

## **Risky sexual behaviours and adolescent pregnancy around the Lake Victoria Basin, Kenya**

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### **ABSTRACT**

**Objectives:** The current study aimed to investigate risky sexual behaviours and adolescent pregnancy around the Lake Victoria Basin, Kenya.

**Methods:** A cross-sectional survey was conducted to sample of 398 adolescents aged 10–18 years using a questionnaire and focus group discussions.

### **Results:**

Primary-level education had an association with adolescent pregnancy. Significant intrapersonal factors were, perceived behavioral control and intention to have sex. Additionally, living with a single parent, maternal level of education, having a sibling who had adolescent pregnancy and poor communication with parents on reproductive health issues were significant interpersonal predictors of adolescent pregnancy.

**Conclusion:** There was high prevalence of risky sexual behaviours and tendency to conform to subjective norms. Intentions to have sex was a strong predictor of pregnancy and was likely mediated by family and peer factors.

**Key words:** Adolescents, Risky Sexual behaviours, Intrapersonal, interpersonal, Determinants

## **INTRODUCTION**

The World Health Organization (WHO) defines adolescent pregnancy as a pregnancy in girls aged 10 to 19 years [1]. Globally, 10% of births occur among adolescent girls of whom 90% occur in Sub Saharan Africa [2]. Epidemiologically, there are many risk factors which contribute to adolescent pregnancy, starting at the intrapersonal level (individual) to the interpersonal level (interactions). Risky sexual behaviors like having multiple sexual partners, unprotected sex, early sexual debut, alcohol consumption, sexual violence and transactional/paid sex are major

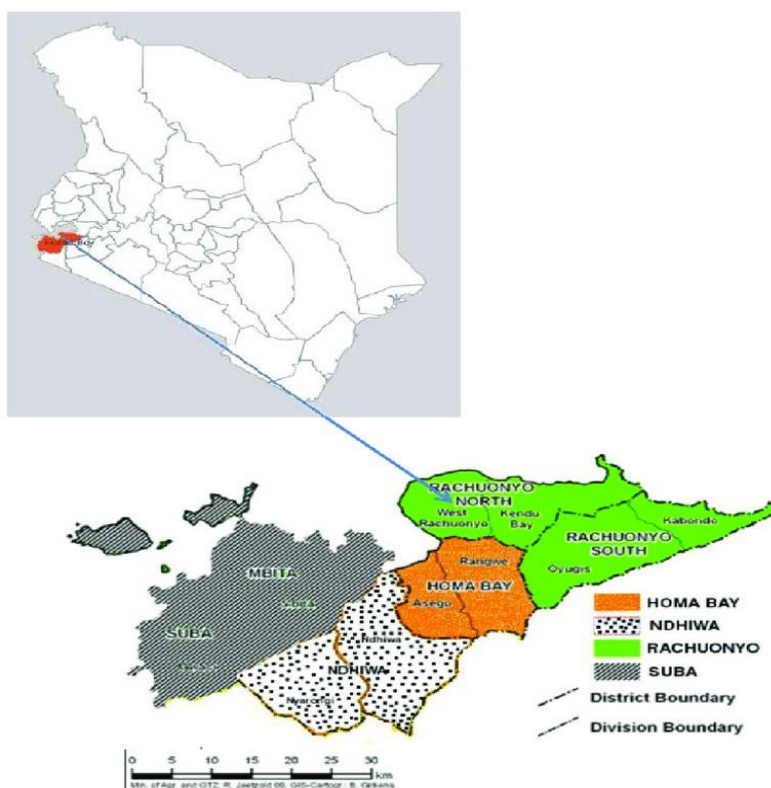
contributors to adolescent pregnancy [3]. According to WHO, the sub-Saharan Africa's, burden of adolescent pregnancy is 193 births per 1000 births [4]. This means that the risk of having adolescent birth is multiplied in Sub-Saharan Africa as opposed to other continents.

In Kenya adolescent pregnancy is an emerging public health and social problem. It is estimated that approximately 24% percent of adolescents girls in rural Kenya have ever given birth [5]. Adolescent pregnancy is the number one cause of mortality among adolescents in Kenya [6]. However, only a few studies have been conducted in Kenya especially on determinants of adolescent pregnancy in rural communities [7]. These studies highlighted environmental factors that drive adolescent pregnancy among the teenagers, but did not investigate risky sexual behaviours, intrapersonal and interpersonal determinants contributing to adolescent pregnancy among girls aged 10-18 years. According to [8], Homa Bay County in western Kenya ranks fifth (28%) in adolescent pregnancy nationally. Whereas, majority of interventions in Kenya are targeting improving adolescent sexual and reproductive health, there is little knowledge on the factors that drive prevalence of risky sexual behaviours. It is also not clear as to why some adolescents choose to indulge in risky sexual behavior while others don't. Understanding the risky sexual behaviours, interpersonal and intrapersonal determinants of these adolescent girls will enable development of more effective and targeted person-centered interventions to address the adolescent pregnancy epidemic in Homabay County in western Kenya.

## **METHODS**

### **Study location**

The study was conducted in Homabay County located along the shores of Lake Victoria, western Kenya. The area lies between latitude 0°15' South and 0°52' South, and between longitudes 34° East and 35° East, and covers an area of 4,267.1 Km<sup>2</sup> inclusive of the water surface. Homabay County has a population of 1,101,901, comprising of males (48%) and females (52%). Adolescents aged 10–19 years make up 28% (318,121) of the population. Homabay County has one of the highest adolescent pregnancy rates in the Kenya (38%) [9]. Figure 1 shows the map of Homabay County in western Kenya.



**Figure 1.** Homabay County in western Kenya

### Study design

The study design was cross sectional design using both quantitative and qualitative techniques.

### Sample size

The sample size was calculated using the formula  $n = Z^2 pq/d^2$

Where; n = the desired sample size,

Z = normal deviation (1.96) corresponding to 95% confident interval,

P = proportion of the target population estimated to have the desired characteristics (Homabay County prevalence of adolescent pregnancy is 38% - p is 0.38) 1-p, that is 1- 0.38 = 0.62; d=margin of error

Hence,  $n = 1.96^2 * 0.38 * 0.62 * 1/0.05^2 = 0.6373/0.0025 = 362$ .

10% of the sample size was added to cater for non-response;

$362 + (10% * 362) = 398$

## Survey Instruments

A questionnaire tool and Focus group discussions (FGDs) were utilized to collect data from the respondents. The questionnaire comprised of four parts. Part 1 of the questionnaire contained questions on socio-demographics variables which included marital status, level of education, family composition, parents' education, parents' profession and religion. Part 2 investigated prevalence of risky sexual behavior, including age of sexual encounter, number of sex partners in the past 12months, condoms use in past 12months, having sex under the influence of drugs or alcohol and having sex in exchange for money in the past one year. Section 3 collected data on intrapersonal characteristics like knowledge of contraceptives, reason for indulging in sexual intercourse, whether there was intention to get pregnant. Data on sexual intention was scored using the Lickert scale i.e (1=strongly disagree 5=strongly agree). Where sexual intention score of <4 was regarded as low intention while >4 was high intention. A score of >16 was considered as positive while <16 was negative. Section 4 investigated interpersonal factors which drive adolescent pregnancy in Homabay County. The contents of the questionnaire were based on a model developed by the WHO. Eight Focus group discussions (FGDs) were conducted to supplement data collected using the questionnaire tool. The FGDs consisted of 8-12 participants each. The FGD were conducted according to age of the participants, 10-14years and 15-18 years and were conducted according to the WHO guidelines.

## Sampling technique

Twelve trained public health officers were employed as field enumerators. Data was collected in in eight purposively selected health facilities in Homabay County offering maternal and child health (MCH) services. Number of participants per facility was determined in accordance with probability proportional to size technique. During data collection the enumerator introduced the aims of the study and answered any questions from the participants. Participation was voluntary and anonymous. Adolescents who were parenting or pregnant participated however, those who were unwilling or unable to participate were excluded. The study used simple random technique to select study participants. Random numbers were generated from excel and every client that corresponded to a specific number participated in the study. If they did not consent to participate the next number from the generated numbers would be picked. No names were used but identification numbers were given prior. Venues for the FGDs were private rooms and were free from any distraction. Table1 below shows the variable definition and measurements used in the study.

**Table 1.** Variable Definition & Measurements

No.	Study variables	Operational definitions	Measurement
1	Adolescent pregnancy	Occurrence of adolescent pregnancy	self-reporting
2	Knowledge	Knowledge on how to prevent adolescent pregnancy	Likert scale with 1 as strongly disagree and 5 as strongly agree. A score is then generated where <4 low intention >4 high intention
3	Attitudes	Evaluation of adolescent whether adolescent pregnancy is good	Likert scale with 1 as strongly disagree and 5 as strongly agree. A score is then generated where <16 negative >16 positive
4	Perceived abilities(self-efficacy)	Ability of adolescent to refuse sexual advances	Likert scale with 1 as strongly disagree and 5 as strongly agree. A score is then generated where <4 low >4 high
5	Behavioral control	Person's conviction as to the ease or difficulty to do a behavior in question	Likert scale with 1 as strongly disagree and 5 as strongly agree. A score is then generated where <10 high behavior control >10 low behavior control
6	Sexual intention	Intention to have children in future prior to pregnancy	Likert scale with 1 as strongly disagree and 5 as strongly agree. A score is then generated where <4 low intention >4 high intention
7	Subjective norm	Whether people approve/disapprove of pregnancy	Likert scale with 1 as strongly disagree and 5 as strongly agree. A score is then generated where <4 negative >4 positive
8	Peer pressure	Influence of peers in making decision on pregnancy	Self-reporting 1 yes and 0 no scores are generated and >3 yes <3 no
9	Marital status of parents	Structure of family/closeness to mother prior to pregnancy	Self-reporting yes and no statements
10	Maternal Levels of education	Adolescent's uppermost educational level attained	Self-reporting involving ticking the level of education primary, secondary or tertiary
11	Living with sibling who had adolescent pregnancy	Living with sibling who had adolescent pregnancy in the same household	Self-reporting involving a yes or no response
12	Whom they live with	Whether the adolescent lives with parents, alone or with husband	Self-reporting involves ticking against whom they live with
13	Communication with parent on Rh issues	Any conversation on reproductive health they have had with the mother specifically sex	Self-reporting involving a yes and no responses

14	Substance use by family member	Any family member who has substance use problem	Self-reporting involving a yes and no responses
15	Sexual debut	Age at which adolescent started/had sex for the first time	Self-reporting the age they had their first sexual debut
16	Religiosity	Degree to which individuals adhere to, practice, or are committed to religious beliefs, rituals, and practices.	Self-reporting with a Likert scale and scores generated <3 yes and >3 no
17	Substance use	Use of alcohol or drugs	Self-reporting involving a yes and no response

### Data Analysis

The Statistical Package for social scientists (SPSS) version 25.0 (IBM SPSS Statistics for Windows Version 25.0, New York: IBM Corp) was used to perform the analysis. Chi square test and involving bivariate analysis (logit regression) p-value of <0.05 were used to test for association between the variables. The WHO focus group discussion manual was used to identify major themes. Table 2 below shows the statistical tests used in the analysis.

**Table 2.** Statistical test used in the analysis

Objective	Variables	Statistical test used
To determine the prevalence of risky sexual behavior among adolescent	*DV-Adolescent pregnancy *IV-age at sexual debut, condom use, frequency of use of condom, number of sex partners, transactional sex -An adolescent was reported to have risky sexual behavior if they reported having participated in at least one risky sexual behavior	prevalence where n =353 chi square test for association and logistic regression p-value of <0.05. Focus group discussions- manual to identify major themes
To establish the intrapersonal determinants associated with adolescent pregnancy	*DV- Adolescent pregnancy *IV-Knowledge on contraceptives Sexual intention Attitude towards adolescent pregnancy Behavioral control Perceived ability Subjective norms	bivariate analysis (logit regression) identified association of each independent variable with the dependent variable. Results significant when p-value is <0.05 and odds ratio focus group discussions- manual identification of major themes
To establish interpersonal determinants associated with adolescent pregnancy	*DV-adolescent pregnancy *IV-living with parent or husband Parents marital status Maternal education Living with sibling who had adolescent pregnancy	bivariate analysis (logit regression) identified association of each independent variable with the dependent variable. Results significant when p-value is <0.05 and odds ratio focus group discussions- manual identification of major themes

	Communication with parents on R issues Peer pressure Substance use by family member Religiosity	
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Key: \*DV –dependent variable. \*IV-independent variable. \*DV-adolescent pregnancy  
 \*IV-age, marital status, sexual debut, religion, employment status, level of education. Chi-square  
 test for association and logistic regression. Results significant when p-value is <0.05.

## RESULTS

### Information on Variable and respondents characteristics

A total of 398 respondents were contacted and 381(93.2%) took part in the study. Three hundred and seventy six (91.9%) complete entries were analyzed. The mean (SD) age was 15.45±2.95 years. About 63.2% of the adolescents were single or separated ( $p= 0.01$ ); while 68.4% ( $p =0.01$ ) had attained primary level education. Majority (91.7%;  $p= 0.01$ ) were unemployed. Table 3 shows the Socio-demographic characteristics of participants.

**Table 3:** Socio-demographic characteristics of participants

Variable	Frequency (%)	$\chi^2(df)$	<i>p-value</i>
<b>Age</b>			
10-14	232(61.50)	7.88(1)	0.78
15-18	144(38.50)		
<b>Marital status</b>			
Married	138(36.80)	38.02(1)	<b>0.01</b>
Single/separated	238(63.20)		
<b>Religion</b>			
Protestants	277(73.70)	17.10(1)	0.85
Catholics	99(26.30)		
<b>Employment status</b>			
Employed	31(8.30)	19.60(1)	<b>0.01</b>
None	345(91.70)		
<b>Level of education</b>			
Primary	263(68.40)	19.10(1)	<b>0.01</b>
higher	113(31.60)		
<b>Age at sexual debut</b>			
12	19	7.10(5)	<b>0.01</b>
13	83		
14	129		

15	156	
16	113	
17	42	

Table 4 below is a summary of the measurement scales for intrapersonal and interpersonal characteristics of participants. Score on knowledge of contraceptives was scored using a scale between 1-14 scale. Attitude towards adolescent pregnancy (scale 1-32) and perceived ability (assessment of their own ability) was measured using a scale between 1-8)

**Table 4.** Measurement of intrapersonal and interpersonal characteristics of participants

<b>Variable</b>	<b>Frequency (%)</b>
Score on knowledge of contraceptives (scale of 1-14)	
<7	147(39.1)
>7	229(60.9)
Score Sexual intention (scale of 1-8)	
<4	199(52.9)
>4	177(47.1)
Score on Attitude towards adolescent pregnancy (scale 1-32)	
*Positive <16	22(5.9)
Negative >16	354(94.1)
Scores on Behavioral control (scale 1-8)	
<4	243(64.6)
>4	133(35.4)
Perceived ability (A person's assessment of their own ability) (scale 1-8)	
<4	234(62.2)
>4	142(37.8)
Scores on Subjective norms (scale 1-8)	
<4	213(56.6)
>4	163(43.4)
Live with husband	8 (2)
Parents	368(98)
<b>Parents marital status</b>	
Married	252(67)
Single/separated	124(33)
<b>Maternal education</b>	
Secondary	110(29.3)
Primary and below	266(70.7)
<b>Living with sibling who had adolescent pregnancy</b>	
Yes	212(56.4)
No	164(43.6)
<b>Communication with parents on RH Y/N</b>	
Yes	116(30.9)
No	260(69.1)

**Peer pressure**



Yes	226(60.1)
No	150(39.9)
<b>Substance use by family</b>	
Yes	77(20.5)
No	299(79.5)
<b>Religious</b>	
Yes	268(71.3)
No	108(28.7)

\*negative- those that scored >16 had negative attitude while <16 positive attitude

### Risky sexual behavior associated with adolescent pregnancy

The age of sexual debut was approximately 14 years (62.23%; p=0.01). About 41.22% (p= 0.01) of the participants had related sexually with 2 or more partners in the past 12 months. About 42% (p=0.03) had not used condoms in the past 12 months. During FGDs participants stated that the high prevalence of risky sexual behavior in the County was due to peer pressure which drives most adolescents to try to “fit in”. The participants reported that their parents could not meet their material desires. They stated that they would trade off sex for material benefits- “*my parents could not afford a phone so i had to accept sex in order to get money for buying a phone.*” On condom use, participants stated that they had used condoms in the past year, though not consistently. However, some lamented that their boyfriends don’t like using condoms - “*it is difficult to convince a boyfriend to use a condom. They argue that once we test for HIV, there is no need for condoms.*” It also came out during FGDs that some girls had habitually drunk alcohol prior to indulging in sexual intercourse- “*Alcohol helps us not to feel guilty for having sex away from marriage*”. Table 5 shows the association between sexual behavior and adolescent pregnancy in Homabay Kenya.

**Table 5:** Association between sexual behavior and adolescent pregnancy

Variables (n=376)		Frequency	$\chi^2$ (df)	p-value
Age at sexual debut mean 15±3.001	*<14	142(37.77%)	7.10(1)	<b>0.01</b>
	≥14	234(62.23%)		
Number of sexual partners in the past 12 months	One	203 (53.98%)	3.73(1)	<b>0.01</b>
	Two and	155 (41.22%)		
	More	18 (4.79%)		

Coital frequency (per month)	None	273(72.61)	2.77(2)	<b>0.01</b>
	Once	79(21.01)		
	More than once	24(6.38)		
Used condom in the past 12 months	Yes	186 (58%)	3.45(1)	<b>0.03</b>
	No	190 (42%)		
Frequency of condom use in the past 12 months	Sometimes	63(16.76%)	0.45(2)	<b>0.02</b>
	Rarely	88 (23.40%)		
	Always	225 (59.84%)		
Having sex under influence of drugs and alcohol in the past 12 months	Yes	282 (78%)	0.73(1)	0.99
	No	94 (25%)		
Had transactional sex past 12 months	Yes	65 (17.29%)	0.65(1)	0.76
	No	311 (82.71%)		
Had at least one risky sexual behavior*	Yes	222 (59.04%)	12.07 (1)	<b>0.01</b>
	No	154 (40.96%)		

\*World Health Organization define early sexual debut to be sex under 14 years

### Intrapersonal determinants Associated with Adolescent Pregnancy

There was a high sexual intention among the adolescents (OR=2.01  $p=0.018$ ). Low behavioral control was four times more likely to lead to adolescent pregnancy than high behavioral control (OR=3.98  $p=0.041$ ), while low perceived ability was approximately three times more likely to lead to adolescent pregnancy than high perceived ability (OR=2.58  $p=0.019$ ). On the other hand, knowledge on contraceptives and attitude towards getting pregnant were found not to be associated with adolescent pregnancy ( $p=0.623$ ). Table 6 shows results for intrapersonal determinants associated with adolescent pregnancy in Homa bay County.

**Table 6.** Intrapersonal determinants associated with adolescent pregnancy

Variables	B	SE	Z	Sign.	Exp(B)	95% CI
Low knowledge contraceptives	0.0143	0.0176	0.8125	0.063	0.98	0.3451,1.2910
High Sexual intention	0.4821	0.3641	1.3240	*0.018	2.01	-0.4583, -0.076
	0.3217	0.1741	1.8488	0.623	2.56	0.0907, 1.9424

Positive Attitude towards adolescent pregnancy						
Low behavior control	0.3104	0.1951	0.2597	*0.041	3.98	-0.9001,-0.8810
Low perceived ability	0.3711	0.2319	1.6002	*0.017	2.58	-0.0012,-0.0006
Low subjective norms	-0.2211	0.1056	-2.0937	*0.001	0.59	-0.0395,-0.7093

Notes p<0.05 \*significant; R<sup>2</sup>= 0.92

### Interpersonal determinants associated with adolescent pregnancy

The interpersonal factors that determine adolescent pregnancy were: living with a husband (OR=14.91, p= 0.01), which means living with a husband was 15 times more likely to result in adolescent pregnancy than living with parents (OR=2.42, p=0.01). Members of the FGD from single parent homes stated that living with a single parent left them with a lot of freedom when the parent goes to work - *“whenever my mother goes to work, I look for my boyfriend and plan how to spend our day”*. Maternal education level (primary) (OR=2.39, p=0.01), living with a sibling who had experienced adolescent pregnancy (OR=2.13, p=0.03) were two times more likely to lead to adolescent pregnancy than with a sibling without a child. Participants reported that those with a sibling who had adolescent pregnancy motivated them to get pregnant too - *“I admired how my sister would be treated well since she had a child. She was well taken care of and would not do tiresome household chores.”* They further felt like the parents loved their sibling’s babies and thought that they were lenient- *“my mother and grandmother were always loving my sister’s baby and I felt like they would not mind if I got my own child”*.

Communication with parents was protective against adolescent pregnancy (OR=0.53; p=0.01). While, peer pressure was 4 times more likely to lead to adolescent pregnancy than the reverse (OR=4.23; p=0.03). Participants in FGDs indicated that they did not communicate with their parents on sexual and reproductive health issues- *“discussions on sex are left to aunties who rarely discuss sex related issues” they stated*. Peer pressure was a major problem influencing adolescent girls to indulge in sexual intercourse. It came out that; - *“Having sex with your boyfriend is seen as an achievement.”*

Table 7 is a summary of the interpersonal determinants associated with adolescent pregnancy in Homa bay County.

**Table 7.** Interpersonal determinants associated with adolescent pregnancy

Adolescent pregnancy	Coefficient	SE	Z	P-value	OR	95% CI
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Live with husband	0.0411	0.026	.5808	0.01	14.91	5.81,16.23*
Parents marital status						
Single/separated	-0.0732	0.0321	2.2803	0.01	2.42	1.12,18.95*
Primary education	0.4817	0.2560	1.7328	0.01	2.39	1.23,3.48*
Living with sibling who had adolescent pregnancy	0.0651	0.0412	1.5801	0.03	2.10	1.22,5.23*
Communication with parents on RH	-0.9560*	0.453	-2.1104	0.01	0.53	3.12,13.64*
Peer pressure	0.5471	0.270	2.0262	0.03	4.23	2.22,10.98*
Substance use by family	0.7530	0.542	1.3893	0.52	1.93	0.43,1.94
Religious	-0.231*	0.211	-1.0948	0.32	0.23	0.55,1.55

Notes:  $p < 0.05$  \*significant; R squared= 0.90

## DISCUSSION

### Prevalence of risky sexual behaviour

In Kenya the prevalence of risky sexual behaviour is 50%, with a mean age of 18 years at sexual debut [5]. In the current study, the risky sexual behaviours observed among the adolescent girls in Homa Bay County include: early sexual debut, multiple sexual partners and lack of condom use. Three out of five adolescent girls in Homabay County had indulged in risky sexual behavior, with 38 percent of them having had their sexual debut before the age of 14 years. The early age at sexual debut among majority of the adolescent girls shows that they are at an increased risk of early pregnancy, disrupted schooling and early marriage. Risky sexual behavior among adolescent girls in the County could largely be associated with the individual's personal (sexual intentions) and interpersonal experiences (peer pressure, permissive or absente parents). The prevalence of risky sexual behaviour observed in the current study is consistent with a crosssectional study carried out in Ethiopia, to determine the prevalence of risky sexual behavior among youth center users and non-users which had an overall prevalence of 43.1% [12].

### Intrapersonal determinants of adolescent pregnancy

The study showed that there was an association between level of education and occurrence of adolescent pregnancy. Thus, an adolescent girl with primary education and below is more likely to become pregnant than an adolescent girl who has secondary education and above. This is consistent with a study conducted by [13] on determinants of adolescent pregnancy. In the study

attainment of higher education was found to be a protective factor against adolescent pregnancy. Marital status and family setting was also associated with adolescent pregnancy. This is consistent with a study conducted by [14] in Lira district, Uganda among 13-19year olds. In the current study religion was not associated with adolescent pregnancy. This is not inconsistent with other studies that have identified religion as a contributor to adolescent pregnancy [16].

The current study also showed that sexual intention was associated with actual sexual activity. A study conducted by [17] also indicated an association between sexual intention and actual behavior. Another study conducted in Ethiopia reported that sexual intention was associated with adolescent pregnancy [18]. According to the theory of planned behavior [19] intention is a proximal predictor of behavior. This explains the observation in the current study that high sexual intention was associated with risky sexual behavior and adolescent pregnancy.

### **Interpersonal determinants of adolescent pregnancy.**

The higher the level of level of parents level education the lesser the chances of adolescent pregnancy. This was consistent with similar studies [20] that investigated teen mothers' educational attainment and their children's risk for adolescent childbearing. This could be explained that an educated mother empowers an adolescent daughter to make better life choices including contraception. Single or separated parenting had significant influence on adolescent pregnancy. Girls from single parent homes were two times more susceptible to adolescent pregnancy than those from stable homes. Single parenting had a positive coefficient indicating that the more it increases the higher the chances of adolescent pregnancy.

### **Conclusion**

As is common in most developing countries, especially in Sub Saharan Africa, this study found that a substantial proportion of adolescent girls indulge in risky sexual behavior. Low perceived behavioral control, sexual intentions and tendency to conform to subjective norms were the key intrapersonal drivers of risky sexual behaviors. This is compounded by low education levels occasioned by high school dropout. Understanding the risky sexual behaviours, interpersonal and intrapersonal determinants of these adolescent girls will enable development of more effective and targeted person-centered interventions to address the adolescent pregnancy epidemic in Homabay County in western Kenya.

### **ETHICS STATEMENT**

Ethical approval was obtained from Maseno University Ethical Review Committee. Research permit was obtained from Kenya National Commission for Science, Technology and Innovation-NACOSTI. The study followed WHO guidelines for conducting safe and ethical study on adolescent women (WHO, 2018) as well as guidance on conducting sexual and reproductive health research in adolescents in Kenya. According to the Kenyan guidelines, pregnant adolescents were treated as mature minors and able to make their own informed consent as per the guideline. The participants or their guardian's written consent was thus sought prior to the commencement of the study. For purposes of consenting of the adolescents four points were fulfilled, namely; understanding of the purpose of the research, procedures, risks and benefits. This ensured that true voluntary consent was achieved from the adolescents. The researcher also informed the participants of his intention to use the information for research purposes only.

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