

Prevalence and Correlates of Adolescent Pregnancy in Kenya

Lawrence Ikamari*

<https://orcid.org/0000-0003-3791-3164>

Population Studies and Research Institute
University of Nairobi

Abstract

Adolescent pregnancy is a major public and social challenge in Kenya. Understanding its prevalence and the associated factors is important for developing appropriate and effective interventions. This study investigated the prevalence and determinants of adolescent pregnancy in Kenya. The study used a sample of 6,025 adolescents aged 15-19 years drawn from the 2022 Kenya Demographic and Health Survey. Descriptive statistics and logistic regression analysis were used to analyse the data. An adolescent pregnancy prevalence rate of 14.83% [95% CI: 13.93 – 15.73] was found, and significant disparities in adolescent pregnancy rates based on most of the variables included in the study. However, the multivariate logistic regression analysis identified the following factors as significant determinants of adolescent pregnancy in the country: adolescent age, education, household wealth index, age at first sexual intercourse, age at first marriage, and contraceptive use. The findings indicate that the country's adolescent pregnancy rate is relatively moderate compared to those observed in numerous sub-Saharan African countries. However, the prevalence is significantly higher among older adolescents, individuals with limited education, those residing in poor households, early initiators of sexual activity, and those entering into early marriages. The study recommends a multifaceted approach involving the enhancement of adolescent education, implementation of poverty alleviation programs, discouragement of premature engagement in sexual activity and early marriages, and the formulation of comprehensive strategies to prevent and reduce adolescent pregnancies.

Key Words: Pregnancy, Adolescent, Sexual, Marriage, Kenya

Mila (N.S.), Vol. 13 (2024), pp. 1-17, ISSN 1015-6178 ©2024 Institute of Anthropology, Gender and African Studies

Introduction

The World Health Organization [WHO], estimates that approximately 21 million girls aged 15–19 years in developing regions become pregnant each year, with about 12 million giving birth (Darroch *et al.* 2016). A report by UNFPA (2015) notes that, in developing countries, at least 777,000 births are registered annually among adolescent girls younger than 15 years. While adolescent pregnancies are a worldwide concern, they are disproportionately prevalent in marginalised communities, exacerbated by factors such as poverty, limited access to education, and limited employment prospects (UNICEF 2013).

* Email : likamari@uonbi.ac.ke

Adolescent pregnancies carry significant health risks for both young mothers and their infants. Globally, pregnancy and childbirth complications represent the primary cause of mortality among girls aged 15 to 19 years, with low- and middle-income countries accounting for 99% of maternal deaths among women aged 15 to 49 years (Neal *et al.* 2012). Adolescent mothers, specifically those aged 10 to 19 years, face elevated risks of pregnancy-related health complications and infections when compared to women aged 20 to 24 years (WHO *et al.* 2015; WHO 2012, 2015; Ganchimeg *et al.* 2014). These health complications often culminate in unsafe abortions, with studies indicating nearly 4 million such incidents occurring annually among adolescents aged 15-19 years. This not only contributes to maternal mortality and morbidity but also results in enduring health issues (Darroch *et al.* 2016). Additionally, adolescent mothers often experience rapid repeat pregnancies, further exacerbating health risks for both themselves and their infants (WHO 2012; Ganchimeg *et al.* 2014).

Infants born to mothers under the age of 20 face increased risks of low birth weight, preterm delivery, and severe neonatal conditions, which can lead to higher mortality rates (WHO 2015). These babies also have a heightened likelihood of perinatal mortality (Hogan and Kenny 2007). Furthermore, they are at a greater risk of experiencing delayed mental and physical development, struggling with establishing appropriate social connections with their parents, and encountering challenges in their education (Ganchimeg *et al.* 2014; Hodgkinson *et al.* 2014; Chandra-Mouli *et al.* 2013).

Unmarried pregnant adolescents may face multiple social consequences, including stigma, rejection, and violence from their partners, parents, and peers (Atuyambe *et al.* 2005; Aransiola *et al.* 2013). Research indicates that adolescent girls who become pregnant before the age of 18 are at a higher risk of experiencing violence within their marriages or partnerships (Hodgkinson *et al.* 2014; Atuyambe *et al.* 2005; Raj and Boermer 2013). Additionally, adolescent pregnancy and childbirth often result in young girls dropping out of school, with limited opportunities for returning to their education after giving birth. This can significantly curtail their future prospects in terms of education and employment (Neal, *et al.* 2012; Aransiola *et al.* 2013).

Several factors have been associated with adolescent pregnancy, including early marriage, poverty, and gender-based violence (Aransiola *et al.* 2013; Kozuki *et al.* 2013; Raj and Boermer 2013; Atuyambe *et al.* 2015; Kass *et al.* 2013; Krugu Kass *et al.* 2016; McCleary-Sills Kass *et al.* 2016; Were 2007; Kass *et al.* 2018). In numerous societies across sub-Saharan Africa, adolescents frequently face pressure to marry and become parents at a young age (WHO *et al.* 2015; Aransiola *et al.* 2013, Kozuki *et al.* 2013). In the least developed countries, approximately 39% of adolescents

marry between the ages of 15 and 17, with 12% marrying before reaching the age of 15 (World Bank 2017). In such societies, early motherhood is often esteemed, and marriage or forming a union and having children may be perceived as the most viable choices among the limited options available (WHO *et al.* 2015).

Studies have revealed correlations between adolescent pregnancy, early marriage, and sexual debut (Birhanu *et al.* 2019; Amoateng *et al.* 2022; Indongo 2020; Okibo and Speizer 2015). In Ethiopia, a study demonstrated that adolescents who marry before the age of 15 are 30 times more likely to experience pregnancy compared to women who marry between the ages of 15-17. Additionally, it revealed that adolescents who engage in sexual activity before the age of 15 are eight times more likely to experience pregnancy compared to women who initiate sexual activity at the age of 18 or older (Birhanu *et al.* 2019). Other studies have also identified factors such as education, place of residence, and regional location as significant predictors of adolescent pregnancy (Kassa *et al.* 2018; Birhanu *et al.* 2019; Amoateng *et al.* 2022; Loaiza and Liang 2013; Ayele *et al.* 2018; Beyene *et al.* 2015; Kupoluyi *et al.* 2015; Pradhan *et al.* 2015). The majority of these studies suggest that adolescents with lower levels of education are more likely to experience pregnancy compared to their more educated counterparts. Similarly, adolescents in rural areas have shown a higher likelihood of experiencing pregnancy than their urban counterparts. This can be attributed to the limited educational opportunities and restricted access to sexual and reproductive health (SRH) services available to adolescents in rural areas (Kassa *et al.* 2018; Birhanu *et al.* 2019; Loaiza and Liang 2013). Moreover, regional disparities in the prevalence of adolescent pregnancy are often linked to ecological and cultural variations (KNBS *et al.* 2015).

Studies also highlight the absence of comprehensive sexual education (Atuyambe *et al.* 2015; Adimna *et al.* 1999; Ahlberg *et al.* 2001), inadequate access to and provision of reproductive health services, and unfavourable attitudes of healthcare workers toward providing contraceptives to adolescents (Ahlberg *et al.* 2001; Adekunle *et al.* 2000). Adolescents who wish to prevent pregnancies may find themselves unable to do so due to lack of knowledge and misconceptions regarding where to access contraceptive methods and how to use them effectively (WHO 2011). Moreover, adolescents often lack the necessary skills and autonomy required to ensure the correct and consistent use of contraceptive methods (Krugue *et al.* 2016; Darroch *et al.* 2016).

In the past decade, much of the research on this subject in Kenya has been limited in scope (Were 2007; Okigbo and Speizer 2015; Kumar *et al.* 2018; Omollo and Mathews 2003; Oduor and Kithuka 2020), with some studies relying solely on bivariate analysis. For instance, Were (2007) exclusively focused on Busia District, while Kumar *et al.* (2018) concentrated on specific areas

within Nairobi; Omollo and Mathews (2002) conducted research in rural regions of Kenya, whereas Okigbo and Speizer (2015) focused only on selected urban areas. The study by Oduor and Kithuka (2020) narrowed to county-level analysis. While KNBS *et al.* (2015, 2023) achieved national coverage, they relied solely on descriptive statistics. Mutea *et al.* (2020) also attained national coverage, but they used a sample of women aged 20-24 instead of adolescents aged 15-19 as the unit of analysis, with data from the 2003, 2008-9, and 2014 KDHS datasets. Consequently, the current status of adolescent pregnancy levels, along with the variations and factors closely associated with adolescent pregnancy at the national level, remain poorly understood.

This study aims to enhance our understanding of current levels, patterns, and determinants of adolescent pregnancy in Kenya. To achieve this, we utilised a nationally representative sample of adolescents aged 15-19 years, drawn from the most recently conducted national survey, which is the 2022 KDHS data as well as other sources on adolescent pregnancy in diverse settings.

Methods

Source of data

Data for this study are drawn from the 2022 Kenya Demographic and Health Survey (KDHS), the Kenya National Bureau of Statistics (KNBS), and 2022 nationwide survey, which aimed at generating reliable data for monitoring demographic and health indicators in the country. The survey interviewed 32,156 women of reproductive age (15-49 years) and 14,453 men in the 15-54 age bracket. The details of the sampling methodology, as well as an assessment of the quality of the data, are presented and discussed extensively in the country report of the survey (KNBS and ICF 2023).

From the 2022 KDHS dataset, a nationally representative sample of 6,025 women aged 15-19, was extracted and included in the study. In line with the literature and study objectives, the study focuses on individual women within the reproductive age bracket of 15-19. Consequently, instances of pregnancy among these women were classified as adolescent pregnancy, irrespective of their marital status during pregnancy and childbirth.

Data analysis

We use percentages, cross-tabulation, and logistic regression analysis. Within the scope of bivariate analysis, we estimated the prevalence of adolescent pregnancy and variation in prevalence based on study variables. Logistic regression analysis was to discern how study variables influence the likelihood of adolescents experiencing pregnancy, a binary outcome (yes/no). Logistic regression

was well-suited for our analysis due to the dichotomous nature of the dependent variable (Retherford and Choe 1993).

Our analytical framework comprises of two essential components; univariate logistic regression was employed to investigate unadjusted associations, measured through odds ratios (OR), between each explanatory variable and the occurrence of adolescent pregnancy. Multivariate logistic regression analysis was utilised to ascertain the net effects (adjusted odds ratios, aOR) of the explanatory variables on adolescent pregnancy while accounting for other relevant factors. All analyses were performed using the Statistical Package for Social Science (SPSS) version 22.

Study variables

Dependent variable

The dependent variable was adolescent pregnancy, which was a binary outcome variable indicating whether an adolescent aged 15-19 years has experienced a pregnancy. It was determined based on two criteria as follows: first, the age at first birth for adolescents who have already begun childbearing, their age at first birth is considered. If the adolescent has given birth at least once, the variable was coded as one [1]. Secondly, the current pregnancy status for adolescents who were pregnant for the first time at the time of the survey, the variable was determined by their response to the question regarding their current pregnancy status. If the adolescent is currently pregnant, the variable was coded as one [1], indicating pregnancy. Otherwise, if the adolescent was not pregnant, the variable was coded as zero [0], indicating the absence of pregnancy.

Independent variables

Based on the literature, twelve (12) explanatory variables were included in the study, namely: age of the adolescent, level of education, religion, type of place of residence, region of residence, work status, household wealth status, age at first sex, age at first marriage, exposure to mass media, knowledge about the fertile period and ever-use of contraception [See Table 1 for details on variable categorisation].

Ethical considerations

Ethical permissions were not required since the 2022 KDHS dataset is publicly available and used. Institutions that commissioned, funded, or managed the 2024 KDHS were responsible for ensuring ethical considerations and procedures during data collection. The DHS Program, ICF International, Kenya National Bureau of Statistics (KNBS), and Ministry of Health (MOH) and partners, approved the 2024 KDHS survey in line with the U.S. Department of Health and Human

Services regulations for the protection of human subjects. The data for this study can be accessed on <https://dhsprogram.com/data/available-datasets.cfm>.

Results

Profile of the study population

The socio-demographic profile of the study population is presented in Table 1. The mean age was 17.03 years (95% CI = 17.00 - 17.07). The majority (63%, n= 3791) of the adolescents had secondary education, followed by those with primary education (32%, n= 1907). Only 3.2% of the adolescents had higher education. The majority of the adolescents were rural residents (70%, n= 4242), protestants (61%, n= 3642), and 93 % (n= 5572) were single. About 63% (n = 3651) of all the adolescents reported that they had not yet had sex. Half of the adolescents reported watching television or listening to the radio at least once per week and the majority (83%) of the adolescents had never used contraception. Eight-five percent of all the adolescents did not know their fertile period during the ovulation cycle.

Pregnancy Prevalence Levels and Variations

Table 2 presents the prevalence of adolescent pregnancy within the study sample. Out of the total adolescents considered (n = 6025), approximately 12.2% (n = 737) had already experienced a live birth, 0.4 % (n=23) had experienced a pregnancy loss, and 2.2% (n = 133) were pregnant for the first time at the time of the survey. These statistics yield an adolescent prevalence rate of 14.83% (n= 893, 95% CI: 13.56 – 15.33).

Significant statistical associations were observed between adolescent pregnancy and various study variables, excluding religion and knowledge about the fertile period. For example, the prevalence of adolescent pregnancy exhibited a substantial increase with the age of the adolescent, ranging from a low of 2.7% among those aged 15 years to a peak of 31% among those aged 19 years. Conversely, the results indicate that the prevalence of adolescent pregnancy declines as the level of education increases, declining from a high of 38% among adolescents with no formal education to a low of 4.6% among those with higher education. Additionally, adolescents hailing from poor households exhibited a higher prevalence of adolescent pregnancy compared to those from more affluent backgrounds.

There were significant variations in the rates of adolescent pregnancy based on age at first sex, age at first marriage, and every use of contraception. For instance, the prevalence of adolescent pregnancy was substantially higher, standing at 52%, among those who initiated sexual activity before the age of 16, contrary to 0.1% among those who initiated it at 19 years or older.

Table 1: Sociodemographic characteristics of the female adolescents aged 15-19 years; Kenya, 2022		
Characteristic	Number	Percentage (%)
Age		
15	1163	19.3
16	1197	19.9
17	1203	20.0
18	1195	19.8
19	1266	21.0
Education		
None	134	2.3
Primary	1907	31.6
Secondary	3791	62.9
Higher	194	3.2
Type of place of residence		
Urban	1783	29.6
Rural	4242	70.4
Region of residence		
Nairobi	452	7.5
Central	637	10.6
Coast	567	9.4
Eastern	765	12.7
Nyanza	876	14.7
Rift Valley	1618	26.9
Western	884	14.7
North Eastern	226	3.8
Wealth Index		
Poor	2678	44.4
Middle	1279	21.3
Rich	2069	34.3
Current work status		
Not working	5240	87.0
Working	785	13.0
Religion		
Catholic	1095	18.2
Protestants	3642	60.5
Islam	510	8.5
Other	778	12.9
Age at sexual debut		
≤ 15	869	14.4
16-18	1077	17.9
19+	4081	67.7
Age at first marriage		
≤ 15	127	2.1
16-17	216	3.5
18-19	105	1.7
Single	5577	92.6
Mass Media Exposure*		
No TV watching and Radio listening	868	25.6
Either TV watching or Radio listening at least once a week	3011	50.0
Both TV watching and Radio listening at least once a week	1469	24.4
Ever use of contraception		
No	4988	82.7
Yes	1037	17.3
Knows the fertile period		
Yes	888	14.7
No	5137	85.3
Total	6025	100
Note: * There were very few adolescents who reported accessing print media at least per week. Hence the omission of the category of print media.		
Source: Primary Analysis of the 2022 KDHS data		

Similarly, adolescents who married before the age of 16 had the highest pregnancy prevalence, reaching 95%, while only 9% of single adolescents experienced pregnancy. Furthermore, the prevalence of pregnancy was 49% among adolescents who reported ever using contraception, as opposed to 8% who had never used contraception.

Multivariate results

Table 3 presents multivariate results. Although the table also contains results of bivariate results, in this subsection, the focus is on presenting the multivariate results (aOR) and emphasizing statistically significant findings at a confidence level of 95% or higher. The findings suggest a clear association between the age of adolescents and the likelihood of pregnancy. To illustrate, in comparison to adolescents who are 15 years old, those who are 17, 18, and 19 years old demonstrated 5.32, 9.56-, and 16.34 times higher odds of experiencing adolescent pregnancy, respectively.

Education was significantly associated with adolescent pregnancy. Adolescents with lower levels of education face a greater risk of experiencing adolescent pregnancy compared to those with higher educational attainment. The findings indicate that adolescents with no education have an 11.94 times higher likelihood of experiencing adolescent pregnancy in comparison to their peers with higher education. Adolescents with only primary education have a 4.85 times greater likelihood of experiencing adolescent pregnancy when compared to those with higher education.

In the context of bivariate logistic regression, it was found that both type of place and region of residence were significantly associated with adolescent pregnancy. However, when conducting a multivariate analysis, both the type of place and region of residence were no longer significantly associated with adolescent pregnancy. Adolescents from low-income and middle-income households had a higher likelihood of experiencing pregnancy compared to their counterparts from affluent households, with odds ratios of 1.54 and 1.40, respectively. The results indicate a weak association between religion and the risk of adolescent pregnancy. Specifically, adolescents belonging to religious denominations other than Protestantism, and Islam, such as Hinduism and African traditional churches, exhibited higher odds of experiencing pregnancy when compared to the Catholics.

The age of first sexual activity by adolescents was closely linked to teenage pregnancy. Those who engaged in sex at an earlier age were at a greater risk of pregnancy unlike those who delayed to at least 19 years. Single compared to married adolescents were significantly less likely to experience pregnancy. The former were 27.78 times less likely to experience pregnancy compared to the latter who married before the age of 16.

Table 2: Percentage distribution of the adolescents age 15-19 years according to whether they have had a pregnancy or not and according to the selected study variables, Kenya 2022			
Variable	Whether had a pregnancy		Cases (n)
	Yes	No	
Age	P = 0.000		
15	2.7	97.3	1163
16	5.5	94.5	1197
17	12.8	87.2	1204
18	20.9	79.1	1195
19	31.0	69.0	1266
Education	P = 0.000		
None	37.6	62.4	133
Primary	19.8	80.2	1907
Secondary	12.0	88.0	3791
Higher	4.6	95.4	194
Type of place of residence	P = 0.000		
Urban	12.1	87.9	
Rural	16.0	84.0	
Region of residence	P = 0.000		
Nairobi	8.4	91.6	452
Central	8.6	91.4	637
Coast	12.7	87.3	567
Eastern	14.3	85.7	765
Nyanza	17.9	82.1	877
Rift Valley	17.8	82.2	1619
Western	15.8	84.2	884
North Eastern	15.0	85.0	226
Wealth Index	P = 0.000		
Poor	19.2	80.8	2673
Middle	13.4	86.4	1278
Rich	10.1	89.9	2068
Work Status	P = 0.000		
Not working	13.0	87.0	5240
Working	27.3	72.7	785
Religion	P = 0.161		
Catholic	13.9	86.1	1094
Protestants	14.8	86.2	3642
Muslims	13.3	86.7	510
Other	17.2	82.8	778
Age at sexual debut	P = 0.000		
≤ 15	52.2	47.8	868
16-18	40.4	59.6	1077
19+	0.1	99.9	4081
Age at first marriage	P = 0.000		
≤ 15	94.5	5.5	127
16-17	88.9	11.1	216
18-19	81.0	19.0	105
Single	8.9	91.1	5577
Mass Media Exposure	P = 0.000		
No TV watching and Radio listening	16.9	83.1	1547
Either TV watching or Radio listening at least once a week	11.6	88.4	3070
Both TV watching and Radio listening at least once a week	19.3	80.7	1469
Knows the fertile period	P = 0.197		
Yes	13.4	86.6	889
No	15.1	84.9	5137
	P = 0.000		
Ever use of Contraception	P = 0.000		
Yes	49.2	50.8	1037
No	7.5	92.5	4988
Total	14.8	85.2	6025

Table 3: Unadjusted and adjusted multivariate logistic regression results on adolescent pregnancy among women aged 15-19 in Kenya: 2022 KDHS

Explanatory variables	Unadjusted Model		Adjusted Model	
	OR	95% CI for OR	aOR	95% CI for aOR
Age				
15 (Ref Cat.)	1.00	Ref Cat.	1.000	Ref Cat.
16	2.105***	1.364 - 3.249	1.581**	0.904 - 2.765
17	5.317***	3.586 - 7.884	2.856***	1.694 - 4.814
18	9.579***	6.537 - 14.035	3.938***	2.329 - 6.660
19	16.344***	11.232 - 23.783	8.264***	4.864 - 14.138
Education				
None	11.937***	5.682 - 25.076	8.098***	2.531 - 25.913
Primary	4.852***	2.497 - 9.429	11.828***	5.381 - 24.276
Secondary	2.685***	1.385 - 5.206	6.713***	3.157 - 14.276
Higher (Ref Cat.)	1.00	Ref Cat.	1.000.	Ref Cat.
Place of Residence				
Urban (Ref Cat.)	1.00	Ref Cat.	1.000	Ref Cat.
Rural	1.389***	1.178 - 1.638	0.787	0.538 - 1.151
Region				
Nairobi (Ref Cat.)	1.00.	Ref Cat.	1.000	Ref Cat.
Central	1.027	0.666 - 1.583	0.900	0.475 - 1.706
Coast	1.597***	1.055 - 2.415	0.724	0.349 - 1.499
Eastern	1.819***	1.232 - 2.684	1.090	0.581 - 2.040
Nyamza	2.371***	1.630 - 3.449	0.880	0.486 - 1.596
Rift Valley	2.357***	1.651 - 3.364	0.854	0.486 - 1.503
Western	2.050***	1.404 - 2.992	0.703	0.383 - 1.292
North Eastern	1.977**	1.210 - 3.231	0.723	0.228 - 2.295
Wealth Index				
Poor	2.106***	1.773 - 2.503	1.543**	1.031 - 2.308
Middle	1.380***	1.113 - 1.711	1.404*	0.941 - 2.093
Rich (Ref Cat.)	1.00	Ref Cat.	1.00	Ref Cat.
Work status				
Not working	1.00	Ref Cat.	1.00	Ref Cat.
Working	2.517***	2.110 - 3.003	1.010	0.775 - 1.316
Religion				
Catholic (Ref Cat.)	1.00	Ref Cat.	1.00	Ref Cat.
Protestants	1.082	0.891 - 1.314	1.091	0.827 - 1.440
Muslims	0.954	0.702 - 1.298	.835	0.402 - 1.735
Other	1.288**	1.000 - 1.658	1.688**	1.154 - 2.469
Age at sexual debut				
≤ 15(Ref Cat.)	1.00	Ref Cat.	1.000	Ref Cat.
16-18	0.651***	0.518 - 0.743	0.468***	0.364 - 0.602
19 and above	0.001***	0.000 - 0.003	0.002***	0.001 - 0.006
Age at first marriage				
≤15 Ref Cat.	1.000	Ref Cat.	1.000	Ref Cat.
16-17	0.473***	0.199 - 1.124	0.469*	0.182 - 1.209
18-19	0.257***	0.105 - 0.637	0.335**	0.085 - 0.650
Not married (Single)	0.006***	0.003 - 0.012	0.036***	0.015 - 0.087
Mass media Exposure				
No access (Ref Cat.)	1.000	Ref Cat.	1.000	Ref Cat.
Access to either TV or Radio	0.647***	0.543 - 0.769	0.865	0.643 - 1.164
Access to both TV and Radio	1.186*	0.980 - 1.421	1.159	0.859 - 1.564
Knowledge of the fertile period				
No (Ref Cat.)	1.000	Ref Cat.	1.000	Ref Cat.
Yes	0.871	0.708 - 1.072	0.879	0.647 - 1.196
Ever use of contraception				
No (Ref Cat)	1.00	Ref Cat.	1.000	Ref Cat.
Yes	11.615***	9.895 - 13.633	1.417**	1.128 - 1.779

Notes: Significant at a $p \leq 0.05$ and ** significant at a $p \leq 0.001$.

Finally, the results obtained indicated that adolescents who reported ever using contraception were significantly more likely to experience pregnancy compared to those who had never used contraception.

Discussion

This study aimed to investigate the prevalence and determinants of adolescent pregnancy in the country. We utilised a nationally representative sample of 6,025 adolescents aged 15-19 years, obtained from the 2022 Kenya Demographic and Health Survey (KDHS), and incorporated a range of factors identified in the literature as closely associated with adolescent pregnancy in other regions. The study revealed an adolescent pregnancy prevalence rate of 14.83% (95% CI: 13.93 – 15.73) among the participants. This prevalence rate, while noteworthy, is comparatively lower than rates reported in some Sub-Saharan African countries (Darroch *et al.* 2016; UNICEF 2013; Neal *et al.* 2012; Raj and Boehmer 2013; Yakubu and Salisu 2018; Kass *et al.* 2018; Birhanu *et al.* 2019; Indongo 2020; Amoateng *et al.* 2022).

The results reveal statistically significant variations in adolescent pregnancy rates based on various factors – including the adolescent's age, education, place of residence, household wealth index, age at first sex, age at marriage, exposure to mass media, and contraceptive use. In the bivariate logistic regression analysis, it was observed that all explanatory variables except for religion and knowledge about the fertile period displayed a significant association with the risk of adolescent pregnancy. However, in the multivariate logistic regression results, age, education, household wealth index, age at first sexual intercourse, age at first marriage, and ever use of contraception continued to exhibit a significant association with the risk of adolescent pregnancy. This suggests that the individual impacts of place type, region of residence, current employment status, and exposure to mass media on the likelihood of adolescent pregnancy become statistically insignificant.

The adjusted odds of being pregnant increased with the age of the adolescent. This result resonates with those that show a positive association between age and adolescent pregnancy (Omollo and Mathews 2003; Were 2007; Birhanu *et al.* 2019; Amoateng *et al.* 2022; Ayele *et al.* 2018; Habitu *et al.* 2018). The multivariate results revealed a significant association between education and adolescent pregnancy. Adolescents with less than a higher education were found to be at a higher risk of experiencing adolescent pregnancy compared to their counterparts with a higher level of education. These findings echo similar results reported in prior studies (Were 2007; Hokororo *et al.* 2015; Habitu *et al.* 2018; Ayele *et al.* 2018; Birhanu *et al.* 2019; Amoateng *et al.* 2022).

Adolescents from low and middle-income households demonstrated a higher likelihood of experiencing pregnancy compared to their counterparts from affluent households. This study reaffirms the findings of numerous previous studies that establish a strong connection between poverty and adolescent pregnancy. Adolescents from economically disadvantaged households were notably more susceptible to adolescent pregnancy when contrasted with those from wealthier backgrounds (Loaiza and Liang 2013; Krugu *et al.* 2016; Birhanu *et al.* 2019; Indongo 2020; Amoateng *et al.* 2022). It is important to emphasise that poverty is also closely linked to early sexual initiation and premature marriage, both of which this study has identified as significantly associated with adolescent pregnancy. Therefore, efforts to alleviate poverty would make a substantial contribution to reducing the prevalence of adolescent pregnancy in the country.

In the bivariate analysis, the current work status exhibited a notable association with adolescent pregnancy. Nevertheless, in the multivariate logistic analysis, current work status did not maintain statistical significance in its association with adolescent pregnancy. It's important to note that this outcome is not uncommon; similar findings have been reported in other studies (Birhanu *et al.* 2019). This discrepancy might be attributed to the nature of the variable itself, as it pertains to the respondents' work status at the time of the survey. The work status before the occurrence of pregnancy could have been different, potentially explaining the lack of significance in the multivariate analysis.

Age at first sex exhibited a strong association with adolescent pregnancy. Adolescents who initiated sexual activity at an early age were found to be at a higher risk of pregnancy compared to those who began sexual activity at age 19 or later. These findings reinforce the notion that early initiation of sexual activity is a significant predisposing factor for early pregnancy in young women. This pattern is consistent with the results of other studies (Birhanu *et al.* 2019; Kupoluyi *et al.* 2013; Buamgartner *et al.* 2009; Ajala 2014; Yakubu and Salisu 2018).

Additionally, the analysis revealed that single adolescents were significantly less likely to experience pregnancy compared to their married counterparts. For instance, single adolescents were approximately 27.78 times less likely to experience pregnancy compared to adolescents who were married before the age of 16. These results suggest that delaying both the onset of sexual activity and marriage among adolescents could lead to a substantial reduction in the prevalence of adolescent pregnancy in the country.

The results indicated that adolescents who reported using contraceptives were more likely to experience pregnancy compared to those who had never used contraception. These findings align with a study conducted in South Africa, which also identified a significant increase in the risk of

adolescent pregnancy associated with contraceptive use (Birhanu *et al.* 2019). This result challenges the common belief that contraceptive use protects young women against early pregnancy. The elevated risk of adolescent pregnancy among those who reported ever using contraceptives may be attributed to misuse or inconsistent use of contraceptives (Buamgartner *et al.* 2009; Birhanu *et al.* 2019). It is also possible that contraceptive use was initiated after the occurrence of early pregnancy in an attempt to prevent subsequent pregnancies, given that we assessed ever-use of contraceptives.

Conclusion

The study found a moderate prevalence of adolescent pregnancy, and also identified a set of factors that are closely associated with the phenomenon in the country. Notably, the prevalence is significantly higher among older adolescents, individuals with lower levels of education, those living in poverty, early initiators of sexual activity, and early marriage. This research recommends a multifaceted approach to address these issues – including the enhancement of adolescent education, poverty reduction initiatives, and measures to discourage early sexual activity and early marriage, and comprehensive strategies to prevent adolescent pregnancies.

Acknowledgements

I would like to express my gratitude to the DHS Program for granting permission to use the 2024 KDHS data. I am also thankful to the University of Nairobi for providing a conducive environment that facilitated the completion of this study.

References

- Adekunle AO, Arowojolu AO, Adedimeji AA and Roberts OA (2000). Adolescent contraception: a survey of attitudes and practice of health professionals. *African Journal of Medical Science*, 29(3-4):247–52.
- Adinma JI, Agbai AO, Okeke AO and Okaro JM (1999). Contraception in teenage Nigerian school girls. *Advances in Contraception*, 15(4): 283-91.
- Ahlberg BM, Jylkeas E, and Krantz I (2001). Gendered construction of sexual risks: implications for safer sex among young people in Kenya and Sweden. *Reproductive Health Matters*, 9(17): 26-36.
- Ajala AO (2014). Factors associated with teenage pregnancy and fertility in Nigeria. *Journal of Economics and Sustainable Development*, 4(2): 62-70.

- Amoateng AY, Ewemooje AS and 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.
- Aransiola JO., Asa S, Obinjuwa P, Olarewaju O, Ojo OO and Fatusi AO (2013). Teachers' perspectives on sexual and reproductive health interventions for in-school adolescents in Nigeria. *African Journal of Reproductive Health*, 17(4):84–92.
- Atuyambe L, Mirembe F, Johansson A, Kirumira EK and Faxelid E (2005). Experiences of pregnant adolescents- voices from Wakiso district, Uganda. *African Health Sciences*, 5(4) 304-9.
- Atuyambe LM, Kibira SP, Bukenya J, Muhumuza C, Apolot RR and Mulogo E (2015). Understanding sexual and reproductive health needs of adolescents: evidence from a formative evaluation in Wakiso district, Uganda. *Reproductive Health*, 12:35.
- Ayele BG, Gebregzabher TG, Hailu TT and Assefa BA (2018). Determinants of teenage pregnancy in Degua Tembien District, Tigray, northern Ethiopia: a community-based case-control study. *PLoS One*. 13(7). <https://doi.org/10.1371/journal.pone.0200898>.
- Baumgartner JN, Geary CW, Tucker H and Wedderburn M (2009). The influence of early sexual debut and sexual violence on adolescent pregnancy. A matched case-control study in Jamaica. *International Perspectives on Sexual and Reproductive Health*, 35 (1): 21-28.
- Beyene A, Muhiye A, Getachew Y *et al.* (2015). Assessment of the magnitude of teenage pregnancy and its associated factors among teenage females visiting Assosa General Hospital. *Ethiopian Medical Journal*, (Suppl 2):25–37 Epub 2015/11/26. PubMed PMID: 26591280.
- Birhanu BE, Kebede DL, Kahsay AB and Belachew BK (2019). Predictors of teenage pregnancy in Ethiopia: a multilevel analysis. *BMC Public Health*, 19 (601):1-10.
- Chandra-Mouli V, Camacho AV, and Michaud PA (2013). WHO guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries. *Journal of Adolescent Health*, 52:517-22.
- Darroch J, Woog V, Bankole A and Ashford LS (2016). *Adding it up: Costs and benefits of meeting the contraceptive needs of adolescents*. New York: Guttmacher Institute.
- Ganchimeg T, Ota E, Morisaki N *et al.* (2014). Pregnancy and childbirth outcomes among adolescent mothers: a World Health Organization Multicountry Study. *BJOG*, 121 (Suppl. 1):40–48.

- Habitu YA, Yalew A and Bisetegn TA (2018). Prevalence and factors associated with teenage pregnancy north east Ethiopia: across-sectional study. *Hindawi Journal of Pregnancy* Article ID 1714527, 7 pages <https://doi.org/10.1155/2018/1714527>.
- Hodgkinson S, Beers L, Southammakosane Cand Lewis A (2014). Addressing the mental health needs of pregnant and parenting adolescents. *Pediatrics*, 133(1):114-22.
- Hogan RP and Kenny LC (2007). Management of teenage pregnancy. *Obstetrics and Gynaecology*, 9(3):153-8.
- Hokororo A, Kihunrwa AF, Kalluvya S *et al.* (2015). Barriers to access reproductive health care for pregnant adolescent girls: a qualitative study in Tanzania. *Acta Paediatrica*, 104(12):1291–7. 28.
- Indongo N (2020) Analysis of factors Influencing Teenage Pregnancy in Namibia. *Medical Research Archives*, 8(6):2-11.
- Getachew MK, Arowojulu AO, Odukogbe AA and Alemahu WY (2018). Prevalence and determinants of adolescent pregnancy in Africa: a systematic review and Meta-Analysis. *Reproductive Health*, 15 (195): 1–17.
- Kassa GM, Orowojolu AO, Odukogbe AA and Yalew AW (2018). Prevalence and determinants of adolescent pregnancy in Africa: A systematic review and Meta-analysis. *Reproductive Health* 15:195.
- KNBS and ICF (2023). Kenya Demographic and Health Survey 2022: Volume 1. Nairobi, Kenya, and Rockville, Maryland, USA: KNBS and ICF.
- Kenya National Bureau of Statistics (KNBS), Ministry of Health, National AIDS Control Council, Kenya Medical Research Institute, National Council for Population and Development and ICF International (2015). Kenya Demographic and Health Survey 2014. Nairobi, Kenya, and Rockville, Maryland, USA: KNBS and ICF.
- Kozuki N, Lee AC, Silveira MF *et al.* (2013). The associations of parity and maternal age with small-for-gestational-age, preterm, and neonatal and infant mortality: a meta-analysis. *BMC Public Health* 13 (Suppl 3), S2 (2013). <https://doi.org/10.1186/1471-2458-13-S3-S2>.
- Krugu JK, Mevissen FE, Prinsen A and Ruiters RA (2017). Who's that girl? A qualitative analysis of adolescent girls' views on factors associated with teenage pregnancies among young women with pregnancy experience Bolgatanga, Ghana. *Culture, Health and Sexuality*, 19(3): 293-307.

- Krugu JK, Mevissen FEF, Prinsen A and Ruiter RAC (2016). Who's that girl? A qualitative analysis of adolescent girls' views on factors associated with teenage pregnancies in Bolgatanga, Ghana. *Reproductive Health*, 13(39): 1-12. DOI 10.1186/s12978-016-0161-9.
- Kumar M, Huang, KY, Othieno C *et al.* (2018). Adolescent Pregnancy and Challenges in Kenyan Context: Perspectives from Multiple Community Stakeholders. *Glob Social Welfare*, 5(1) 11-27.
- Kupoluyi JA, Njoku EO and Oyinloye BO (2013). *Factors associated with teenage pregnancy and childbearing in Nigeria*. <http://uaps2015.princeton.edu/papers/151306>.
- Loaiza E, and Liang M (2013). *Adolescent pregnancy: a review of the evidence*. New York: UNFPA,.
- McCleary-Sills J, Douglas Z, Rwehumbiza A, Hamisi A and Mabala R (2013). Gendered norms, sexual exploitation and adolescent pregnancy in rural Tanzania. *Reproductive Health Matters*, 21(41):97–105.
- Mutea L, Were V, Ontiri S, Michielsen K and Gichangi P. (2022). Trends and determinants of adolescent pregnancy: Results from Kenya demographic health surveys 2003-2014. *BMC Women's Health*. 22(1):416. doi: 10.1186/s12905-022-01986-6. PMID: 36217181; PMCID: PMC9552415.
- Neal S, Matthews Z, Frost M, Fogastad H, Camacho AV and Lasski L (2012). Childbearing in adolescents aged 12–15 years in low resource countries: a neglected issue. New estimates from demographic and household surveys in 42 countries. *Acta Obstetrica et Gynaecologica, Scandinavia*, 91: 1114–18.
- Oduo KO and 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): 2020.
- Okigbo CC and Speizer IS (2015). Determinants of sexual activity and pregnancy among unmarried young women in urban Kenya: a cross-sectional study. *PLoS One*. 10(6): e0129286
- Omollo TN and Matthews DZ (2003). Teenage pregnancy experiences in rural Kenya. *International Journal of Adolescence Medical Health*, 15(4):331–40.
- Pradhan R, Wynter K and Fisher J (2015). Factors associated with pregnancy among adolescents in low-income and lower-middle-income countries: a systematic review. *Journal of Epidemiology and Community Health* 2015; 69:918-924.

- Raj A and Boehmer U (2013). Girl Child Marriage and Its Association with National Rates of HIV, Maternal Health, and Infant Mortality Across 97 Countries. *Violence Against Women*, 19(4), 536-551. <https://doi.org/10.1177/1077801213487747>.
- Retherford RD and Choe MK (1993). *Statistical Models for Causal Analysis*. New York: John Wileys and Sons.
- UNFPA (2015). *Girlhood, not motherhood: Preventing adolescent pregnancy*. New York: UNFPA.
- UNICEF (2013). *Ending child marriage: Progress and prospects*. New York: UNICEF.
- Were M (2007). Determinants of teenage pregnancies: the Case study of Busia District in Kenya. *Economics and Human Biology*, 5 (2):322-339.
- World Health Organization. (2012). *Making health services adolescent friendly: Developing national quality standards for adolescent-friendly health services*. Geneva: WHO; 2012.
- WHO, UNICEF, UNFPA, World Bank Group, and the United Nations Population Division. (2015). *Trends in maternal mortality: 1990 to 2015: Estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division*. Geneva: WHO.
- World Health Organization. (2016). *Global health estimates (2015): deaths by cause, age, sex, by country and by region, 2000–2015*. Geneva: WHO.
- World Health Organization. (2011). *Preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries*. Geneva: WHO.
- World Bank. (2017). *Economic impacts of child marriage: global synthesis report*. Washington, DC: World Bank.
- Yakubu I and Salisu WJ (2018). Determinants of adolescent pregnancy in sub-Saharan Africa: a systematic review. *Reproductive Health*, 15:1-15. <https://doi.org/10.1186/s12978-018-0460-4>.