

Factors Influencing Unwanted Pregnancies and Methods Used to Prevent Them among Adolescents in Mahama Refugee Camp, Kirehe District, Rwanda

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Abstract

Unwanted pregnancy is a major global concern due to its association with adverse physical, mental, social and economic outcomes. Adolescent pregnancy and childbearing are a global health and economic challenge nowadays. The purpose of this study is to assess the factors influencing unwanted pregnancies and methods used to prevent them among adolescents in Mahama refugee camp, Kirehe District. A cross-sectional design was used, and the sample size was 99 teenage mothers selected by using convenience and purposive sampling techniques. The data was checked, entered, cleaned and exported to SPSS version 23 for further analysis. The majority were aged 15 to 16 years old presenting 37.4% and only 19.2 % were living with both parents. Findings show that 48.5% of respondents had a high level of knowledge and the majority of respondents 59.1% have fair practices related to unwanted pregnancy. Adolescents with secondary school were 1.9 times (AOR=1.9; 95%CI: [1.56-4.46]; $p<0.001$) more likely to avoid unwanted pregnancies compared to those with primary school or less. Adolescents with low level of knowledge towards sexuality were 2.7 times (AOR=2.7; 95%CI: [1.90-7.22]; $p=0.006$) more likely to have unwanted pregnancies compared to those with high level of knowledge and the odds of getting unwanted pregnancies was 2.4 times (AOR=2.4; 95%CI: [1.97-5.13]; $p=0.019$) among adolescents with poor practices towards sexuality compared to those with good practices towards sexuality. Despite the good level of knowledge observed, inadequate preventive practices toward unwanted pregnancy may contribute to the increased occurrence of unwanted pregnancies. The government should strengthen sexual and reproductive health policy interventions to ensure that unmarried youth wait to plan their pregnancies and prioritize encouraging peer educators and peer discussion to protect adolescents and youth from risky sexual behaviors in order to reduce unplanned pregnancy and its risks for unmarried female youth in refugee camps.

Keywords: Unwanted pregnancy, Mahama Refugee Camp, Kirehe District

Introduction

Unwanted pregnancy is a major global concern. According to UNICEF, 1.2 billion adolescents between the ages of 10 and 19 comprise 16% of the global population (1). Every year, an estimated 16 million teenage females (15–19 years old) give birth, and the babies born to these teenage mothers make up around 11% of all births globally (2). 20,000 girls under the age of 18 give birth every day, 2.5 million teenagers

are thought to have unsafe abortions each year, and 70,000 teenagers pass away from pregnancy-related problems(3) (UNFPA, 2013). Eighty-six percent of teenagers worldwide reside in underdeveloped countries. By the time they are 19 years old, half of teenage girls in developing countries are sexually active, 40% are married, and nearly 20% have children (4).

Nearly half (49%) of the 21 million pregnancies among adolescent girls in developing countries between the ages of 15 and 19 in 2016 were unplanned (43% in Asia, 45% in Africa, and 74% in Latin America and the Caribbean) (5). Between the ages of 15 and 19, an estimated 12 million girls gave birth. 777,000 girls under the age of 15 gave birth that year (6).

An estimated 23 million teenage girls are at risk of unintentionally getting pregnant because they do not have access to modern contraception (4). Unsafe abortions account for approximately one-fifth (21%) of adolescent pregnancies in Asia and nearly half of pregnancies in Latin America and the Caribbean (49%) and Africa (46%) (5). With 28% of girls, Sub-Saharan Africa has the highest rate of adolescent pregnancies and births among developing nations (7).

Births to girls under 15 are expected to treble in Sub-Saharan Africa by 2030 in east African nations including Tanzania (26.7%), Uganda (24.8%), and Kenya (18.1%) (3). The prevalence in Burundi (8.3%) is comparable to this (8). According to the most recent Rwanda Demographic and Health Survey, the rate of adolescent pregnancies rose from 4.1% in 2005 to 7.3% in 2015, with certain areas seeing rates as high as 15.8%. In Rwanda, 7.3% of adolescent pregnancies occurred in 2015 (9). The fact that this rate was raised from 2005, however, shows that stakeholders must comprehend and deal with the issue.

Teenage pregnancy remains a major global public health concern, with approximately 95% of adolescent births occurring in low- and middle-income countries (7). Adolescents who become pregnant, particularly those aged 14 years or younger, face heightened risks of pregnancy-induced hypertension, obstructed and prolonged labour, obstetric fistula, postpartum haemorrhage, premature delivery, low birth weight, and perinatal mortality. Globally, an estimated 20 million abortions are performed annually, with developing countries accounting for about 95% of these procedures.

Beyond the physical health consequences, adolescent pregnancy is associated with adverse psychological, social, and economic outcomes, including disrupted schooling and strained family relationships (10). Contributing factors documented in the literature include low educational attainment, inadequate parental supervision and monitoring, non-use of contraceptive methods, peer pressure, early marriage, and low household socioeconomic status (11,12,13).

These risks are magnified in humanitarian and refugee settings, where adolescents face disrupted family structures, limited access to youth-friendly sexual and reproductive health services, and reduced parental or community supervision. In Mahama Refugee Camp, Rwanda, health facility data indicate that reported cases of teenage pregnancy rose from 125 in 2017 to 131 in 2018 and 154 in 2019, despite ongoing efforts by the health system and non-governmental organizations to strengthen sex education and adolescent mentorship programmes, and despite legal reforms strengthening penalties for the defilement of minors (14). Despite this persistent and rising trend, there is limited documented evidence on the specific household, social, and community-level factors influencing unwanted pregnancies among adolescents living in Mahama Refugee Camp. Existing studies have largely focused on adolescent pregnancy in general community settings, with little attention paid to the unique vulnerabilities of adolescents in refugee camp contexts. This gap limits the ability of health authorities, camp administrators, and other stakeholders to design evidence-based, context-specific interventions. It is against this background that this study sought to assess the factors influencing unwanted pregnancies and methods used to prevent them among

adolescents in Mahama Refugee Camp, Kirehe District, Rwanda. This study offers crucial information about the variables linked to unwanted pregnancies and methods used to prevent them among teenagers residing in the Mahama Refugee Camp, Kirehe District, Rwanda. By identifying key determinants such as adolescents' educational level, parental education, household size, caregiver occupation, level of knowledge, and related practices, the study contributes to a better understanding of the underlying drivers of adolescent pregnancy in humanitarian settings.

Methods

Study design

This study was cross-sectional descriptive research design with a quantitative approach. A cross-sectional design was considered appropriate because it allowed the researcher to collect data on the prevalence of unwanted pregnancies, its influencing and methods used to prevent them among adolescents in Mahama Refugee Camp at a single point in time, without following participants over an extended period. This design enabled the study to document the socio-economic characteristics, methods used to prevent unwanted pregnancies as well as knowledge and practices of adolescents in relation to unwanted pregnancy, while allowing statistical analysis of the relationship between household and community-level factors and the occurrence of unwanted pregnancy.

Target Population

There are roughly 164,561 refugees living at Mahama Refugee Camp. Parenting teenagers living at the camp between the ages of 15 and 19 made up the study's target demographic.

Sample size and sampling procedure

The online sample calculator was used to determine the sample size. You can enter your Z-score, standard deviation, and confidence interval into the sample size calculator, or you can use this Cochran formula.

$$n = \frac{(Z\text{-Score})^2 * \text{Std.Dev.} * (1 - \text{Std.Dev.})}{e^2}$$

where e is the margin of error, which is equal to 5% or 0.05 at the 95% confidence range, and n is the sample size. The sample size for the quantitative data was 99 participants, with a total target population of 113 parenting teenagers in the Mahama refugee camp between the ages of 15 and 19. The sampling techniques used in this study included convenience sampling techniques as they are located in two different health centers of Mahama refugee camp.

Data analysis and ethical consideration

SPSS version 23 was used to process and analyze the gathered data. The many variables under investigation were described using descriptive statistics like percentages and frequency distributions. The sum of each respondent's total scores was used to determine an overall knowledge and practice score. Additionally, bivariate and multivariate logistic regression models were computed to determine the statistical relationship between the outcome and the independent variables. The 95% confidence interval and p-value (<0.05) were used to evaluate the statistical relationship's significance. Ethical considerations are essential in ensuring the protection, dignity, safety, and rights of participants involved in this study. The researcher closely followed the ethical guidelines for research involving human subjects because the study includes adolescents and a population of refugees who are regarded as vulnerable groups. Before data collection started, authorization to perform the study was received from the appropriate authorities in

charge of Mahama Refugee Camp and local administrative institutions, as well as ethical clearance from Mount Kenya University.

Results

Characteristics of the respondents and households

Social and demographic characteristics contain teenagers' age at pregnancy, education levels of both adolescents and parents, parenting situation, size of household and religion.

Table 1 Sociodemographic and health determinant characteristics of the Respondents

Variable	Frequency (n)	Percent (%)
Age range		
13-14	17	17.2
15-16	37	37.4
17-18	12	12.1
19-20	33	33.3
Educational Level		
No formal education	10	
Primary	72	72.8
Secondary	17	17.2
Who do you live with?		
Father only	17	17.2
Mother only	23	23.2
Relatives	23	23.2
Both parents	19	19.2
None of them	17	17.2
Father's educational level		
No formal education	46	46.5
Primary	36	36.4
Absence of the father	17	17.2
Mother's educational level		
No formal education	82	82.8
Absence of the mother	17	17.2
Size of household members		
1-3	17	17.2
4-6	40	40.4
7-8	20	20.2
10 and above	22	22.2
Adolescents' religion		
Catholic	17	17.2
Adventist	23	23.2
Protestant	23	23.2
Muslim	19	19.2

Other	17	17.2
Guardian's occupation		
Employed	23	23.2
Unemployed	76	76.8

Table 1 presents the sociodemographic characteristics of the study participants. The majority were aged 15 to 16 years old presenting 37.4%, 72.8 % had no formal education while only 17.2% had attended secondary school. Of them, 23.2% were living with their mothers, 23.2% living with their relatives while 19.2 % were living with both parents. On the family size, 40.4% of the respondents were between 4 and 6 in the house while 22.2% were 10 and above in a household. The majority 76.8% of adolescents' caregivers were unemployed, which was understandable in refugee situation.

To determine the level of knowledge towards unwanted pregnancy among adolescents in Mahama refugee camp, a total of seven 7 questions were used as a scale of measurement. Positive responses received a value of 1, while negative responses received a score of 0. The sum of each respondent's answers to all seven questions was used to determine their overall knowledge score. The respondent scored 80% and above have high level of knowledge, 79%-60% have moderate level of knowledge and those with 59% score and below considered to have low level of knowledge.

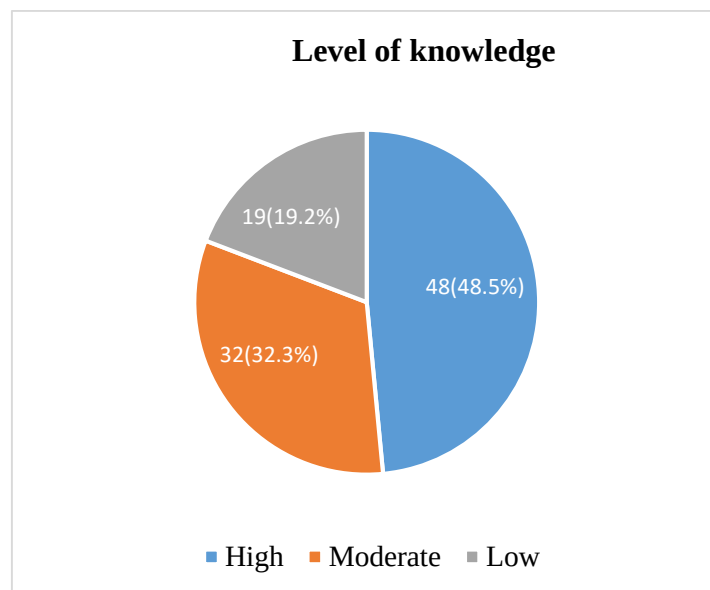


Figure 1: Level of knowledge

The results indicate that, with regard to unwanted pregnancy, 48.5% of respondents had high knowledge, 32.3% had moderate awareness, and 19.2% had low knowledge. All responders had a mean knowledge score of 5.6 (Std. Dev. = 1.4). Three points was the lowest possible score, and seven points was the highest.

The level of practices towards unwanted pregnancy among adolescents in Mahama refugee camp

There were six questions related to the practices towards unwanted pregnancy and two questions related to the methods used to prevent them as presented in Table 4.2.

Level of practices

Six (6) questions about unintended pregnancy practices were examined and marked for each respondent

in the practice's fragment. A respondent received a score of 1 for a correct response and a score of 0 for a negative response. Each respondent's total practices score was calculated by summing their answers to the eight practice-related questions.

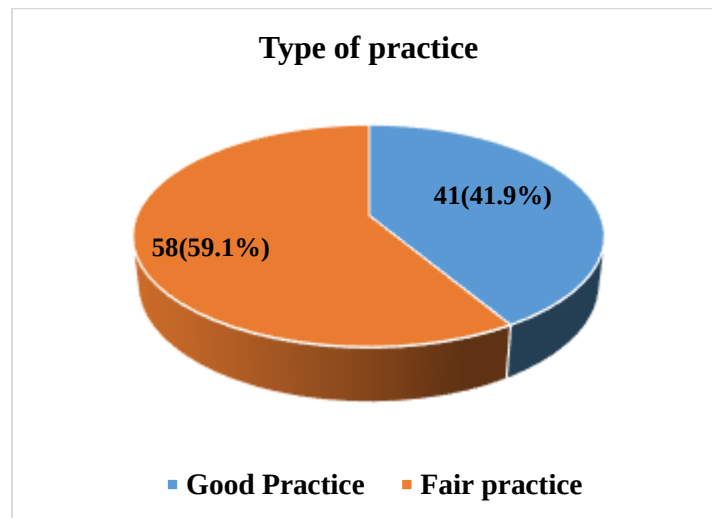


Figure 2: Type of Practice

Findings show that the majority of respondents have fair practices related to unwanted pregnancy counting 59.1%, while the counterpart has good related practices.

Table 2: Factors influencing unwanted Pregnancy among Respondents (Bivariate Analysis)

Source: Primary data (2021)

Seven factors were found to be statistically significantly linked to unintended pregnancy in the bivariate analysis. These factors include the educational attainment of the teenager, the educational attainment of

Variables		Unwanted pregnancy		Chi-square test (X2)	P-value
		< 16 years	16-21 years		
Adolescents' educational level	Primary	54(65.9)	28(34.1)	6.629	<0.001
	Secondary	3(17.6)	14(82.4)		
Parenting situation	Father only	16(94.1)	1(5.9)	0.747	0.828
	Mother only	2(8.7)	21(91.3)		
	Relatives	21(91.3)	2(8.7)		
	Both parents	16(84.2)	3(15.8)		
	None of them	4(23.5)	13(76.5)		
Father's educational level	No formal	54(65.9)	28(34.1)	4.671	<0.001
	No father	3(17.6)	14(82.4)		
Mother's educational level	No formal	57(69.5)	25(30.1)	6.432	<0.001
	No mother	2(11.8)	15(88.2)		
Size of household members	1-3	1(5.9)	16(94.1)	4.864	<0.001
	4-6	17(42.5)	23(57.5)		
	7-9	18(90.0)	2(10.0)		
	10 and above	19(86.4)	3(13.6)		

Adolescents' religion	Catholic	16(94.1)	1(5.9)	8.144	0.829
	Adventist	21(91.3)	2(8.7)		
	Protestant	2(8.7)	21(91.3)		
	Muslim	16(84.2)	3(15.8)		
	Other	5(29.4)	12(70.6)		
Caregiver's occupation	Employed	13(56.5)	10(43.5)	8.445	<0.001
	Unemployed	41(53.9)	35(46.1)		
Level of knowledge on sexuality	High	37(46.8)	42(53.2)	9.376	0.002
	Low	17(85.0)	3(15.0)		
Level of sexuality practices	Good	18(43.9)	23(56.1)	4.970	0.047
	Fair	36(62.1)	22(37.9)		

the father and mother, the number of household members, the occupation of the caregiver, the level of knowledge and practices of the adolescents, and the size of the household.

Table 4: Factors influencing unwanted pregnancy among respondents (Multivariable analysis)

Variables		Crude OR 95% CI	P-value	Adjusted OR 95% CI	P-value
Adolescents' educational level	Primary	Ref.		Ref.	
	Secondary	1.7(1.19 - 3.72)	<0.001	1.9(1.56 - 4.46)	<0.001
Father's educational level	No formal	Ref.		Ref.	
	No father	0.7(0.20 - 0.852)	0.556	0.6(0.78 - 1.58)	0.062
Mother's educational level	No formal	Ref.		Ref.	
	No mother	0.6(0.57 - 0.87)	0.081	0.7(0.60 - 0.96)	0.094
Size of household members	1-3	Ref.		Ref.	
	4-6	0.9(0.48 - 1.74)	0.426	0.7(0.43 - 1.44)	0.437
	7-9	1.3(0.84 - 2.12)	0.542	0.9(0.65 - 1.27)	0.561
	10 and above	1.6(0.37 - 3.4)	0.590	1.7(0.38 - 3.10)	0.612
Caregiver's occupation	Employed	Ref.		Ref.	
	Unemployed	1.1(1.07- 2.24)	0.009	1.4(1.12 - 1.94)	0.011
Level of knowledge on sexuality	High	Ref.		Ref.	
	Low	2.9(1.74-5.70)	0.005	2.7(1.90 - 7.22)	0.006
Level of sexuality practices	Good	Ref.		Ref.	
	Poor	2.1(1.92-4.71)	0.017	2.4(1.97 - 5.13)	0.019

To ascertain the degree to which variables were related to one another, variables that were determined to be statistically significant by the bivariate analysis were sent to the multivariate analysis. Adolescents with secondary education were 1.9 times (AOR=1.9; 95%CI: [1.56-4.46]; $p<0.001$) more likely than those with elementary school or less to avoid unwanted births, according to Table 4.4. Adolescents with unwanted pregnancies were 1.4 times more likely to have unemployed caregivers than employed caregivers (AOR=1.4; 95%CI: [1.12-1.94]; $p=0.011$). Regarding the level of knowledge on sexuality, adolescents

with low level of knowledge towards sexuality were 2.7 times (AOR=2.7; 95%CI: [1.90-7.22]; $p=0.006$) more likely to have unwanted pregnancies compared to those with high level of knowledge on sexuality. And finally, the odds of getting unwanted pregnancies were 2.4 times (AOR=2.4; 95%CI: [1.97-5.13]; $p=0.019$) among adolescents with poor practices towards sexuality compared to those with good practices towards sexuality.

Discussion

The objective of this study was to assess the factors influencing unwanted pregnancies and methods used to prevent them among adolescents in Mahama Refugee Camp, in Rwanda's Eastern Province. The educational attainment of the respondents, the educational attainment of their parents, the number of household members, the occupation of the caregiver, the degree of knowledge of the teenagers, very low use of preventive methods and the kinds of behaviors as well as level of practice were found to be statistically linked to unwanted pregnancies.

In general, most participants had a reasonable degree of understanding, but the practices that were deemed fair were insufficient. The fact that these people are known to have a high birth rate justifies those conclusions. According to the study's findings, 48.5% of participants had a high level of knowledge about unintended pregnancies, 32.3% had a moderate level, and 19.2% had a low level. Additionally, regarding contraceptive practices, only 39.4% of respondents reported using condoms before pregnancy, 66.4% did not use condom before pregnancy while a striking 100% had never used contraceptive pills. This near-total absence of pill use, combined with the moderate uptake of condoms, points to significant gaps in access to, or knowledge of, diverse contraceptive methods among adolescents in the camp. A finding that aligns with global evidence showing that adolescents in resource-constrained and humanitarian settings often face substantial barriers to accessing a full range of family planning services.

Present findings are not in the same line with those of the study conducted in Amhara region, Ethiopia and in Nepal, which shown that about 85% of the respondents had good knowledge(15) and 67%(16) respectively. The difference may result from sociodemographic variations, disparities in the respondent's parents' educational backgrounds, and gaps in the information sources. The study's conclusions differed with those in Botswana, where teenagers typically had little awareness of unintended pregnancies (17). The generally acknowledged conservative or folkloric heritage of the Botswana region may account for the teens' lack of understanding. It has been observed that the local indigenous values and belief system continue to have an impact on teenagers' behavior and actions toward unwanted pregnancies. This suggests that those who lack knowledge and awareness about sexuality are more likely to experience a variety of issues connected to sexuality and reproductive health(17), a gap attributed to conservative cultural norms that limit open discussion of sexuality. This suggests that adolescents who lack knowledge and awareness about sexuality are more likely to experience a variety of issues connected to sexual and reproductive health. The study's conclusions were consistent with those of a study conducted in low-income nations by Tenkku who discovered that educational interventions greatly increase teenagers' awareness of unintended pregnancy (18). These results contrasted with our findings since 57.6% of the adolescents polled received knowledge about sexual health from schools, but 77.8% of the adolescents had received education on unintended pregnancy from their caregivers. This may also be linked to the special attention given by humanitarian partners in Mahama Refugee Camp to adolescent sexual and reproductive health education. Among the study participants who had experienced sexual intercourse, about 39.4% of them had used condom before pregnancy. On one hand, this finding was lower than findings from a study conducted in

Ethiopia where 42% of them used condom when they had their last sex(19), Nairobi, Kenya (89%) (20), Gonder city (67.6%) (21) (Lankamo & Aliyu, 2016), and USA (61%)(22) (Fitaw & Worku, 2016). On the other side, it was higher than finding from a study conducted in Nigeria (27%) (23). A lack of trust or faithfulness, diminished pleasure, ignorance of the benefits of condoms, a diminished fear of HIV/AIDS because it can now be controlled with medication, the influence of tradition, the scarcity of female condoms, and women's perceptions that they are difficult to insert could all contribute to this discrepancy. Regarding knowledge, adolescents with a low level of knowledge on sexuality were 2.7 times more likely to have an unwanted pregnancy than those with high knowledge (AOR=2.7; 95% CI: 1.90–7.22; p=0.006), while adolescents with poor sexual practices were 2.4 times more likely to have an unwanted pregnancy than those with good practices (AOR=2.4; 95% CI: 1.97–5.13; p=0.019). Taken together, these findings confirm that unwanted pregnancy among adolescents in Mahama Refugee Camp results from the combined influence of individual-level factors (education, knowledge, practices) and household-level factors (caregiver occupation), reinforcing the need for interventions that address both individual behaviour and household economic vulnerability.

Conclusion

Unwanted pregnancy among adolescents in Mahama Refugee Camp is not driven by a single cause, but by the combined effect of low educational attainment, caregiver unemployment, insufficient knowledge, and poor preventive practices. Strengthening adolescents' access to education, reinforcing caregivers' economic stability, and closing the gap between knowledge and practice through targeted behaviour change interventions are therefore essential to reducing unwanted pregnancy in this population.

Recommendation

Despite a reasonable overall level of knowledge, interventions should move beyond awareness-raising alone to include practical, accessible services such as youth-friendly condom and contraceptive distribution, in order to close the gap between knowledge and practice identified in this study.

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