Assessing the Effect of Sexual and Reproductive Health Training Program on the Knowledge on Safe Sex Practice of Young Adults in College

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Abstract

Young adults and adolescents ages 18 to 24 years are often either uninformed or misinformed about sexuality and health-promoting behaviors and are more likely to exhibit risky sexual behaviors. In sub-Saharan Africa, only 19-26% of adolescents display adequate knowledge related to HIV and sexual and reproductive health.

Sexual and reproductive health education for young adults can reduce unintended pregnancies, delay sexual debut, reduce having multiple sex partners, increase pregnancy prevention practices and increase the practice of protected sex.

This study utilized a pre- and post-intervention design to assess the impact of a sex education program on young adult freshman students ages 18 to 24 years, at a government education institution in Rwanda, on knowledge related to family planning and contraception, sexually transmitted infections/HIV/AIDS, and safe and risky sex practices.

A total of 360 freshman students from the college completed the pre-intervention questionnaire and 341 completed the post-intervention questionnaire. The results showed that the overall knowledge in the sample was generally low before the intervention (67.8%) but had increased to 84.7% post-intervention ($P<0.001$). Many respondents thought STIs were genetic diseases, that withdrawal was a reliable birth control method, and that having multiple sexual partners or transactional sex were not risky sex practices.

Universities in Rwanda should consider incorporating sexual and reproductive education in their curriculum. The increase in knowledge, however, does not guarantee a change in the respondents' sexual behavior. Further study is needed to assess the impact of the intervention on actual change in sexual behavior and longterm health outcome.

Keywords: sexual and reproductive health education, safe sex practice, sex knowledge, risky sex practice, young adults and adolescents

1. Introduction

Studies have shown that young adults between ages 18 and 24 years are more likely to exhibit risky sexual behaviors, including having unprotected sex and having multiple sexual partners (Delany-Moretlwe, S., et al, 2015). It is at this age that many young people are initiating, exploring and experimenting with their sexual experiences (Fathalla, M. et al. 2015; Blum, K., et al 2009; Simona R., et al, 2009; Grunseit, A. 1997).

There are many factors that predispose young people to exhibit risky sexual behaviors. Young people may feel uncomfortable discussing sex, especially because in some cultures and societies, sexuality remains a communication taboo (Simona R., et al, 2009; Jejeebhoy, S., et al 2015). Emotionally, young people are prone to surrender to peer pressure and engage in alcohol and substance abuse – which can also lead them to participate in risky sexual activities (Jukes, M., et al 2012; Remes, P. et al, 2010; Stavrou, 2004).

Several studies in sub-saharan Africa have found that young women in school get involved in transactional sexual relationships to obtain money to cover education-related expenses or to widen their social networks (Delany-Moretlwe, S., et al, 2015). Young people living in poverty are also more at risk to exploitative, unsafe

sexual practices. They may have less power to negotiate using protective behaviors when in relationships with older partners or in transactional sexual relationships (Jukes, M., et al 2012; Remes, P. et al, 2010; Stavrou, 2004).

Worldwide, young adults and adolescents are generally either uninformed or misinformed about sexuality and health-promoting behaviors. In low- and middle-income countries (LMIC), the proportion of adolescents who display adequate knowledge of HIV, sexual and reproductive health was reported to be as low as 19-26% in sub-Saharan Africa and South Asia as compared to between 6% and 42% in other parts of Asia, east and southern Europe, and Latin America (Jejeebhoy, S., et al 2015; Remes, P. et al, 2010; Ancheta, R., et al, 2005). Sexual and reproductive health education has been shown to empower young people to access contraception methods of their choice and in turn to protect themselves from sexually transmitted diseases including HIV (United Nations Population Fund, 2016). Studies have also shown that communication between parents and young adults around sexuality and reproductive health, in addition to formal sexual and reproductive health education, are associated with reduced sexual risk to young adults (Ancheta, R., et al, 2005). Sexual and reproductive health education for young adults can reduce unintended pregnancies, delay sexual debut, reduce the likelihood of having multiple sex partners, increase pregnancy prevention practices, and increase the practice of protected sex (Kismödi, E., et al, 2015; Mba, C. I., et al 2007; Hendriksen, E.S., et al, 2007; Brieger, W.R., et al, 2001; Grunseit, A. 1997). Accurate sexual and reproductive health information can help young people to make responsible decisions and choose safe behaviors (UNFPA, 2016; Delany-Moretlwe, S., et al, 2015).

In sub-Saharan African countries, a large number of children and adolescents younger than 15 years of age are living with HIV, and the fertility rate among 15 to 19 year olds is highest in the world (Van Stam, et al, 2014). About 20% of young women initiated childbearing before they were 18 years old, and many of their pregnancies were unintended; sometimes resulting in the utilization of illegal abortions (Blum, K., et al 2009; Jejeebhoy, S., et al 2015; Brieger, W.R., et al, 2001; Ancheta, R. et al, 2005; Worku, et al., 2004; Chatterji, M., 2005). In Rwanda, about 71% of unmarried young adults were sexually active and 11% had contracted sexually transmitted diseases in 2014 (NISR, 2014).

Given the importance of having adequate sexual and reproductive health knowledge in protecting young adults in school from engaging in risky sexual behaviors, this project was conducted to assess the impact of a sex education program on the knowledge related to safe sex practice among the students in a public college in Rwanda. The results of this study can serve as a blueprint for other educational institutions in Rwanda to improve sexual and reproductive health among their students.

2. Methods

2.1 Setting

The study was conducted among young adult freshman students' ages 18 to 24 years, at a government Technical and Vocational Education and Training (TVET) institution in the southern province of Rwanda. The institution offers six major programs, including Information and Communications Technology, Electrical and Electronics Engineering, Construction Engineering, Crop Production, Veterinary Technology and Mechanical Engineering, to about 1500 students. Among them, approximately 20% are female and 80% are male, with ages ranging from 18 to 40 years. In the year 2017, there were 437 freshman students.

2.2 Design and Sample

This study utilized a pre- and post-intervention design to assess the impact of sexual and reproductive health education on the level of knowledge of safe sex practices among the freshman students of the institution. The baseline assessment was conducted in December 2017. The intervention was conducted in March 2018. The post-intervention assessment was conducted in March 2018, a few days after the intervention. All freshman students who were between 18 and 24 years of age during the academic year 2017/2018 were recruited to participate in this study.

2.3 Intervention

A 2-hour session on safe sex practices was provided to all freshmen students in March 2018 after their regular classes. The session was conducted by a licensed clinical psychologist with experience in education related to safe sex practice, family planning and contraception, and HIV/AIDS/STIs among young adults.

2.4 Measures and Data Collection Method

The main measure for this study was sexual and reproductive health knowledge score among young adult freshmen students. The knowledge scores for the three categories 1) family planning and contraception, 2) sexually transmitted

infections/HIV/AIDS, and 3) safe and risky sex practices were also measured.

The principal investigator met the students after normal class sessions to explain the purpose of the study and to address any questions from the students related to the study. Written informed consent was obtained from the students before they answered an anonymous questionnaire. The questionnaire was in English and was developed based on information from the most up-to-date literature and publications and the expertise of the instructor. The questionnaire was tested using non-freshmen students and was modified according to their feedback. The final questionnaire contained 21 true or false questions. Five questions were related to family planning and contraception (questions 1 to 5), nine questions were related to sexually transmitted infections/HIV/AIDS (questions 6 to 14), and seven questions were related to safe sex practices (questions 15 to 21). The knowledge score, overall and for each category, was calculated as a percentage of correct answers out of the number of questions answered. The same procedure was applied in the post-intervention assessment. This study was approved by the IRB of the University of Global Health Equity and by the college administration.

2.5 Data Analysis

Descriptive statistics were used to present the student demographics. Independent sample t-tests were used to analyze the pre- and post-intervention scores of the overall, sectional, and individual questions. All statistical tests were conducted using SPSS v.21, with statistical significance set at 0.05.

3. Results

A total of 360 freshman students from the college completed the pre-intervention questionnaire and 341 completed the post-intervention questionnaire, representing 82.4% and 78% of the total freshman population. The pre-intervention and post-intervention samples did not differ significantly in sex (P=0.423) or study program (P=0.541), but they were significantly different in religion (P<0.001) and sexual activity (P<0.001) (Table 1).

Less than half of the respondents (n=151, 41.9%) reported they were sexually active during the pre-intervention group and 310 (90.9%) reported they were sexually active in the post-intervention group. There was a significant decrease in the number of participants that belonged to Pentecostal, from 23.1% pre-intervention sample to 9.1% in the post-intervention sample, and an increase in the sample 'Others' from 3.9% to 16.1%, causing a significant difference in the two samples (Table 1).

Table 1. Table summarizing the pre- and post-intervention results

Variables		Pre-intervention	Post- intervention	P-value
Sample (n)		360	341	NA
Gender	Female	80 (22.2%)	85 (24.9%)	.423
	Male	280 (77.8%)	256 (75.1%)	
Religion	Anglican	30 (8.3%)	27 (7.9%)	<.001
	Adventist	58 (16.1%)	52 (15.3%)	
	Catholic	169 (46.9%)	174 (51.0%)	
	Pentecostal	83 (23.1%)	31 (9.1%)	
	Muslims	6 (1.7%)	2 (0.6%)	
	Others	14 (3.9%)	55 (16.1%)	
Sexually Active	Inactive	209 (58.1%)	31 (9.1%)	<0.001
	Active	151 (41.9%)	310 (90.9%)	
Department	ICT	57 (15.8%)	63 (18.5%)	.541
	Construction	72 (20.0%)	71 (20.8%)	
	EEE	93 (25.8%)	75 (22.0%)	
	Mechanical	30 (8.3%)	35 (10.3%)	
	Crop	43 (11.9%)	31 (9.1%)	

	Vet	65 (18.1%)	66 (19.4%)	
Knowledge Score	Family planning & contraception	74.9% (±41.1%)	85.0% (±17.2%)	<0.001
Mean (SD)	STIs/HIV/AIDS	76.2% (±18.4%)	87.3% (±11.8%)	<0.001
	Sex practices	56.5% (±20.2%)	81.5% (±15.0%)	<0.001
	Overall	67.8% (±14.3%)	84.7% (±9.0%)	<0.001

The overall average knowledge score increased from 67.8% pre-intervention to 84.7% post-intervention (P<0.001). All three areas of knowledge improved significantly. The knowledge score on family planning and contraception increased from 74.9% pre-intervention to 85.0% post-intervention (P<0.001), for STIs/HIV/AIDS increased from 76.2% pre-intervention to 87.3% post-intervention (P<0.001) and for safe sex practices increased from 67.8% pre-intervention to 84.7% post-intervention (P<0.001) (Table 1). The scores for safe sex practices were low on both pre- and post-intervention.

Four questions in the category of STD/HIV/AIDS scored the highest in the pre-intervention test; they also did not show statistically significant changes from the pre- to post-intervention tests. Three questions in the categories of family planning and contraception, and sex practices scored the lowest in the pre-intervention test (Table 2).

Table 2. Table summarizing the pre- and post-intervention results of test questions

Questions	Pre-intervention Mean score (SD)	Post- intervention Mean score (SD)	P-value
Q1. Sexual and reproductive health includes education and counseling on healthy human sexuality	81.0% (±39.6%)	91.0% (±28.4%)	<0.001
Q2. Family planning is not about pregnancy prevention and child spacing	78.0% (±41.2%)	90.0% (±29.6%)	<0.001
Q3. Family planning is for married couples only	61.0% (±48.7%)	80.0% (±39.8%)	<0.001
Q4. Sexual and reproductive health includes prevention and treatment of unsafe abortion	59.0% (±49.3%)	75.0% (±43.5%)	<0.001
Q5. Condoms is not a method of contraception	75.0% (±43.6%)	89.0% (±31.9%)	<0.001
Q6. Sexually transmitted Infections (STIs) are genetic diseases	32.0% (±46.5%)	71.0% (±45.5%)	<0.001
Q7. Acquired Immunodeficiency Syndrome (AIDS) is caused by the Human Immunodeficiency Virus (HIV)	92.0% (±27.2%)	92.0% (±26.6%)	0.841
Q8. Sexual and reproductive health includes treatment of reproductive tract infections and STIs	73.0% (±44.7%)	95.0% (±35.7%)	<0.001
Q9. Discharge, strong odor, itching of the vagina or of the penis, and pain during intercourse or urination are symptoms of STIs	84.0% (±36.8%)	89.0% (±31.9%)	0.075
Q10. Chlamydia, Hepatitis B and C, Syphilis, Genital Herpes, and HIV/AIDS are some commonly known STIs	70.0% (±46.0%)	91.0% (±27.9%)	<0.001
Q11. Cancers, skin disorders and upper respiratory tract infections are examples of sexually transmitted diseases	78.0% (±41.4%)	85.0% (±36.0%)	0.024
Q12. STIs or HIV/AIDS can be transmitted through needles and syringes, genital secretions, breast milk, and in utero transmission	79.0% (±40.8%)	90.0% (±29.6%)	<0.001
Q13. Counseling on sexual behavior can reduce the risk of HIV/STIs infections	85.0% (±35.7%)	90.0% (±30.4%)	0.061
Q14. Abstinence, mutual fidelity and using condoms are the	91.0% (±28.5%)	91.0% (±27.9%)	0.866

safest methods for prevention of HIV/STIs			
Q15. Having unprotected sex is a high risk sex practice	67.0% (±47.0%)	86.0% (±34.8%)	<0.001
Q16. Knowing your HIV/AIDS or STIs status is a safe sex practice	63.0% (±48.2%)	79.0% (±40.4%)	<0.001
Q17. Having multiple sexual partners is a risky sex practice	41.0% (±49.3%)	83.0% (±37.6%)	<0.001
Q18. Withdrawal is an unreliable birth control methods	58.0% (±70.3%)	79.0% (±40.9%)	<0.001
Q19. Masturbation is a high risk sex practice	34.0% (±47.6%)	68.0% (±46.8%)	<0.001
Q20. Non-penetrative sex is a safe sex practice	58.0% (±49.3%)	87.0% (±33.2%)	<0.001
Q21. Transactional sex is a high risk sex practice	65.0% (±47.9%)	88.0% (±32.2%)	<0.001

4. Discussion

Our study found that the overall knowledge among the study population was low, with an average knowledge score of 67.8%, before the intervention. Our intervention was associated with a significant increase in the overall knowledge score among participants. The result is similar to other previously published studies (Brieger, et al, 2001; Kismödi, E., et al, 2015), indicating sexual and reproductive health education can lead to increased knowledge among young people. Such knowledge is important as other studies had shown that increase in knowledge was associated with increased self-efficacy and use of contraceptives, increased awareness about STIs and HIV/AIDS, delay in sexual debut, and reduced incidence of unintended pregnancy (Kismödi, E., et al, 2015; Grunseit, A. 1997). Longer follow up studies to evaluate the sexual health outcome among the students who participated in the training should be conducted.

Before our intervention, our participants had moderate knowledge level of family planning and contraceptive methods as well as STIs/HIV/AIDS, but their knowledge level on safe and risky sex practices was relatively poor (only 56.8%). Even after the intervention, the score on sex practices was still the lowest among the three categories. The findings may suggest the young people in the university may still lack the basic understanding of safe sex practices, which in turn can put them at risk. In Rwanda, where 11% of young adults contract sexually transmitted diseases and 7.3% of teenagers become pregnant, it is critical to provide youth with clear and accurate sexual and reproductive health information (National Institute of Statistics of Rwanda, 2014; NISR - MOH and ICF International, 2015).

The subtotal knowledge scores for the category of STIs/HIV/AIDS were highest in both pre- and post-intervention assessments. The four questions that scored highest in the pre-intervention test were all in the category of STD/HIV/AIDS. This finding was very similar to what was reported in the 2014 Rwanda Demographic Health Survey (DHS). The DHS reported that 99.9% of young adults had heard of HIV/AIDS, and 68.8% had comprehensive knowledge about it (National Institute of Statistics of Rwanda, 2014). In Rwanda, numerous non-government organizations and national efforts focused on STIs/HIV/AIDS preventions already exist; it is therefore not unexpected that the youth have substantial knowledge on HIV/AIDS (Marie-Anne Van Stam, et al, 2014).

The assessment results indicated that our respondents lack proper knowledge in a few key concepts; 68% of respondents thought STIs were genetic diseases, 66% thought masturbation was a high-risk sex practice, and only 59% knew that having multiple sexual partners was a risky sex practice. Such results are genuine concerns as misunderstanding of these key concepts can put the young people at severe risk when they are exploring sexual activities. Our assessment results also showed that 42% of participants believed withdrawal was a reliable birth control method. This may be one of the factors contributing to the 7.3% teenage pregnancy in Rwanda (NISR - MOH and ICF International, 2015). Future education efforts should focus on clarifying such misconceptions.

Another alarming finding in this study was that only 65% of young adults considered transactional sex a risky sex practice. As transactional sex is prevalent in low-income countries and among vulnerable populations (Delany-Moretlwe, S., et al, 2015), combining that with the lack of understanding of the risks of transactional sex may place young adults in serious danger.

Our project found that sexual and reproductive education increased the knowledge among young people in university about the proper sexual and reproductive health practices. However, our study had some limitations. There were two significant differences in the profiles of the pre- and post-intervention samples. Only 41.9% of respondents reported

they were sexually active in the pre-intervention assessment, but the percentage increased to 90.9% in the post-intervention assessment. We speculate the drastic change in percentage could indicate that the respondents were not providing honest answers during the pre-test but became willing to respond more truthfully after frank discussions with the counselor on this subject during the intervention (Grunseit, A. 1997). Questions surrounding sex knowledge and practice are sensitive; respondents may or may not want to provide the true answers despite our clear explanation of the purpose of the study as well as the anonymity of the questionnaire. Another significant difference in the two samples was the religious distribution. Studies have shown that religion and culture can have influence on some health issues like sexual practice (Simona R., et al, 2009; Jejeebhoy, S., et al 2015). We could not eliminate the possibility that the increase in knowledge scores in our study could be because of the difference in religious distribution among the pre- and post-intervention samples, rather than actually reflecting the impact of the intervention.

5. Conclusion

Our study found an increase in knowledge related to sexual and reproductive health following an educational intervention. This study provides preliminary evidence to recommend incorporating sexual and reproductive health education into the academic calendar for educational institutions as an effective means of enhancing the knowledge of students. Other educational institutions in Rwanda should consider incorporating similar programs in their universities. The increase in knowledge, however, does not guarantee a change in the respondents' sexual behavior. Further studies are needed to assess the impact of the intervention on actual change in sexual behavior and long term health outcomes.

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References

Ancheta, R., Hynes, C., & Shrier, A. L. (2005). Reproductive Health Education and Sexual Risk Among High-Risk Female Adolescents and Young Adults. *Journal for Pediatric and Adolescent Gynecology, 18*, 105-111. https://doi.org/10.1016/j.jpag.2005.01.005

Blum, R. W., & Mmari, K. (2009). Risk and protective factors that affect adolescent reproductive health in developing countries: A struct (Worku Feleke.) ured literature review. *Global Public Health, 4*(4), 350-366. https://doi.org/10.1080/17441690701664418

Brieger, W. R., Delano, G. E., Lane, C. G., Oladepo, O., & Oyediran, K. A. (2001). West African Youth Initiative: Outcome of a Reproductive Health Education Program. *Journal of Adolescent Health, 29*(6), 436-446. https://doi.org/10.1016/S1054-139X(01)00264-6

Chatterji, M., Murray, N., London, D., & Anglewicz, P. (2005). The factors influencing transactional sex among young men and women in 12 sub‐Saharan African countries. *Social Biology, 52*(1-2), 56-72. https://doi.org/10.1080/19485565.2002.9989099

Delany-Moretlwe, S., Cowan, F. M., Busza, J., Moore, C. B., Kelley, K., & Fairlie, L. (2015). Providing comprehensive health services for young key populations: needs, barriers and gaps. *Journal of the International AIDS Society, 18*(1), 29-40. https://doi.org/10.7448/IAS.18.2.19833

Fathalla, M. F. (2015). Sexual and reproductive health for all: The challenge still stands. *Global Public Health, 10*(2), 135-136. https://doi.org/10.1080/17441692.2014.986172

Grunseit, A. (1997). *Effects of sex education on young people's sexual behavior: a review update*. UNAIDS. WHO/GPA, Geneva.

Hendriksen, E. S., Pettifor, A., Lee, S., Coates, J, T., & Rees, V. H. (2007). Predictors of Condom Use Among Young Adults in South Africa: The Reproductive Health and HIV Research Unit National Youth Survey. *American Journal of Public Health, 97*(7), 1241-1248. https://doi.org/10.2105/AJPH.2006.086009

Jejeebhoy, J. S., & Santhya, K. G. (2015). Sexual and reproductive health and rights of adolescent girls: Evidence from low- and middle - income countries. *Global Public Health, 10*(2), 189-221. https://doi.org/10.1080/17441692.2014.986169

Jukes, C. H. M., & Zuilkowski, S. S. (2012). The impact of education on sexual behavior in sub-Saharan Africa: A review of the evidence. *Psychological and Socio-Medical Aspects of AIDS/HIV, 24*(5), 562-576.

Kismödi, E., Cottingham, J., Gruskin, S., & Miller, M. A. (2015). Advancing sexual health through human rights: The role of the law. *Global Public Health, 10*(2), 252-267. https://doi.org/10.1080/17441692.2014.986175

Mba, C. I., Obi, S. N., & Ozumba, B. C. (2007). The impact of health education on reproductive health knowledge among adolescents in a rural Nigerian community. *Journal of Obstetrics and Gynaecology*, *27*(5), 513-517. https://doi.org/10.1080/01443610701478991

NISR, MOH and ICF International. (2015). *Rwanda Demographic and Health Survey 2014-15 Final Report*.

Remes, P., Renju, J., Nyalali, K., Medard, L., Kimaryo, M., Changalucha, J., … Wight, D. (2010). Dusty discos and dangerous desires: community perceptions of adolescent sexual and reproductive health risks and vulnerability and the potential role of parents in rural Mwanza, Tanzania. *Culture, Health & Sexuality*, *12*(3), 279-292. https://doi.org/10.1080/13691050903395145

Simona, R., & John, K. (2009). Knowledge, Attitude and Practices Study on Reproductive Health Among Secondary School Students. *African Journal of Reproductive Health, 13*(4).

Stavrou, S. E., & Kaufman, C. E. (2004). 'Bus fare please': the economics of sex and gifts among young people in urban South Africa. *Culture, Health & Sexuality*, *6*(5), 377-391. https://doi.org/10.1080/13691050410001680492

United Nations Population Fund. (2016). *Comprehensive sexuality education. UNFPA*. Retrieved February 16, 2018, from https://www.unfpa.org/comprehensive-sexuality-education

Van Stam, M. A., Michielsen, K., Stroeken, K., & Zijlstra, J. H. B. (2014). The impact of education and globalization on sexual and reproductive health: Retrospective evidence from eastern and southern Africa. *Psychological and Socio-medical Aspects of AIDS/HIV, 26*(3), 379-386.

Worku, F., & Gabresilassie, S. (2008). *Reproductive Health for health science students*. University of Gondor, Ethiopia.