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## Factors Associated with Pregnancy among Teenage Girls Age 15–19 in Tanzania: Analysis of the 2022 Tanzania Demographic and Health Survey and Malaria Indicator Survey

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Malaria Indicator Survey**

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## ABSTRACT

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Overall, few studies on teenage pregnancy in Tanzania have used a nationally representative sample, and even fewer have conducted comprehensive analyses of the risk and protective factors for teenage pregnancy. Consequently, there is limited evidence to inform public health programs that seek to reduce teenage pregnancy. This study seeks to determine the prevalence and factors associated with teenage pregnancy in Tanzania. We conducted a secondary data analysis of 3,083 teenagers age 15–19 drawn from the 2022 Tanzania Demographic and Health Survey and Malaria Indicator Survey (2022 TDHS-MIS). The analysis considered the complex sampling design used in the survey. Descriptive and inferential analyses, including chi-square and multivariable logistic regression, were performed. All variables from the bivariate model were entered in the multivariable model after checking for multi-collinearity. After controlling for other covariates, teenagers age 18–19 (adjusted odds ratio [AOR]: 4.5; 95% confidence interval [CI]: 3.3, 6.1), those from female-headed households (AOR: 1.6; 95% CI: 1.3, 2.3), those who said it was not a big problem obtaining permission to access healthcare (AOR: 2.7; 95% CI: 1.4, 5.3), and those from the southern zones (AOR: 2.4; 95% CI: 1.5, 3.9) had greater odds of reporting ever having a pregnancy. Those from the richest households (AOR: 0.7; 95% CI: 0.4, 1.2), those with secondary and beyond educational levels (AOR: 0.3; 95% CI: 0.2, 0.4), and those married after age 15 (AOR: 0.4; 95% CI: 0.2, 0.8) had lower odds of reporting ever having a pregnancy. Residence was not a significant factor. The findings of this study highlight the significant factors associated with pregnancy among teenagers age 15–19 in Tanzania. Policies and interventions should strive to enhance legal reforms that seek to stop child marriage before age 15 as well as encouraging girls in Tanzania to reach higher levels of education. Teenager-friendly sexual and reproductive health services need to prioritize older teenagers with lower educational levels and those from poor families.

**Key words:** teenage pregnancy, adolescent girls, TDHS-MIS, Tanzania



# 1 INTRODUCTION

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Teenage pregnancy refers to pregnancy in women age 15–19.<sup>1</sup> Over 16 million teenage girls become pregnant worldwide each year. According to recent studies, 95% of these pregnancies occur in low- and middle-income nations.<sup>2,3</sup> Although teenage birth rates decreased internationally from 65 births per 1,000 women in 1990 to 47 births per 1,000 women in 2015, sub-Saharan Africa continues to have higher rates of teenage pregnancy<sup>4,5</sup> despite several initiatives by both government and nongovernment groups. The actual numbers of births among teenagers are staggering. For example, in 2021, it was estimated that there were 6,114,000 births among girls age 15–19 across sub-Saharan Africa.<sup>6</sup> In Tanzania, the Tanzania Demographic and Health Survey and Malaria Indicator Survey (TDHS-MIS) found that teenage pregnancy increased from 22.8% to 26.8% between 2010–11 and 2015–16 and then dropped slightly to 22% in 2022, which remains significantly high.<sup>7–9</sup> The prevalence of teenage childbearing differs across regions within Tanzania. The five leading regions are Songwe (45%), Ruvuma (37%), Katavi (34%), Mara (31%), and Manyara (29%).<sup>9</sup> This may reflect Tanzania’s marriage law that still allows adolescent girls to be married at age 15 with the consent of their parents but allows boys to marry at age 18.<sup>10</sup>

Given the physical and psychosocial immaturity that characterizes the teenage years, pregnancy among teenagers is considered a serious reproductive health risk that is known to increase risk of maternal mortality, low birthweight, and other severe neonatal complications.<sup>3,5,11</sup> In addition, teenage pregnancy negatively affects the physical, mental, and psychosocial well-being of teenagers. Studies done elsewhere in sub-Saharan Africa identified a number of factors associated with teenage pregnancies,<sup>12</sup> such as excessive use of alcohol, substance abuse, poor educational attainment, low self-esteem, and inability to resist sexual temptation, curiosity, and cell phone usage. Therefore, it is important that the factors associated with this major public health challenge are clearly understood in order to inform interventional policy and programmatic measures.

Understanding country-specific determinants is important for appropriately informing interventions that can reduce the occurrence of teenage pregnancies. However, most previous studies of the determinants of teenage pregnancy were based on small samples.<sup>13,14</sup> Few studies on teenage pregnancy in Tanzania have included a nationally representative sample,<sup>15</sup> and even fewer have used a comprehensive analytic approach for determining both the risk and protective factors for teenage pregnancies. Consequently, there is limited credible research evidence that can inform public health programs focused on reducing the occurrence of teenage pregnancies. The current study seeks to fill this gap by conducting a secondary analysis of the 2022 TDHS-MIS to better understand the prevalence and factors associated with teenage pregnancy. To the best of our knowledge, no study has reported the factors associated with teenage pregnancy using the 2022 TDHS-MIS data.

## 1.1 Research Question

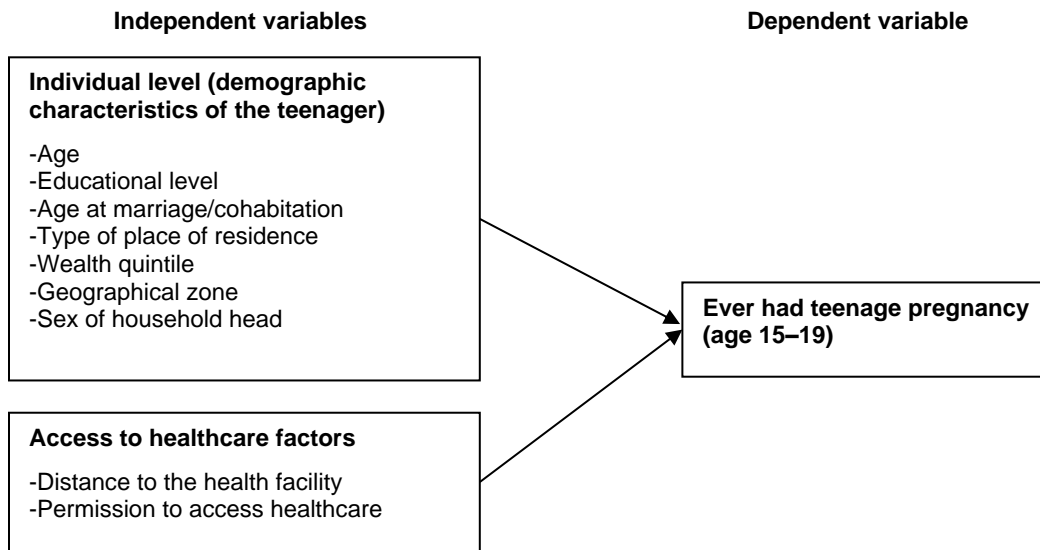
What are the factors associated with pregnancy among teenagers age 15–19 in Tanzania?

## 1.2 Conceptual Framework

We developed a conceptual framework (Figure 1) for this study based on previous studies conducted on teenage pregnancy. A number of studies reported the association of age with teenage pregnancy.<sup>16</sup> Several

studies have shown that early marriage among teenagers, including being married before age 15, poses a higher possibility of entering early motherhood compared to their counterparts who are married in older years or after age 15.<sup>14,16,17</sup> This could be attributed to the low use of contraceptives among teenage married couples as well as the low bargaining power associated with contraceptive use among teenage girls.<sup>16-18</sup> Other literature from sub-Saharan Africa and elsewhere suggests that socioeconomic variables influence teenage pregnancy. These include educational level, type of residence, with whom the teenager lives, and wealth quintile.<sup>15,19-25</sup> For example, a study done by Moshi and Tilisho in Dodoma, Tanzania, reported a significant association between teenage pregnancy and teenagers with low educational levels, early marriage, urban residence, and belonging to a family of low economic status.<sup>14</sup> Another scholarly work by Amoateng et al., conducted in South Africa, reported that the economic status of the community surrounding a teenage girl was associated with pregnancy.<sup>26</sup>

**Figure 1 Conceptual framework for factors associated with pregnancy among Tanzanian teenage girls age 15–19**



## 2 DATA AND METHODS

---

### 2.1 Data

We analyzed data from the 2022 Tanzania Demographic and Health Survey and Malaria Indicator Survey (TDHS-MIS). The survey was conducted by the National Bureau of Statistics (NBS) and the Office of the Chief Government Statistician (OCGS), Zanzibar; funded by USAID with technical assistance from ICF; and conducted in collaboration with other national and international stakeholders. In the 2022 TDHS-MIS, the sample selection was conducted in two stages. In the first stage, a total of 629 clusters (enumeration areas or EAs) were selected. Among them, 211 EAs were urban areas and 418 EAs were rural areas. The second stage involved the selection of 26 households from each cluster for a total anticipated sample size of 16,354 households for the survey.<sup>27</sup> A detailed description on the survey methods, data collection process, and questionnaires is provided in the final report of the 2022 TDHS-MIS.<sup>9</sup>

A total of 15,699 eligible women age 15–49 were selected, with 15,254 women completing the interview. Our sample was further limited to girls age 15–19, the age recognized as teenage worldwide.<sup>1,28</sup> Our final analytical weighted sample was 3,083 teenage girls.

### 2.2 Variables

#### 2.2.1 Dependent variable

The outcome variable was a binary variable of ever having experienced a teenage pregnancy. Teenagers (age 15–19) who were currently pregnant, had a live birth, or had a pregnancy that ended in an outcome other than a live birth such as a stillbirth, miscarriage, or induced abortion were included.

#### 2.2.2 Main independent variables

Literature from sub-Saharan African countries suggests that sociodemographic and economic variables that influence teenage pregnancy include the teenager's age, educational level, marital status, type of residence, age at first sexual intercourse, parent's marital status, with whom the teenager lives, and wealth quintile.<sup>15,19–24,29,30</sup> Based on our conceptual framework (Figure 1), nine independent variables were included in the final analysis as shown in Table 1. All variables were measured at the time of survey, except for age at marriage or cohabiting.

**Table 1 Independent variables**

Variable	Question asked	Variable categorization
Age	How old were you at your last birthday?	15–17, 18–19
Educational level	What is the highest level of school you attended: primary, secondary, or higher?	Primary and below, secondary and above
Age at marriage/cohabiting	Are you currently married or living with a man as if married? At what age started cohabiting?	Married before age 15, never married, married after age 15
Type of place of residence	Recorded depending on the residence of data collection	Urban, rural
Geographical zone	Recorded depending on the zone of data collection	Lake zone, Central zone, Northern zone, Southern zones, Coastal zones
Wealth quintile	Composite variable calculated from the assets owned by the household (radio, television, bicycle, roofing materials)	Poorest, poorer, middle, richer, richest
Sex of household head	Who is the head of the household?	Female, male
Distance to the health facility	The distance to the health facility a big problem or not a big problem?	Is a big problem, is not a big problem
Seeking permission to access healthcare	Obtaining permission to go to the doctor/health facility a big problem or not a big problem?	Is a big problem, is not a big problem

## 2.3 Statistical Analysis

Since there was oversampling and under-sampling of households by clusters in the design of the TDHS-MIS, it was imperative to use weights for adjustment as recommended by The DHS program. We performed all the analyses using Stata version 18, and the `svyset` command within Stata accounts for complex survey designs for valid inference. The findings were summarized with descriptive statistics—frequencies and percentages. The association between the dependent variable (ever been pregnant) and independent variables was established through a cross tabulation and using Pearson’s chi-square test. In the multivariable analyses, we used the logistic regression model to identify the independent factors associated with the dependent variable, which was teenage pregnancy.

All the independent variables were included into the final regression model after checking for multicollinearity. This was conducted to identify if the independent variables were correlated with each other. Marital status is significantly correlated with teenage pregnancy. The variable was modified by combining two variables, current marital status and age when cohabiting/married, to reflect the age at marriage/cohabiting (before or after age 15) or never married. The multivariable regression analysis identifies the factors associated with teenage pregnancy while controlling for other covariates. A p-value of less than .05 was considered statistically significant.

The data used in the analysis are freely available to the public and there was no need for any ethical approval because the data were obtained from the Tanzania National Bureau of Statistics by DHS. Permission to access DHS datasets was sought from and granted by the Data Archivist of The Demographic and Health Surveys (DHS) Program, at <https://dhsprogram.com/data/available-datasets.cfm>.



## 3 RESULTS

### 3.1 Sociodemographic Characteristics of the Teenagers

A total of 3,083 teenage girls were included in the study analysis. The majority (59.8%) were age 15–17, with a mean age of 17. More than half (51.9%) had a secondary and beyond educational level; most (65.4%) were from rural settings; and 40.2% were from the Lake zone. Only a minority (3.3%) were married before age 15. Slightly less than one quarter (24.7%) were from the richest households, and more than a third (30%) came from female-headed households. Almost a third (28.8%) said that distance to the health facility was a big problem, while only 8.7% indicated that obtaining permission to access healthcare was a big problem.

**Table 2** Demographic characteristics of the teenage girls age 15–19 (N = 3,083) using the 2022 TDHS-MIS

Characteristic	Percent (%)	Frequency (n)
<b>Age groups (years)</b>		
15–17	59.6	1,838
18–19	40.4	1,245
Mean age	17 (SD = 1.4)	
<b>Highest educational level</b>		
Primary and below	48.1	1,484
Secondary and beyond	51.9	1,599
<b>Marital status</b>		
Never married	78.9	2,463
Married before age 15	3.3	102
Married after age 15	16.8	518
<b>Type of place of residence</b>		
Urban	34.6	1,068
Rural	65.4	2,015
<b>Geographical zone</b>		
Lake zone	40.4	1,245
Northern zone	11.1	341
Central zone	11.5	355
Southern zones	17.5	540
Coastal zones	19.6	603
<b>Wealth quintile</b>		
Poorest	17.0	524
Poorer	17.4	538
Middle	20.6	635
Richer	20.3	625
Richest	24.7	761
<b>Sex of household head</b>		
Male	70.0	2,159
Female	30.0	924
<b>Distance to health facility</b>		
Big problem	28.8	887
Not a big problem	71.2	2,196
<b>Obtaining permission to go for healthcare</b>		
Big problem	8.7	268
Not a big problem	91.3	2,815
<b>Ever had pregnancy</b>		
No	78.0	2,405
Yes	22.0	678

### **3.2 Factors Associated with Teenage Pregnancies from Bivariate Model**

Of all teenage girls (age 15–19), almost a quarter (22%) reported ever having had a pregnancy. Of all teenagers who reported ever having a pregnancy, 39.5% were age 18–19 and 10.1% were age 15–17. Age was significantly associated with teenage pregnancy. More teenage girls with a primary and below education ever had a pregnancy compared to those with a secondary and beyond educational level (35.6% versus 9.3%). Place of residence was significantly associated with ever having a teenage pregnancy, as 24.9% of those from rural areas had a teenage pregnancy compared to 16.4% from urban areas who reported ever having a teenage pregnancy. Geographical zones were significantly associated with ever having a pregnancy, with the highest (29.1%) in the southern zones, 23.1% in the Lake zone, 22.2% in the Central zone, 18.3% in the coastal zones, and the lowest (12.8%) in the Northern zone. We found a significant association between age at marriage/cohabiting and ever having a pregnancy. The majority (88.2%) of those who married/cohabited before age 15 reported ever having a pregnancy, while 77.5% among those who married/cohabited after age 15 reported ever having a pregnancy. Only 7.5% of those who never married reported ever having a pregnancy. Ever having a teenage pregnancy decreased with increasing wealth, with ranges from 33.9% from the poorest households to 13.1% from the richest households. Thus, wealth was significantly associated with the outcome variable. Of those who were from female-headed households, 20.1% ever had a teenage pregnancy, while 22.8% from male-headed households reported ever having a teenage pregnancy. The sex of the household head was not significantly associated with teenage pregnancy. Distance to the health facility did not show any significant association with teenage pregnancy, with 24.2% of those who responded that distance to the health facility was a big problem ever having a teenage pregnancy, while 21.1% of those who responded that distance to the health facility was not a big problem ever had a teenage pregnancy. Similarly, 17.6% of those who said that obtaining permission to access healthcare is a big problem had experienced a teen pregnancy, compared to 22.4% of those who said that it was not a big problem obtaining permission to access healthcare. No significant association was found with the outcome variable. Age, educational level, geographical zone, age at marriage/cohabitation, type of place of residence, and wealth quintile were found to be significantly associated with ever having had a teen pregnancy.

**Table 3 Bivariate analysis using chi-square for determining association between independent and dependent variables**

	Ever had pregnancy		p value
	Yes (%)	95% CI	
<b>Age group</b>			.001
15–17	10.1	8.5, 11.9	
18–19	39.5	35.8, 43.4	
<b>Highest educational level</b>			.001
Primary and below	35.6	32.5, 38.9	
Secondary and beyond	9.3	7.7, 11.2	
<b>Age at marriage/cohabiting</b>			.001
Never married	7.5	6.2, 9.2	
Married before age 15	88.2	79.6, 93.5	
Married after age 15	77.5	72.9, 81.5	
<b>Type of place of residence</b>			.001
Urban	16.4	13.1, 20.4	
Rural	24.9	22.3, 27.7	
<b>Geographic zone</b>			.002
Lake zone	23.1	19.7, 27.0	
Northern zone	12.8	8.7, 18.5	
Central zone	22.2	15.6, 30.6	
Southern zones	29.1	25.0, 33.5	
Coastal zones	18.3	14.2, 23.3	
<b>Wealth quintile</b>			.001
Poorest	33.9	28.8, 39.5	
Poorer	26.5	22.3, 31.1	
Middle	24.1	20.3, 28.2	
Richer	16.7	13.4, 20.7	
Richest	13.1	9.3, 18.3	
<b>Sex of household head</b>			.191
Male	22.8	20.4, 25.4	
Female	20.1	16.9, 23.8	
<b>Distance to health facility</b>			.179
Big problem	24.2	20.5, 28.2	
Not a big problem	21.1	18.7, 23.8	
<b>Obtaining permission to access healthcare</b>			.127
Big problem	17.6	12.9, 23.6	
Not a big problem	22.4	20.2, 24.8	

### 3.3 Factors associated with pregnancies among adolescent girls age 15–19

All factors from the bivariate model were fitted in the multivariate logistic regression model to obtain the magnitude of association and control for possible confounders. After controlling for other covariates, teenage girls age 18–19 had greater odds (adjusted odds ratio [AOR]: 4.5; 95% confidence interval [CI]: 3.3, 6.1) of reporting having ever had a teen pregnancy compared to those age 15–17. Those with a secondary education or higher had (AOR: 0.3; 95% CI: 0.2, 0.4) lower odds of reporting having ever had a pregnancy compared to those with a primary education or lower. Those who married after age 15 had (AOR: 0.4; 95% CI: 0.2, 0.8) and those who had never been married had (AOR: 0.01; 95% CI: 0.01, 0.02) lower odds of reporting having ever had a teen pregnancy compared to those married before age 15. Teenagers living in rural settings and those living in urban areas had similar odds of ever having a teen pregnancy. Those from the southern zones had (AOR: 2.4; 95% CI: 1.5, 3.9) greater odds of reporting having ever had a teen pregnancy compared to those from the Lake zone. Only the southern zones were significant among all zones. Those from the richest households had (AOR: 0.7; 95% CI: 0.4, 1.2) lower odds of reporting

having ever had a teen pregnancy compared to those from the poorest households. Those from female-headed households had (AOR: 1.6; 95% CI: 1.2, 2.3) greater odds to report ever having had a teen pregnancy compared to those from male-headed households. Those who responded that distance to the health facility was a big problem had (AOR: 1.2; 95% CI: 0.8, 1.7) greater odds of reporting ever having a teen pregnancy compared to those who responded that distance to the health facility was not a big problem. Those who said that obtaining permission to access healthcare was a big problem had (AOR: 2.7; 95% CI: 1.4, 5.3) greater odds of reporting having ever had a teen pregnancy compared to those who said that obtaining permission to access healthcare was not a big problem. Table 4 shows the results.

**Table 4 Adjusted odd ratios of teenage pregnancy among girls age 15–19**

	<b>Adjusted odds ratio</b>	<b>95% CI</b>	<b>p value</b>
<b>Age group Years Ref: 15–17</b>			
18–19	4.5	3.3, 6.1	<.001
<b>Highest educational level Ref: primary and below</b>			
Secondary and beyond	0.3	0.2, 0.4	<.001
<b>Marital status Ref: married before age 15</b>			
Never married	0.01	0.01, 0.03	<.001
Married after age 15	0.4	0.2, 0.8	.011
<b>Type of place of residence Ref: Urban</b>			
Rural	1.0	0.7, 1.5	.902
<b>Geographical zones Ref: Lake zone</b>			
Northern zone	0.5	0.3, 1.1	.094
Central zone	1.4	0.8, 2.5	.264
Southern zones	2.4	1.5, 3.9	<.001
Coastal zones	1.4	0.8, 2.4	.278
<b>Wealth index Ref: Poorest</b>			
Poorer	0.9	0.5, 1.5	.646
Middle	0.8	0.5, 1.2	.24
Richer	0.6	0.4, 1.0	.065
Richest	0.7	0.4, 1.2	.153
<b>Sex of household head Ref: Male</b>			
Female	1.6	1.1, 2.3	.013
<b>Distance to health facility Ref: Big problem</b>			
Not a big problem	1.2	0.8, 1.7	.446
<b>Obtaining permission to go to healthcare Ref. Big problem</b>			
Not a big problem	2.7	1.4, 5.3	.003

## 4 DISCUSSION

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The study aimed to determine the factors associated with teenage pregnancy among teenage girls age 15–19 in Tanzania using the 2022 TDHS-MIS. The study found that the factors associated with reporting ever having a teen pregnancy included belonging to the 18–19 age group, being married before age 15, never having been married, having primary education and below level, and belonging to the poorest and poor households. Although the 22% prevalence of teenage pregnancy reported in the 2022 TDHS-MIS for Tanzania shows a decline from the 27% reported in the country's 2015/2016 DHS-MIS, it is still unacceptable. This suggests that Tanzania needs to further intensify the efforts to reduce the incidence of teenage pregnancy.

With the factors analyzed in this study, older teenagers have greater odds of teen pregnancy compared to younger teenagers, a finding that agrees with other studies in Africa.<sup>31–33</sup> This could be attributed to the fact that teenagers age 18–19 often succumb to both internal (physiological) and external (socio-environmental) pressures for having sex after being exposed for a much longer period post menarche when compared to the younger teenagers.<sup>27</sup>

With education, the study found that teenagers who had secondary education or above have 70% lower odds of having ever had a pregnancy compared to those with primary or no formal education. This agrees with findings reported in similar studies in Tanzania and other East African countries.<sup>15,22</sup> This may be attributed to the fact that the higher the educational achievement, the higher the level of empowerment that enables women to have control over their reproductive destiny. Teenagers who are pregnant may not continue with formal education which negatively affects their education attainment. This may be due to laws that deny pregnant girls from continuing their education or the reality that teenagers who are pregnant or have given birth may not be able to pay for their education. This may be because parents start perceiving them as adults and sometimes allow them to start their own families after pregnancy, viewing them as independent.<sup>34</sup> Our study suggests that programs that strive to improve the education of teenage girls could reduce the number of teenage pregnancies in this subpopulation.

For the place of residence, our analysis revealed that teenagers who reside in rural settings had similar odds of ever having had a pregnancy when compared to their urban counterparts. Thus, the area of residence, whether rural or urban, was not associated with teenage pregnancy. These findings are surprising because we expected teenagers from rural settings to have greater odds of reporting ever had a pregnancy because rural areas in the sub-Saharan are characterized by poverty. Such poverty impairs access to and utilization of contraceptive information and forces poor girls into engaging in sex as way of meeting their basic needs. This contradicts previous findings from other studies in sub-Saharan Africa.<sup>12,22,35</sup>

Teenage girls who are married after age 15 had lower odds of reporting having ever had a teen pregnancy compared to their counterparts who are married before the age 15. In addition, we found that those who never married had almost zero (0.01) odds of reporting having ever had a teen pregnancy compared to their counterparts who are married before age 15. These findings have been similarly reported in other studies that used Demographic and Health Survey data.<sup>15,24</sup> These findings suggest that early marriage may expose teenagers to becoming pregnant in three ways. One is that married teenagers may be preoccupied with a need to procreate in order to meet the expectations of her husband and in-laws.<sup>18</sup> Second, the teens' freedom

for using contraception becomes limited<sup>17</sup> as they often marry much older men who assume control over decision making.<sup>36</sup> Third, some parents force their daughters to marry due to the teenager's premarital pregnancy in order to avoid family shame in the society. These findings may have policy implications for the efforts to fight against child marriages in the society because laws about marriages in Tanzania remain controversial. The Sexual Offences Special Provisions Act (SOSPA) number four of 1998<sup>37</sup> was enacted to protect women and children from sexual violence. However, a critical examination of the Act shows that teenage girls are legally protected against rape as long as they are not married. When the married teenage girl is 15 or more years of age, sexual intercourse with her husband is considered legal because Tanzania's marriage law allows the teenage girl to be married at age 15.<sup>10,38</sup> One of the major weaknesses in using this marital status variable originates from not being able to clearly account for time of occurrence for the marriage or the pregnancy. By including age at marriage/cohabitation, our analysis shows that more teenage girls who married before the age of 15 reported teen pregnancy compared to those married after age 15 and those who never married.

The odds of having a teenage pregnancy among teenagers from the richest household were lower than those of teenage girls who from the poorest households. This finding agrees with the previous studies reported elsewhere in Africa.<sup>12,22,35</sup> This can be explained by the fact that poor parents are often unable to sufficiently meet their daughters basic needs such as food, clothes, soap, body oil, and school materials.<sup>14</sup> Consequently, poor girls might engage in sex in exchange for money or monetary promises out of necessity as they struggle to meet their pressing needs.<sup>26</sup> Similar findings were reported in Sierra Leone and other parts of sub-Saharan Africa where teenagers from the richest households had lower odds of reporting ever been pregnant compared to their counterparts who come from the poorest, poorer and middle income households.<sup>4,24</sup>

## **Strengths and Limitations of the Study**

The study drew its strengths from the DHS large sample which provides findings that are nationally representative and generalizable. However, the cross-sectional nature of the study limited the establishment of causal-effect relationships between the independent and dependent variables.

The study analyzed secondary data that could inherently assume the errors from the sampling design and other biases that occurred during data collection. However, the use of national survey data, as well as the application of weighting, offer the advantage of eliminating biases that are typically associated with sampling and measurement bias.

Due to the cross-sectional nature of the survey, this study assessed the association between teenage pregnancy which had occurred in the past (prior to the survey) and explanatory variables which were measured during the survey. Consequently, we were unable to establish the temporal relationship between teenage pregnancy and the explanatory variables except for age at marriage/cohabitation.

## 5 CONCLUSION

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This study shows that the high prevalence of teenage pregnancy in Tanzania is associated with several factors; belonging to the 18–19 age group, having lower educational achievement (primary school and below), being married before age 15, belonging to the poorest households, having a female head of household, and reporting that it is not a big problem to obtain permission to access healthcare. The findings have policy and programmatic implications. First, the current legal reforms that seek to stop child marriage before age 15 should be enhanced. Second, the education system should facilitate most girls having at least a secondary level of education. Third, teenager-friendly sexual and reproductive health services need to prioritize older teenagers who have a lower educational level and come from poor families.

### **Recommendation for Further Studies**

The findings of this study suggest that older teenagers (18–19 years) are at a higher risk of becoming pregnant, suggesting that they may have limited access to contraceptives. There may be a need for further study to determine factors associated with contraceptive use in this sub-population.

Moreover, conducting a qualitative study with teenage girls is crucial to providing information on aspects that could not be captured with the DHS data.





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