Knowledge towards STIs Prevention and the Determinant of Condom use among High School Student in Rwanda.

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Abstract

Adolescent's sexual and reproductive health (SRH) issues formed a considerable concern of the global burden of sexual health illness. While adolescent's usage of condom is generally low compared to adults. The aim of this study is to assess the knowledge towards the STIs model of prevention and to find out the determinant of condom use among high school students. A descriptive cross-sectional study of a probability sample of 555 high school students aged 15-24, among ten selected schools was adopted, while a self-administered questionnaire was used to collect data. Descriptive statistic methods were used for categorical and continuous variable while, Pearson Chis-square and Binary logistic regression was used to test the association between independent variable and condom use. Most of the participants were in age 15-19 and the mean age was 18.6(SD±1.96). Many students knew the STIs model of prevention and mostly known was having protected sex 95.5 percent, and least known was not sharing underwear and towels 19.6 percent, while 12.4 percent had misconception about STIs prevention. The determinant of condom use was, Age (OR=2.2, p=0.004), sex (OR=2.0, p=0.03), having sex with dating friend (OR=0.39, p=0.005), using condom as pregnancy protection (OR=0.14, p=0.016) and using condom as HIV/STIs protection (OR=0.09, p=0.003). Generally, students possess good knowledge on STIs model of prevention while few had misconception on STIs preventive model. Condom use was less likely to be used by the students. Government and concerned institutions should take an action on improving sexual health on school curriculum.

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Background

Adolescent sexual and reproductive health (SRH) regards formed a considerable concern of the global burden of sexual ill health (Morris. J L. & Rushwan. H. 2015). According to WHO, the estimated 333 million of new curable STIs cases are globally occurring each year, adolescents aged 20-24 years with higher rates followed by 15-19 years old. Around the world, many adolescents are sexually active and their sexual intercourse is mostly unprotected, which make them being exposed on contracting different types of STIs. Adolescents' usage of condom is generally low compared to their adult counterparts and this is due to lack of access in addition girls lack of decision power on condom use. Furthermore, biologically girls are more likely to acquire STIs compared to their male counterparts (Karl L and Gabriele R. 2005).

Burden and serious consequences of STIs, WHO (2013) indicated that more than one million people acquires sexually transmitted infections(STIs) every day. Every year there is an estimated 499 million cases of curable STIs such as gonorrhea, Chlamydia, Syphilis and Trichomoniasis. While estimates of 536 million people are living with simplex virus type-2 (HSV-2). Furthermore, 291 million of women have human papillomavirus (HPV) infection.

Unmet needs of sexual and reproductive health information, inadequate knowledge about sexual and reproductive health and not easily accessing sexual and reproductive health services. Risky sexual practice among young Rwandan remain high(Abbott, P.2014).While contraceptive use among East African young women increased, but unmet need remains high, (Dennis. L, et al., 2017). Furthermore, worldwide adolescents are considered as population with greater risk of engaging in risky sexual practice (Espada, J, P et al., 2016).

Rwanda national condom policy prioritizes its focus on vulnerable groups of young adolescents in and out of school who are at risk of acquiring HIV and other STIs or unwanted pregnancy. Gender issue was considered in this regard, girls and young women who are at great risk by transgenerational, transactional or violent sex (MOH 2006). However, (Germaine Tuyisenge et al., 2018) revealed that in Rwanda social and cultural norms of considering adolescents engaging in premarital sex as immoral was the barrier of condom distribution in secondary schools. By doing so will consequently affect the adolescent's right of accessing appropriate reproductive health, and exposing them to risky sexual practice. The study conducted by PSI (2008), on condom use among young Rwandan aged 15-29 who frequent bars and nightclubs revealed that condom use of their last sex with a non-marital partner was 65 percent and their consistent use with non-marital was 26 percent. Rahlenbeck, S. &Uhagaze, B. (2004), reported that Rwandan male students and those with sexual experience had more positive attitudes towards condom use, while their regular condom use prevalence was36 percent.

Demis, A. &Workeneh, D. (2017) indicated that high school students in Ethiopia had low practice of condom. However, (Manning, W. D. et al.,2009) adolescents who had sex with their dating partner were significantly associated with condom use. Furthermore, a study of (Logie, C, H, et al.,2018) indigenous adolescents in Northern Canada 47 percent reported consistent condom use in last 3months. While among girl lesbian, gay, bisexually or queer sexuality (LBGQ) identity and alcohol/drug use were associated with reduced likelihood of condom use and about boys were associated with increased likelihood of condom use.

Risk premarital sexual practice among adolescents are very hard to control because of advanced technology and the influence of peer group which exposes them on contracting different types of STIs and intended pregnancy. However, (Ngenz, N, et al., 2017) believed that education can play a very huge role in providing important information and the opportunity

to exchange experience about healthy sexual life. In this study the adolescents were able to define the concept of STD, and most of them mentioned condom as a preventive method of STD, but three quarters (¾) of them have misconception on contraceptive as a preventive method of STD. A study of (Ntaganira, J, et al., 2012) finds out that youth heads of household in Rwanda were aware of preventive measures against HIV/AIDS, but had low knowledge of Government program to prevent HIV/AIDS and their condom use was very low among sexually experienced. Another study conducted by (Habu, H, et al., 2018) finds out that students in Maiduguri University 72,7 percent agreed that STIs can be prevented. However, (Mou, S, Z, et al.,2015) revealed that 79 percent Bangladeshi University students have the knowledge towards STDs and 60 percent towards HIV/AIDS but poor in knowledge towards the mode of transmission and prevention of STDs. Zin Mohamad N, et al., (2019) revealed that young women in Klang valley Malaysia have less knowledge of non STDs and they are practicing risky behavior. However, their knowledge on HIV and good attitude contradicted with their risky sexual practice.

Rwanda is among the sub-Saharan countries where any dialogue related to sexual health is still considered as taboo. Lack of access to free condom and stigma of buying condom among adolescents and girl's lack of decision power on condom use and inadequate knowledge towards STIs, its mode of transmission and prevention leads them to be exposed on acquiring STIs. The aim of this study is to assess the knowledge towards prevention of STIs and to find out the determinant of condom use among high school adolescents.

Material and Methods

Study design

A cross-sectional study was carried out among 555 high school male and female students from 10 secondary schools in Rubavu district, Rwanda.

The study participants were selected in Private and Public both rural and urban schools: urbans schools (n=225) and Rural schools (n=330). The study participants were purposively selected according to the number of students given by the school authority.

Sample size

The appropriate sample size was determined by using Yamane's (1967) simplified formula for proportion.

- The formula uses a 95% confidence level and P=0.05

$$n = \frac{N}{1 + N * (e)^2}$$

$$n = \frac{51418}{1 + 51418(.05)^2} = 381$$

n= Sample size
N= total population (51,418)
e= Acceptable sampling error
* 95% confidence level and p value = 0.05

The sample size determined to be 381 but for more accuracy of the data the sample were increased up to 555.

The sample selection of Schools both Urban and Rural, Private and Public were done by Systematic sampling method, while purposive sampling was used for selecting number of students from the schools.

Data collection

The data were collected in ten secondary schools, both public and private located in urban and rural area. Structured questionnaire was self-administered by the students and the researcher explained to them how to fill it up and helping them to understand the questionnaire.

Data analysis

The study complies different type of data, such as continuous and categorical data. Categorical were presented in frequencies and percentages while continuous data were presented as mean and standard deviation (±SD). Pearson Chi-square test was used to determine the association between dependents and independent variables while binary logistic regression was used to find out the determinant of condom use. A confident level of 95% and P value of < 0.05 considered as statistically significant, while STATA (13.1) software was used for statistical analysis.

Table:1. Socio-economic and demographic characteristics of the study participants (N=555)

Characteristics		n&%
Age Mean 18.6 (SD±1.96)	15-19	400(72.1)
	20-24	155(27.9)
Gender	Male	291(52.4)
	Female	264(47.6)
Religion	Christian	497(89.5)
	Muslim	58(10.5)
Place of birth	Urban	283(51)
	Rural	272(49)
Place of resident	Urban	321(57.8)
	Rural	234(42.2)
Type of school	Public	411(74.1)
	Private	144(25.9)
Location of the school	Urban	258(46.5)
	Rural	297(53.5)
In relationship	Dating	451(81.3)
	Single	104(18.7)
Economic class	1	55(9.9)
	2	158(28.5)
	3	316(56.9)
	4	26(4.7)

Ethical clearance

The ethical and protocol of this study was approved by The University of Kerala, India and Government of Rwanda through (Rubavu District), by providing an official document that allowed the researcher for entering in different schools and collect data from the students.

From this table 1 it can be seen that Many participants 72.1percent are in the age group of 15-19 and the mean age is 18.6 years, (SD±1.96). More than a half of the participant 52.4 percent are Male and female with 47.6 percent. About religious belief, Christianity occupies 89.5 percent and Muslim with less participant 10.5 percent. With regard of place of birth, half 51percent of the participant were born in Urban while almost a half 49 percent were born in Rural. Urban residents are 57.8 percent, while 42.2 percent were residing in Rural. Many of the participants 74.1 percent were studied in Public school and more than half 53.5 percent of the school were located in rural. About the status of the participants, many of them 81.3 percent were dating, however, more than a half 56.9 percent of the participants were in third economic class, followed by 28.5 percent those classified in second class.

Table 2: Preventing STIs among adolescents is the most challenging tasks for the adolescents, especially students in high schools, but for better preventive measures they should acquire the knowledge of preventing STIs. Most of the participants 95.5 percent knew that having protected sex may prevent acquiring STIs. Many participants 84.9 percent knew that seating with STI patient cannot prevent acquiring STIs. Not having multiple partners mentioned by 76.2 percent as prevention of STIs. Using dental dam while kissing was known by 57.5 percent as STI preventive tools while 42.5 percent did not know it. Not sharing food with STI patient was mentioned by 87.6 percent as not an STIs prevention. Being vaccinated for HBV & HPV is known

Table:2 Knowledge towards prevention of STIs

Variables	Male		Female		Total		X²
	Yes	No	Yes	No	Yes	No	
Having protected sex	278(50.1)	13(2.3)	252(45.4)	12(2.2)	530(95.5)	25(4.5)	0.16
Not seating with STI patient	49(8.8)	242(43.6)	35(6.3)	229(41.3)	84(15.1)	471(84.9)	0.048
Not having multiple partners	207(37.3)	84(15.1)	216(38.9)	48(8.6)	423(76.2)	132(23.8)	0.001
Using dental dam while kissing	175(31.5)	116(20.9)	144(25.9)	120(21.6)	319(57.5)	236(42.5)	0.028
Not sharing food with STI patient	41(7.4)	250(45.0)	28(5.0)	236(42.5)	69(12.4)	486(87.6)	0.048
Get vaccinated for HBV & HPV	219(39.5)	72(13,0)	212(38.2)	52(9.4)	431(77.7)	124(22.3)	0.030
Abstinence	258(46.5)	33(5.9)	238(42,9)	26(4.7)	496(89.4)	59(10.6)	0.094
Not receiving unscreened blood	255(45.9)	36(6.5)	230(41,4)	34(6.1)	485(87.4)	70(12.6)	0.100
Not having sex with sex-workers	270(48.6)	21(3.8)	239(43.1)	25(4.5)	509(91.7)	46(8.3)	0.077
Not sharing underwear & towel	55(9.9)	54(9.7)	236(42.5)	210(37.8)	109(19.6)	319(80.4)	0.077
Using post-exposure prophylaxis	129(23.2)	162(29.2)	107(19.3)	157(28.3)	236(42.5)	319(57.5)	0.046
Avoiding condom breakage	239(43.1)	52(9.4)	245(44.1)	19(3.4)	484(87.2)	71(12.8)	0.000

by 77.7 percent as STIs preventive measures. Abstinence as an STI preventive method is known by 89.4 percent. Not receiving unscreened blood is known by 87.4 percent as prevention of acquiring an STI. Not having sex with sex-workers mentioned as preventive measures by 91.7 percent participants. Only 19.6 percent participant knew that not sharing underwear and towel can prevent acquiring STI, while 80.4 percent did not know. More than a half

57.5 percent of the participants did not know that using post-exposure prophylaxis can prevent acquiring an STI. Avoiding condom breakage was known by 87.2 percent of the participants as STIs preventive measures.

Table:3 Logistic regression of determinant of condom use among students(N=230)

Variables			n & %	X^2value	p-value	OR	C.I 95%	p-value
Age	15-19	Yes	89(38.2)	7.34	0.007	2.2	1.292-4.209	0.004
		No	57(24.5)					
	20-24®	Yes	68(29.2)					
		No	19(8.2)					
Gender	Male	Yes	102(43.8)	4.72	0.03	2.0	1.065-3.841	0.03
		No	60(25.8)					
	Female®	Yes	55(23.6)					
		No	16(6.9)					
Religion	Christian	Yes	136(58.4)	0.38	0.53	1.31	0.553-3.117	0.53
		No	68(29.2)					
	Muslim®	Yes	21(9)					
		No	8(3.4)					
Having sex with	Casual friend	Yes	116(50.2)	0.10	0.77	0.91	0.525-1.585	0.744
		No®	115(49.8)					
	Dating friend	Yes	183(79.6)	8.06	0.005	0.39	0.203-0.757	0.005
		No®	47(20.4)					
	Different partners	Yes	102(44.3)	1.55	0.21	0.69	0.396-1.230	0.213
		No®	128(55.7)					
Knowing partner's HIV/STI status		Yes	153(30.4)	1.68	0.19	1.51	0.808-2.834	0.196
		No®	73(69.6)					
Protecting against	Pregnancy	Yes	134(81.7)	7.38	0.007	0.14	0.031-0.705	0.016
		No®	30(18.3)					
	HIV/STIs	Yes	128(78)	10.44	0.001	0.09	0.018-0.531	0.003
		No®	36(22)					

Table:3. The binary logistic regression showed the degree of statistical relationship between independent and dependent variables (condom use). We compared age of the respondents 15-19 to 20-24 age group, and it has seen that being in 15-19 age group were 1.2 more likely to use condom (OR=2.2, 95% CI: 1.292-4.209), moreover age of the respondent was statistically significant with condom use (p=0.004). Male respondents were 1.0 more likely to use condom compared to their female counterparts (OR=2.0, 95% CI:1.065-3.841) and gender was statistically significant with condom use (p=0.03). With regard of religious belief, we compared Christian to Muslim and Christians were 0.31 more likely to use condom compared to their Muslim counterparts (OR=1.31, 95% CI:.553-3.117), however religious belief was not significant to condom use (p=0.53). Having sex with casual friends, dating, friends and with different partners were less likely to use condom (OR=0.91), (OR=0.39), (OR=0.69), respectively, and only having sex with dating friend was significant to condom use (p=0.005). Those who did not know the HIV/STI status of their partner were 0.5 more likely to use condom compared to those who knows their partner's HIV/STI (OR=1.51, 95% CI:0.808-2.834) and it was not significant to condom use. Using condom as avoiding pregnancy and protecting HIV/STIs were less likely to use condom (OR=0.14), (OR=0.09), respectively, moreover, all had significant relationship with condom use (p=0.016), (p=0.003), respectively.

Discussion and Conclusion

The incidence of STIs is Globally increasing among youth because of their vulnerability and exposure to STIs. For this reason, young adults need to acquire knowledge on the model of STIs prevention, however student's knowledge towards STIs prevention had generally been good but few students had misconceptions. So far the known STIs model of prevention among the students was 95.5 percent on having protected sex, this is higher than 72.7 percent of secondary school students in Nigeria by (Habu et al., 2018), and 57.9 percent among youth heads of household in Rwanda by (Ntaganda et al., 2012), but lower to 100 percent among Brazilian high school

students by (Niviane et al., 2017). More students 91.7 percent were able to identify not having sex with sex-workers as model of STIs prevention, while 89.4 percent mentioned abstinence and this was higher than 69.4 percent from secondary school in Nigeria by, (Habu et al., 2018), but lower than 98.8 percent of Rwandan youth, by (Ntaganda et al., 2012). However, not receiving unscreened blood and avoiding condom breakage, 87.4, 87.2 percent accordingly, followed by getting vaccinated for HBV and HPV 77.7 percent, were mentioned by the students as a model of STIs prevention. Furthermore, not having multiple partners mentioned by 76,2 percent and this is higher than 66,1 percent of the Nigerian students by, (Habu et al., 2018), and 23,7 percent of Rwandan youth by (Ntaganda et al., 2012). Half 57.5 percent of the student were able to identify using dental dam while kissing as one of the models of STIs prevention. The reason why only half of students knew this model of prevention is because the dental dam is not known or not frequently used because most of people kisses without protection. The use of post-exposure prophylaxis known by 42.5 percent which is seems to be rarely known compared to other model of prevention because it is not applicable for all other STIs except HIV. Lastly sharing underwear and towel 19.6 percent, and this less known because they won't understand how you can acquire STIs by sharing underwear or towel. Moreover, less number of students had misconceptions on model of STI prevention, such as not seating with an STI patients with 15,1 percent and not sharing food with an STI patients with 12,4 percent.

Adolescence age plays a huge role on behavior change and decision making on reproductive health related issues. In this study, we found out that being younger 15-19 years old were 1.2 times more on condom use compared to their 20-24 years old counterpart, and age was statistically associated (p=0.004) with condom use. This is stipulated with the study in India by (BichitraniMarak., 2015) and in South African by (Evans Muchiri et al., 2017) where the age was statistically associated with condom use, but contradicted with the study in Ghana by (Jessica Appong., 2017), and in

America, Ohio by (Manning. D, et al., 2009), where age was not statistically associated with condom use. Gender have a great influence on condom use, especially on decision making power of condom use among male and female. This study found out that male students were 1more likely to use condom compared to their female student counterparts, and gender was statistically associated (p=0.03) with condom use. This is similar to the study of (Kabiru.,2013) among Kenyan high school students, but contradicted with the study among adolescents in Ghana by (Jessica, Appong, 2017) and among American high school students by (Szucs et al., 2019) where the sex of the adolescents was not statistically significant with condom use. The reason behind this is the positive results of Rwandan Government for prioritizing the policy of providing free condoms to the vulnerable young adolescent in and out the schools, and introducing condom free boutique in different places in cities. Religious belief as determinant of condom use among student we found out that Christian were 31percent more likely to use condom compared to their Muslim counterparts. However, the religious belief was not statistically associated (p=0.53) with condom use and this same as the study of adolescents in Ghana by (Jessica Appong 2017), and young urban women in India by (Marak and Tarun, 2015), but contradicted with the study done among adolescents and young adults in South Africa by (Evans Muchiri et al., 2017). The reason why religious belief was not found statistically associated with condom, use it is because religion is against premarital sex. We have also compared having sex with casual friends and we found out that those who had sex with their casual friends were less likely (OR=0.91) to use condom and having sex with casual friend was not statistically significant (p=0.744) with condom use. This is very risky choices among adolescents in engaging in unprotected sexual activities because they don't think much on their reproductive health. Having sex with dating friends was statistically associated (p=0.005) with condom use and this complies with the study of (Manning. D, et al., 2009) among American teenagers, while, those who had sex with their dating friends were less likely (OR=0.39) to use condom compared to their adolescent counterpart who did not. Having sex

with multiple partners were not statistically associated (p=0.213) with condom use and those who had sex with multiple partners were less likely (OR=0.69) to use condom compared to those who did not. We do compare having sex with those who knows their partner's HIV/STIs status to those who did not and we found out that those who knows their partner's HIV/STIs status were 51 percent more likely to use condom compared to their student's counterparts who did not know their partner's HIV/STIs status, while knowledge of HIV/STIs of their partners was not statistically associated (p=0.196) with condom use. We have compared student's reason of using condom or not using to condom use and we found out that using condom as protection of pregnancy were less likely (OR=0.14) to use condom compare to those who did not, and using condom as pregnancy protection was statistically associated with condom use (p=0.016). Comparing those who used condom as HIV/STIs protection and those who did not, we found out that using condom as HIV/STIs protection were less likely to use condom (OR=0.09) compared to those who did not, while using condom as HIV/STIs protection was statistically associated with condom use with (p=0.003). Condom use among adolescents, especially high school students have different opinions and knowledge towards condom use some have good knowledge and positive attitude towards condom use, while others had misconception of condom use. The reason mentioned by many adolescents was lack of knowledge on condom use, lack of access to free condom, stigma of buying condom, luck of knowledge of how to use condom, and peer pressure on engaging in risky sexual practice.

The study found out that students possess good knowledge on STIs model of prevention, but few have misconception, condom use was good among male but low among female students. Knowledge on Sexual and reproductive health, contraceptive use, especially condom should be included in school curriculum. Young adult share common need on authentic and accurate information about their body functions, Sexuality, Contraceptive and other related issues regardless their gender. Furthermore, adolescent

has high risk of unprotected premarital sex which leaves them exposed to unintended and early pregnancy, unsafe abortion and STIs/HIV. The concerned institution such as Government, NGOs, religious believers, Police makers and researchers should take action in this regards through different channels such as educating peer groupsabout reproductive health and STIs including HIV, encouraging abstinence and to promote condom use among sexually active adolescent.

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