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An Overview of Teenage Pregnancy in Tanzania: Prevalence, Risk Factors, Effects, and Mitigatory Interventions

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ABSTRACT

AN OVERVIEW OF TEENAGE PREGNANCY IN TANZANIA: PREVALENCE, RISK FACTORS, EFFECTS, AND MITIGATORY INTERVENTIONS

By

DAIMA A. MACHANG'U

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INTRODUCTION: Teenage pregnancy is a public health issue in sub-Saharan Africa, including Tanzania. While studies have been conducted on teenage pregnancy in Tanzania, very few have focused on the prevalence, risk factors, effects, and appropriate potential strategies to address the issue.
AIM: This study examined the prevalence, risk factors, effects, and appropriate potential strategies to address the issue of teenage pregnancy in Tanzania.
METHODS: Relevant data on adolescents aged 15 to 19 years were extracted from the 2015-2016 Tanzania Demographic and Health Survey. Quantitative data was analyzed using the Statistical Analysis System (SAS) version 9.4.
RESULTS: The prevalence of teenage pregnancy in Tanzania was 26%, with the greatest incidence observed in Tabora (10.4%), Mwanza (8.6%), and Mbeya (8.2%). The risk factors that were found to be statistically significant in all three regions ($p<0.05$) were child marriage and being 18 years or older. In Tabora and Mbeya, middle-income households had higher odds of teenage pregnancy (aOR=8.333, p=0.02 and aOR=5.661, p=0.0059, respectively), whereas a lack of education was associated with increased odds in Tabora and Mwanza (aOR=9.99, p=0.0026 and aOR=18.542, p=0.011, respectively). Early sexual practices, contraceptive use, and sexual violence were not significantly associated with teenage pregnancy.
DISCUSSION: Addressing teenage pregnancy in Tanzania requires a multifaceted approach that considers the social and economic factors that contribute to it. By implementing evidence-based interventions that empower teenagers through education programs, policy reforms, and support services for teenagers and their families, we can work towards reducing the incidence of teenage pregnancy in selected regions of Tanzania.

AN OVERVIEW OF TEENAGE PREGNANCY IN TANZANIA: PREVALENCE, RISK FACTORS, IMPACT, AND MITIGATORY INTERVENTIONS

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There is so much I can say but I will settle for
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Author's Statement Page

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Daima A. Machang'u

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CHAPTER I

INTRODUCTION

1.1. BACKGROUND

Teenage pregnancy is a global health issue that affects millions of teenage girls worldwide (WHO, 2022). It is detrimental to the health of both mother and child, affecting nearly every society. It is one of the key reproductive health issue of women in developing and developed countries. According to the World Health Organization (WHO) (2002), teenage pregnancy is defined as pregnancy that occurs to a woman under 20 years of age, including girls aged 12 years and under. Per the Merriam-Webster dictionary, an adolescent is a young person who is developing from a child into an adult, between 10-19 years of age, whereas a teenager is an adolescent between 13-19 years old. For the purposes of this study, the term teenage pregnancy will refer to any pregnancy between a girl aged 15-19 years.

Despite the remarkable decline in teenage birth rates from 53 births to 42.5 births per 1000 females ages 15-19 over the last two decades globally, about 14% of girls continue to give birth before the age of 18 years, (UNICEF, 2023). The prevalence of teenage pregnancy in developing countries is staggering, creating a massive social and economic burden to these countries (Chandra-Mouli et al., 2013). Sub-Saharan Africa has the highest teenage birth rate of 98 births per 1000 females (WHO, 2022). According to the World Bank, the top three sub-Saharan African countries with the highest rates of teen births in 2022 were Niger (177.5), Mali (162.3), and Chad (151.6). High prevalence rates were also found in East Africa (22%) including Tanzania.

Teenage pregnancy has been linked to an array of demographic, socioeconomic, and sociocultural factors (WHO, 2022). The rate of teenage pregnancy has been rising globally due

to several factors including low levels of education, poverty, parental illiteracy, and child marriages. Teenage girls who engage in early sexual activity often engage in risky behaviors such as having multiple partners and practicing unprotected sex, which puts them at risk for Sexual Transmitted Diseases (STDs)like HIV (UNICEF, 2023). They are also more likely to experience unintended pregnancies, domestic and sexual assault, and adverse maternal morbidity and mortality (Grace et al., 2020; Herrman et al., 2019).

Policies put in place to prevent teenage pregnancy in sub-Saharan Africa are complicated and influenced by local religious perspectives. For instance, once a female reaches puberty in a Muslim society, Islamic law allows her to marry and to have children (UNICEF, 2007). Most of the time, the cultural differences in geographic locations are not considered by programs focused on teenage pregnancy prevention.

According to a Pew Research survey (Sandstrom & Theodorou, 2020), 59% of countries including those in sub-Saharan Africa, permit marriage for people under the age of 18 years, with exceptions for those who want to be married earlier. For instance, although the legal age of marriage in Tanzania, a country in sub-Saharan Africa, is 18 years, some girls in certain isolated rural parts of the country are married off before they reach the legal age (Akia et al., 2016). Something needs to be done to address the situation. While studies have been conducted on teenage pregnancy in Tanzania, very few have focused on the prevalence, risk factors, effects, and appropriate potential mitigating strategies to address the issue.

1.2. RESEARCH QUESTIONS

Tanzania has one of the highest rates of teenage pregnancy (Lindert et al., 2021; Worku et al., 2021; Kassa et al., 2018). Approximately 360,000 girls between the ages of 15 and 19 give birth in Tanzania each year (HRW, 2021). Poverty, gender inequality, parental illiteracy,

inaccessibility to sexual and reproductive health services, early age initiation rites and sexual practices, and child marriage have all been identified as factors contributing to teenage pregnancy in Tanzania (UNFPA).

This study examined the prevalence of teenage pregnancy in select regions in Tanzania and the risk factors associated with the increased odds of teenage pregnancy in those areas. It also examined potential strategies implemented globally that can be adopted and adapted to address teenage pregnancy in Tanzania. As such, the research questions guiding this study are:

1. What is the prevalence of teenage pregnancy in select regions of Tanzania that have the highest burden of teenage pregnancy?
2. What are the risk factors and impact of teenage pregnancy on teenage girls in the selected regions of Tanzania with the highest burden of teenage pregnancy?
3. What are the effects of teenage pregnancy on teenage girls in Tanzania?
4. What strategies can be adopted to address teenage pregnancy in Tanzania?

CHAPTER II

LITERATURE REVIEW

2.1 RISK FACTORS OF TEENAGE PREGNANCY

Teenage pregnancy threatens the lives of teenagers, their families, and communities. It also has severe consequences for the health of females and their socioeconomic well-being (Blum et al., 2015).

2.1.1 EDUCATIONAL LEVEL AND POVERTY

Low educational level is one of the factors associated with high teenage pregnancy and birth rates globally (Ngoda et al., 2021; Romero et al., 2016; Viner et al., 2012). The lack of formal education for teenage girls or mothers increases their risk for unplanned pregnancies and sexually transmitted diseases (STDs) (Ngoda et al., 2021). Knowledge gained through education helps teenage girls to develop their social skills and to learn how to deal with peer pressure, reducing their chances of being exposed to sexual practices. Staying in school also delays marriage and the possibility of having children early. In a study conducted in Ethiopia, researchers found that teenage pregnancy is twice as likely to occur among females who do not have a formal education compared to those with formal education. They also found that for every year stayed in school, the adolescent birth rate can be reduced by six percent (Mezmur et al., 2021; Pradhan & Canning, 2015). Other researchers found that teenage girls of teenage mothers and teenager girls from illiterate families are more likely to become pregnant as a teenager than those from non-teenage mothers and well-educated families (Cruz et al., 2021; Misuna et al., 2021).

Pregnant teenagers are more likely to remain illiterate due to an increased chance of dropping out of school. Schoolteachers and other students often humiliate and criticize pregnant

teenagers (Human Rights Watch, 2022; Sik I, 2015). Even though Tanzania has lifted the ban on prohibiting pregnant teenagers from returning to school after birth and strengthened its laws around early marriages, some parts of the country still mandate pregnancy tests for schoolgirls, expel those found to be pregnant, and ban them from returning to school, thereby increasing their socio-economic burden and the chances of early marriage (Human Rights Watch, 2022).

Many pregnant teenagers come from low-income families. The economic hardship of these girls and their families, coupled with a lack of education and technical skills, they have limited choices of employment to earn enough capital to care for their families (Sik I, 2015; UNFPA, 2015). Poverty encourages teenage girls to engage in premarital sexual practices in exchange for money, clothes, and food (UNFPA, 2015). Therefore, engagement in transactional sex with older and wealthier men becomes an essential means for their economic survival (Worku et al., 2021) as well as strategy to obtain material gain, such clothing, cosmetics, and upscale living (Govender et al., 2018; Sik I, 2015). Unsafe practices such as prostitution and substance abuse during t premarital activities, increases the risk of female teenagers getting pregnant (Mathewos & Mekuria, 2018; Maness et al., 2016).

2.1.2 ACCESS TO SEXUAL AND REPRODUCTIVE HEALTH SERVICES

Knowledge of sexuality is crucial to preventing unwanted pregnancies. Nevertheless, many female teenagers in rural and remote communities of Tanzania have limited knowledge of sexual and reproductive health including the menstrual cycle, hormonal changes, and contraceptive methods, (Ngoda et al., 2021) and services available in their communities. A study done by Hokororo et al., 2015 reported that rural dwellers in some parts of Tanzania believed that sexual and reproductive health is only intended for pregnant women and provided only during antenatal visits. The lack of information, poor communication, or school curricula that do

not focus on sexual and reproductive health education was also reported to be associated with increased unwanted teenage pregnancies in Tanzania (Mpimbi et al., 2022; Yakubu & Salisu, 2018). Additionally, the limited use of contraceptives due to the fear of side effects was also reported to be associated with increased repeated teenage pregnancy rates (Mpimbi et al., 2022). Often, adolescents find it uncomfortable to talk about sex with their parents (Usonwu et al., 2021). This limits the opportunity for parental guidance and opens up channels for detrimental peer advice (Mpimbi et al., 2022; Thobejane, 2015).

Marginalized areas in developing countries have fewer clinics that offer essential reproductive services. Where they exist, they are located far away, and do not have sufficient health care workforce and resources to provide daily clinical services. A study conducted in Laos found that distance and the cost of transportation was one of the barriers to access to sexual and reproductive health services in marginalized areas (Sychareu et al., 2018). The lack of confidentiality and unfriendliness of health care providers in clinics, coupled with social stigma, limit female teenagers' utilization of available reproductive health services, increasing their risk of practicing unsafe sex and poor health outcome for pregnant teenagers (Lindert et al., 2021).

2.1.3 CULTURAL NORMS , VALUES, AND PRACTICES

Every society or community has a set of values and beliefs that governs sexuality. In sub-Saharan Africa including Tanzania, such matters are controlled by men. Thus, teenage girls and women lack decision-making power to negotiate safer sex or intimacy (UNFPA, 2015; Ncitakalo, N, 2011). The rite of passage is a ceremonial event that marks the transformation from one stage in life to the other. In many cultures, pubescent girls participate in these events and are taught several things about adulthood (Jambulosi & Engdahl, 2009). During the ceremony, teenage girls are taught various adult life skills, including how to please a man and practice

different sexual activities. These trainings have been linked with early sexual debut and unplanned pregnancies (Lindert et al., 2021; Skinner et al., 2013).

2.1.4 LEVEL OF COMMUNITY SUPPORT

The United Nation (UN) Convention on the Rights of the Child (CRC) seeks to protect children from early marriage. It put the minimum age for marriage at 18 years and older. According to the Guttmacher Institute, countries that enforced the CRC consistently had 40% fewer child/teenage marriages and 25% less prevalence of teenage pregnancy compared to countries that did not uphold the convention (Maswikwa et al., 2022).

Parental and community attitude towards sexual and reproductive health education is crucial to teenage well-being. In most societies, pregnant teenagers are considered a social shame and as a result, are cast out to fend for themselves, leading to their engagement in practices that further puts them at risk for unplanned pregnancies (Wado et al., 2019). Although evidence shows that social engagement of adolescents through youth centers and scout programs improves self-awareness and other social skills, fewer communities have these services readily available for students after school, leaving a gap for students to indulge in other risky activities (Cruz et al., 2021).

2.1.5 PHYSICAL IMMATURITY

The physical immaturity of a pregnant teenager can have detrimental effects on her health and her baby. Prematurity, miscarriage, pre-eclampsia, and delivery complications are just a few of the health consequences of early pregnancy (UNICEF, 2023; Eliner et al., 2022). The younger a mother, the greater the likelihood that she will start antenatal clinic late, or develop severe complications throughout pregnancy, during labor, and the post-partum period (Eliner et al., 2022).

2.1.6 SEXUAL AND DOMESTIC VIOLENCE

Pregnant teenage girls are more likely to experience sexual or domestic violence from their partners, which can increase their risk of unplanned pregnancies and health complications (Ahinkorah et al., 2022; Yakubu & Salisu, 2018). According to WHO (2015), one in four adolescents has experienced physical or sexual violence from their partner at least once in their lifetime, with over 20% of these cases occurring in sub-Saharan Africa alone. In low-and middle-income countries, intimate partner violence has been found to increase five-fold among teenage girls compared to non-pregnant teenager girls (Tetteh et al., 2020). A study done in South Africa reported that married teenage girls below the age of 18 are more likely to experience intimate partner violence than those above 18 years (Ahinkorah et al., 2022). The likelihood of unintended pregnancy tends to be higher in victims of intimate partner violence due to the fear and the inability to negotiate safer sex (Rosen, 2004).

2.2 INTERVENTIONS TO REDUCE TEENAGE PREGNANCY

Teenage pregnancy reduction interventions are programs dedicated to decreasing high teenage pregnancy rates. These programs are implemented in different parts of the world and have differing targets and goals. For example, the Community Wide Initiatives (CWI) developed by the Centers for Disease Control and Prevention (CDC) to advance the field of teenage pregnancy, has the overarching goal of increasing access to adolescent-friendly sexual and reproductive health services, and stakeholder engagement through education, training, and collaboration (CDC, 2021).

2.2.1 INTERVENTIONS IN TANZANIA

There are various teenage pregnancy reduction interventions in Tanzania one of which is the Very Important Girls Group program run by Kiota Women's Health and Development

(KIWOHEDE) with the United Nations Population Fund (UNFPA) sponsorship. The goal of this program is to provide out-of-school teenage girls with knowledge on adolescent sexual and reproductive health as well as practical experience in beading, sewing, and batik making. is run by Kiota Women's Health and Development (KIWOHEDE) with the United Nations Population Fund (UNFPA) support. While effective, this program does not target the in-school teenagers, who are equally at risk of teenage pregnancy (UNFPA).

A problem-based pedagogy study done in Tanzania to assess soft skills of safe sexual behaviors in school found that the integration of reproductive health lessons into school-based curricula had positive outcomes in the areas of teenagers practicing abstinence and avoiding sexual intercourse (Millanzi et al., 2022). Regardless of its benefits, the intervention was criticized for reliability of sexual and reproductive content, appropriateness of delivery and the inability to verify lesson completeness accurately.

A plus program (Ujana Salama) in Tanzania reported that reduced age at sexual initiation improves safe sex negotiations and enhances sexual and reproductive knowledge among school-aged children through life skills training and mentorship (Waidler et al., 2022). However, evaluation design limited the impact of some of the components of the intervention. Furthermore, due to their sampling frame, generalizability of the study was limited to only teenagers in low-income households.

Community outreach programs have been shown to raise sexual and reproductive awareness among parents, and caregivers. An intervention implemented in Simiyu, Tanzania, enhanced healthcare workers' knowledge and skills through training, and provided sexual and reproductive health services to adolescents (Omari, 2022).

2.2.2 GLOBAL INTERVENTIONS

Several teenage pregnancy reduction interventions implemented globally emphasize the importance of integrating sexual and reproductive health education into school curricula. Others emphasize the importance of using contraception as a means of delaying sexual debut and the need to prevent sexually transmitted infections and others yet focus on helping the youth develop their negotiation skills to deal with peer pressure through training and mentoring (Millanzi et al., 2022; Mweteni et al., 2021). The main challenge among teenage pregnancy reduction interventions is socio-cultural constraints and low participation rate whose input is useful for shaping and addressing teenage pregnancy.

2.2.2.1 SWAZILAND

A program launched in Swaziland, It's Our Future Too!, that aimed to enrich Swazi youth with life skills training that will enable them to pursue a higher academic degree and employment. A total of 135 students participated in a 13-week program that had four arms curricula: life skills for HIV awareness and prevention, computer technology, job readiness, and community outreach. The study found significant differences between the intervention and control groups regarding HIV knowledge, self-efficacy, abstinence, and condom use. Though successful, the interventions were limited to only one school, conducted outside normal school hours and there was cross contamination between study participant groups resulting in low participation rate to strengthen the validity of their findings and limit generalizability.

2.2.2.2 PHILIPPINES

The United States Agency for International Development (USAID) ReachHealth Project launched in the Philippines addressed the unmet need for family planning services and decrease teenage pregnancy by improve access to critical health services for Philippine families. It used

Facebook campaigns to educate teenagers about delaying sexual debut (It's OK to Delay), provide parents with knowledge and skills to discuss intimate matters with their children (Konektado Tayo) and improve family planning utilization (Usap Tayo sa Family Planning). Social and behavioral change activities help healthcare providers with material to share comprehensive information on sexual and reproductive health topics. Despite an improved adolescent-friendly sexual and reproductive health service provision, recording and reporting systems is still flawed. (RTI International, 2022).

2.2.2.3 SOUTH AFRICA

The PREPARE Project, which was launched in South Africa, endeavored to prevent interpersonal violence among adolescents, as well as to minimize sexual risk behavior aided by cultural norms, attitudes, and interpersonal violence perpetration. It achieved this through the implementation of a 21- lesson PREPARE curriculum adapted from the Respect4U program for high school students. Multiple topics are covered by trained teachers and peer-educators including decision making skills, self-awareness, gender and power relationships, and communication. The project reported that its interventions brought about significant improvement in social skills and behavioral change including safer intimate relationships, increased condom use, and reduced bullying, (Aarø et al., 2014). However, due to contextual constraints on safe sexual behavior and limited exposure to the PREPARE intervention components, there were no differences in sexual behaviors between intervention and control groups during a 12-month follow-up. (Mathews et al., 2016).

2.2.2.4 UGANDA

Another version of the PREPARE Project was launched in Uganda. The initiative aimed to increase parent-adolescent sexuality communication in response to mounting evidence that

Ugandan parents do not discuss sexuality with their teenage children because it is viewed as taboo in many Ugandan societies. The intervention was based on formative research conducted in four secondary schools in the districts of Kampala and Wakiso. A survey of 425 senior teenage students was done, in addition to 11 focus group discussions with parents and students, and 10 interviews with teachers, school administrators, and opinion leaders. The intervention was divided into three parts. The first component was a 90-minute classroom-based course that was done 14 times and focused on sexual and reproductive health topics blended into English and Christian Religious Education lessons. The courses sought to enhance motivation and skills for delaying early sexual practices. Condom education was offered as an extracurricular 2-hour activity with the goal of enhancing students' understanding as well as positive attitudes towards condom use. The second component was homework. Each session requires students to discuss and complete an assignment with their parents or guardians. The final component was a three one day workshop for parents. Overall, the study reported an improved parent-adolescent communication skills and knowledge on sexual and reproductive health. (Aarø et al., 2014).

Most interventions have focused on teenage girls, however, there is a growing interest in the involvement of teenage boys in preventing teenage pregnancy. According to the CDC, there has been an increase in teenage fatherhood and sexual transmitted infections among young men aged 15-19 years (Workowski et al., 2021). A review of the literature shows that interventions delivered to men, with or without their partners' presence, have higher odds of increasing contraceptive use (Aventin et al., 2023). Nevertheless, a study done in the southern zone of Tanzania argues that low participation of boys in teenage pregnancy prevention programs originate from their perception of low risks compared to girls (Waidler et al., 2022).

CHAPTER III

METHODS

3.1 DATA SOURCE

The Demographic and Health Survey (DHS) program is a United States Agency for International Development ‘s (USAID) funded program that has gained worldwide reputation for collecting accurate data on a wide range of topics. Its main aim is to help the host country strengthen data collection to monitor and evaluate population health, program design and aid policy development. For this study, the 2015-16 Tanzania Demographic and Health Survey (TDHS) was utilized. The TDHS is the ninth national survey implemented by Tanzania’s National Bureau of Statistics (NBS) in collaboration with other agencies. The goal of the survey was to obtain data on national level estimates on basic demographic and health to assist policy makers and program managers to evaluate and design programs and strategies to improve upon the health of Tanzania’s population (TDHS-MIS. 2016).

3.2 SAMPLE DESIGN

The sampling frame for the 2015-16 TDHS was the Population and Housing Census of 2012. The sample design for the 2015-16 TDHS was done in two stages. The first stage involved selecting a sample of 608 points (clusters). The second stage involved the systematic selection of 2 households from each cluster, yielding a representative probability sample of 13,376 households. To estimate geographic differentials for certain demographic indicators, Tanzania was divided into nine non-administrative geographic zones to reduce sampling error (TDHS-MIS. 2016).

3.3 SAMPLE SELECTION

The study focused on a sub-sample of female participants aged 15-19 years. All participants under 15 years and over 19 years were excluded from the study. Questionnaires with incomplete and missing data on any of the variables of interest were not considered. Data on basic demographic information of eligible participants such as age, marital status, education level, and wealth index were abstracted from the household questionnaire. Data on background characteristics (highest education attainment), knowledge and use of family planning methods, antenatal and delivery care, marriage and sexual activity, occupation, domestic violence, female genital cutting, and other health-related topics were also abstracted from the woman's questionnaire.

3.4 MEASURES

Study analysis focused on risk factors associated with teenage pregnancy. The dependent measure (**outcome**) was pregnancy history, and it was assessed using the questions "*Have you ever given birth?*", "*Are you pregnant now?*". Responses to these questions were yes or no. The independent measures (exposure) were assessed across eleven domains: education, wealth index, gender norms, basic sexual and reproductive knowledge, contraceptive use, early sexual practices, child marriage, pregnancy outcome, school completion, sexual violence and access to SRH services.

Education was assessed using the question "*What is the highest level of school you attended: primary, secondary, or higher?*". The answer options were no education, primary, secondary or higher. **Wealth index** was assessed by scoring households based on a set of characteristics, including access to electricity and ownership of various consumer goods. The answer options were categorized as poor, middle, and rich. **Gender norms** was assessed using

the question, "*Would you say that contraceptive use decision is mainly your husband's or partner's decision?*". The answer options were mainly husband or partner, or joint decision. **Basic sexual and reproductive knowledge (SRH)** was assessed using the question, "*Have you ever heard of any method to delay or avoid getting pregnant*?". The answer options were yes, or no. **Contraceptive use** was assessed using the question "*Are you currently using any method to delay or avoid getting pregnant?*". The answer options were yes or no. **Early sexual practices** were assessed using the question "*How old were you when you had sexual intercourse for the very first time?*". The answer options were above 15 years or below 15 years. **Child marriage** was assessed using the question "*What is your current marital status?*". The answer options were never in union, married, living with partner, widowed, divorced, and separated. **Pregnancy outcome** was assessed using the question "*Have you ever had a pregnancy that miscarried, was aborted, or ended in a stillbirth?*". The answer options were yes, or no. **School completion** was assessed using the question "*What is the highest (grade/form/year) you completed?*". The answer options were no education, incomplete primary, complete primary, incomplete secondary, complete secondary or higher. **Sexual violence** was assessed using the question *"Can you say no to your (husband/partner) if you do not want to have sexual intercourse?*". The answers were yes and no. **Access to SRH services** was assessed using the question "*How many months pregnant were you when you first received antenatal care for your pregnancy?*". The answer options were first trimester, second trimester or third trimester.

3.5 DATA ANALYSIS

The Statistical Analysis System (SAS) version 9.4 was used to perform the data analysis. Descriptive (univariate) analysis was conducted to summarize study data. Bivariate analysis was used to determine if there was an association between teenage pregnancy individually and

education, wealth index, marital status, gender norms, basic SRH knowledge, contraceptive use, early sexual practices, sexual violence, and educational attainment. Additionally, multivariate analysis using the logistic regression model was used to determine the associations between experiences of pregnancy and the various measures of health and socioeconomic status stratified by high-risk regions

CHAPTER IV

RESULTS

UNIVARIATE ANALYSIS

4.1 DEMOGRAPHICS & PREVALENCE OF TEENAGE PREGNANCY IN TANZANIA

The 2015/16 DHS comprised 2,904 females aged 15 to 19 years. The majority (58.6%) of the participants were in the 15 to 17 age range. A little over half of the participants (58.9%) had completed primary education, and about three quarters (74.7%) were not married. Some (50.7%) of the participants were from households within the wealthiest quintile. (Table 1). The overall prevalence of teenage pregnancy in the top ten areas in Tanzania. Tabora had the highest prevalence rate (10.4%), followed by Mwanza (8.6%) and then Mbeya (8.2%).

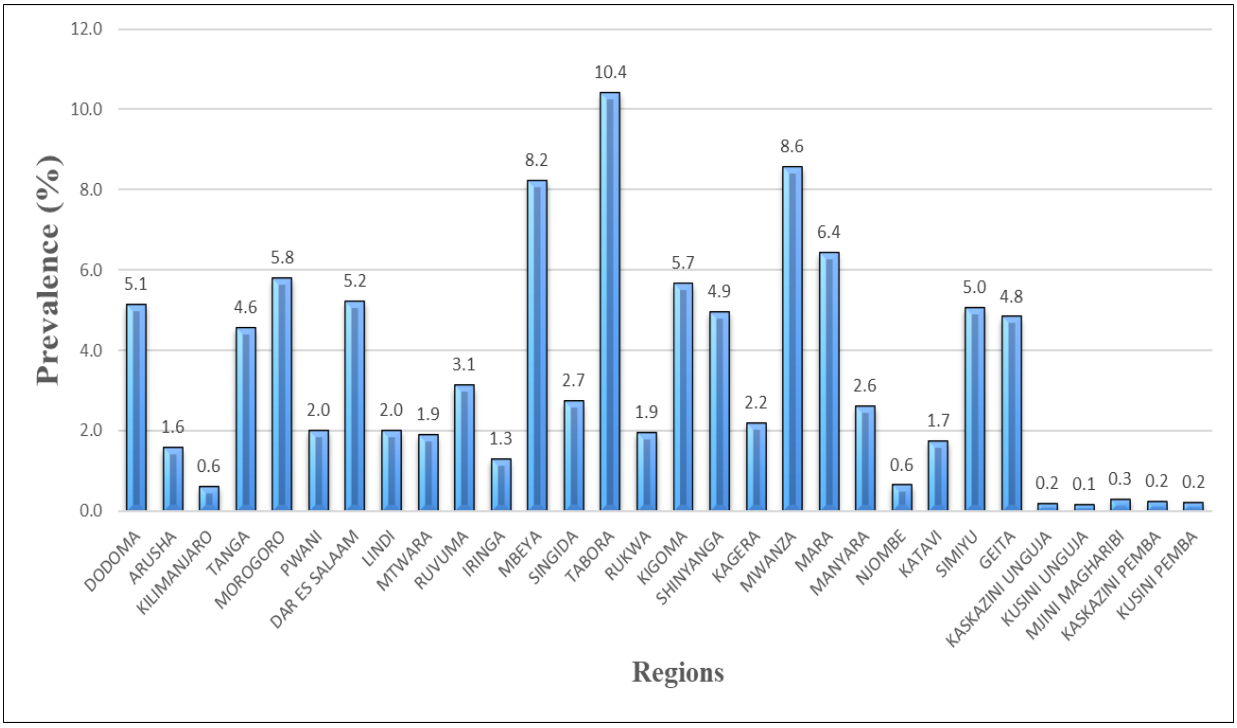

Figure 1: Prevalence of teenage pregnancy in Tanzania 2015/16 (per 1000 females)

4.2 RISK FACTORS & EFFECTS OF TEENAGE PREGNANCY

A large proportion of adolescents (75.5%) choose to postpone sexual activity at an early age. Although a vast majority (94.2%) of them are aware of contraceptive methods, only a small fraction (15.2%) reported using them. A substantial percentage (85%) of the participants reported making decisions regarding the use of contraception in collaboration with their partner or spouse (Table 1). A small proportion (6.2%) of adolescent pregnancies resulted in stillbirth, miscarriage, or abortion. Very few (18.5%) pregnant teenagers received their antenatal care during the first trimester. Close to a quarter (19.6%) and 11% of adolescent mothers had not completed their primary and secondary education respectively. The majority (88.3%) of the participants said they did not experience any form of sexual violence. (Table 1).

BIVARIATE AND MULTIVARIATE ANALYSIS

Bivariate analysis was conducted to examine the relationship between teenage pregnancy (dependent variable) and educational level, wealth, marital status, early sexual practice, contraceptive knowledge and use, decision making and sexual violence. The analysis shows that 26.8% of teenage pregnancies occur among those aged between 15 and 17 years. A significant proportion (74.6%) of pregnant teenagers have a primary level education, and more than half (50.6%) come from poor households. Three-quarters (75.6%) of teenage pregnancies were reported from participants who are currently or were previously in a union. There was a statistically significant relationship between teenage pregnancy and early sexual practices ($p=0.0134$), knowledge and use of contraceptives ($p<0.0001$), and educational attainment ($p<0.0001$). However, there was no significant relationship between sexual violence ($p=0.4982$) or decision making ($p<0.2$) and teenage pregnancy.

Table 1: Descriptive characteristics of participants by domains.

Variables	Sample Size, n	Percentage, %
1. DEMOGRAPHICS		
Age		
15	668	23.0
16	515	17.7
17	519	17.9
18	618	21.3
19	584	20.1
Total	2904	100.0
Educational Level		
No school	174	6.0
Primary school	1711	58.9
Secondary +	1019	35.1
Total	2904	100.0
Wealth Index		
Poor	469	16.1
Middle	964	33.2
Rich	1471	50.7
Total	2904	100.0
Marital Status		
Never in union	2170	74.7
Married	415	14.3
Living with Partner	253	8.7
Divorced	34	1.2
Separated	32	1.1
Total	2904	100.0
2. TEENAGE PREGNANCY RISK FACTORS		
How old were you when you had sexual intercourse for the very first time? [a]		
Above 15 years	1144	75.5
Below 15 years	371	24.5
Total	1515	100.0
Have you ever heard of any method to delay or avoid getting pregnant?		
Yes	169	5.8
No	2736	94.2
Total	2904	100.0
Are you currently using any method to delay or avoid getting pregnant?		
Yes	440	15.2
No	2464	84.8
Total	2904	100.0
Would you say that contraceptive use decision is mainly your husband's or partner's decision? [b]		

Mainly husband or partner	3	3.2
Joint decision	95	96.8
Total	98	100.0
3. EFFECT OF TEENAGE PREGNANCY ON TEENAGE GIRLS [c]		
Have you ever had a pregnancy that miscarried, was aborted, or ended in a stillbirth?		
Yes	47	6.2
No	709	93.8
Total	756	100.0
Can you say no to your (husband/partner) if you do not want to have sexual intercourse? [b]		
Yes	449	88.3
No	59	11.7
Total	508	100.0
What is the highest (grade/form/year) you completed? [c*]		
Incomplete primary	131	19.6
Complete primary	433	64.9
Incomplete secondary	74	11.0
Complete secondary+	30	4.5
Total	668	100.0
How many months pregnant were you when you first received antenatal care for your pregnancy?		
First trimester	107	18.5
Second trimester	412	71.0
Third trimester	61	10.5
Total	580	100.0

[a] Among participants who reported to have initiated sexual practices.
[b] Participants from the sample were selected randomly.
[c] Only participants who reported to have history of pregnancy.
[c*] Only participants who reported to have history of pregnancy and received formal education.

REGIONAL ANALYSIS OF RISK FACTORS OF TEENAGE PREGNANCY

4.3.1 TABORA

After adjusting for age, education, wealth index, child marriage, early sexual practices and contraception use in Tabora, there is no significant difference in the odds of teenage pregnancy among contraceptives users (aOR=1.947, 95% CI=0.619,6.121: p-value=0.2521) and teenagers who initiated sexual intercourse below 15 years (aOR=1.609, 95% CI=0.657,3.941: p-value=0.2943). There was a statistically significant difference in the odds of teenage pregnancy among those aged between 18-19 years (aOR=7.621, 95% CI=3.525, 16.477: p-value<0.0001)

compared to those 15-17 year. Furthermore, the odds of teenage pregnancy among those without education are 10 (aOR=9.99, 95% CI=2.262,44.124: p-value=0.0026) times higher compared to those with secondary or higher level of education. Interestingly, there is a significant difference.

Table 2: Bivariate analysis of teenage pregnancy by educational level, wealth, marital status, early sexual practice, contraceptive knowledge and use, decision making and sexual violence.

Characteristic **1. DEMOGRAPHICS**	**Pregnancy** ***N (%)***	**No pregnancy** ***N (%)***	**OR**	**95% CI**	**p-value**
Age					
15-17	202 (26.8)	1500 (69.8)	REF	REF	REF
18-19	553 (73.2)	648 (30.2)	6.315	5.034,7.923	**<.0001**
Education level					
No education	88 (11.7)	85 (4.0)	9.176	5.988, 14.062	**<.0001**
Primary	563 (74.6)	1147 (53.4)	4.356	3.266, 5.81	**<.0001**
Secondary +	103 (13.7)	916 (42.6)	REF	REF	REF
Wealth Index					
Poor	383 (50.6)	582 (27.1)	3.264	2.585, 4.122	**<.0001**
Middle	127 (16.8)	342 (15.9)	1.838	1.376, 2.455	**<.0001**
Rich	142 (32.6)	466 (57)	REF	REF	REF
Marital status					
Never in union	207 (27.4)	1963 (91.4)	REF	REF	REF
In union	549 (72.6)	185 (8.6)	28.125	21.509, 36.775	**<.0001**
2. TEENAGE PREGNANCY RISK FACTORS					
Early sexual practice [a]					
Below 15 years	210 (27.8)	161 (21.4)	1.426	1.075, 1.890	**0.0138**
Above 15 years	546 (72.2)	598 (78.8)	REF	REF	REF
Contraceptive knowledge					
Yes	744 (98.5)	1991 (92.7)	5.172	2.219, 12.057	**0.0001**
No	11 (1.5)	157 (7.3)	REF	REF	REF
Contraceptive Use					
Yes	228 (30.2)	213 (9.9)	3.943	3.015, 5.157	**<.0001**
No	527 (69.8)	1936 (90.1)	REF	REF	REF
Decision making					
Mainly husband or partner	13 (15.1)	3 (25.1)	REF	REF	REF
Joint decision	73 (84.9)	9 (74.9)	1.887	0.276, 12.89	0.5131
2. EFFECT OF TEENAGE PREGNANCY ON TEENAGE GIRLS [c]					
Sexual violence					
Yes	41 (10.5)	19 (15.6)	REF	REF	REF
No	348 (89.5)	102 (84.4)	1.581	0.775, 3.227	0.2073

[a] Among participants who reported to have initiated early sexual practices.
[b] Only participants who reported to have history of pregnancy.

in the odds of teenage pregnancy among teenagers who are from middle income households (aOR=8.333, 95% CI=1.103,49.516: p-value=0.02) compared to those from rich households. Additionally, the odds of teenage pregnancy among teenagers in union were significantly higher (aOR=17.196, 95% CI=7.196,41.305: p-value<.0001) compared to those who have never been in union **(Table 3).**

4.3.2 MWANZA

After adjusting for age, education, wealth index, child marriage, early sexual practices and contraception use in Mwanza, there was no significant difference in the odds of teenage pregnancy among contraceptive users (aOR=5.134, 95% CI=0.966,27.28: p-value=0.0548), teenagers who had early sexual debut (aOR=1.976, 95% CI=0.662,5.891: p-value=0.2187) and poor wealth index (aOR=1.062, 95% CI=0.838,4.647: p-value=0.9281). However, there was a statistically significant difference in the odds of teenage pregnancy among those aged between 18-19 years (aOR=11.406, 95% CI=4.338,29.989: p-value<.0001) compared to those 15-17 year. Teenagers without education (aOR=18.542, 95% CI=1.973,174.569: p-value=0.011) and those with primary education (aOR=6.743, 95% CI=1.757,25.884: p-value=0.0057) are more likely to experience teenage pregnancy than those with secondary or higher education. Moreover, teenage pregnancy was significantly higher among those in union compared to those never in union. (aOR=104.5, 95% CI=25.924,421.243: p-value<.0001) **(Table 3).**

Table 3: Stratified analysis of teenage pregnancy by high-risk regions.

Regional variables	Pregnancy n (%)	No pregnancy n (%)	aOR	*95% Confidence Interval*		*p-value*
				LL	UL	
1. Age						
Tabora						
15 -17	24 (30)	85 (76.6)	REF	REF	REF	REF
18 – 19	55 (70)	26 (23.4)	7.621	3.525	16.477	**<.0001***
Mwanza						
15 – 17	15 (23.1)	128 (77.4)	REF	REF	REF	REF
18 – 19	50 (76.9)	37 (22.6)	11.406	4.338	29.989	**<.0001***
Mbeya						
15 – 17	26 (42.3)	100 (79.2)	REF	REF	REF	REF
18 - 19	36 (57.7)	26 (20.8)	5.191	1.727	15.605	**0.0038***
Education						
Tabora						
No education	20 (24.8)	6 (5.4)	9.99	2.262	44.124	**0.0026***
Primary	51 (65.4)	82 (73.5)	1.921	0.683	5.403	0.2143
Secondary+	8 (9.8)	24 (21.1)	REF	REF	REF	REF
Mwanza						
No education	5 (7.4)	3 (1.9)	18.542	1.973	174.269	**0.011***
Primary	55 (84.3)	98 (59.1)	6.743	1.757	25.884	**0.0057***
Secondary+	5 (8.3)	65 (39.1)	REF	REF	REF	REF
Mbeya						
No education	3 (4.5)	4 (3.1)	3.148	0.201	49.237	0.4092
Primary	46 (73.6)	62 (49.1)	3.275	0.967	11.09	0.0564
Secondary+	16 (21.9)	60 (47.8)	REF	REF	REF	REF
Wealth index						
Tabora						
Poor	57 (72.6)	76 (68)	1.973	0.838	4.647	0.1191
Middle	9 (11.4)	3 (2.5)	8.333	1.103	49.516	**0.02***
Rich	13 (16)	33 (29.5)	REF	REF	REF	REF
Mwanza						
Poor	31 (48)	48 (28.7)	1.062	0.284	3.973	0.9281
Middle	7 (10.6)	23 (13.9)	2.315	0.956	5.603	0.0626
Rich	27 (41.4)	95 (57.4)	REF	REF	REF	REF
Mbeya						
Poor	6 (8.9)	23 (18.4)	1.133	0.227	5.643	0.8774
Middle	42 (68.1)	35 (28)	5.661	1.674	191.15	**0.0059***
Rich	14 (23)	68 (53.6)	REF	REF	REF	REF

Child Marriage						
Tabora						
In union	66 (84.3)	27 (23.8)	17.196	7.196	41.305	**<.0001***
Not in union	12 (69.2)	85 (60.6)	REF	REF	REF	REF
Mwanza						
In union	49 (75)	5 (2.8)	104.5	25.924	421.243	**<.0001***
Not in union	16 (25)	161 (97.2)	REF	REF	REF	REF
Mbeya						
In union	42 (67.7)	7 (5.9)	33.254	7.261	152.286	**<.0001***
Not in union	20 (32.3)	119 (94.1)	REF	REF	REF	REF
Early sexual practices						
Tabora						
Above 15	46 (58.8)	35 (31.6)	REF	REF	REF	REF
Below 15	32 (41.2)	76 (68.4)	1.609	0.657	3.941	0.2943
Mwanza						
Above 15	44 (68.4)	60 (36.5)	REF	REF	REF	REF
Below 15	20 (31.6)	105 (63.5)	1.976	0.662	5.891	0.2187
Mbeya						
Above 15	54 (86.4)	32 (25.6)	REF	REF	REF	REF
Below 15	8 (13.6)	94 (74.4)	0.335	0.064	1.745	0.1886
Contraceptive Use						
Tabora						
Users	10 (13)	8 (7.1)	1.947	0.619	6.121	0.2521
Nonusers	68 (87)	103 (92.9)	REF	REF	REF	REF
Mwanza						
Users	11 (16.2)	6 (3.6)	5.134	0.966	27.28	0.0548
Nonusers	54 (83.8)	159 (96.4)	REF	REF	REF	REF
Mbeya						
Users	24 (39.5)	25 (19.8)	2.641	0.857	8.139	0.0899
Nonusers	38 (60.5)	101 (80.2)	REF	REF	REF	REF

***** Bold indicates statistically significant

4.3.3 MBEYA

After adjusting for age, education, wealth index, child marriage, early sexual practices and contraception use in Mbeya, there was a statistically significant difference in the odds of teenage pregnancy among those aged between 18-19 years (aOR=5.191, 95% CI=1.727,15.605: p-value=0.0038) compared to those 15-17 year. Surprisingly, there is a significant difference in

the odds of teenage pregnancy among teenagers who are from middle income households (aOR=5.661, 95% CI=1.674,191.15: p-value=0.0059) compared to those from rich households. Additionally, the odds of teenage pregnancy among teenagers in union were 33 times higher than those who are never in union (aOR=33.254, 95% CI=7.261,152.286: p-value<.0001). However, there was no significant association between teenage pregnancy and education level (aOR=3.148, 95% CI=0.201,49.237: p-value=0.4092),contraceptive use (aOR=2.641, 95% CI=0.857,8.139: p-value=0.0899), and early sexual practices (aOR=0.335, 95% CI=0.064,1.745: p-value=0.1886) **(Table 3).**

CHAPTER V

DISCUSSION AND CONCLUSION

5.1 DISCUSSION

While teenage pregnancy has a negative effect on the socio-economic well-being of both teenagers and their families in Tanzania, there is insufficient data on prevalence in the most impacted regions, risk factors associated with the prevalence in impacted regions, and the effectiveness of current interventions. Utilizing data from the 2015-2016 Tanzania Demographic and Health Survey (TDHS-MIS, 2016) the study sought to answer the following research questions:

1. What is the prevalence of teenage pregnancy in select regions of Tanzania that have the highest burden of teenage pregnancy?
2. What are the risk factors and impact of teenage pregnancy on teenage girls in the selected regions of Tanzania with the highest burden of teenage pregnancy?
3. What are the effects of teenage pregnancy on teenage girls in Tanzania?
4. What strategies can be adopted to address teenage pregnancy in Tanzania?

According to the findings of this study, the overall prevalence of teenage pregnancy in Tanzania was 26%, with the highest rates observed in the Tabora, Mwanza, and Mbeya regions. Interestingly, the study found that teenage pregnancy was more prevalent among females aged 18 years and older, which contradicts the findings of Misuna et al. (2021) that reported higher rates among those under 17 years old. The study results also showed that teenagers from poorer households with lower levels of education were more likely to experience teenage pregnancy. These findings corroborated with a study conducted by Lindert et al., (2021) which found that poverty can lead to unintended pregnancies due to factors such as prostitution and early

marriage. Similarly, a study by Sik (2015) explored the negative cycle of poverty experienced by teenage mothers who have limited access to education and support services, which increases their risk of poor health outcomes and subsequent unintended pregnancies. The study found that more than 30% of teenage mothers had not completed formal education, which is consistent with the increased prevalence of school drop-out (15.8%) due to pregnancy reported by Mathewos & Mekuria (2018). Additionally, it was found that teenage pregnancy was more prevalent among teenagers who were in union (72.6%) This is consistent with the findings of Sychareun et al. (2018) which reported that high prevalence of teenage pregnancy (12.8%) was found in areas where early marriage was prevalent.

Despite the high level of knowledge of contraceptive methods, the utilization of contraceptives among teenage girls in Tanzania remains low, with over 70% of teenage pregnancies reported among non-users. This finding is consistent with prior UNFPA (2015) report which found that only one out of five teenage girls use contraceptives in the sub-Saharan Africa. The findings of this study also found that a high proportion of teenage pregnancies occurred among those who initiated sexual activity before reaching 15 years. This finding is supported by a study conducted by Sedekia et al. (2017), which reported that Tanzanian women tend to initiate sexual intercourse earlier than men - a median age of 17.2 years. Additionally, while there is evidence that adverse health outcome and intimate partner violence are associated with teenage pregnancy (Eliner et al., 2022; Tetteh, et al., 2020), this study found them to be less common among teenagers in Tanzania.

Research has shown that teenage pregnancy is a complex and multifactorial issue. The risk factors associated with teenage pregnancy can vary greatly across the country, thus, it is important to understand these variations in order to develop effective prevention strategies. In

this regard, regional analysis can provide valuable insights into the unique risk factors for teenage pregnancy in different parts of the country. In this context, it has been found that being 18 years and older or child marriages are two factors that are consistently associated with an increased likelihood of teenage pregnancy in all three top regions (Tabora, Mwanza and Mbeya). This suggests that enforcing strict policies on age at marriage in these regions could be effective prevention strategies for reducing teenage pregnancy rates. Study findings also revealed that low levels of education were strongly associated with teenage pregnancy in Tabora and Mwanza. This is consistent with previous research, which has shown that low levels of education can lead to limited knowledge about contraception and sexual health, which in turn increases the risk of unintended pregnancy.

The study found that teenagers from middle-income households in Tabora and Mbeya had higher odds of pregnancy compared to those in Mwanza. This finding is contrary to most literature on the topic, which suggests that poverty is a significant risk factor for teenage pregnancy (Lindert et al., 2021). The reasons for this discrepancy are unclear and require further investigation. Findings from the study also reported no association between teenage pregnancy and contraceptive use or early sexual debut in all three regions. This is surprising, given that these risk factors are strongly associated with teenage pregnancy nationwide. It is possible that cultural and social factors may play a larger role in these regions, and more research is needed to understand the factors that contribute to teenage pregnancy in these contexts.

Overall, these findings highlight teenage pregnancy risk factors in regions with higher teenage pregnancy prevalence rates in Tanzania. By understanding the unique risk factors associated with teenage pregnancy in different regions of the country, it may be possible to

develop or adopt and adapt more effective prevention strategies. The study highlights the need for a multi-faceted approach that are tailored to the specific needs of each community.

Comprehensive sex education programs and culturally appropriate information on sexual and reproductive health can be effective interventions to prevent teenage pregnancy in regions of Tanzania with high prevalence rates. These programs can be implemented in various settings, including schools, community centers, and other locations conducive to youth engagement. It is crucial to adapt the curriculum to the local culture, and training of teachers, parents, and community educators is necessary to ensure effective delivery and sustainability of the program.

Youth development programs that promote positive youth development, delay the onset of sexual activity among teenagers, and prevent risky sexual behaviors can also be effective interventions. These programs can include mentoring and leadership development activities, as well as life skills education covering topics such as financial management and communication skills for teenagers. Such programs can be implemented in regions of Tanzania with high teenage pregnancy prevalence rates to address the social and economic factors contributing to early sexual activity.

Efforts to prevent teenage pregnancy in regions of Tanzania can also focus on social and economic interventions, including improving access to education and economic opportunities for teenage mothers. Affordable and accessible reproductive health services, financial support for education, vocational training, and business development can be provided to address the underlying factors contributing to higher rates of teenage pregnancy. Additionally, promoting positive social norms around sexual and reproductive health, reducing stigma and discrimination related to teen pregnancy and parenting, and providing youth-friendly healthcare and support

services, such as counseling and parenting classes, can be effective in promoting healthy decision-making and reducing the incidence of teen pregnancy.

Community-based approaches, such as peer education and out-of-school programs, can provide a safe space for adolescents to discuss issues related to their health and well-being, encourage parents to become more involved in their children's sexual and reproductive health decisions, and promote healthy sexual behaviors among teenagers. Such efforts may integrate intimate partner violence education which despite lack of association in this study, can also be critical in reducing the incidence of teenage pregnancy by promoting gender equality, providing support services, and educating teenagers about healthy relationships.

5.2 STUDY STRENGTHS AND LIMITATIONS

This study had several strengths and limitations. One of the strengths was the use of nationally representative survey data, which allowed for a broader understanding of the target population and greater generalizability of the findings. By using a survey, the researchers were able to collect data from a large sample size, which provided a representative picture of the characteristics of the population under study. Moreover, the study used a suitable statistical adjustment to account for the cluster sampling design, which helped to reduce variability and provided a more accurate reflection of the larger population.

Despite the strengths, there were also limitations to this study. One such limitation is the use of a de facto population as the sample population, which may not accurately represent the target population. Furthermore, the design of the questionnaire did not allow in-depth assessment of contextual factors that may influence the variables. This may result in underlying confounding variables affecting both the independent and dependent variables, leading to a false association between them. Therefore, caution must be exercised when interpreting the findings of this study.

5.3 FUTURE IMPLICATIONS

The findings of the study should be taken into account by policymakers in Tanzania when creating policies and programs to decrease the occurrence of teenage pregnancy. These policies should prioritize increasing access to education and economic opportunities, promoting contraceptives, and delaying sexual debut. The government should focus on funding education and reproductive health services, while also addressing socio-cultural barriers, such as social stigma, by integrating community awareness programs. It is important to reinforce the monitoring and evaluation processes of current and potential prevention strategies to enhance their effectiveness. This would enable policymakers to evaluate the success of the strategy and identify areas that need improvement. Engaging community leaders and stakeholders in developing and implementing these strategies would ensure a supportive environment for teenagers and ensure the sustainability of interventions. It is also important to involve adolescent-led organizations and networks to amplify teenagers' voices and ensure their perspectives are included in policy discussions and decisions.

To address social stigma and promote social acceptance for change, awareness and education programs should be created that highlight the negative consequences of adolescent pregnancy. Community-based initiatives should also involve parents, teachers, religious leaders, and other stakeholders to shift cultural attitudes towards teenage pregnancy. This includes training healthcare providers to deliver culturally appropriate care, establishing referral systems to ensure that teenagers receive the appropriate level of care, and providing education and support to families and communities.

Policymakers should consider a comprehensive approach in healthcare services and support for teenage mothers and their infants through provision of access to comprehensive

reproductive health services, such as prenatal and postnatal care, family planning, breastfeeding and infant care. A multi-sectoral approach should be employed, engaging government, civil society, and private sector stakeholders to coordinate efforts and ensure that services are accessible and of high quality. By providing comprehensive and continuous care, it can help to prevent complications during pregnancy and childbirth, reduce infant mortality and morbidity rates, and improve the overall health and well-being of teenage mothers and their children.

Economic strategies that can effectively address teenage pregnancy in Tanzania include providing access to education and vocational training for girls and employment opportunities for young people. Poverty is a significant driver of teenage pregnancy and providing financial incentives for families to keep girls in school, offering reproductive health services and information at low or no cost, and providing access to contraceptives and family planning services can also help reduce the incidence of teenage pregnancy.

5.4. CONCLUSION

Addressing teenage pregnancy in Tanzania requires a multifaceted approach that tackles the underlying social and economic factors, while promoting education, healthcare, and support services. Empowering teenagers to make informed decisions about their sexual and reproductive health and promoting gender equality are crucial components of this approach. Evidence-based interventions and collaboration among public health professionals, policymakers, healthcare providers, and the community are essential for achieving lasting change and reducing the incidence of teenage pregnancy in Tanzania.

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