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Original Research Article

Determinants and outcomes of teenage pregnancy in Uganda: a case study of Hoima

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ABSTRACT

Background: Uganda has one of the highest rates of teenage pregnancy in the world at 25%, more than twice the global estimate of 11% of all births. A remarkable number of girls start childbearing at a very early age in Uganda and is an overwhelming growing public health issue with enormous contribution to high maternal and perinatal morbidity and mortality.
Methods: This was a cross-sectional study conducted from June to August 2025 involving 326 women delivering at Hoima Regional Referral Hospital (HRRH), western Uganda. Interviewer administered questionnaires were used to obtain data. Descriptive statistics, binary logistic regression and chi-square analyses were utilized to elucidate the determinants of teenage pregnancy using IBM SPSS 24. Variables in final multivariate model were significant when $p<0.05$. The measure of association was reported as odds ratios with corresponding 95% confidence interval and p-value.
Results: Of the 326 women who delivered at HRRH during the study period, 87(27%) had teenage pregnancy. High level of education (AOR=0.2, 95%CI: 0.84-0.92, p=0.037; AOR=0.3, 95%CI: 0.12-0.58, p=0.001]), and good income status (AOR=0.4, 95%CI=0.15-0.96; p=0.040) were protective of teenage pregnancy. Early marriage and lack of awareness about contraception were associated with high odds for teenage pregnancy, (AOR=3.8, 95%CI=1.39-10.15; p=0.009) and (AOR=3.8, 95%CI=1.94-7.34; p=0.000) respectively.
Conclusions: The prevalence of teenage pregnancy in Hoima is alarming, compared to regional and global figures. Girl education, improved income status, discouraging early marriages and promoting awareness on use of contraception are essential in preventing teenage pregnancy in Hoima and its catchment areas.

Keywords: Adolescent, Adolescent pregnancy, Early pregnancy, Teenager, Teenage pregnancy

INTRODUCTION

According to the World Health Organization (WHO), teenage or adolescent pregnancy denotes a pregnancy occurring in girls aged 10 to 19 years.[1] It is generally classified into early teenage pregnancy (10-14 years) and late teenage pregnancy (15-19 years). Recent reports indicate that over 16 million adolescent girls become

pregnant globally every year, with 95% of these happening in low- and middle-income countries.[2] Teenage pregnancies constitute a serious public health and social problem worldwide. Teenage period which in some literature has been defined as the age bracket between thirteen and nineteen years is a period of sexual maturity, psychological, and emotional development from those of a child to those of an adult. It also represents a transition from the state of socio-economic dependence to one of relative independence. Teenage pregnancy constitutes both biological risk as well as a psychosocial and economic problem. Teenage mothers are young girls who are still growing and they are ill-equipped physiologically, socio-economically, culturally and even psychologically to cope with pregnancy.[3] Many studies done all over the world have suggested that teenage pregnancies are on the increase.[4] In developing countries, twenty thousand girls younger than 18 years old give birth each day and 95% of the world's births to adolescents take place in low and middle income countries.[5] About 95% of teenage births occur in developing countries.[4]

Teenage pregnancies characterize a high-risk group in reproductive terms because of the double load of reproduction and developmental growth. More than 90% of the births occur in lower and middle income countries.[6] According to recent reports, 529,000 women worldwide may pass away each year as a result of complications associated with pregnancy and childbirth.[7] The WHO views teenage pregnancies as high-risk pregnancies because they are linked to unfavorable outcomes for both mother and the fetus.[8] Sub-Saharan Africa has the highest rate of teenage pregnancies in the world, accounting for more than half of all the births. Women between the ages of 15 years and 19 years account for one-fourth of the estimated six million unsafe abortions performed in Africa every year.[9] The reported incidence in Africa is about 18.6% while it is nearly 143 per 1000 deliveries (14.3%) in some Sub-Saharan Africa countries.[3] Indeed, the highest teenage pregnancy rates, which are often associated with early marriage, are in sub-Saharan Africa, where one in every four girls has given birth by the age of 18 years.[10]

Uganda has one of the highest rates of teenage pregnancy in the world at 25% which is more than twice the global estimate of 11% of all births.[7] Studies have shown that teenage pregnancy has poor maternal and perinatal health outcomes. Complications during pregnancy and childbirth are the second cause of death for 15-19-year-old girls globally.[11] Pregnant teenagers are at a higher risk of adverse maternal conditions, including preterm labor, puerperal sepsis, postpartum hemorrhage, and maternal trauma, and a high rate of cesarean sections for cephalopelvic disproportion, fetal distress, and preterm births. This same population of teenage mothers is at high risk of adverse fetal outcomes such as stillbirths, birth asphyxia, respiratory distress syndrome, admission to NICU, and early neonatal death.[12]

METHODS

This was a cross-sectional study which covered a period of three months; June to August 2025. The study was conducted in the postnatal ward of Hoima Regional Referral Hospital, western Uganda. All women delivering at this hospital were enrolled for the study. All teenage women aged up to 19 years during the period of study were assessed for the outcomes accordingly. Women referred from other facilities without complete records about the mother herself and the baby were excluded from the study. A sample size of 326 was considered, calculated using the Daniel formula as shown below[13],

$$n = \frac{z^2 p\ (1-p)}{d^2}$$

n = Desired sample size

z = Z-statistic = 1.96 at 95% level of confidence

p = 0.306 (14)**.**

d= Level of precision= 0.05

Therefore,

$$n = \frac{(1.96)^2 \times\ 0.306\ (1-0.306)}{(0.05)^2}$$

n =326.

Consecutive enrolment of all pregnant women who were eligible for the study was done until the required sample size was realised. Structured investigator-administered questionnaires were used to collect data. Data from questionnaires were entered into Microsoft excel version 2010 and then exported to IBM SPSS statistics version 24. Prevalence of teenage pregnancy was summarized as frequencies and percentages and presented using a pie chart. Determinants of teenage pregnancy were assessed using Binary logistic regression. Both bivariate and multivariate logistic regression analysis was carried out. The variables in the final multivariate model were significant when $p<0.05$. The measure of association was reported as odds ratios with corresponding 95% confidence interval and p-value. All statistical analyses were carried out using IBM SPSS statistics version 24. Maternal fetal outcomes were summarized as frequencies and percentages and presented using a bar graph.

Ethical consideration

Voluntary recruitment was done. Informed consent from participants was obtained after fully explaining the details of the study to them in English and Runyoro. Participants were free to withdraw from the study at any time they wished without coercion or compromise of care that they were entitled to. Approval to carry out the study was

sought from the faculty of clinical medicine and dentistry of Kampala International University Western Campus. Permission was also sought from the administration of Hoima Regional Referral Hospital before the study was conducted.

RESULTS

Prevalence of teenage pregnancy among women delivering at HRRH

Of the 326 women who delivered at HRRH during the study period, 87 (27.0%) were teenagers. 239 (73.0%) of the participants were non teenage. This is shown in figure 1.

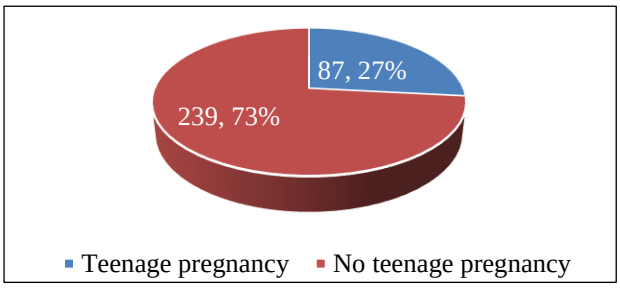

Figure 1: Prevalence of teenage pregnancy at HRRH.

Determinants of teenage pregnancy among women delivering at HRRH

Following bivariate analysis, all the variables under study expressed a statistically significant association with teenage pregnancy among women delivering at Hoima Regional Referral Hospital ($p<0.05$). All these variables were therefore entered into a multivariable model and the outcomes are presented in Table 1.

Results in Table 2 show that after multivariate analysis, level of education, monthly income, marital status, and awareness on contraception remained the independent predictors of teenage pregnancy among women delivering at Hoima Regional Referral Hospital ($p<0.05$). The model revealed that women high education and income status were protective of teenage pregnancy in this population. Women who had attained primary and secondary levels of education were 0.2 and 0.3-fold, respectively, less likely to get pregnant while still teenagers. Similarly, were those who were earning at least 200, 000 Uganda shillings a month who were 0.4-fold less likely (AOR=0.4, 95%CI=0.15-0.96; p=0.040). Marriage and non-awareness about contraception were both more than 3-fold the odds of teenage pregnancy; (AOR=3.8, 95%CI=1.39-10.15; p=0.009) and (AOR=3.8, 95%CI=1.94-7.34; p=0.000).

Table 1: Bivariate analysis of the determinants of teenage pregnancy at HRRH (n=326).

Variable		Teenage PREG		UOR (95%CI)	X^2	P value
		Yes (n=87)	No (n=239)			
Level of education	No formal education	11 (44)	14 (56)	Ref	37.349	0.547
	Primary	66 (37.7)	109 (62.3)	1.3 (0.56-3.03)		
	Secondary and above	10 (7.9)	116 (92.1)	9.1 (3.29-25.28)		0.000*
Residence	Rural	72 (33.0)	146 (67.0)	Ref	13.521	0.000
	Urban	15 (13.9)	93 (86.1)	3.1 (1.65-5.65)		
Occupation	Employed	14 (12.7)	96 (87.3)	Ref		
	Not employed	73 (33.8)	143 (66.2)	0.29 (0.15-0.54)	16.536	0.000*
Monthly income [Ugx]	≤200,000	80 (33.3)	160 (66.7)	Ref	20.540	0.000*
	>200,000	07 (8.1)	79 (91.9)	5.6 (2.49-12.79)		
Marital status	Single	72 (24.3)	224 (75.7)	Ref	9.178	0.002*
	Married	15 (50.0)	15 (50.0)	0.3 (0.15-0.69)		
Level of education of 'partner'	No formal education	12 (48.0)	13 (52.0)	Ref	15.555	0.171
	Primary	45 (33.6)	89 (66.4)	1.8 (0.77-4.33)		
	Secondary and above	30 (18.0)	137 (82.0)	4.2 (1.75-10.15)		0.001*
Aware about contraception	Yes	47 (18.2)	212 (81.8)	Ref	46.980	0.000*
	No	40 (59.7)	27 (40.3)	0.1 (0.08-0.27)		

*p<0.05, UOR=Unadjusted Odds Ratio, CI=Confidence Interval, P=Significance Level Preg=Pregnancy, X2=Chi-square, Ugx=Uganda Shilling

Table 2: Multivariate analysis of the determinants of teenage pregnancy at HRRH (n=326).

Variable		UOR (95%CI)	P value	AOR (95%CI)	P value
Level of education	No formal education	Ref			
	Primary	1.3 (0.56-3.03)	0.547	0.2 (0.84-0.92)	0.037*
	Secondary and above	9.1 (3.29-25.28)	0.000	0.3 (0.12-0.58)	0.001*
Residence	Rural	Ref			

Continued.

Variable		UOR (95%CI)	P value	AOR (95%CI)	P value
	Urban	3.1 (1.65-5.65)	0.000	0.6 (0.30-1.36)	0.243
Occupation	Employed	Ref			
	Not employed	0.29 (0.15-0.54)	0.000	2.1 (0.96-4.39)	0.064
Monthly income	≤200,000	Ref			
	>200,000	5.6 (2.49-12.79)	0.000	0.4 (0.15-0.96)	0.040*
Marital status	Single	Ref			
	Married	0.3 (0.15-0.69)	0.002	3.8 (1.39-10.15)	0.009*
Level of education of 'partner'	No formal education	Ref		1.0 (0.34-2.84)	0.963
	Primary	1.8 (0.77-4.33)	0.171	0.8 (0.42-1.54)	0.510
	Secondary and above	4.2 (1.75-10.15)	0.000		
Aware about contraception	Yes	Ref			
	No	0.1 (0.08-0.27)	0.000	3.8 (1.94-7.34)	0.000*

*p<0.05, UOR=Unadjusted Odds Ratio, aOR=Adjusted odds ratio, CI=Confidence Interval, P=Significance Level, Preg=Pregnancy, X^2=Chi-square, Ugx=Uganda Shilling

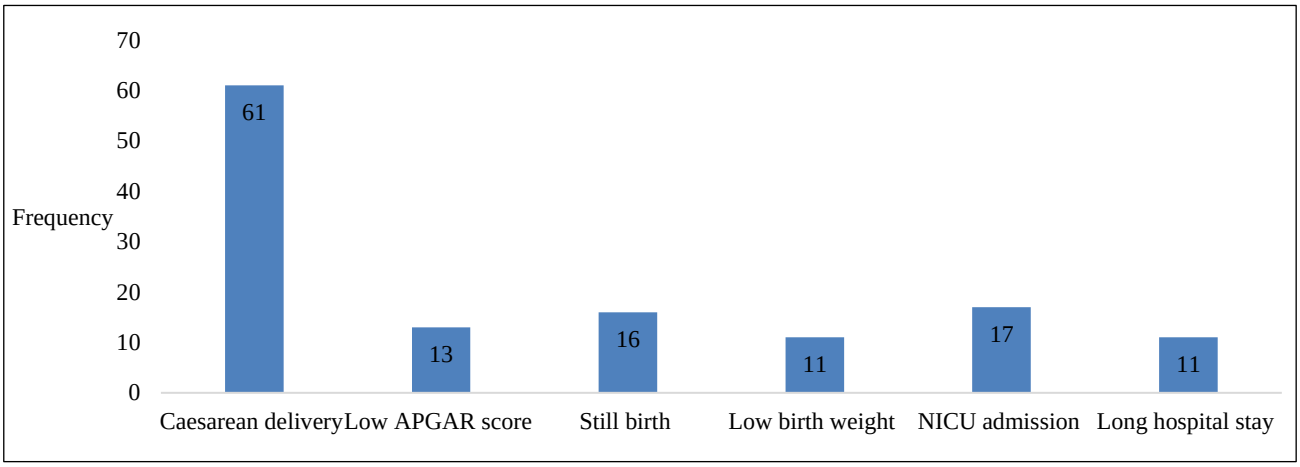

Figure 2: Maternal fetal outcomes of teenage pregnancy among women delivering at HRRH.

Majority of the teenage pregnant women did not deliver normally. Most of them delivered by caesarean section, and this were observed as the most common adverse outcome at 61 (70.1%). 13 babies had a low APGAR score while 11 had a low birth weight less than 2.5 kilograms. There were 16 still births registered. 17 of the 71 born alive babies were admitted in NICU. 11 of the 87 women suffered long hospital stays lasting more than four days.

DISCUSSION

The study found the prevalence of teenage pregnancy at HRRH to be 27%. This finding was lower than one reported among sexually active adolescents in Peru of 30.9%.[15] In rural Nepal, it was 72.7% by Bhatta et al while in Ethiopia it was 81 (28.2%) and one of Id and colleagues among the in-school teenage girls in Hoima district Uganda of 30.6%. Our observation was however higher than one observed by Nuwabaine and Musaba, (2023) in Sierra Leone (22.1%), and one in the Bamenda health district by Ako et al, of up to 13.54%. Similarly, it was higher than one of Chemutai and colleagues in Mbale, Uganda of 20.6% and Tom and colleagues in Awere sub county in Pader district of 2.4%.[16] The Difference in the findings could be attributed to the differences in the age categories for the teenagers studied, as well as the differences in the methodological aspects. Whereas we considered all the teenage mothers aged below 20 years (that is, 19 years and below) as the teenagers under study, some studies considered up to 17 years, while others had a lower mark. For example, Bhatta et al study considered 13 to 19 years. Additionally, most of these studies were population based, ours was institutional based.

Multivariable analysis for the determinants of teenage pregnancy at Hoima Regional Hospital revealed that high education and good income status were protective of teenage pregnancy in this population. Women who had attained primary and secondary levels of education were 0.2 and 0.3-fold, respectively, less likely to get pregnant while still teenagers; [0.2(0.84-0.92), p=0.037]; [0.3(0.12-0.58), p=0.001]. Similarly, were those who were earning at least 200, 000 Uganda shillings a month who were 0.4-fold less likely (AOR=0.4, 95%CI=0.15-0.96; p=0.040). Marriage and non-awareness about contraception were both more than 3-fold the odds of teenage pregnancy; (AOR=3.8, 95%CI=1.39-10.15; p=0.009) and (AOR=3.8, 95%CI=1.94-7.34; p=0.000). We found our findings in agreement with several researchers such as Nuwabaine and Musaba, (2023) in Sierra Leone, Mande et al, and Ako

et al, in Cameroon, as well as Faith and colleagues and Id and colleagues in Apac and Hoima districts in Uganda respectively, among others.

Our study found out that majority of the teenage pregnant women did not deliver normally. Most of them delivered by caesarean section, and this were observed as the most common adverse outcome at 61 (70.1%). 13 babies had a low APGAR score while 11 had a low birth weight less than 2.5 kilograms. There were 16 still births registered. 17 of the 71 born alive babies were admitted in NICU. 11 of the 87 women suffered long hospital stays lasting more than four days. We noted consistent observations with one in Oman where caesarean section rate was higher in women than teenager girls (20% vs. 10%, p=0.001), teenage girls had lighter babies (mean weight ± standard deviation 2,750±690 vs. 2,890±480, p=0.020), and the incidence of very low birth weight babies (<1,500g) was higher in teenagers (3.9% vs. 0.3%, p=0.003).[17] Similar consistency with our result was also seen with in India and in Cameroon where teenagers were significantly more likely to low birth weight and still births and neonatal admission were high among teenagers compared to the babies of their adult counterpart.[11,18] Similarly was study findings by Mboti et al in Uganda where their research found that teenage mothers had an increased risk for several adverse birth outcomes compared to mothers 20-34 years which was similar to findings in the region and globally.[19]

This study has few limitations. Since this was an institutional based study, we could not generalize the findings. Further population-based studies targeting this particular area are therefore necessary.

CONCLUSION

The prevalence of teenage pregnancy in Hoima is alarming compared to regional and global figures. Girl education, improved income status, discouraging early marriages and promoting awareness about use of contraception, are essential in preventing teenage pregnancy in Hoima and its catchment areas.

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