion of the teenage girls' parents or guardians were not working (64.1%, n = 91) while 35.9% (n = 51) indicated that their parents or guardians worked. Further, results showed that slightly over half of the teenage girls lived with guardians (18.3%, n = 39) or partners (33.8%, n = 48) while the remaining either lived with both parents (27.5%, n = 39) or with a single parent (20.4%, n = 29). Further, from the findings, two-thirds (67.6%, n =

96) of the teenage girls indicated that they were not working while about a third (32.4%, n = 46) indicated that they were working. In addition, a statistically significant association was established between teenage pregnancies and socioeconomic variables including the girls' education level ($\beta = -1.024$, $p = 0.003$, OR = 2.78); occupation status of the teenage girls' parents/guardians ($\beta = 1.366$, $p = 0.000$, OR = 3.92); who they lived with ($\beta = 1.093$, $p = 0.002$, OR = 1.66) and their own working status ($\beta = -2.774$, $p = 0.000$, OR = 16.03) which implied that teenage girls' poor education background, lack of an income source for the teenage girls' parents or guardians, living with a person who was not the girls' parent(s) and the girls' being at work (instead of being in school) were significant predictors of teenage pregnancies in Tigania Central Sub-County. This was also affirmed by the community health promoters who also acknowledged that teenage girls who were poorly educated such as those who drop out of school or who refuse schooling, those who come from poor households, those living with partners or non-parents and those exposed to work labour at an early age were at an increased risk of experiencing teenage pregnancies.

From the findings, majority (78.9%, n = 112) of the teenage girls shared the view that males and females were not viewed equally in their culture while 21.1% (n = 30) were of contrary opinion. Further, though most (62.7%, n = 89) of the teenage girls were not married, a significant proportion of the teenage girls were married (37.3%, n = 53) which signified existence of the problem of early marriages in the study area. According to the findings, slightly over half (54.9%, n = 78) of the teenage girls indicated that they had undergone cultural initiation ceremonies while growing up while 45.1% (n = 64) indicated that they had not undergone any cultural initiation events while growing up. Further, majority of the teenage girls did acknowledge that peer pressure influenced their sexual behavior (87.3%, n = 124). Additionally, a significant proportion of the teenage girls acknowledged that they had suffered a form of sexual abuse or violence (35.2%, n = 50) while the remaining (64.8%, n = 92) had not. Most of the teenage girls did also acknowledge that religion played a significant role in their character and behavior among (72.5%, n = 103). In addition, a statistically significant association was established between teenage pregnancies and cultural variables including early marriages ($\beta = 2.587$, $p = 0.000$, OR = 13.29); involvement in cultural initiation ceremonies ($\beta = 0.824$, $p = 0.017$, OR = 2.28); peer pressure influence ($\beta = 1.381$, $p =$

0.013, OR = 3.98); sexual abuse or violence ($\beta = 1.327$, $p = 0.001$, OR = 3.77) and religion's influence on character and behaviour ($\beta = -1.084$, $p = 0.009$, OR = 0.34) which implied that early marriages, being taken through cultural initiation ceremonies such as FGM, peer pressure and exposure to sexual abuse or violence were significant predictors of teenage pregnancies in Tigania Central Sub-County while religion's influence on the teenage girls' character and behaviour helped reduce their susceptibility to teenage pregnancies. This was also affirmed by the community health promoters who also acknowledged that cultural beliefs, norms and practices such as FGM, early marriages among teenage girls, adverse peer influence along with sexual abuse, violence and exploitation of young teenage girls did contribute to teenage pregnancies in the sub-county.

5.3 Conclusions

Based on the findings of the study, the following conclusions were drawn on each of the study objectives;

- i. Early menarche, initiation to sex at an early age and poor awareness and low use of contraceptives were the sociodemographic factors found to be associated with teenage pregnancies in Tigania Central Sub-County.
- ii. Teenage girls' poor education background, their parents' lack of an income source, living with non-parents and those exposed to work labour at an early age were the socioeconomic factors found to be associated with teenage pregnancies in Tigania Central Sub-County.
- iii. Early marriages, adverse peer influence, exposure to sexual abuse or violence and involvement in cultural initiation ceremonies were the cultural factors found to be associated with teenage pregnancies in Tigania Central Sub-County.

5.4 Recommendations of the Study

The study makes the following recommendations;

5.4.1 Recommendations on Practice

- i. Teenage girls should be educated on the dangers and repercussions of teenage pregnancy. They should also be counselled against engaging in irresponsible sexual conduct.

- ii. Community health promoters and other healthcare professionals should be allowed to provide appropriate SRH education to the teenage girls.
- iii. All community members including teachers, religious leaders, healthcare professionals, government officials, parents, the teenage girls and the general public should get involved in the fight against teenage pregnancies.

5.4.2 Recommendations on Policy

- i. To the government authorities, firm legal action need be taken against perpetrators of teenage pregnancies.
- ii. Teenage girls who suffer teenage pregnancies need be supported and encouraged to resume their studies without being discriminated, stigmatized or any prejudice.

5.5 Recommendations for Further Research

The suggestions on areas for further review are as follows;

1. An investigation on the effects and outcomes of teenage pregnancies in Tigania Central Sub-County would equally be informative.
2. An investigation on the effectiveness of interventions undertaken to address the teenage pregnancy challenge in Tigania Central Sub-County would also be desirable.

REFERENCES

- Achiaa, M. (2023). Factors Influencing Teenage Pregnancy in the Birim North District in the Eastern Region of Ghana. *International Journal of Multidisciplinary Studies and Innovative Research*, 11(1), 29-38. <https://doi.org/10.53075/Ijmsirq/64263453>
- Ahinkorah, B. O., Aboagye, R. G., Okyere, J., Seidu, A. A., Budu, E., & Yaya, S. (2023). Correlates of repeat pregnancies among adolescent girls and young women in sub-Saharan Africa. *BMC Pregnancy and Childbirth*, 23(1), 93-101. <https://doi.org/10.1186/s12884-023-05361-7>
- Ali, A., Khaliq, A., Lokeesan, L., Meherali, S., & Lassi, Z. S. (2022). Prevalence and predictors of teenage pregnancy in Pakistan: a trend analysis from Pakistan Demographic and Health Survey datasets from 1990 to 2018. *International health*, 14(2), 176-182. <https://doi: 10.1093/inthealth/ihab025>
- Amoateng, A. Y., Ewemooje, O. S., & Biney, E. (2022). Prevalence and determinants of adolescent pregnancy among women of reproductive age in South Africa. *African Journal of Reproductive Health*, 26(1), 82-91. <https://doi.org/10.29063/ajrh2022/v26i1.9>
- Asare, B. Y. A., Baafi, D., Dwumfour-Asare, B., & Adam, A. R. (2019). Factors associated with adolescent pregnancy in the Sunyani Municipality of Ghana. *International Journal of Africa Nursing Sciences*, 10(1), 87-91. <https://doi.org/10.1016/j.ijans.2019.02.001>
- Aura, A., Sormunen, M., & Tossavainen, K. (2016). The relation of socio-ecological factors to adolescents' health-related behaviour: A literature review. *Health Education*, 116(2), 177-201. <https://doi.org/10.1108/HE-03-2014-0029>
- Baale, J. T. (2023). Factors influencing teenage pregnancy among adolescents attending adolescents' clinic at Kalisizo General Hospital, Kyotera District in Uganda. A descriptive cross-sectional study. *Student's Journal of Health Research Africa*, 4(9), 20-20. <https://doi.org/10.51168/sjhrafrica.v4i9.423>
- Bedzo, J., & Manortey, S. (2019). Factors Influencing Teenage Pregnancy in the Lower Manya Krobo Municipality in the Eastern Region of Ghana: A Cross-Sectional Study. *Open Access Library Journal*, 6(12), 1-17. <https://doi.org/10.4236/oalib.1105966>
- Belay, H. G., Kassa, B. G., & Ayele, A. D. (2021). Teenage pregnancy and its associated factors among teenage females in Farta Woreda, Northwest, Ethiopia, 2020: a community-based cross-sectional study. *Population Medicine*, 3(July), 1-8. <https://doi.org/10.18332/popmed/139190>
- Bitew, D. A., Akalu, Y., Belsti, Y., Diress, M., Gela, Y. Y., Belay, D. G., ... & Getnet, M. (2023). Predictors of underage pregnancy among women aged 15–19 in highly prevalent regions of Ethiopia: a multilevel analysis based on EDHS, 2016. *Scientific Reports*, 13(1), 857. <https://doi.org/10.1038/s41598-023-27805-y>

- Bousquet, F., Anderies, J. M., Antona, M., Bassett, T. J., Benjaminsen, T. A., Bonato, O., ... & Vassal, J. M. (2015). *Socio-ecological theories and empirical research. Comparing social-ecological schools of thoughts in action*. New York: Routledge. <https://hal.archives-ouvertes.fr/hal-01130178>
- Bronfenbrenner U. (1989). Ecological systems theory. In: Vasta R, ed. *Annals of Child Development* (pp. 187–249). London, UK: Jessica Kingsley Publishers;
- Cezimbra, G. S. S., Campos Junior, D., Araujo Júnior, E., Guazzelli, C. A. F., & Atallah, Á. N. (2020). Increased vulnerability to pregnancy and sexual violence in adolescents with precocious menstruation. *International journal of reproductive medicine*, 2020(5237814), 1-5. <https://doi.org/10.1155/2020/5237814>
- Chakole, S., Akre, S., Sharma, K., Wasnik, P., Wanjari, M. B., & Wasnik Sr, P. (2022). Unwanted teenage pregnancy and its complications: a narrative review. *Cureus*, 14(12), e32662. <https://doi.org/10.7759/cureus.32662>
- Chemutai, V., Musaba, M. W., Amongin, D., & Wandabwa, J. N. (2022). Prevalence and factors associated with teenage pregnancy among parturients in Mbale Regional Referral Hospital: a cross-sectional study. *African Health Sciences*, 22(2), 451-458. <https://doi.org/10.4314/ahs.v22i2.52>
- Dehesh, T., Malekmohammadi, N., & Dehesh, P. (2022). Associated factors of first-birth interval among women in reproductive age, addressing maternal and child health. *Reproductive health*, 19(1), 28-34. <https://doi.org/10.1186/s12978-022-01346-5>
- Dewau, R., Mekonnen, F. A., & Seretew, W. S. (2021). Time to first birth and its predictors among reproductive-age women in Ethiopia: inverse Weibull gamma shared frailty model. *BMC Women's Health*, 21(1), 1-15. <https://doi.org/10.1186/s12905-021-01254-z>
- Elekeh, R. I., Enwereji, E. E., & Odina, C. (2021). Factors and conditions that influence teenage pregnancy among in-school adolescents in Umuahia North Local Government Area (LGA) of Abia State, Nigeria. *International Journal of Health Statistics*, 1(1), 15-20. <https://doi.org/10.14302/issn.2997-1969.ijhs-21-3814>
- Gensa Geta, G. T., Ahmed Abdiwali, S., & Farah, M. M. (2023). Magnitude and Factors Associated with Teenage Pregnancy in Somaliland: Evidence from Somaliland Health and Demographic Survey, 2020. *International Journal of Women's Health*, 1443-1452. <https://doi.org/10.2147/IJWH.S410489>
- Gilmore, K., & Meersand, P. (2019). Normal child and adolescent development. In L. W. Roberts, *The American Psychiatric Association Publishing Textbook of Psychiatry* (7th ed., pp. 59-90). American Psychiatric Association Publishing.
- Gunawardena, N., Fantaye, A. W., & Yaya, S. (2019). Predictors of pregnancy among young people in sub-Saharan Africa: a systematic review and narrative synthesis. *BMJ global health*, 4(3), e001499. <https://doi.org/10.1136/bmjgh-2019-001499>

- Habitu, A. Y., Yalew, A., & Bisetegn, A. T. (2018). Prevalence and factors associated with teenage pregnancy, Northeast Ethiopia, 2017: a cross-sectional study. *Journal of pregnancy*, 2018. <https://doi.org/10.1155/2018/1714527>.
- Hegde, A., Chandran, S., & Pattnaik, J. I. (2022). Understanding adolescent sexuality: A developmental perspective. *Journal of psychosexual health*, 4(4), 237-242. <https://doi.org/10.1177/26318318221107598>
- Hinojosa-Gonzalez, D. E., Ramonfaur, D., Morales-Palomino, K. L., Tellez-Giron, V. C., Latapi, X., Insua, J., ... & Flores-Villalba, E. (2023). Relationship of age at menarche, coitarche and first gestation: A retrospective cohort analysis. *European Journal of Obstetrics & Gynecology and Reproductive Biology: X*, 18(1), 100189. <https://doi.org/10.1016/j.eurox.2023.100189>
- Ibitoye, M., Sandfort, T. G., Bingenheimer, J. B., & Sommer, M. (2024). The sexual and reproductive health covariates of early menarche among adolescent girls. *Journal of Adolescence*, 4(1), 1-14. <https://doi.org/10.1002/jad.12298>
- Indongo, N. (2020). Analysis of factors influencing teenage pregnancy in Namibia. *Medical Research Archives*, 8(6), 71-79. <https://doi.org/10.18103/mra.v8i6.2102>
- Irwin, C. E., & Shafer, M. A. (2021). Adolescent sexuality: Negative outcomes of a normative behavior. In Rogers, D. E. *Adolescents at Risk: Medical and Social Perspectives* (pp. 35-79). Routledge.
- Kassa, G. M., Arowojolu, A. O., Odukogbe, A. A., & Yalew, A. W. (2018). Prevalence and determinants of adolescent pregnancy in Africa: a systematic review and meta-analysis. *Reproductive health*, 15(1), 1-17. <https://doi.org/10.1186/s12978-018-0640-2>
- Kenya National Bureau of Statistics (2023). *The Kenya Demographic and Health Survey (KDHS) 2022 Report*. Government Press. <https://www.knbs.or.ke/reports/kdhs-2022/>
- Kilanowski, J. F. (2017). Breadth of the socio-ecological model. *Journal of Agromedicine*, 22(4), 295-297. <https://doi.org/10.1080/1059924X.2017.1358971>
- Kukundakwe, P. M. (2021). Peer Influence and Teenage Pregnancy among Adolescents in Secondary Schools. A Case Study of Mbarara Municipality, Uganda. *Student's Journal of Health Research Africa*, 2(12), 42-42. <https://doi.org/10.51168/sjhrafrica.v2i12.68>
- Kumma, W. P., Chaka, F. G., Daga, W. B., Alemayehu, M. A., Meskele, M., & Wolka, E. (2023). Prevalence of teenage pregnancy and associated factors among preparatory and high school students in Wolaita Sodo town, southern Ethiopia: an institution-based cross-sectional study. *BMJ open*, 13(6), e070505. <https://doi.org/10.1136/bmjopen-2022-070505>

- Letaru, P. B. (2023). Factors Contributing to the Prevalence of Adolescent Pregnancy in Pajulu Sub County, Arua District. *Current Research in Interdisciplinary Studies*, 2(1), 21-42. <https://doi.org/10.58614/cris212>
- Maemeko, E. L., Nkengbeza, D., & Chokomosi, T. M. (2018). The impact of teenage pregnancy on academic performance of grade 7 learners at a school in the Zambezi region. *Open Journal of Social Sciences*, 6(9), 88-100. <https://doi.org/10.4236/jss.2018.69006>
- Maharaj, N. R. (2022). Adolescent pregnancy in sub-Saharan Africa—a cause for concern. *Frontiers in Reproductive Health*, 4(1), 984303. <https://doi.org/10.3389/frph.2022.984303>
- Mathewos, S., & Mekuria, A. (2018). Teenage pregnancy and its associated factors among school adolescents of Arba Minch town, southern Ethiopia. *Ethiopian journal of health sciences*, 28(3), 287-298. <https://doi.org/10.4314/ejhs.v28i3.6>
- Meru County Department of Health Services (2023). *Incidence of teenage pregnancies in Meru County*. <https://meru.go.ke/department-health-services/health-reports/teenage-pregnancies/>
- Mezmur, H., Assefa, N., & Alemayehu, T. (2021). Teenage pregnancy and its associated factors in eastern Ethiopia: a community-based study. *International Journal of Women's Health*, 13(1), 267-278. <https://doi.org/10.2147/IJWH.S287715>
- Musonda, C. (2022). Prevalence and Factors Associated with an Increase in the Number of Teenage Pregnancies in Chikupili Village-Luano District. *Journal of Clinical Research*, 6(1), 165-173. <https://doi.org/10.37421/2795-6172.2022.6.165>
- Musyoki, B. M., & Kisimbii, J. (2019). Factors Influencing Teenage Pregnancies in Kenyan Public Primary Schools: A Case of Kitui County Kenya. *Journal of Entrepreneurship & Project Management*, 3(4), 11-26. <https://stratfordjournals.org/journals/index.php/journal-of-entrepreneurship-proj/article/view/343>
- Mutanana, N. & Mutara, G. (2021). Factors Contributing to Teenage Pregnancies in a Rural Community of Zimbabwe. *Journal of Biology, Agriculture and Healthcare*, 7(3), 45-52. <https://doi.org/jbah2021/a6jk25>
- Njogu, R. W. (2019). *The prevalence and factors associated with teenage pregnancy in Kenya; A Cross-Sectional Survey*. A Master of Science Degree in Medical Statistics, University of Nairobi. <https://erepository.uonbi.ac.ke/handle/11295/109313>
- Ochen, A. M., Chi, P. C., & Lawoko, S. (2019). Predictors of teenage pregnancy among girls aged 13–19 years in Uganda: a community-based case-control study. *BMC pregnancy and childbirth*, 19(1), 1-14. <https://doi.org/10.1186/s12884-019-2347-y>

- Oduor, K. O., & Kithuka, B. (2020). Factors Associated with High Rate of Pregnancy Among Teenagers Aged 13-19 Years in Nyatike Sub-County, Kenya. *East African Journal of Health and Science*, 2(1), 38-50. <https://doi.org/10.37284/eajhs.2.1.186>
- Olenja, J., Van der Kwaak, A., Krugu, J. K., Kawai, D., Karanja, S., Apanja, M., ... & Odundo, D. (2020). *Factors influencing teenage pregnancy among Maasai girls in Kajiado West Sub-County, Kenya. An operational qualitative study report as part of the YES I DO programme implemented from 2016 to 2020*. Plan International Publications. <https://www.kit.nl/wp-content/uploads/2021/01/YID-Kenya-Report-Teenage-pregnancy-final.pdf>
- Pandey, P., & Pandey, M. M. (2021). *Research methodology tools and techniques*. Bridge Center.
- Sayegh, R. (2021). A path to a healthier middle age in adolescents with early menarche: avoid teen pregnancy? *Menopause*, 28(9), 971-972. <https://doi.org/10.1097/GME.0000000000001836>
- Senkyire, E. K., Boateng, D., Boakye, F. O., Logo, D. D., & Ohaja, M. (2022). Socio-economic factors associated with adolescent pregnancy and motherhood: Analysis of the 2017 Ghana maternal health survey. *Plos one*, 17(12), e0272131. <https://doi.org/10.1371/journal.pone.0272131>
- Shukla, S., Castro Torres, A. F., Satish, R. V., Shenderovich, Y., Abejirinde, I. O. O., & Steinert, J. I. (2023). Factors associated with adolescent pregnancy in Maharashtra, India: a mixed-methods study. *Sexual and Reproductive Health Matters*, 31(1), 2249284. <https://doi.org/10.1080/26410397.2023.2249284>
- Tabei, K., Cuisia-Cruz, E. S. S., Smith, C., & Seposo, X. (2021). Association between teenage pregnancy and family factors: an analysis of the Philippine National Demographic and Health Survey 2017. *Healthcare*, 9(12), 1720. <https://doi.org/10.3390/healthcare9121720>
- Te Lindert, L., Van der Deijl, M., Elirehema, A., van Elteren-Jansen, M., Chitanda, R., & Van den Akker, T. (2021). Perceptions of factors leading to teenage pregnancy in Lindi Region, Tanzania: a grounded theory study. *The American Journal of Tropical Medicine and Hygiene*, 104(4), 1562-1570. <https://doi.org/10.4269/ajtmh.20-0151>
- Tigania Central Sub-County Antenatal Care Records (2022). *Antenatal Care Mothers Profile in Tigania Central Sub-County*. <https://meru.go.ke/departement-health-services/tigania-central-sub-county/health-reports/antenatal-care-mothers-profile/>
- Uwizeye, D., Muhayiteto, R., Kantarama, E., Wiehler, S., & Murangwa, Y. (2020). Prevalence of teenage pregnancy and the associated contextual correlates in Rwanda. *Heliyon*, 6(10), e0503. <https://doi.org/10.1016/j.heliyon.2020.e05037>

- Veer, E., Golf-Papez, M., & Zahrai, K. (2019). Using the socio-ecological model as an holistic approach to behavioural change. In *Macro-Social Marketing Insights* (pp. 54-71). Routledge. <https://doi.org/10.4324/9780429452307-4>
- Worku, M. G., Tessema, Z. T., Teshale, A. B., Tesema, G. A., & Yeshaw, Y. (2021). Prevalence and associated factors of adolescent pregnancy (15–19 years) in East Africa: a multilevel analysis. *BMC Pregnancy and Childbirth*, *21*(1), 1-8. <https://doi.org/10.1186/s12884-021-03713-9>
- World Health Organization (2023). *Adolescent pregnancy*. New York: WHO Publications. <https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy>
- Yakubu, I., & Salisu, W. J. (2018). Determinants of adolescent pregnancy in sub-Saharan Africa: a systematic review. *Reproductive health*, *15*(1), 1-11. <https://doi.org/10.1186/s12978-018-0460-4>
- Yu, E. J., Choe, S. A., Yun, J. W., & Son, M. (2020). Association of early menarche with adolescent health in the setting of rapidly decreasing age at menarche. *Journal of pediatric and adolescent gynecology*, *33*(3), 264-270. <https://doi.org/10.1016/j.jpag.2019.12.006>
- Zani, B., & Cicognani, E. (2020). Sexuality and intimate relationships in adolescence. In *Handbook of adolescent development* (pp. 200–222). Psychology Press.
- Zemene, M. A., Dagnaw, F. T., Anley, D. T., Dagnaw, E., Zewdie, A., Haimanot, A. B., & Dessie, A. M. (2024). Trends and factors associated with teenage pregnancy in Ethiopia: multivariate decomposition analysis. *Scientific Reports*, *14*(1), 2216-2229. <https://doi.org/10.1038/s41598-024-52665-5>

APPENDICES

Appendix I: Assent and Consent Explanation Form

Title of Study: Determinants of teenage pregnancies in Tigania Central Sub-County, Meru County, Kenya

Institutional affiliation: Chuka University

Principal Investigator: Stanley Mwirabua Lintari

Supervisors: Prof. Lucy Kawira Gitonga & Dr. Mukhwana Eugene Sundays

Introduction

My name is Stanley Mwirabua Lintari. I am a student at the Chuka University pursuing a degree in Master of Science in Nursing. I am carrying out a research study entitled: *Determinants of teenage pregnancies in Tigania Central Sub-County, Meru County, Kenya.*

Purpose of the study

The purpose of this study is to assess the determinants of teenage pregnancies in Tigania Central Sub-County, Meru County, Kenya.

Background of the study

Teenage pregnancy has serious harmful consequences on the health and wellbeing of adolescent girls. Teenage mothers are likely to suffer from severe complications during delivery which can result into their own morbidity and mortality and that of their infants. Teenage pregnancy also leads to early child marriages, low educational attainment and other social and economic burdens for the teenagers and their families and is associated with increased risk of social stigma, isolation and physical abuse of the teenage mothers. For teenage girls to grow up well and realize the full potential of their lives, all effort must be done to prevent teenage pregnancies. Given that teenage pregnancies are fairly common in our local setting, I am kindly requesting for your participation in this study so you can offer your insights on the study subject through responding to the study tools.

Confidentiality

All information provided will be handled and processed with utmost confidentiality. All information given herein will only be used for purposes of the research study. Your name or anything else that may identify you will not appear anywhere in the study.

Voluntary participation

Your participation in this study is voluntary i.e., on your own free will and without any coercion.

Right of withdrawal

Should you feel/wish to terminate your participation in this study, you have the right to do so at any time without facing any consequences/penalties.

Benefit

This research work is for academic purposes only and if you agree to participate, the information that you will provide will be of great importance for the success of this study. It is hoped that the study findings will inform institutions of appropriate policy

and interventions to curb teenage pregnancy incidences in Tigania Central Sub County of Meru County. The findings could also form the basis for furthering awareness on the dangers and risks of teenage pregnancies at the community level.

Risks

There is no any intended health risk or any other harm to you for participating in this study. However, in the event that you suffer emotional or psychological distress for participating in this study, the researcher will refer you to a counselor for appropriate help.

Compensation

There will be no monetary gains or any other form of payment to you for participating in this study.

Appendix II: Assent Form for the Teenagers

[For Teenagers aged below 18 years]

I have read or the information pertaining to this assent has been read and clearly explained to me. I have had all my questions or concerns about this study addressed in a language that I can understand. The risks and benefits have been explained to me. I understand that my participation in this study is voluntary and that I may choose to withdrawal any time without any penalties.

I understand that all efforts will be made to keep information regarding my personal identity confidential. I voluntarily agree to participate in this research study by way of responding to the study questionnaire.

Signature of participant/Thumb print:.....Date:.....

Appendix III: Consent Form

[For adult teens, parents/guardians and community health providers]

I have read and understood the information pertaining to this consent or have had the information read and clearly explained to me. I have had all my questions or concerns about this study addressed in a language that I can understand. The risks and benefits have been explained to me. I understand that my participation in this study is voluntary and that I may choose to withdrawal any time without penalties. I understand that all efforts will be made to keep information regarding my personal identity confidential. I voluntarily agree to participate in this study by way of responding to the questionnaire/ audio-taped interviews.

Signature of participant/Thumb print:..... Date:.....

Researcher's statement

I, the undersigned, have fully explained the relevant details of this research study to the participant signed above and believe that he/she has willingly and freely given his/her consent.

Researcher's signature..... Date:

Appendix IV: Questionnaire for the Teenage Girls

Part A: Respondent's background information

1. How old are you?

2. Do you go to school? Yes () No ()

If yes, in which level of education are you currently in?

Primary ()

Secondary ()

College ()

3. Are you married? Yes () No ()

4. What is your religion? Christianity () Islam () others (specify)

Part B: Sociodemographic factors

1. Do you experience menstrual period?

a. Yes

b. No

If yes, how old were you when you had the first menstrual period?

a. Before 12 years

b. 12 years or above

2. Have you ever had sexual intercourse?

a. Yes

b. No

(If "No" skip to question 5)

3. At what age was your first sexual intercourse?

4. What led you to have sexual intercourse?

a. Self-desire

b. Peer pressure

c. Parent pressure

d. Pressure of partner

e. To get pregnant

f. Other reasons (specify).....

5. Do you know what contraceptives are? Yes No

6. Do you use any contraceptives?

a. Yes

b. No

If yes, indicate the method or methods that you use (Feel free to tick all that you use) [*Multiple responses accepted for this question*]

a. Pills

b. Injectable

c. Condom

d. Natural method/rhythm

e. Others (specify)

If no, state the reasons why

Part C: Socioeconomic factors

1) Whom do you live with?

a. Both parents

b. Father only

c. Mother only

d. Guardian/adoptive parents

e. Relative

f. Friend

g. Alone

2) Highest level of education of your parents/guardian.

Item	Father	Mother	Guardian
Never gone to school			
Primary school			
Secondary school			
Post-secondary school			

3) What is your father's occupational status?

a. Unemployed

b. Employed

- c. Self-employed (does business)
- 4) What is your mother's occupational status?
 - a. Unemployed
 - b. Employed
 - c. Self-employed (does business)
- 5) What is your guardian's occupational status? (*where applicable*)
 - a. Unemployed
 - b. Employed
 - c. Self-employed (does business)
- 6) Are you working?
 - a. Yes
 - b. No

Part D: Cultural factors

1. Does your culture view males and females equally?
 - a. Yes
 - b. No

If no, state reasons.....
2. Did you go through any cultural initiation ceremony while you were growing up?
 - a. Yes
 - b. No

If yes, state which and how it has affected the way you behave?

3. Does peer pressure influence your sexual behavior?
 - a. Yes
 - b. No

If yes, in which ways?

4. Have you ever suffered any form of sexual abuse and/or violence?

a. Yes

b. No

5. Does religion play a significant role in your character and behavior

Yes

No

If yes, in which ways (kindly elaborate)

.....
.....

Part E: Teenage pregnancy status

Are you currently pregnant? Yes () No ()

If yes, is this the first time you are pregnant? Yes () No ()

If yes, is this a planned pregnancy? Yes () No ()

If not the first time, how many times have you been pregnant?

If not currently pregnant,

Have you ever been pregnant? Yes () No ()

If yes, how old were you when you first got pregnant?

If yes, was the pregnancy intended? Yes () No ()

End

Thank you for your time

Appendix V: Translated Questionnaire

CIURIA BIA AANA BA AARI

Gicunci kia A: Nteto cia mucokia cia withire

1. wina miaka iana?.....
2. Nwitaa cukuru? Yii () Arii ()
Kethirwa yii, ni kiwangoene kiriku uri thaai?
Primari () sekondari () Koliingi ()
3. Nuguri? Yii () Arii ()
4. Uri wa kiuthurano kiriku kia umurungu? Mukristo () Muislamu () Ingii (uga).....

Gicunci kia B: Ntento cia mukarire

1. Nwonaa tharike ya mweri?
 - a. Yii
 - b. AriiKethirwa yii, wari na miaka iana rira yeyire ria mbere?
 - a. Nthii ya miaka 12.....
 - b. Iguru ya miaka 12.....
2. Ura mama na ntomurume.....
 - a. Yii.....
 - b. Arii.....(Kethirwa ni ari ugacokia kiuria kia 3)
3. Wari na miaka iana riakuu ria mbere kumama na ntomurume?.....
4. Nimbi biatumire umama na ntomurume?
 - a. Uciendera wengwa
 - b. Utindikirua ni nthuki yenu
 - c. Utindikirua ni aciari
 - d. Utindikirua ni mucore
 - e. Nikenda ukamata igu
 - f. Mantu yangi (uga).....
5. Nwicii mibango ya uciari nimbi? Yii () Ari ()
6. Nutumaira mibango ya uciari?
 - a. Yii.....
 - b. Arii.....

Kethirwa yii, onania ni mubango yuriku utumaira (onania mibango yonthe ira utumaira) (nuwitikirua ucokia nkuruki ya ita rimwe)

- a. Mpindi.....
- b. Sindano.....
- c. Mipira....
- d. Njira cia withire.....
- e. Mibangi iingi (uga).....

Kethirwa arii, uga nimbi gitumi.....

Gicunci kia C: Nteto cia mbeca

1.Nuu buriaa nwee?

- a. Aciari bonthe.....
- b. Ithe wenu aki....
- c. ina wenu aki.....
- d. Mukaria/aciari batibakuu....
- e. Muntu wenu.....
- f. Mucore.....
- g. Wengwa.....

2) Kiwango kia kithomo kia aciari/mukaria

Kithomo	Muciari	wa	Muciari	wa	Mukaria
	mukuru		mwekeru		

Ateta Cukuru
Primari
Sekondari
Mbere ya sekondari

3.Muciari wa mukuru wakuu aritaa ngugi iriku?

- a. atiandiki.....
- b. naandiki.....
- c. aciandikitee wengwaa.....

4. Muciari wa mwekeru aritaa ngugi iriku?

- a. atiandikii.....
- b. naandiki.....
- c. aciandikitee wengwa.....

5) Mukaria wakuu aritaa ngugi iriiku? (kethirwa ni muakaria uriaa nwee)

- a. atiandikii....
- b. naandiki....
- c. aciandikitee wengwa.....

6) Kuri ngugi uritaa?

a. Yii.....

b. Arii....

Gicunci kia D: Ntento cia kiuntuire

1. Untwire bwenu ibuyukacia aka na arume banene?

a. Yii.....

b. Arii....

Kethirwa ni arii uga gitumi.....

2. Niwakulukirire mantuine ya untwire igiteene ria ukura kwakuu?

a. Yii....

b. Arii...

Kethirwa yii, uga ni yariku na niatia yalulire mukarire ywakuu.....

3. Utindikiriua mantu ni antu ba nthuki ikutumaa walula muriree?

a. Yii.....

b. Arii.....

Kethirwa yii, na njira iriku.....

4. Urakulukiraa mantu ya kugwatwa kia inya?

a. Yii.....

b. Arii.....

5. Maantu ya kikanisa iyautethetea ki muturire na mukarire?

a. Yii.....

b. Arii.....

Kethirwa yii, na njira iriku (uga bwea).....

Gicunci kia E: Aana ba ari kwithirwa bari barito

Uri umurito thaii? Yii () Arii ()

Kethirwa yii, irio ria mbere kwithirwa uri umurito? Yii () Arii ()

Kethirwa yii, kawabangite kwithirwa uri umurito? Yii () Arii ()

Kethirwa tirio ria mbere, iyangi yana wakamata.....

Kethirwa uti umurito thaii,

Kwirio wethirwa uri umurito? Yii () Arii ()

Kethirwa yii, wari na miaka iana ria mbere kwithirwa uri umurito.....

Kethirwa yii, ywari mubango ywaku kwithirwa uri umurito? Yii () Arii ()

Muthia

Nibwega niuntu bwa igita riaku

Appendix VI: Interview Guide for the Community Health Promoters

Study title: Determinants of teenage pregnancies in Tigania Central Sub-County, Meru County, Kenya

Part I: Participants' demographic information

1. What is your gender: Male () Female ()
2. What is your age in completed years?
3. What is your current education level?

Primary ()	Secondary ()
No formal education ()	other (specify)
4. What is your marital status?

Married ()	Not married ()
----------------------------------	--------------------------------------
5. What is your religion?

Christianity ()	Islam ()	others (specify)
------------------	-----------	------------------------

Section B: Questions and prompts

Question	Prompts
<i>Preliminary question</i>	
Q1. What is your general understanding of teenage pregnancy?	<ol style="list-style-type: none"> 1. For how long have you been engaged in the fight against teenage pregnancy? 2. What roles do you play in relation to addressing the teenage pregnancy problem in your community? 3. Who are usually the leading perpetrators of teenage pregnancy in your community? 4. What is the general reaction towards teenage pregnancy cases in your community?
<i>Major questions</i>	
Q2. In your view, which factors contribute to teenage pregnancy among teenage girls in your community?	<ol style="list-style-type: none"> 1. In your view, do young girls' sociodemographic factors increase their risk of getting pregnant during their teenage? (e.g. in reference to their education level, awareness and use of contraception, time/age they begin having sexual intercourse, age at their first menses) 2. In your view, how does the teenage girls' family socioeconomic status affect their likelihood of getting pregnant during their teenage? (probe on how poverty, family support systems and place of residence influence teenage pregnancy incidences)

	<ol style="list-style-type: none"> 3. Do your community's cultural beliefs and traditional norms and practices play a significant role in perpetrating teenage pregnancies in your community? If so, in which ways? 4. Is there general support for young girls that fall pregnant in your community? If so, which forms of support are available and who provides them? Is it adequate?
Q3. What are the implications of teenage pregnancies in your community?	<ol style="list-style-type: none"> 1. How does teenage pregnancy affect the overall health and general wellbeing of the affected girls? 2. How does teenage pregnancy affect the education of the affected girls? 3. From your experience, what are the major implications of teenage pregnancy on affected girls, their families and the community at large?
Q4. What can be done to eliminate teenage pregnancy cases in your community?	<ol style="list-style-type: none"> 1. In your own view, what needs to be done to eradicate teenage pregnancy cases in your community? (Highlight various measures that can be taken to support eradication of teenage pregnancies in your community).
Q5. Is there any other information you would like to add or share regarding teenage pregnancies?	If there is none then I would like to thank you for your time and for taking part in this study.

End

Thank you

Appendix VII: Chuka University Ethics Review Letter



CHUKA UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE

Telephones: 020-2310512/18

P. O. Box 109-60400, Chuka

Direct Line: 0772894438

Email: info@chuka.ac.ke,

Website: www.chuka.ac.ke

12th July, 2024

REF: CUIERC/ NACOSTI/570

TO: Stanley Mwirabua Lintari

RE: Determinants of Teenage Pregnancies in Tigania Central Sub-County, Meru County, Kenya

This is to inform you that *Chuka University IERC* has reviewed and approved your above research proposal. Your application approval number is *NACOSTI/NBC/AC-0812*. The approval period is 12th July, 2024 – 12th July, 2025.

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 *Chuka University 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 *Chuka University 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 *Chuka University 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 *Chuka University 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://oris.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely

Dr. Benjamin Kanga
SECRETARY

Appendix VIII: Introduction Letter from the Board of Postgraduate Studies



Knowledge is Wealth (*Sapientia divitia est*) Akili ni Mali
OFFICE OF THE DIRECTOR
BOARD OF POSTGRADUATE STUDIES

Telephones: 020-2310512/18
Direct Line: 020-268 7625

postgraduate@chuka.ac.ke

P. O. Box 109-60400, Chuka
Website: www.chuka.ac.ke

REF: HM10/57550/22

15th July, 2024

Director
National Commission for Science Technology and Innovation
Off Waiyaki Way, Upper Kabete
P O Box 30623, 00100
Nairobi.

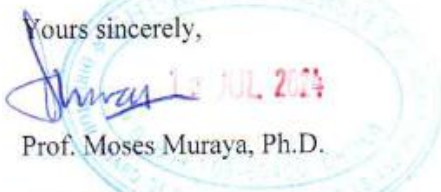
Dear Sir / Madam,

STANLEY MWIRABUA LINTARI

The above-named person is a *bona fide* student of Chuka University pursuing MSC in Nursing proposal titled: **Determinants of Teenage Pregnancies in Tigania Central Sub-county, Meru County, Kenya.**

Mr. Mwirabua has defended at the Faculty level and is now expected to conduct research. Any assistance accorded will be highly appreciated.






Yours sincerely,



Prof. Moses Muraya, Ph.D.

DIRECTOR
BOARD OF POSTGRADUATE STUDIES

Appendix IX: Research Permit from NACOSTI

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 278465	Date of Issue: 22/July/2024
RESEARCH LICENSE	
	
This is to Certify that Mr. Mwirabua Stanley Lintari of Chuka University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Meru on the topic: DETERMINANTS OF TEENAGE PREGNANCIES IN TIGANIA CENTRAL SUB-COUNTY, MERU COUNTY, KENYA for the period ending : 22/July/2025.	
License No: NACOSTI/P/24/38174	
278465 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.	
See overleaf for conditions	

Appendix X: Approval Letter from the Tigania Central Sub-County


COUNTY GOVERNMENT OF MERU
DEPARTMENT OF HEALTH

Telegram; MEDICAL MIKINDURI
Email; meru@meru.go.ke
When replying please quote
Ref. No. 278465

TIGANIA CENTRAL SUB-COUNTY,
P.O BOX 5-66200,
MEKINDURI.
25th JULY 2024

TO: MWIRABUA LINTARI
P.O BOX 217,
MAUA.

RE: APPROVAL TO CONDUCT RESEARCH

Following your request for approval to conduct research in Tigania central sub-county titled, "Determinants of Teenage Pregnancies in Tigania Central Sub County, Meru County, Kenya," I am pleased to inform you that the approval has been granted.

The research study will be conducted on the following conditions:

- Adherence to Chuka University institutional ethics and review committee guidelines.
- Adherence to National commission of Science, technology and innovation principles.
- The researcher will share the findings with Tigania central sub county health management team.

Dr Samuel Mutege
SCHC / Med. Sup.
Tigania Central sub county


MEDICAL SUPERINTENDENT
MIGORI SUB-DISTRICT HOSPITAL
P.O. Box 2 - Migori
27772

Appendix XI: Map of Tigania Central Sub-County, Meru County

