

Knowledge of Sexually Transmitted Infections among University Students in the KwaZulu-Natal Province

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Abstract

Globally, sexually transmitted infections trends are on an increase. Sub-Saharan Africa carries a huge burden of sexually transmitted infections with young adults aged between 16 and 24 years being at higher risk than older adults. Sexually transmitted infections are infections that are mainly transmitted from one person to another through penetrative sexual intercourse, and some are preventable and treatable and others are not. Previous studies show that university students in South Africa comprise a sexually active population, and engage in sexual risk behaviour resulting in sexually transmitted infections that are among the main global causes of sicknesses, long-term disability and death, and have serious psychological and medical consequences for many people across the globe. However, there is a dearth of knowledge on sexually transmitted infections. Knowledge on sexually transmitted infections is vital for preventing and reducing the adverse outcomes of students' reproductive health. Therefore, this study investigated into the knowledge of sexually transmitted infections and their predictors among university students in the KwaZulu-Natal Province.

Methods: The study was guided by a cross-sectional research design and underpinned by quantitative methodology. A structured and pre-tested self-administered questionnaire was used to collect data from 906 students selected using census sampling method. Data was analysed using SPSS version 24, and bivariate and multivariable logistic regression was performed to determine the association of dependent and independent variables.

Results: The study found that 48% of the students had good knowledge of sexually transmitted infections. Seniority in the level of study (AOR; 3.66, 95% CI: 1.70-8.44, $P = 0.002$), being a male student (AOR; 1.73, 95% CI: 1.13-2.861, $P = 0.025$), having television and radio as sources of information (AOR; 2.77, 95% CI: 1.79-4.57, 0.013), and having one or no sexual partner (AOR; 1.54, 95% CI: 1.36-3.57, $P = 0.005$) were predictors of knowledge of sexually transmitted infections.

Conclusion: Students' level of knowledge on sexually transmitted infections was quite low. There is need to strengthen information, education, and communication on the issue of sexually transmitted infections using factors associated with sexually transmitted infections in this study as entry points to devise strategies to reduce and prevent sexually transmitted infections. Radio and television can be used to reduce and prevent the risk of sexually transmitted infections. Educational curriculum developers should consider developing courses on reproductive health with an emphasis on the understanding, causes, who is affected, symptoms, diagnosis, treatments, and prevention of sexually transmitted infections.

Keyword: Knowledge • Sexually transmitted infections • Predictors • University students • KwaZulu-Natal province

Introduction

Sexually transmitted infections are infections that are passed from one person to another predominantly through penetrative sexual intercourse. Studies show that chancroid, chlamydial, syphilis, and gonorrhoea infections that are curable and others for instance genital herpes, hepatitis B, HIV, and HPV that are incurable however modified through existing treatments are the most common sexually transmitted infections health professionals deal with in their daily practice [1-23]. Evidence shows that young people aged between 16 and 24 years are at high risk of getting infected with sexually transmitted infections than older people [3,12]. According to the World Health Organization evidence, more than 20% of people living with HIV and AIDS are in their 20s

[4,13]. Furthermore, one out of twenty adolescents get infected with sexually transmitted infections every year [1-11,22].

The age group of young people who are at high risk of sexually transmitted infections, for example, in South Africa tends to be away from their families for most parts of the year because they are studying in higher education institutions. Most of these young people are accommodated either in on-campus or off-campus residences [12-19]. Students' residence arrangements allow them to meet people from diverse backgrounds. Previous studies indicate that young people are more likely to have multiple sexual partners, engage penetrative sex under the influence of substances and with persons with injecting drug use, and have initiated penetrative sexual intercourse at early age, and engage in unprotected sex [7,13,14]. In addition, these young people may not have access to the required information and services to avoid sexually transmitted infections [8,15]. Besides, young people tend to be hesitant to approach the health facilities where information on sexually transmitted infections is accessible [20-30].

In situations where sexually transmitted infections are not sufficiently treated, infections can easily lead to several health challenges including abortions, infertility, perinatal, urethral stricture, neonatal morbidities, and malignancies [3-9]. Studies show that ulcerative and nonulcerative sexually transmitted infections increase the transmission of sexually transmitted infections [5,17,24]. Knowledge of sexually transmitted infections and their predictors among young people are vital in the development of preventive and treatment strategies [6,9,18,25]. Studies show that many people may be aware

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of HIV and AIDs through media and government health programmes. On the other hand, knowledge of sexually transmitted infections and its predictors among young people other than HIV and AIDS is low in the developing countries especially among young people [7,10,19,25-30].

Knowledge of sexually transmitted infections and their predictors among university students is lagging behind therefore making sexually transmitted infections rife [9,20]. Since literature shows that some sexually transmitted infections are incurable, this has made primary prevention vital in health enhancement [10,11,21,31-40]. Changing the selection of sexual partners and avoiding sexual risk practices can help to reduce the risk of sexually transmitted infections [41-42]. This study was therefore designed to assess students' knowledge of sexually transmitted infections and associated factors among students in universities in the KwaZulu-Natal Province. The specific objectives were: to assess students' level of knowledge on sexually transmitted infections; to assess students' behavioural profiles; to assess students' sources of information on sexually transmitted infections; and factors associated with students' knowledge on sexually transmitted infections in KwaZulu-Natal universities.

Methods

Research design

A cross-sectional research design was used to guide the study among students in KwaZulu-Natal public universities. A cross-sectional research design was used because the design allows studies to collect data to make inferences about a population of interest at one point in time [4]. A cross-sectional research design makes snapshots of the populations about which they gather data. Besides, this design was chosen because it allows studies to collect data from many different individuals at a single point in time. In this case, data were collected from four different public universities in KwaZulu-Natal.

Research approach

The study used quantitative research approach which is the process of collecting and analysing numerical data [4]. Quantitative research approach can be used to find patterns and averages, make predictions, test causal relationships, and generalise results to wider populations. Quantitative research methodology in this study is used to quantify the knowledge, attitude, and predictors of safe abortion among female students using numerical data that is transformed into statistics. These statistics helped to understand the research problem under study. Quantitative research methodology was also used because many researchers agree that quantitative methodology is the best when it comes to measuring opinions, views, behaviours, attitudes, practices, and other measurable variables [21]. Evidence shows that quantitative research methodology is effective in uncovering and formulating facts [4]. This study employed quantitative methodology to measure knowledge and predictors of sexually transmitted infections among students. The method was also used because it is helpful in conducting structured studies and collecting information that is generalizable.

Sampling technique

The study used census sampling method to select respondents. All students from the four universities in KwaZulu-Natal namely the University of KwaZulu-Natal (UKZN), Durban University of Technology (DUT), Mangosuthu University of Technology (MUT), and the University of Zululand (UNIZULU) were selected for the study. The questionnaire was posted on students' university communication systems. The questionnaire was posted online together with the consent form describing the purpose of the study in detail. Altogether, 906 students from the four university under study successfully completed the questionnaire.

Data collection instruments

Data were collected using a structured and tested questionnaire. The survey used a questionnaire with several items including: demographics; knowledge regarding sexually transmitted infections with questions on type,

symptoms, mode of transmission; and prevention and behavioural factors; and factors associated with sexually transmitted infections. The questionnaire was reviewed by experts in survey research for face validity. A pilot sample ($n=10$) was used to improve the wording and clarity of expression of the survey items. Data from the pilot sample was not used in any further analysis. The final version of the questionnaire required an estimated time of 5-15 minutes to complete. Nine hundred and nine questionnaires were collected. The total number of students expected to complete the survey was 120,000. Using the confidence level 95%, population size 120,000 and margin of error 5% the ideal sample size is 384 but this study generated 906 questionnaires expressing more than one hundred per cent response rate. It was easy to conduct the study because the researcher was a senior lecturer at one of the universities under study and has expertise in health communication and research methodology studies. The researcher's experience in health communication and research methodology span more than twelve years. All completed questionnaires were checked for completeness by the investigator.

Variables and measurements

The study investigated into the knowledge of sexually transmitted infections and their predictors among students. Knowledge of students on sexually transmitted infections was assessed using questions that generated a high internal consistency namely Cronbach's $\alpha=0.712$. Each of the correct responses was given one point while zero was given for the incorrect response based on students' responses. Students who scored less than 60% in the knowledge questions were reported as having poor knowledge and students who scored higher than or equal to 60% were reported as having good knowledge. The dependent variable was knowledge of sexually transmitted infections. The independent variables were age, sex, residence, marital status, religion, academic year, drinking alcohol, smoking cigarette, condom use, watching pornography, number of sexual partners, and source of acquiring information.

Ethical considerations

With adequate knowledge of the study, students were asked to sign the consent form by ticking on the right side of the questionnaire if they wanted to participate. Students were informed that participation in the study was voluntary and were at liberty to withdraw from the study anytime without any consequences. Confidentiality, privacy, and anonymity were upheld. The contact details for the University KwaZulu-Natal Research Office were provided in case students had questions. The four universities under study provided gatekeepers' letters and University of KwaZulu-Natal provided ethical clearance. The questionnaire ran online from January 2017 to June 2018.

Data analysis

Data were analysed using descriptive statistics that included the computing of percentages and frequencies. Bivariate and multivariable logistic regression analyses were performed, and adjusted odds ratios (AORs) calculated with 95% confidence interval to determine the associations between Knowledge of sexually transmitted infections and independent variables. All variables with a p -value <0.25 in the bivariate analysis were considered for the final multivariable analysis while variables with a p -value <0.05 were considered in the final multivariable logistic regression model to determine significance of the association with the outcome variable knowledge of sexually transmitted infections. The Hosmer-Lemeshow goodness-of-fit test was good enough to fit the data well because the model indicated $P=0.755$.

Students' demographic characteristics: The study involved 906 students achieving more than 100% response rate. The results show that (88.2%) were single, (57.8%) of the students were from urban areas, and majority were male (53.7%) as shown in Table 1. The average of students' sitting at $20 (\pm 2.03 \text{ SD})$ years with a range of 18 to 30 years.

Students' knowledge of sexually transmitted infections: Results show that out of 906 students, 432 (47.8%) reported sexual intercourse as a mode of sexually transmitted infections transmission, 300 (33.2%) students reported that condoms are used to prevent sexually transmitted infections and 20 (2.3%) had misconceptions of contraceptive pills for sexually transmitted infections prevention as show in Table 2. Findings indicate that out of 906,

354 (39.2%) of the students reported to have good knowledge of sexually transmitted infections while out of 354 students with good knowledge about sexually transmitted infections, results show that 206 (58.2%) were male and 148 (41.9%) were female students.

Students' source of information for sexually transmitted infections: Findings show that 288 (35%) got information on sexually transmitted infections from health professionals and 272 (31%) mass media as presented in Table 3. In addition, findings show that 190 (22%) got information on sexually transmitted infections from friends, 80 (8.9%) parents, and 56 (6.3%) newspapers.

Behavioural profiles of the students: Findings show that 428 (23.7%) consume alcohol, 354 (39%) watch pornography and 94 (10.5%) smoke cigarette as presented in Table 4. Out of 360 student who reported to be sexually active, 164 (45.7%) had multiple sexual partners, and 238 (66.2%) use condoms in their last sexual intercourse.

Predictors of knowledge of sexually transmitted infections among

Table 1. Demographic characteristics of the students

Items	Categories	Frequency	Percent
Age	< 20 years	434	48
	≥ 20 years	672	52.2
Sex	Male	486	53.7
	Female	420	46.5
Marital status	Single	798	88.2
	Married	92	10.3
	Divorced	16	1.8
Areas of residence	Rural	384	42.5
	Urban	522	57.7
Level of study	First year	102	11.4
	Second year	196	21.7
	Third year	360	39.8
	Fourth year	248	27.5
	University of Zululand	102	11.4
	Mangosuthu University of Technology	196	21.7
University	University of KwaZulu-Natal	360	39.8
	Durban University of Technology	248	27.5

Table 2. Knowledge of sexually transmitted infections among students

Items	Categories	Yes, N (%)	No, N (%)
Sexually transmitted infections transmission types	Syphilis	300 (33.2)	606 (67)
	Gonorrhoea	254 (29)	652 (73)
	Chancroid	108 (12)	798 (88.2)
	HIV/AIDS	494 (54.6)	412 (45.6)
	Hepatitis B&C	76 (8.5)	830 (91.7)
Sexually transmitted infections transmission symptoms	Genital ulcer	286 (31.7)	620 (68.5)
	Genital discharge	158 (16.4)	758 (83.8)
	Burning and/pain on urination	288 (31.9)	618 (68.3)
Modes of sexually transmitted infections transmission	Genital swelling	86 (9.6)	820 (90.6)
	Sexual intercourse	432 (47.8)	474 (52.4)
	Breastfeeding	70 (7.8)	836 (92.4)
	Blood transfusion	152 (16.9)	754 (83.3)
	Sharing contaminated materials	110 (12.2)	796 (88)
Methods of sexually transmitted infections transmission prevention	Abstinence	244 (27)	662 (73.2)
	Being faithful	130 (14.5)	776 (85.7)
	Condom use	300 (33.2)	606 (67)
	Not sharing sharp materials	90 (10)	816 (90.2)
	Contraceptive pills	20 (2.3)	886 (97.9)

Table 3. Students' source of information for sexually transmitted infections

Items	Categories	Yes, N (%)	No, N (%)
Modes of sexually transmitted infections transmission	Sexual intercourse	432 (47.8)	474 (52.4)
	Breastfeeding	70 (7.8)	826 (92.4)
	Blood transfusion	152 (16.9)	754 (83.3)
	Sharing contaminated materials	110 (12.2)	796 (88)
Methods of sexually transmitted infections transmission prevention	Abstinence	244 (27)	662 (73.2)
	Being faithful	130 (14.5)	716 (85.7)
	Condom use	300 (33.2)	606 (67)
	Not sharing sharp materials	90 (10)	816 (90.2)
	Contraceptive pills	20 (2.3)	886 (97.9)

Table 4. Behavioural profiles of the students

Items	Categories	Frequency	Percent
Smoking cigarette	Yes	94	10.5
	No	812	89.7
Alcohol consumption	Yes	214	23.7
	No	692	76.5
Condom utilisation	Yes	238	66.2
	No	122	35
Viewing pornography	Yes	354	39
	No	562	63
Multiple sexual partners	No	196	54.5
	Yes	164	45.7

students: The study performed bivariate analyses ascertain factors associated with sexually transmitted infections. All independent statistically significant variables ($P < 0.25$) in the bivariate analysis were made to be part of the multivariable binary logistic regression model as summarised in Table 5. The study found that seniority in the level of study (AOR; 3.66, 95% CI: 1.70-8.44, $P = 0.001$), being a male student (AOR; 1.73, 95% CI: 1.13-2.861, $P = 0.024$), having television and radio as sources of information (AOR; 2.77, 95% CI: 1.79-4.57, $P = 0.012$), and having one or no sexual partner (AOR; 1.54, 95% CI: 1.36-3.57, $P = 0.004$) were predictors of knowledge of sexually transmitted infections.

Results and Discussion

Evidence shows that sexually transmitted infections play a huge role in causing a range of health problems that lead to poor sexual and reproductive health. The situation is exacerbated by delays in the treatment of sexually transmitted infections which is as a result of lack of knowledge on sexually transmitted infections [5,40]. Scholars argue that health-seeking behaviour is sometimes instigated by knowledge of sexually transmitted infections [14,27]. Informed by the evidence above, the aim of the study was to assess the knowledge of sexually transmitted infections and predictors among university students in the KwaZulu-Natal Province.

The study found that good knowledge on sexually transmitted infections was 48% higher than results presented in a study in India (27%) [25]. However, the finding is lower than results presented in a study in Tanzania 69% [18], 79% Bangladesh [20], 68.3% Malaysia [24], 70.1% South Africa [26], 89.9% Brazil [17], 92.4% Nigeria [16], and 74.7% India [15]. The difference in findings observed may be attributed to diverse contextual factors including different behavioural, economic, social, and cultural factors. Besides, different operational definitions, and sample sizes used may have contributed immensely to the variance observed in the findings. Results revealed that being male was a predictor of good knowledge on sexually transmitted infections. The finding is in agreement with the study conducted in Ethiopia [10] but in disagreement with results in a study conducted in Portugal that found females to have high levels of knowledge [32] while a study in Turkey reported no variation between males and females [29].

Table 5. Predictors of students' good knowledge of sexually transmitted infections

Items	Categories	Knowledge of Sexually Transmitted Infections		COR (95% CI)	AOR (95% CI)	P-value
		Good	Poor			
Age group	<20 years	180	254	1	1	-
	≥ 20 years	174	298	0.82 (0.41-1.12)*	0.58 (0.45-1.46)	0.053
Sex	Male	206	280	1.35 (1.29-3.36)**	1.72 (1.12-2.86)	0.024
	Female	148	272	1	1	-
Year of study	First year	26	76	1	1	-
	Second year	62	134	1.35 (0.56-2.62)*	1.45 (0.87-4.01)	0.256
	Third year	126	234	1.57 (0.79-3.37)*	1.84 (0.88-4.24)	0.156
	Fourth year	140	108	3.79 (1.54-7.11)**	3.65 (1.69-8.43)	0.001
University	University of Zululand	148	272	1	1	-
	Mangosuthu University of Technology	26	76	1	1	-
	University of Kwazulu-Natal	62	134	1.35 (0.56-2.62)*	1.45 (0.87-4.01)	0.256
	Durban University of Technology	140	108	1	1	-
Multiple sexual partners	No	154	42	1.26 (1.12-2.49)**	1.53 (1.35-3.56)	0.004
	Yes	122	42	1	1	-
Sexually transmitted infections transmission information from health professionals	Yes	206	250	1.68 (1.15-2.46)**	1.75 (0.89-2.85)	0.062
	No	158	302	1	1	-
Sexually transmitted infections transmission information from media; television and radio	Yes	200	182	2.64 (1.79-3.90)**	2.76 (1.78-4.56)	0.012
	No	154	370	1	1	-

The study revealed that being in a senior level of study was associated with having good knowledge on sexually transmitted infections. The finding does not come as a surprise because studies in Nepal [21,34] reported similar results. The logical explanation to this finding is that students in senior levels of education are more familiar, or aware, of some things, such as facts because of their academic exposure. However, senior level students' academic knowledgeable makes them better knowledgeable than junior level students even on other things including sexually transmitted infections.

The study reported that 196 (54.5%) of the students had fewer than two sexual partners, implying that they have one or no sexual partner. Students with fewer than two sexual partners were predictors of good knowledge on sexually transmitted infections. Students with one and no sexual partner because of the fear of infections was influenced by their knowledge of the symptoms and ill consequences of sexually transmitted infection than students with multiple sexual partners. However, the result was inconsistent with a study conducted in Sweden that reported that the experience of having many sexual partners and an experience of having been infected were associated with a higher level of knowledge of sexually transmitted infections [41]. The cause of this variation can be attributed to diverse behavioural and sociocultural characteristics of the participants.

Television and radio were reported to be significant channels for imparting health information on sexually transmitted infections. Being a student exposed to radio and television (56.6%) was a predictor of good knowledge not only on sexually transmitted infections but on other issues as well. The finding is consistent with a study conducted in Tanzania [5], Nepal [18] and Vietnam [34] that found that mass media provides citizens a voice on health issues, effective and wider communication, diffusion of diverse health cultures playing a colossal part in spreading reproductive health information to every nook and corner of the world, and can be an encyclopaedia of health information therefore mass media plays a greater role in helping students to learn more about sexually transmitted infections.

Conclusion

The level of knowledge of sexually transmitted infections was quite low.

There is need to strengthen information, education, and communication on the public health issue of sexually transmitted infections using factors identified in this study associated with sexually transmitted infections as entry points to devise strategies to reduce and prevent sexually transmitted infections. Radio and television can be used to reduce and prevent the risk of sexually transmitted infections. Educational curriculum developers should consider developing courses on reproductive health with an emphasis on the understanding, causes, who is affected, symptoms, diagnosis, treatments, and prevention of sexually transmitted infections.

Limitations and Recommendations

This study was conducted only in four selected public universities in one province of South Africa therefore might not reflect the actual result representing the level of knowledge of the population of students all over the country. Therefore, a large-scale study is recommended to include universities in all nine provinces. The study found that the level of knowledge of sexually transmitted infections among students was quite low. More information specifically on the understanding causes, who is affected, symptoms, diagnosis, treatments, and prevention of sexually transmitted infections should be part of the curriculum in universities to increase students' knowledge on sexually transmitted infections. This is one of the sure ways of helping students to improve their sexual decision-making processes to reduce and prevent sexually transmitted infections.

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