

Sexual Activity and Emergency Contraception among Female Students in the University of Rwanda

ABSTRACT

Background: Less is known about sexual activity, unwanted pregnancy rate, and emergency contraception decision-making among female students in Rwandan Higher Education. By gathering such information, we are better able to develop preventive efforts that can reduce the likelihood of such incidents occurring over the students' lifespan. The study explores sexual activity and describes how this group learns about, feels about and practices contraception in general with emphasis on emergency contraception (EC).

Methods: Undergraduate female students, aged 18-25 years old, registered in the University of Rwanda, Huye campus (former NUR-National University of Rwanda) during the academic year 2013-2014, were randomly recruited to complete a structured self-administrated questionnaire.

Results: The toll of sexually active students floated between 29% and 49%. Among them 5% agreed having been involved in unwanted sex, 3% had forced sex and 2% carried unintended pregnancy. The majority showed positive attitudes towards EC, but less than half had adequate knowledge about EC (47.64%) and only 5.4% used EC.

Conclusion: More than half of UR female students could be sexually active and the risk of getting unintended pregnancy is not negligible. There is need to mount proper strategies to largely disseminate information about EC, not for encouraging sex practices among students but to prevent unwanted pregnancy and correlated unsafe abortions, maternal morbidity or class drops out.

Keywords: Emergency contraception, knowledge, attitude, use, pregnancy,

1. INTRODUCTION

Each year there are globally around 85 million pregnancies in the world, of which 40% are unintended pregnancies, and 50% of these undergo induced unsafe abortion [1-3]. According to the same authors, it is globally estimated that 11% of annually births are given by adolescent girls of age 15-19, and 95% of these births are in low income countries. The toll of deaths due to unsafe abortion represents 13% of all maternal deaths worldwide and this continues to be a major public health problem particularly in low-income countries [4].

Unwanted pregnancies in Higher Education Institutes pose major public health problems in developing and developed countries as well [5]. Adolescent pregnancy affects the health of mother and child and has a devastating impact in social, psychological and educational lifespan of girls [6,7]. Despite the fact that different modern contraceptive methods exist, the problem of unintended pregnancy still exists worldwide; this could be due to gap in awareness, negative attitudes towards contraception, low accessibility or as a result of sexual assault [5,8].

Looking unsafe abortion as preventable cause of maternal mortality and morbidity, the WHO has recommended interventions like modern contraceptive services including emergency contraception (EC) as a way to mitigate unsafe abortions and reduce maternal deaths [9]. EC is a type of modern contraception which is indicated after unprotected sexual intercourse, following sexual abuse, misuse of regular contraception or nonuse of contraception [10]. One distinguishes two types of emergency contraceptives (ECs) that are emergency contraceptive pills (ECPs) and intrauterine devices (IUDs). The ECPs include combined oral contraceptive pills (COCs), and a progestin only pills (POPs). ECPs method is found to be effective if used as soon as possible within 72 hours after unprotected sexual intercourse [11]. IUDs are recommended to be inserted within 5 days of unprotected sexual intercourse [12]. EC is said to be safe with minor side effects like nausea and vomiting in case of pills and infection for intrauterine devices if not used properly.

According to the research conducted by GUTTMACHER institute for Rwanda in 2012, despite the notable gain in contraceptive use and decrease in unmet need for contraception over the past decade, nearly half (47%) of all pregnancies in Rwanda are unintended, of which an estimated 22% end in induced abortion [13]. This means that each year there are 25 induced abortions per 1,000 women aged 15–44 [13,14]. Other figures show that 63% of births are unplanned births and 15% end in miscarriage [15]. The number of sexually active women is growing and single women aged 15-29 are especially vulnerable to unintended pregnancy and induced abortion [15]. However, not much information exists among female students in Rwandan Higher Education institutions regarding sexual activity, and emergency contraceptives. Considering the importance of EC in preventing unintended pregnancy, this study was designed to explore sexual activity among female undergraduate students in the University of Rwanda, to describe how this group learns about, feels about and practices contraception in general with emphasis on EC, with the assumptions that the major factors that can limit the use of ECs in Rwanda may be inadequate

information about their effectiveness and unfavorable opinions about their safety due to misinformation. So, the findings generated from this study will help the Rwandan Ministry of Health, the Universities and affiliate youth projects to better plan strategies aimed at mitigating unplanned pregnancies through the use of ECs whenever it is needed.

2. METHODS

2.1. Methodology

The research was designed as exploratory-descriptive survey targeting female students registered in the University of Rwanda, Huye Campus (former National University of Rwanda or NUR) during the academic year 2013-2014 with the above-mentioned objectives.

NUR was, at the time, the biggest campus in the country with 3560 registered females. All students regardless of study orientation, religion, study level or age were eligible except those who were married, mentally handicapped or unwilling to participate in the study. The minimum required sample size was 296, calculated using one-sample population proportion formula:

$$n = \frac{z^2 \cdot [p(1-p)] / D^2}{1 + z^2 \cdot [p(1-p)] / D^2} / P$$

Assuming $z=1.96$, $p=30\%$ (expected proportion of those who may be

aware of EC from a preliminary survey); $D= 5\%$, $P=3530$; with, z = area under normal curve corresponding to the desired confidence level, D =degree of significance, and P = all students registered.

2.2. Data collection and analysis

The data was collected using a structured self-administered questionnaire, containing both open and close-ended questions written in English. The questionnaire was tailored to include relevant items as described in literature and was pre-tested in 20 students to assess whether the instrument covered all dimensions of the construct, including demographics, sexuality, and EC knowledge, attitudes and practice (KAP). The questionnaires were distributed to the selected students in their rooms. Respondents were quickly briefed about the purpose and objectives of study by the investigators. In the consent form, details were given on rights and requirements, procedures and confidentiality. Those who consented had to fill the form themselves in privacy. At the end, the questionnaires were collected, gathered and checked for completeness by the principal investigator. In this study, a total of 296 students answered the questionnaire (100% response rate) even partially.

The operational measures were defined as follow:

Demographics: Age range (18-20, 21-23, 24-25 years); Religion (Protestant, Muslim, Catholic, other); Province region (North, West, East, South, Kigali, Foreigners); Sexual activity (having history of vaginal sexual intercourse).

Knowledge: awareness, circumstances of use, source of information.

Attitudes: items rated on a Likert scale (i.e. strongly agree, agree, disagree and strongly disagree, neither agree nor disagree). Strongly agree or agree was considered as positive attitude; disagree and strongly disagree as a negative attitude.

Practices: assessed using items related to prior sex experiences and use of contraception.

The data was captured and analyzed using the program statistical package for social sciences SPSS version 17. Different approaches like descriptive statistics, and cross-tabulation were applied to calculate valid frequencies and missing cases to each question. Probabilities of less than 5% were taken to be of significant difference.

3. RESULTS

3.1. Sexual activity

Demographics of participating students showed that the youngest respondent was 18 years old and the oldest 25 years, with an average of 21.5 ± 2.4 years. On religion basis, there were grouped as Protestants, 138 (45.95%); Catholics, 118 (39.86%); Muslims, 38 (12.84%); and independents 4 (1.35%). Out of them 53(17.91%) came from North province, 87(29.39%) from South, 48(16.22%) from East, 49(16.55%) from West, 52(17.57%) from Kigali and 7(2.36%) foreigners. The majority of Catholics and Protestants came from North and South provinces, whereas the majority of Muslims were from Eastern and Western provinces.

Table 1 shows that from this population, out of 296 respondents 29.1% agreed they were sexually active, 59.1% answered no, and the remaining 11.8% skipped the question. However nearest half (49.3%) agreed having been at risk of getting pregnant. The risk situation was described as having unprotected sex (51.37%), having forced sex (6.16%), having forgotten taking pills (2.7%), having failed protection like condom split (15.1%). Unwanted sexual encounter was noticed by 15 students (5.1%), of which 3% as forced sex and 2% rape. As consequence to this unwanted sex, 12 respondents said they were frightened of getting pregnant and 2 respondents frightened of contracting HIV. Asked what they did to reduce their worries after sex, 3 respondents shared the case with friends, 2 others rushed to health facility, one said nothing, but 9 out of fifteen skipped the question. Unintended pregnancy was declared by 6 (4.1%) respondents out of 146 supposed to be sexually active, of which 3 from forced sex and 3 from wanted but unprotected intercourse.

3.2. Emergency Contraception Knowledge Attitudes Practice

Table-2 shows that almost everybody (97.3%) had heard about contraceptives in general and named at least one method; only 47.6% had heard about EC. The first three cited methods were condom (27.4%), pills (27%) and **CycleBeads** (17.9%). Other methods named were Injection (10.8%), Abstinence (6.8%), Vasectomy (6.8%), Natural method (2.0%), Sterilisation (2.0%), Norplan (1.4), Diaphragm (0.7%), Jelly (0.7%), Quinquina (0.7%), tubule ligation (0.3%). Only

19.1% made it clear EC is for unprotected sex within 72 hours, 41.1% said it is for unprotected sex, 30.3% said it is to prevent unwanted pregnancy, 2.8% said after being raped, and 5.7% wrongly thought it is to prevent HIV. The sources of information were friends (58.9%), health workers (29.1%), teachers (7.8%), internet (2.13%), and media (0.7%).

Table 1 Sexual activity measurement

Questions Responses				
		N	%	Valid %
Sexually active?				
N=296	Yes	86	29.1	32.9
	No	175	59.1	67.1
	Missing	35	11.8	
Faced risk of pregnant?				
N=296	Yes	146	49.3	49.8
	No	147	49.7	50.2
	-Missing	3	1.0	
Type of risk-situation?				
N=146	-Unprotected sex	75	51.4	53.6
	-Forced sex	9	6.2	6.4
	-Failed Method	22	15.1	15.7
	-Forgetting the pills	4	2.7	2.9
	-Other	30	20.6	21.4
	-Missing	6	4.1	4.3
Involved in unwanted Sex?				
N=296	-Yes	15	5.1	5.1
	-No	279	94.3	94.9
	-Missing	2	0.7	
Worry after unwanted sex?				
N=15	-Getting Pregnancy	12	80.0	85.7
	-HIV/AIDS	2	13.3	14.3
	-Missing	1	6.8	
Action to reduce worries?				
N=15	-Nothing	1	6.7	16.7
	-Comforted by a friend	3	20.0	50.0
	-Went to health facility	2	13.3	33.3
	-Missing	9	60.0	
Carried pregnancy?				
N=146	Yes	6	4.1	4.2
	No	137	93.8	95.8
	-Missing	3	2.1	

165 **Table 2 Respondents' Knowledge on EC**

Questions Responses		N	%
Ever heard of any contraceptive			
	Yes	288	97.3
	No	8	2.7
Having information on EC			
	Yes	141	47.6
	No	155	52.4
Source of information about EC			
N=14	Friend	83	58.9
	Health worker	41	29.1
	Media	1	0.7
	Teacher	11	7.8
	Internet	3	2.1
	No answer	2	1.4
Circumstances to use EC N=141			
	Unprotected sex within 72 hrs	28	19.9
	Unprotected sex	58	41.1
	Prevent unwanted pregnancy	43	30.5
	After being raped	4	2.8
	Prevent HIV	8	5.7
Any method known? N=296			
	Condom	81	27.4
	Pills	80	27.0
	CycleBeads	27	17.9
	Injection	32	10.8
	Abstinence	20	6.8
	Vasectomy	20	6.8
	Natural method	6	2.0
	Sterilisation	6	2.0
	Norplan	4	1.4
	Diaphragm	2	0.7
	Jelly	2	0.7
	Calendar	1	0.3
	Morning after Pills	1	0.3
	Tubule ligation	1	0.3

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167 **Table-3** shows that 63(21.3%) respondents had used any modern contraceptive method solely or
 168 in combination. Among them, 16 (5.4%) had used ECs. For instance condom was used solely by
 169 27.1% and in combination by 70.3%. EC method was used alone by 4 respondents and in

combination by 9(12.2%), Pills by 2 solely and 4(5.4%) in combination, spermicidal gel by 3 solely and 9(12.2%) in combination.

Table 3 Practice of contraception

Frequency of Use	Any		EC method	
	N	%	N	%
Yes	63	21.3	16	5.4
No	230	77.7	279	94.3
Missing	3	1.0	1	.3
Total	296	100.0	296	100.0
Types used	Single		Cumulative	
	N	%	N	%
Condom	39	27.1	52	70.3
EC	4	2.8	9	12.2
Pills	2	1.4	4	5.4
Spermicidal	3	2.1	9	12.2
EC+ Condom	5	3.5		
Pills+ Condom	2	1.4		
Spermicidal+ Condom	6	4.2		
Total	61	42.4	74	100

Table-4 shows the result related to respondents' attitudes. A series of arguments were presented. On one hand, respondents were asked whether they can use ECs themselves in future or recommend it to friends. On the other hand, a Likert scale was used for some items. About 64.5% against 35.5% respondents were favourable to use ECs; 69.6% against 30.4% were favourable to recommend ECs to friends. On average the positive attitude is expressed by 67% against 33%. On Likert scaling, the rate of strongly agree (SA) dominate in all statements tested. For instance, 75% of respondents strongly agreed it is important to give information on EC to all adolescent girls against only 6.8% who strongly disagreed; 41.9 % strongly accepted to make ECs available against 13.2% who strongly disagreed. However, only 31% or less were strongly convinced that the use of ECs would reduce abortion rates and related deaths, or reduce the rate of class dropout.

Table 5 shows the potential influence of demographics on the measurement outcomes. The values are reported as simple ratios of YES over NO scores. For instance, concerning getting pregnant, the statistical difference may be significant ($p=0.037$); the ratios of yes/no were, for North province (2/51; $R=0.039$), South (4/82; $R=0.049$), East (0/48; $R=0$), West (0/49; $R=0$), Kigali (0/52; $R=0$), meaning that all the 6 pregnancy cases were declared by 4 students from south province and 2 from North province, and zero from other provinces. Students under 21 years old are more likely well informed about contraceptive methods than the older students ($R=1.316$; $p=0.044$). Muslims with ($R=1.375$) seem to be lesser willing to recommend EC than Catholics ($R=2.668$) or Protestants ($R=2.317$). Catholics($R=1.127$) would be more sexually active than Protestants($R=0.875$) or Muslims($R=0.850$). However a statistical significant

difference ($p < 0.05$) is observed only for age-knowledge-attitude, religion-knowledge, province-knowledge-attitude-sexuality-pregnancy.

Table 4: Participants' attitudes towards emergency contraception expressed as percentage

Opinion inquired	Response		Rate on Likert scale				
	Yes	No	SA	A	D	SD	NC
Would use EC in future	64.5	35.5					
Would recommend ECs to someone	69.6	30.4					
Inform ECs to all young girls and women			75.0	16.2	1.4	6.8	0.7
Parents to support use of EC by daughters			38.5	25.7	15.2	14.9	5.7
Parents should often talk EC with daughters			40.5	26.0	12.2	14.9	6.4
EC should be made easily available			41.9	19.9	12.8	13.2	12.2
EC can reduce the rate of induced abortions			31.1	24.0	12.2	11.8	20.9
EC can reduce deaths resulting from abortion			31.4	23.6	11.1	10.8	23.0
ECs can help in preventing school drop outs			27.7	26.4	10.1	11.1	24.7
Total Mean	67.1	33.0	40.9	23.1	10.7	11.9	13.4
±SD	3.6	3.6	16.0	3.8	4.4	2.8	9.5

SA (strongly agree); A (agree); D (disagree); SD (strongly disagree); NC (No choice)

Table 5 Association between demographic variables and outcomes expressed as ratio YES/NO

Variable		Knowledge	Practice	Attitude	Sexuality	Pregnancy
Age	<i>P-value</i>	0.044 ^h *	0.846	0.047 ^h *	0.855	0.696
	18-20 y	1.316	0.060	2.259	1.071	0.011
	21-23 y	0.820	0.052	2.640	0.898	0.023
	24-25 y	0.471	0.087	0.923	1.000	0.042
Religion	<i>P-value</i>	0.049 ^h *	0.689	0.116	0.340	0.678
	Catholic	1.208	0.035	2.688	1.127	0.009
	Protestant	1.231	0.080	2.317	0.875	0.046
	Muslim	0.846	0.027	1.375	0.850	0.000
Province	<i>P-value</i>	0.013 ^h *	0.766	0.005 ^h *	0.018 ^h *	0.034 ^h *
	North	1.208	0.060	3.818	1.167	0.039
	South	1.231	0.062	3.143	1.417	0.049
	East	0.846	0.043	2.429	1.417	0.000
	West	0.581	0.065	1.333	0.548	0.000
	Kigali city	0.625	0.040	1.600	0.700	0.000

Legend: *P value significant (< 0.05 ; SPSS ^hLinear-by-linear, ^hNominal by nominal test). Knowledge is assessed with "have heard or not about EC"; Practice by "have used or not EC"; Attitude by "accept or not to recommend EC to friend"; Sexuality by "having or not sex intercourse"; Pregnant or not.

4. DISCUSSION

Looking on demographic characteristics, students were considered for age, religion and province of origin. The age window fell within 18 and 25 years, with 22 years as the mode. This is compatible with the normal expected age among Higher Education students from fresh to terminal levels in many countries. As NUR campus is located in the South province, about third of students come from this Province. The findings showed the first religion of the respondents is Protestant before Catholic and Muslim. This pictures the three main confessions known in the country. Protestants include both the old confessions and the new created churches. The multiplicity of churches is a new social phenomenon observed in many countries, particularly among youths [16, 17]. The reason and impact of this on the society is beyond the current study. Even though the statistical analysis was not very deep in this survey, there is indication that age, religion and cultural environment may be associated with the differences observed in the responses given.

Concerning the sexual activity of students, only 29% of respondents firmly declared to be sexually active. However, nearest the half (49%) agreed to have experienced some situation at the risk of getting pregnant. This indicates that students made a difference between having regular sex and having occasional intercourse. The high percentage (12%) of those who skipped the question may be attributed to the fact that some students are less likely to openly admit being sexually active for fear of being judged. Thus we consider the 49% level as the more likely true rate. Studies from other countries have reported the rates of 33.9% in Uganda [18], 56.6% in Ethiopia [19] and 64.48 % in Nigeria [20]. Socially a low rate of sexual activity is preferred and should be promoted by education to curve the risk of unintended pregnancies.

The study also has revealed that some students have been sexually abused or raped. The cases may occur among students themselves on the campus or elsewhere. After all, this situation is very embarrassing for the victims as some get out with pregnancy and others remain very distressed. It is for sure that some pregnancies ended by induced abortion even though that was not assessed. This is backed by the internal report within the university suspecting the case of dead babies thrown. The national figures indicate that 47% of all pregnancies in Rwanda are unintended, of which an estimated 22% end in induced abortion [13]. Thus the education should be extended to male students as well so they can take their solely responsibilities.

The findings about KAP showed that 47.6% of participating students had heard about EC. The rate is slightly lower compared to similar studies done; e.g. among university students in Tanzania (57%) [21], Ethiopia (69.9%)[19], Pakistan (79%) [22], Nigeria (58.4%)[20,23] and South Africa (56.5%)[24]. The Asian countries like Pakistan sound more implicated than African countries. This low knowledge level here could be due to the fact that the media and teachers are not the main sources of information about EC. Also inside the university no educational

campaign has been organized according to students' dire. Both the students and the university authorities should be implicated to tackle this issue.

Interestingly, the participants generally showed positive attitudes towards the use of EC. The results from other studies above mentioned have reported similar positive attributes. But in this study, still a number of respondents seem not firmly convinced that the use of EC will significantly reduce the rate of unwanted pregnancies, the rate of induced abortion, or the rate of school dropouts. Half of them were not favourable with the idea of having parents engaged in exchange about EC with their daughters. This is really a tricky question in our society where sex is a taboo. We may anticipate that the future mothers among educated students will be able to break the taboo.

Regarding the use of EC, the rate of 5.4% is also low compared with 32.3% in Ethiopia [25], 11.04% in Tanzania [26] and 29.9% Nigeria [27]. As stated in the introduction, despite the notable gain in contraceptive use and decrease in unmet need for contraception over the past decade, nearly half (47%) of all pregnancies in Rwanda are unintended [13]. The notable use may concern particularly family planning contraceptives. Efforts need to be focused also on emergency contraceptives. The low level of use could reflect the inadequate awareness among study participants. Other reasons for the low use could be the misconception about family planning like 'family planning cause cancer and infertility'; that was evidently a concern among the respondents. Moreover those with strong religious values may also not use EC.

5. CONCLUSION

The findings show that about half or more UR female students could be sexually active and the risk of getting unintended pregnancy is not negligible. However the level of awareness and use of EC is low in comparison to results obtained in other countries. There is need to mount proper strategies to largely disseminate information about EC, not for encouraging sex practices among students but to prevent unwanted pregnancy and correlated unsafe abortions, or class dropout.

CONSENT

The consents from participants were obtained. The purpose of the study was explained to all study participants; they were also informed that all of their responses are confidential and anonymous, and they have all the rights to not be involved in the study or not answer any of the questions. Collected information was used only for the study's purpose and confidentiality was guaranteed in order to respect the privacy of everyone involved in the study.

ETHICAL APPROVAL

Before the data was collected, official permission from Research Commission of the School of Medicine and Pharmacy/NUR was obtained.

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