ORIGINAL PAPER

Assessment of knowledge about condom use among high school students in selected schools of Limpopo Province, South Africa

Lazaros Chavalala[1], Rachel T. Lebese[2], Shonisani E. Tshivhase[1]

[1]University of Venda, School of Health Sciences, Department of Public Health, Limpopo, South Africa
[2]Research Office, School of Health Sciences, University of Venda, Limpopo, South Africa

Abstract

Introduction: Condoms safeguard against unplanned pregnancy and sexually transmitted infections (STIs), including human immunodeficiency virus (HIV) among all age groups. The HIV transmission rate increases when condoms are not used properly. The purpose of this study was to determine knowledge of condom use amongst high school students. A cross-sectional study was conducted on high school students to assess their knowledge of condom use. A total of 346 eligible learners from various high schools in Shamavunga circuit of Limpopo were selected from grades 10-12 through systematic random sampling.

Material and methods: Grade 12 students were comprised the majority of participants (37.3%, $n = 129$), followed by grade 11 at 35% and grade 10 at 27.7%. The group included more females than males.

Results: A total of 307 (88.7%) students indicated that they had knowledge about the protection that condoms provide against HIV and acquired immunodeficiency syndrome (AIDS), STIs, and pregnancy, whereas 39 (11.3%) students indicated insufficient knowledge. Furthermore, 91.3% of the learners reported that condoms cannot be used repeatedly, and 52% knew that condoms are available at no cost from clinics and hospital.

Conclusions: The study found knowledge of condom use among high school students was evident, although some knowledge deficiencies were also noted including unrolling a condom before putting on the penis and using a condom with oil-based lubricant. Therefore, specific educational programmes such as life orientation are recommended to increase knowledge. Furthermore, high school students should be encouraged to make use of condoms to prevent sexually transmitted diseases.

HIV AIDS Rev 2019; 18, 3: 222-227
DOI: https://doi.org/10.5114/hivar.2019.88267

Key words: condom use, educational programmes, knowledge, high school students, prevention.

Introduction

Condoms are an accessible physical and biomedical barrier that can reduce the risk of sexual exposure to human immunodeficiency virus (HIV), unwanted pregnancy, and other sexually transmitted infections (STIs) if they are used appropriately [1]. Both male and female condoms are available even though the male condom is deemed to be the most available, due to an expensive cost implicated to the female condom (FC) as well as it being reportedly difficult to use [1, 2].

Address for correspondence: Shonisani E. Tshivhase, Research Office, School of Health Sciences, University of Venda, Limpopo, South Africa, e-mail: tshivhasese@gmail.com

Article history:
Received: 17.04.2019
Received in revised form: 16.05.2019
Accepted: 20.05.2019
Available online: 12.09.2019

International Journal of HIV-Related Problems
HIV & AIDS Review

However, the male condom provides prevention of HIV infection only if it is used correctly and consistently [2, 3]. Research findings have reported that it can reduce HIV transmission by 100% and provide 80% protection if used inconsistently [4]. Further studies reported that regular and correct use of condoms lessens the risk of HIV infection, whilst inconsistent use of condoms carries a significant risk of HIV infection [4].

It is encouraging to note that research done in Ethiopia revealed good knowledge possessed by learners, whereby 74.6% reported that condoms prevent STIs, HIV, and acquired immunodeficiency syndrome (AIDS), and used as contraceptive prevents pregnancy [4].

Reports have indicated that condom use has increased significantly in the past decade, but challenges have been reported especially with teenagers having poor access to them [4, 5]. It should be noted as well that teenagers learn about condom use from the media, friends, and books. However, they learn different things which lead to different understanding [6, 7]. Therefore, the use of condoms remains low among adolescents despite awareness of HIV and the need for safe sex [8].

A SA study confirmed that 80% of secondary pupils reported that condoms were used for protection against HIV and AIDS, even though 30% of the females were found lacking knowledge that condoms provide protection [9]. Furthermore, in the same study, common errors were identified with respect to condom use, which were attributed to ignorance regarding the specific time to put on and remove the condom as well as putting it on correctly [9].

A study conducted by Beltzer *et al*. [10] indicated that adolescents did not believe that condoms would protect them from contracting HIV. Similar findings were also reported that condoms were regarded as a means of protection against HIV only but not a contraceptive [11, 12]. Meanwhile there has been an increase in condoms usage reported in the past 30 years amongst adolescents, especially among black population as opposed to whites, with men (79.1%) utilising condoms more than women (68.1%) [13].

However, in sub-Saharan Africa, the purpose of condom use has been viewed differently by men and women: men believed that it is only for extramarital sex, while women thought that it was used as a contraceptive method [14]. This is shown by 55% of 2.5 million sexually active teenage girls who use condoms only as a form of contraception [15]. Generally, the uptake of condom use amongst adolescents is poor [16, 17], even though more adolescent males (67%) acknowledged that they used condoms in their most recent sexual encounter as opposed to 49.8% of adolescent females [18]. Astonishingly 85% of the youths reported as not being ashamed to buy/access condoms meanwhile only 15% felt embarrassed [19]. The way that high school students perceive condoms will have an impact on their usage; therefore, the purpose of this study was to assess the knowledge about condom use amongst high school students in a selected municipality in Limpopo province, South Africa.

Material and methods

Study design

A purposive cross-sectional study was conducted on high school students in grades 10 to 12 in order to assess condom use knowledge.

Study setting

The area is mostly rural. There are 34 primary health care clinics in the region, although some of the villages do not have health facilities. The community is expected to travel long distance to access health care services. The majority (74.4%) of the adolescents attend in this area. Condoms are distributed to primary health care facilities, tuckshops (*Spaza shops*), and *taverns* (local informal bottle stores or pubs) where people are able to access them whenever they need them (www.westerncape.gov.za) [20].

Study population

The target population of this study were high school learners from Greater Giyani Municipality, and the accessible population were students from high schools that fall under the selected circuit. Students who were in the regular academic year 2016/2017 program and who had been selected by the sampling procedure comprised the study population. The study involved both male and female learners from grades 10-12. Learners in the age group < 15 years were excluded.

Sampling

The participants were sampled from six high schools of one circuit reported to have the highest learner pregnancy rates within the five educational circuits in Greater Giyani Municipality. The study involved both male and female students from grades 10-12 from six high schools in one circuit of Shamavunga. Students were grouped according to grades in each school, and the grades were treated as strata. Simple random sampling was used to select learners from each grade. The total sample size for the study was 346.

Procedure

Prior to data collection, learners were informed about the technical terms that were used in the questionnaire. Participants were given guidance on how to fill out the form. The researcher took the selected learners from the classroom and then distributed the self-administered questionnaires during a 45-minute break.

Data collection instrument

A researcher-developed questionnaire was used for the study after it was validated by experts in the field. Initially the questionnaire was developed in English language and

Table 1. Participants' sociodemographic characteristics ($N = 346$)

Characteristic/Category	*n* (%)
Age	
15-17	223 (64.5)
18-20	123 (35.5)
Gender	
Male	176 (50.9)
Female	170 (49.1)
Religion	
Christian	339 (98.0)
African	6 (1.8)
Level of school grades	
Grade 10	96 (27.7)
Grade 11	121 (35.0)
Grade 12	129 (37.3)
People with whom the participants live	
Single parent	122 (35.3)
Both parents	145 (41.9)
Child-headed family	79 (22.9)
Gaurdian	–

was then translated into Xitsonga and Sepedi language prior to data collection because 60% of the population speaks Sepedi and 40% speaks Xitsonga. Finally it was translated back into English after data collection. The questionnaire consisted of closed-ended questions, which were divided into demographic and condom use knowledge sections, and it was self-administered. The questionnaire was piloted to 10 students from a different circuit within the same municipality prior to its administration, to test for its clarity, feasibility, and appropriateness.

Data analysis

Data were entered into a spreadsheet and exported to Statistical Package for the Social Sciences® (SPSS) for Windows version 24.0 software for analysis. Descriptive statistics were used to describe demographic characteristics and condom use knowledge, which was then represented in bar charts and frequency tables. A chi-square test was used to determine the relationship between knowledge regarding condom use and the demographic factors of the participants, such as age, gender, grade, and religion. The level of significance was set at $p \leq 0.05$, any value that was equal to or less than 0.05 was regarded as significant (association), while any value above 0.05 was regarded as not significant (no association).

Ethical considerations

Ethical approval to conduct the study was granted by the University of Venda Research Ethics Committee (SHS17 PH/20/0510). Permission to conduct the study was obtained from the school administration and the students' parent representatives. Informed consent was obtained from students aged > 18 years old, and consent for students < 18 years old was obtained from schools' representative families as well as assent from the students themselves. Confidentiality of the respondents' answers was maintained by removing their names from the questionnaire. The learners were informed about the purpose of the study and were assured that their responses would be treated confidentially. Participants were also informed that their participation was entirely voluntary and that they were free to withdraw if they felt uncomfortable.

Operational definition

Knowledge about condoms: Those who have adequate knowledge on condoms and can answer the majority of questions used to assess knowledge about condoms. Good knowledge is when the score is > 70%, and anything below than 50% is considered less knowledgeable.

Results

There was a 92.2% response rate for the study; out of 375 questionnaires that were distributed, 346 were satisfactorily filled and returned. Table 1 below depicts learner's sociodemographic characteristics.

The majority of the learners (223 [64.5%]) were between the ages of 15 and 17 years. Just under 145 (41.9%) of the participants lived with both their parents. The study findings show that 176 (50.9%) participants were female students while 170 (49.1%) were male. Most participants (98%, $n = 339$) were Christian, while (1.8%, $n = 6$) belonged to an African religion.

The majority (37.3%, $n = 129$) of the students were in grade 12, followed by 121 (35%) who were in grade 11, and grade 10 had the lowest presentation at 96 (27.7%) students.

Most of the participants (307 [88.7%]) knew that condom use can offer protection against HIV/AIDS, STIs, and pregnancy, 313 (90.5%) of the participants indicated adequate knowledge regarding condom expiry date, 181 (52.3%) of the participants indicated that it is alright to put on a condom just before ejaculation, 185 (53.4%) reported that condoms should be unrolled before being put on the penis, with majority 271 (78.4%) of the participants indicating that condoms should be put on when the penis is erect before any contact with a vagina, and 316 (91.3%) indicated that condoms cannot be used repeatedly. Most of the participants indicated that condoms are found at clinics and hospitals, and 284 (82.1%) indicated that condoms can be bought from supermarkets and shops.

The majority (90.5%, $n = 313$) of the participants stated that lubrication should be used, while 33 (9.5%) believed that it should not be used. The majority (66.6%, $n = 20$) of the female participants strongly believed that lubrication should not be used, as opposed to 39.9% of their male counterparts.

Table 2. Level of knowledge of condoms and their use (*N* = 346)

Statement	Yes	No
1. Condoms offer protection against HIV/AIDS, STIs, and pregnancy	307 (88.7%)	39 (11.3%)
2. Condoms have an expiry date	313 (90.5%)	33 (9.5%)
3. It is alright to put on a condom just before ejaculation	181 (52.3%)	165 (47.7%)
4. Condoms should be unrolled before being put on the penis	161 (46.6%)	185 (53.4%)
5. Condoms should be put on when the penis is erect before any contact with a vagina	271 (78.4%)	75 (21.6%)
6. Condoms can be used repeatedly	30 (8.7%)	316 (91.3%)
7. Condoms are found in clinics and hospitals	330 (95.3%)	16 (4.7%)
8. Condoms can be bought from supermarkets and shops	284 (82.1%)	62 (17.9%)

The majority (90.5%, *n* = 313) of the students received information about condoms from health care providers, followed by the media at 65%, and then from friends at 52%.

Discussion

Condoms are one of the most widely known and most distributed forms of contraceptives, which prevent STIs and HIV/AIDS; however, knowledge on their correct use is vital/critical [21]. This knowledge involves information regarding their source, expiry date, storage, application, and actual use. If all this is in place, it means that the condom use will be effective. This study population comprised teenagers, with the majority being between the ages of 15 and 17 years (64.5%, *n* = 223), mostly in grade 11, and they were deemed high-risk for HIV and AIDS because HIV prevalence is highest amongst this age group (7.2 million people living with HIV) [22]. Furthermore, these learners have been reported to have the highest rate of pregnancies (*n* = 45 [6.6%]) in the circuit [23]. It is therefore essential that knowledge of condom usage is assessed amongst this male and female African group.

It was encouraging to see that the majority (98%, *n* = 339) of the learners follow the Christian religion, just as previously reported in a study by Mavhandu-Mudzusi and Asgedom [24]. In African Christian cultures, sex before marriage is considered a sin, thus the participants in this study indicated that their elders in the church did not approve condom use because it is meant for married couples only. In studies conducted by Masoda and Govender [5], and Bryceson and Fonseca [25] similar findings were reported in the Democratic Republic of Congo (DRC) in which Christians (Catholics) were not allowed to use condoms; Evangelical Lutherans were allowed to use them for married couples, whereas Protestants do not think using condoms is a sin. The Islamic religion accepted condoms, as reported in their study.

Table 3. Gender and usage of oil-based lubricant with a condom cross tabulation (*N* = 346)

Gender	Usage of oil-based lubricant with condom			
	Yes		No	
	Frequency	%	Frequency	%
Male	157	50.2	13	39.4
Female	156	49.8	20	60.6
Total	313	100	33	100

The majority (77.2%, *n* = 267) of the students lived with their parents, which is an indication that they are growing under the guidance of their parents. It is assumed that parents who live with their children can provide honest information regarding condom use. However, this is not always the case in some African cultures because of poor communication between the parents and children because it is regarded as taboo to discuss sexuality with your own child. Therefore, parents can be barriers to condom use due to poor communication between them and their children. Masoda and Govender [5] and Bryceson and Fonseca [25] reported similar findings in their study, which was conducted among students in the DRC.

Table 4. Participants' sources of condom knowledge (*N* = 346)

Item	Yes		No		Total	
	f	%	f	%	*n*	%
I heard about condoms from my friends	180	52.0	166	48.0	346	100
I heard about condoms from the media	224	65.0	121	35.0	345	100
I heard about condoms from health care providers	313	90.5	33	9.5	346	100

The findings from this study showed that the majority of the participants had good knowledge while a few were not knowledgeable about condoms. While the main source of information for condom use in this study was from health care providers, an indication that health education programmes run by school nurses in the study setting are effective. Also, it is not surprising that majority of students have knowledge of where condoms can be found because condoms are displayed in a visible position in shops, supermarkets, hospitals, and clinics while being advertised on social media. Furthermore, condoms are freely distributed to primary health care facilities, tuckshops (spaza shops) and taverns (local informal alcohol sellers or pubs). These findings are similar to those from the study conducted by Ochieng *et al.* [26], who found that teenagers also acquire knowledge about condom use from social health magazines, posters and pamphlets, educational talks, newspapers, and health care providers.

The majority (88.7%, n = 307) of the participants knew that condoms prevent the transmission of HIV and AIDS. Furthermore, it prevents pregnancy and STIs. An indication to show that participants were getting enough information from their sources such as their friends, media, and health care providers is shown in Table 4. These findings concur with the studies carried out in university students in Turkey, Nigeria, Malaysia, and Ethiopia [27-31]. Similar findings also reported that most participants knew that condom use can prevent pregnancies, STIs, and HIV/AIDS [4, 27, 32]. These results were in contrast with findings from China and Taiwan, which reported limited sex education and lack of in-depth HIV and AIDS knowledge amongst the students [27].

It was encouraging to note that the majority (91.3%, n = 316) of the participants knew that a condom cannot be used repeatedly. These findings concur with the study conducted by Ochieng *et al.* [26]. Moreover, the learners in the study knew where to source the condoms, 95.3% stating clinics and hospitals, and 284 (82.1%) stating supermarkets and shops. It is not surprising that the majority of learners have knowledge of where condoms can be found because condoms are displayed in a visible position in shops, supermarkets, hospitals, and clinics while also being advertised on social media. Furthermore, the study found that the majority of the participants knew that condoms have an expiry date – a good indication to show that expired condoms lose their potency and that it can fail to prevent transmission and unplanned pregnancy. These findings are in line with those of the study conducted by Masoda and Govender [5].

Almost half (181 [52.3%]) of the participants indicated that there is no harm in putting on a condom just before ejaculation. This is worrisome because it shows inadequate knowledge which can affect the correct use of condoms amongst these students. Failure to do so can lead to the spread of STIs, HIV, and pregnancy. Therefore, it is recommended that one must put it on after the penis is erect and before any oral, vaginal, or anal contact with a partner [33, 34].

In contrast, this study found that the majority (90%) of the high school students lacked knowledge that a condom cannot be used with oil-based lubricant. It is not surprising that the majority of these participants do not know that a condom cannot be used with oil-based lubricant because they are adolescents, which is characterised by experimenting, and in African culture it is often difficult to talk about sexual issues with children of this age because they believe that it will make them become sexually active, as indicated in previous research [35, 36]; furthermore, half of the students did not know that a condom should not be unrolled before being put on the penis. This lack of knowledge affects the correct use of condoms and is perceived as a barrier. These findings were unexpected because various educational programmes exist such as school health services and life orientation guides, which are aimed to assist learners with such information.

Conclusions

The findings from this study revealed that there is adequate knowledge regarding the use of condoms among the participants. Also, the study concurs with other studies that were conducted mostly in sub-Saharan Africa. A small percentage of participants still lack knowledge regarding condom use, which includes unrolling a condom before putting on the penis and using a condom with oil-based lubricant.

Recommendation: The Department of Health should make condoms more accessible to high school students by placing condoms at tuckshops that are within the school premises, where they can be easily accessed. Educational campaigns that address the challenges faced by students, and which promote the uptake and proper use of condoms, are required and life orientation guides should include sexuality in order to improve the students' knowledge regarding condom use. And lastly, open communication between learners and their parents/guardians with regard to sexuality and condom use should be encouraged.

Acknowledgements

This work was supported by the University of Venda Research and Innovation Directorate.

Conflict of interest

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

1. Whiteside A, Barnett T. AIDS in the Twenty-First Century: Disease and Globalization Fully Revised and Updated Edition. 2006.
2. Mashanda-Tafaune B, Monareng LV. Perception and attitude of healthcare workers towards the use of a female condom in Gaborone, Botswana. Health SA Gesondheid 2016; 21: 162-170.
3. Kanda L, Mash R. Reasons for inconsistent condom use by young adults in Mahalapye, Botswana. Afr J Prim Health Care Fam Med 2018; 10: e1-e7.

4. Silassie AG, Giorgis MW, Kahsay N, et al. Knowledge, attitude and practice of condom utilization among axum preparatory school students. J AIDS Clin Res 2016; 7: 560-566.
5. Masoda M, Govender I. Knowledge and attitudes about and practices of condom use for reducing HIV infection among Goma University students in the Democratic Republic of Congo. South African Journal of Epidemiological Infections 2013; 28: 61-68.
6. Nwokoro JC, Ede AO, Ibe SN, et al. Knowledge, attitude and practice of female condom use among undergraduates of three selected higher institutions in Owerri, South-Eastern, Nigeria. Global Advanced Research Journal of Medicine and Medical Sciences 2015; 4: 132-142.
7. Golden NH, Katzman DK, Sawyer SM, Ornstein RM. Position paper of the society for adolescent health and medicine: medical management of restrictive eating disorders in adolescents and young adults references. Journal of Adolescent Health 2015; 56: 121-125.
8. Mchunu G, Louw J, Peltzer K, Matseke G. Correlates of condom use among male and female aged 18-24 years in South Africa. Gender Behav 2012; 10: 4627-4644.
9. Ismael AS, Zangana JMS. Knowledge, attitudes and practice of condom use among males aged (15-49) years in Erbil Governorate. Global Journal of Health Science 2012; 4: 27.
10. Beltzer N, Saboni L, Sauvage C, Lydié N, Semaille C, Warszawski J. An 18-year follow-up of HIV knowledge, risk perception, and practices in young adults. AIDS 2013; 27: 1011-1019.
11. World Health Organization. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach. World Health Organization, Geneva 2016.
12. Ehlers VJ. Adolescent mothers' utilization of contraceptive services in South Africa. International Council of Nurses 2003; 50: 229-241.
13. Reece M, Herbenick D, Schick V, Sanders SA, Dodge B, Fortenberry JD. Condom use rates in a national probability sample of males and females ages 14 to 94 in the United States. J Sex Med 2010; 7: 266-276.
14. Kabikira F. Knowledge, attitudes and practices of condom use in a time of highly active antiretroviral therapy in a rural area in Uganda. 2010. Doctoral dissertation.
15. Guttmacher Institute. Contraceptive Use in the United States. 2016 [Online]. Available at: https://www.guttmacher.org/factsheet/contraceptive-use-united-states (Accessed: 11.05.2017).
16. Abdulraheem IS, Fawele OI. Young people's sexual risk behaviours in Nigeria. J Adolesc Res 2009; 24: 525-527.
17. Hartell CG. HIV/AIDS in South Africa: a review of sexual behaviour among adolescents. Adolescence 2005; 40: 171-181.
18. Statistics South Africa. Annual Report 2014/15. Book 1. Government Printer, Pretoria 2015.
19. Mudau IP, Nemathaga LH, Risenga RP. Attitudes of youths towards condom use at Botlokwa village Limpopo Province, South Africa. African Journal for Physical, Health Education, Recreation and Dance 2014; Supplement 1: 266-272.
20. www.Westerncape.co.za, 2019 (Accessed: 07.05.2019).
21. Chaves T do S, Lopes MH, de Souza VA, et al. Seroprevalence of antibodies against varicella-zoster virus and response to the varicella vaccine in paediatric renal transplant patients. Pediatr Transplant 2005; 9: 192-196.
22. Kelly SL, Martin-Hughes R, Stuart RM, et al. 2018. The global optima HIV allocative efficiency model: targeting resources in efforts to end AIDS. Lancet HIV 2018; 5: e190-e198.
23. Nobukhosi MN. Effects of teenage motherwood while at secondary school in rural communities of the Capricorn District, Limpopo Province. University of Limpopo, 2014. Doctoral dissertation.
24. Mavhandu-Mudzusi AH, Tesfay Asgedom T. The prevalence of risky sexual behaviours amongst undergraduate students in Jigjiga University, Ethiopia. Health SA Gesondheid 2016; 21: 179-186.
25. Bryceson DF, Fonseca J. Risking death for survival: Peasant responses to hunger and HIV/AIDS in Malawi. World Development 2006; 34: 1654-1666.
26. Ochieng MA, Kakai R, Abok K. Knowledge, attitude and practice of condom use among secondary school students in Kisumu District, Nyanza Province. Asian J Med Sci 2011; 3: 32-26.
27. Choudhary HA, Ali RA, Altaf S. Knowledge, behaviour and attitudes regarding HIV/AIDS among undergraduate students in an Irish university. Int J Surg Med 2015; 1: 58-66.
28. Tung WC, Hu J, Efird JT, Su W, Yu L. HIV knowledge and condom intention among sexually abstinent Chinese students. Int Nursing Rev 2013; 60: 366-373.
29. Jahanfar SH, Sann LM, Rampal L. Sexual behavior, knowledge and attitude of non-medical university students towards HIV/AIDS in Malaysia. Shiraz E Medical Journal 2010; 11: 122-136.
30. Odu OO, Asekun-Olarinmoye EO, Bamidele JO, Egbewale BE, Amusan OA, Olowu AO. Knowledge, attitudes to HIV/AIDS and sexual behaviour of students in a tertiary institution in south-western Nigeria. Eur J Contracept Reprod Health Care 2008; 13: 90-96.
31. Layte R, McGee H, Quail A, et al. The Irish Study of Sexual Health and Relationships: Main Report. 2006.
32. Nicolau AIO, Ribeiro SG, Lessa PRA, Monte AS, Bernardo EBR, Pinheiro AKB. Knowledge, attitude and practices regarding condom use among women prisoners: the prevention of STD/HIV in the prison setting. Rev Esc Enferm USP 2012; 46: 711-719.
33. Pardes B. Doing it right: making smart, safe, and satisfying choices about sex. Simon and Schuster, 2013.
34. Bankole A, Ahmed FH, Neema S, Ouedraogo C, Konyani S. Knowledge of correct condom use and consistency of use among adolescents in four countries in Sub-Saharan Africa. Afr J Reprod Health 2007; 11: 197.
35. Mnyipika N. Exploring factors that influence condom use among high school teenagers aged between 16 and 18 years in Dutywa District, Eastern Cape, South Africa. 2014. Doctoral dissertation.
36. Adeboye A, Yongsong Q, James N. Risky sexual behaviour and knowledge of HIV/AIDS among high school students in Eastern Cape South Africa. Journal of Human Ecology 2016; 53: 194-204.