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## **Magnitude of Prior Teenage Pregnancy among Women Aged 18–67 Years in Rural Southwestern Uganda**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author EMM designed the study, wrote the protocol, performed the statistical analysis and wrote the first draft of the manuscript. Authors MN, JK, PP and GS designed the study and wrote the protocol. Authors AW, PCK, SB, MM and FB managed the literature searches and analyses. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Objective:** Teenage pregnancy is a growing health challenge among adolescents in Uganda with its magnitude varying across the different regions of Uganda. This study evaluated the magnitude and factors associated with prior teenage pregnancy among women aged 18-67 years in a rural community of Kasese district, Uganda.

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**Results:** Fifty-two percent (52%) of the 138 women interviewed, had a prior teenage pregnancy. Having experienced a teenage pregnancy was independently associated with; occupation of current household heads (adjusted odds ratio, aOR= 0.2, 95% confidence interval, CI: 0.1 – 0.9), whether or not the current household could adequately meet their food needs (aOR= 0.1, 95% CI: 0.01 – 0.8), and whether the current household shared toilet facilities (aOR= 4.7, 95% CI: 1.0 – 21.8).  
**Conclusion:** The findings suggest that magnitude of prior teenage pregnancy among women in this rural community is much higher than the national average. Socio economic factors at household level are contributory to prior teenage pregnancy. A multi sectoral approach integrating household livelihood improvement with health interventions targeting the girl child is proposed to curb teenage pregnancy in this context.

*Keywords: Prior teenage pregnancy; women; rural Uganda.*

## ABBREVIATIONS

aOR : *adjusted odds Ratio*  
 CHW : *community health worker*  
 CI : *confidence interval*  
 HSDP : *health sector development plan*  
 PPS : *probability proportionate to size*  
 p-value : *probability value*  
 WHO : *World Health Organization*

## 1. INTRODUCTION

Adolescent or teenage pregnancy is defined as the occurrence of pregnancy in girls aged 10 to 19 [1]. Globally the average birth rate among 15 to 19 year olds is 49 per 1000 girls, with almost 16 million girls aged 15 to 19 giving birth every year. Country rates range from 1 to 299 births per 1000 girls, with the highest rates in sub-Saharan Africa accounting for 95% of the births [2,3]. The potential health risks as well as social and economic disadvantages faced by these young women and their infants are widely recognized [4]. Adolescents are also a critical target population with regard to influencing global public health outcomes [5]. Complications during pregnancy and childbirth worldwide are the second leading cause of death for 15–19 year-old girls [2,6]. It is also reported that in low- and middle-income countries, babies born to mothers under 20 years of age face a 50% higher risk of being still born or dying in the first few weeks versus those born to mothers aged 20-29 [2-4, 7]. It is, therefore, critical for countries to engage with this significant portion of the population and be able to address their health needs [8].

In Uganda, 25 percent of adolescents aged 15-19 years have begun childbearing while 19 percent of women age 15-19 have given birth [9, 10] with variation in prevalence between rural and urban settings (27 versus 19 percent, respectively). Uganda still has one of the highest rates of teenage pregnancy among young people

in Sub-Saharan Africa. Overall teenage birth rate or proportion of births per 1,000 women aged 15-19 years decreased from 204 to 135 between 1995 and 2011 with 24% giving birth to their first child before turning 19 years. Teenage pregnancy rate reduced from 31% to 24% between 2001 and 2011 with an increase to 25% in 2016. This is far from the Health Sector Development Plan (HSDP) target of 14% by the year 2020 [10]. The current average rate of reduction in teenage pregnancies is so slow at 3% per year over the last 10 years. Therefore, it is necessary to accelerate annual efforts to at least 9.4% per year if the country is to reach the target of 14% teenage pregnancy rate by 2020 [11]. Context specific interventions to address teenage pregnancy are dependent on an understanding of both the magnitude and associated factors of teenage pregnancy within specific settings. In response to this, the present study evaluated the magnitude of and factors associated with prior teenage pregnancy among women aged 18-67 years in Bugoye Sub-county, Kasese District.

## 2. MATERIALS AND METHODS

### 2.1 Study Setting and Sample Size

This study was a component of a larger study whose aim was to assess the household utilization of services provided by community health workers. The larger study was conducted in 8 villages of Bugoye Sub-county, Kasese district, southwestern Uganda. The sub-county is comprised of five parishes and 35 villages spanning an area of 55 km<sup>2</sup> with an estimated population of 50,249 residents [12].

All households in the 8 villages were eligible for selection for the larger study. A complete listing of all households in the villages was generated by community health workers (CHWs). The required sample size was estimated using the

formula for descriptive cross sectional surveys using random sampling with finite population correction [13]. Where n is the calculated sample size, N is the population size or total number of households (estimated to be 1300), d is the acceptable error (+/-5%), an assumed p of 50% (community health worker utilization) in order to require the maximum sample size. A sample size of n = 297 households was derived for the larger study when the above assumptions were made.

The households for this study were determined based on a community health worker generated sampling frame. Only households (138) that had a pregnant woman or a woman who had a pregnancy one year prior to survey were eligible for this study. The number of households selected in each village was based on the proportion of eligible households in each of the villages.

**2.2 Instruments, Variables and Analysis**

**2.2.1 Questionnaire design and administration**

A standardized interviewer administered questionnaire was used during the survey to collect information on; socio-demographic data; age, education level, occupation, and income, and household based factors such as food security, water sources, toilet facilities, alcohol

consumption, distance to health facilities, and utilization of CHW services.

**2.2.2 Data analysis**

The analysis was done using STATA version 13 software [14]. Two-sided chi-square tests for association were computed to detect differences between categorical variables such as education level, occupation, utilization of CHW services, alcohol consumption, toilet sharing, and food security. The means of continuous variables were compared using t-tests. The strength of association was interpreted based on a sliding scale of p-values.

In order to investigate the relationship between the outcome variable (prior teenage pregnancy) and other variables, logistic regression models were run. The model building strategy included independent variables that were considered to have a social significance for the outcome [15,16].

**3. RESULTS**

**3.1 Respondent Background Characteristics**

The findings show that 71 (52%) of the respondents reported having had their first pregnancy below 18 years of age. The background characteristics of the respondents are shown in Table 1.

**Table 1. Background characteristics of respondents**

Characteristic	All (N=138) n (%)	Ever had teenage pregnancy (N=138)		p-value
		No n (%)	Yes n (%)	
Mean Age in years (SD)	33.3 (+ 12.0)	32.3 (+11.3)	34.4 (+12.6)	0.300*
Age category				
Less or equal to 35 years	89 (65)	48 (72)	41 (58)	
Greater than 35 years	49 (35)	19 (28)	30 (42)	0.088
Education level of Household Head				
Below primary	94 (68)	37 (55)	57 (80)	
Above primary	44 (32)	30 (45)	14 (20)	0.002**
Occupation of Household Heads (n=85)				
Ungainful employed	50 (59)	15 (38)	35 (76)	
Gainful employed	35 (41)	24 (62)	11 (24)	0.000**
Mean Monthly Income				
Less than 29 \$ per month	68 (49)	28 (42)	40 (56)	
At least 29 \$ per month	70 (51)	39 (58)	31(44)	0.088

SD = standard deviation, \$ = US dollar, \* = t test, \*\*significant at p < 0.01

The majority of the respondents were: less than 35 years of age (65%), had attained education below the primary level; were ungainful employed (59%) and had an income of at least \$29 per month (51%).

### 3.2 Association between Household Characteristics and Prior Teenage Pregnancy

Table 2 compares the household characteristics of respondents' patients, by prior teenage pregnancy.

Current household characteristics that were significantly associated with having had a teenage pregnancy previously were; means of transport to nearest health facility (OR= 1.3, CI: 1.0 – 1.8) and meeting of household food needs adequately (OR= 0.3, 95% CI: 0.1 – 0.8).

### 3.3 Independent Determinants of History of a Teenage Pregnancy among Respondents

The results from the logistic regression analysis are presented in Table 3.

Occupation of current household heads (aOR=0.2, 95%CI: 0.1 – 0.9,  $p=0.03$ ), toilet sharing (aOR= 4.7, 95% CI: 1.0 – 21.8,  $p=0.05$ ), and whether households can adequately meet food needs (aOR= 0.3 95% CI: 0.1 - 0.9,  $p=0.04$ ) were all found to be independently associated with history of teenage pregnancy.

### 4. DISCUSSION

The proportion of respondents that had a prior teenage was much higher than the national average for teenage pregnancy seen over the

**Table 2. Association between other household factors and prior teenage pregnancy**

Characteristic	Ever had teenage pregnancy (N=138)		OR (95% CI)	p-value
	No n (%)	Yes n (%)		
Distance to the nearest health centre				
Less than 1 Km	19 (28)	25 (35)		
More than 1 Km	48 (72)	46 (65)	1.9 (0.1 - 21.6)	0.388
Time taken to water source				
At most 1 hr	55 (85)	62 (89)		
More than 1 hr	10 (15)	8 (11)	1.5 (0.8 - 3.0)	0.499
Toilet share with other households				
No	53 (79)	64 (90)		
Yes	14 (21)	7 (10)	2.4 (0.9 - 6.4)	0.071
Means of transport				
Walking	47 (70)	60 (85)		
Other means of transport	20 (30)	11 (15)	1.3 (1.0 - 1.8)	0.043*
Child died in past year				
No	62 (93)	63 (91)		
Yes	5 (7)	6 (9)	1.2 (0.4 - 3.7)	0.792
Ever used a CHW				
No	5 (7)	6 (8)		
Yes	62 (93)	65 (92)	1.1 (0.1 - 3.9)	0.830
Consume alcohol				
No	49 (73)	47 (67)		
Yes	18 (27)	23 (33)	0.8 (0.4 - 1.6)	0.444
Can adequately meet food needs				
No	0 (10)	19 (27)		
Yes	60 (90)	51 (73)	0.3 (0.1 - 0.8)	0.013*

\* significant at  $p < 0.05$

**Table 3. Multivariable logistic regression showing the association between respondent characteristics and prior teenage pregnancy**

Characteristic	aOR (95% CI)	p-value
Education level of Household Head	0.5 (0.1 – 1.8)	0.259
Occupation of Household Heads	0.2 (0.1 - 0.9)	0.028*
Mean Monthly Income	0.4 (0.1 – 1.3)	0.129
Time taken to water source	1.3 (0.4 - 4.1)	0.711
Toilet share with other households	4.7 (1.0 – 21.8)	0.047*
Means of transport	1.3 (0.7 – 2.4)	0.418
Ever used a CHW	4.3 (0.4 - 52.0)	0.247
Consume alcohol	0.8 (0.2 - 3.2)	0.616
Can adequately meet food needs	0.1 (0.01 - 0.8)	0.032*

\* significant at  $p < 0.05$

period 1995 – to date ( between 25 and 31 percent in this period) and that found elsewhere [6,9,17-22]. It was also well above the expected national target of 14% by the year 2020 [11]. The mean age of the respondents suggests that at the time they had their teenage pregnancy the magnitude of pregnancy among sexually active adolescents was high. It is possible during that period intervention programs toward curbing teenage pregnancy were not as prominent as they are currently, and can possibly explain the high rate observed.

The major factors associated with prior teenage pregnancy in this rural context were current occupation of household head, toilet sharing, and whether households could adequately meet their food needs. Consistent with studies conducted elsewhere socioeconomic factors appear to be related to teenage pregnancy [3,6,17,23-28]. This is significant in that any actions to address teenage pregnancy cannot exclusively rely on health interventions.

A girl who has experienced a teenage pregnancy is likely to drop out of school and therefore not have the opportunity to get a meaningful education. Parents of a pregnant teenager in a rural context tend to marry off the girl. This results in such a teenager co-habiting or marrying a spouse who may be in a low social economic stratum. More often this partner or spouse is the household head and lacks gainful employment i.e. employment where one receives a regular income. A study done in Tanzania showed having someone to turn to for economic support did not contribute to the adolescents competence of avoiding teenage pregnancy [26]. The person responsible for the teenage pregnancy and who may be the future spouse is not always better off socio-economically.

## 5. CONCLUSIONS

The findings suggest that magnitude of prior teenage pregnancy in this rural community is much higher than the national average and is attributed mainly to household level socio-economic factors. To address teenage pregnancy, an approach that integrates household livelihood improvement with health interventions targeting the girl child is suggested.

## 6. LIMITATIONS

The study respondents consisted of women aged 18-67 years and not typically adolescents. However, the study findings add to the existing body of knowledge on the subject particularly for rural contexts. The findings therefore carry implications for program managers and decision-makers in their consideration of interventions to curb teenage pregnancy in rural Uganda. The data collected on a number of independent variables were based on self-reports that are likely to be subject to social desirability bias. As a result, there is a limit to which such responses can be considered accurate by foreknowledge of what, in the view of the respondent, would be a suitable response.

## AVAILABILITY OF DATA AND MATERIALS

All data supporting our findings are contained in the paper. There are no restrictions to data sources, however, details of the full data may be accessed through Prof. Edgar M Mulogo (corresponding author), Department of Community Health, Mbarara University of Science and Technology, PO Box 1410, Mbarara, Uganda, email: emulogo2000@gmail.com, Tel: +256772433508, Skype address; edgar. mulogo1

## CONSENT AND ETHICAL APPROVAL

Ethical approval for this study was sought and obtained from the Research Ethics Committee at Mbarara University of Science and Technology (NO. 14/06-16) and the Uganda National Council of Science and Technology (SS 4148). Written informed consent was also obtained from the individual subjects.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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