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Knowledge and preventive practice on Sexually Transmitted Infections among first year students in Nursing Colleges of Bhutan

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ABSTRACT

Introduction: Sexually Transmitted Infections (STIs) are increasing globally and became the public health concerns particularly in adolescents. The adolescents are prone to get STI's due to involvements of unhealthy behavior. However, adolescents having deficiency in identifying the signs and symptoms of STIs, could lead to complications such as infertility, Pelvic Inflammatory Disease (PID). No studies have been conducted among nursing students regarding knowledge and preventive practice on STI. Therefore, this study was aimed at determining the information about nursing college students' knowledge and preventive practice on STIs. **Methods:** A cross-sectional study was conducted among first-year nursing students among four nursing colleges of Bhutan. Purposive sampling was used. Self-administrative questionnaire including information on demographic characteristics, knowledge and preventive practice on STI was given. **Results:** A total of 372 first year students from four nursing colleges in the age group of 18-22 years, participated in this study with 100% response rate. The mean age was 20.08 (±SD-1.83) years. Teacher (62.26%) was the main source of information on STI prevention. Majority of students (83%) knew that the most common methods of contraception (barrier) was condom. Half of the students (50.27%) had fair/intermediate level of knowledge, while less than 35% of the students had poor level of knowledge. **Conclusions:** Students knowledge level on STI was fair and found that condom was known as an effective barrier contraception.

Keywords: Knowledge; Practice; Sexually transmitted infections.

INTRODUCTION

In 2020, over one million individuals had acquired Sexually Transmitted Infections (STI's), which has been deeply affected on sexual and reproductive health every day[1]. Approximately over 370 million new cases occur with the prevalence of one out of four STIs such as Chlamydia (more than 125 million), Gonorrhea (over 80 million), Syphilis (7.1 million) and Trichomoniasis (more than 150 million) in the year 2020[1]. WHO from the South-East Asia Region (2019) found that the curable STIs particularly Syphilis, are increasing in many of the Asian Countries[2]. Even in Bhutan, the trend of syphilis has escalated from 93 in 2017 to 464 in 2021[3].

Additionally, globally STIs are considered a major health problem, especially the young adults and adolescents (aged between 15-24 years). Adolescents are prone to get STIs compared to older adult because adolescents are in the transformation stage and growing phase (physically and mentally) and probability of involving unhealthy behavior[4,5]. About one fifth of the adolescent are living with HIV/AIDS are in the twenties and one in every 20 adolescents are transmitted STI's yearly[4]. Also, in every five new HIV infection in adolescent female had three new cases between the aged 15-24 years, later fueled by the gender inequalities[6]. In 2011, around 820,000 adolescents (15-24 years) are newly infected with HIV due to the lack of access to the screening and management facilities in the LMIC[7].

Untreated or poorly managed STIs could cause many complications including long term unfavorable clinical sequelae to the individuals. Syphilis can increase the risk of acquiring HIV three-fold or more in all humans. Gonorrhea as well as chlamydia trachomatis infection causes epididymitis resulting in infertility among males. In females, pelvic inflammatory disease, dyspareunia, infertility and chronicpelvic pain, which could upsurge the risk of ectopic pregnancies, abortions, stillbirths, perinatal and neonatal morbidities[8]. There is a knowledge deficiency such as failing of recognizing the signs and symptoms, where STI remains asymptomatic most of the time, causing stigma and discrimination such as embarrassment, shame, devaluing, thereby generating major barrier to access healthcare for the management[1,9].

WHO (2022) identified lack of public awareness, improper learning process among healthcare professionals, prevalent of stigma and discrimination towards STIs creating hurdle to access healthcare services[1]. At present, there are very

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few studies that have been conducted regarding knowledge and attitude on sexually transmitted infections and contraceptive use to the adolescents of Bhutan[10]. However, there is no known studies carried out regarding knowledge and preventive practice on STI's among first year nursing students in the country. Therefore, this study was conducted to assess the knowledge and preventive practice on Sexually Transmitted Infections among nursing students of Khesar Gyalpo University of Medical Sciences of Bhutan. The findings are expected to provide information on strengthening sex education in the curriculum in the university.

METHODS

Descriptive cross-sectional study was used and was conducted to all the first-year students (372) from the four nursing colleges affiliated with Khesar Gyalpo University of Medical Sciences of Bhutan.The four-nursing college are Faculty of Nursing and Public Health (FNPH), Apollo Bhutan Institute of Nursing (ABIN), Royal Thimphu College (RTC) and Aurora Academy of Health Sciences (AAHS). Three of these colleges are situated Thimphu district while AAHS is in Phuentsholing. A census sampling was used.

A structured self-administered questionnaire was used to collect data from May to June 2022. Data was collected face-to-face by the researchers except for AAHS online questionnaires was used. Since the researchers were from the FNPH data for the first-year nursing students were administered by the non-teaching staff to minimize the bias.

The questionnaire was adapted from Sexually Transmitted Disease Knowledge Questionnaire (STD-KQ), which was developed by Jaworski and Carey[11], which comprises of 28 items in the questionnaires such as knowledge and preventive practices. The research instrument was validated by the experts from the Faculty of Nursing and Public Health (FNPH). The questionnaires were pilot tested to 10 second-year nursing students of FNPH, who recently promoted. For reliability of the questionnaires a Cronbach's alpha coefficient of 0.72 was found.

Anonymity and confidentiality were maintained throughout the study such as participants name was coded with numbers, while collecting the data.

Data processing and analysis

The collected data was entered Epi Data version 3.3(Epi Data Association, Odense, Denmark) and exported to STATA version 13 (Stata Corp, Stata Statistical Software) for analysis.

The response to assessment of knowledge and preventive practice were presented as frequencies and percentages for categorical variables while continuous variables were expressed as mean (±SD).

In determining the knowledge level for each participant about STI, 19 questions were used for calculating the score. Each correct response was scored one mark and non-response, or wrong response was scored zero mark. The score was converted to percentages as follows:

$$\text{Total knowledge level} = \frac{\text{Total participant's knowledge score}}{\text{Total maximum score}} X\ 100$$

Those who scored less than or equal to 50% were considered as having poor level of knowledge; those who scored between 51-70% were considered as having fair or intermediate level of knowledge, while those who scored 71% and above were considered as having good or high level of knowledge.

The study was approved by the Institutional Review Board of the Khesar Gyalpo University Medical Sciences of Bhutan vide approval letter number (Ref. No. IRB/Approval/PN21-032/2021-22/519, dated- 01/02/2022).

RESULTS

Socio-demographic characteristics

A total of 372 first year students from four nursing colleges in the age group of 18-22 years, participated in this study with 100% response rate. When the participants were segregated by colleges, it was found that 39.25% of the participants were from Faculty of Nursing and Public Health (FNPH) followed by Apollo Bhutan Institute of Nursing (ABIN; 25.81%), Royal Thimphu College (RTC; 17.74%) and Aurora Academy of Health Sciences (AAHS; 16.94%). The mean (±SD) age of the participants was 20.08 (±1.83) years and 63.98% female and hosteller (65.59%) as shown in Table 1.

Table 1. Demographic characteristics of First Year Students in Nursing Colleges of Bhutan in May to June 2022 (*n*= 372)

Variables	*n*	%
Age		
18-22 Years	372	100
Mean (±SD) Years	20.08	1.83
College		
Aurora Academy of Health Science	63	16.94
Apollo Bhutan Institute of Nursing	96	25.81
Faculty Nursing and Public Health	147	39.52
Royal Thimphu College	66	17.74
Gender		
Male	134	36.02
Female	238	63.98
Stay or live in hostel*		
Yes	244	65.77
No	127	34.23
If not hostel, who do you live with		
Parents/family	74	58.27
Relatives	39	30.71
Friends	12	9.45
Others	2	1.57

**Missing=1*

Knowledge on sexually transmitted infections

The students who had the knowledge on precaution towards STI's transmission was 92.74%. Students who knew that condom is an effective barrier for the prevention was (90.59%) and 87.63% participants stated that gonorrhea can be cured, while 84.68% knew that vaccine can prevent getting hepatitis B and 83.33% were aware that there is no definite cure to HIV. Overall, 50.27% participants had fair/intermediate level of knowledge as shown in Table 2.

Table 2. Assessment of knowledge on sexually transmitted infections of first year students in Nursing Colleges of Bhutan in May to June 2022 (*n*=372)

Characteristics	*n*	(%)
Discussed sex health related matters with family.		
Yes	156	(41.94)
No	216	(58.06)
Knew the prevention of STIs transmission		
Yes	345	(92.74)
No	27	(7.26)
Anal sex prevents a person's risk of getting STI.		
True	30	(8.06)
False	249	(66.94)
Don't Know	93	(25.00)
Frequent urinary infection increase risk of STI.		
True	147	(39.52)
False	115	(30.91)
Don't Know	110	(29.57)
The same virus causes all the STIs.		
True	24	(6.45)
False	260	(69.89)
Don't Know	88	(23.66)
Gonorrhea is caused by bacteria.		
True	286	(76.88)
False	26	(6.99)
Don't Know	60	(16.13)
Past history of gonorrhea is immune from getting it again.		
True	52	(13.98)
False	221	(59.41)
Don't Know	99	(26.61)
Gonorrhea goes away without treatment		
True	46	(12.37)
False	326	(87.63)
Men show more symptoms of gonorrhea than woman.		
True	217	(58.33)
False	34	(9.14)
Don't Know	121	(32.53)
Women can look at her body & tell if she has Gonorrhea		
True	104	(27.96)
False	113	(30.38)
Don't Know	155	(41.67)

Continue...

Syphilis is caused by bacteria.		
True	233	(62.63)
False	26	(6.99)
Don't Know	113	(30.38)
Syphilis goes away without treatment.		
True	40	(10.75)
False	238	(63.98)
Don't Know	94	(25.27)
Syphilis can pass infection to baby during childbirth*.		
True	149	(40.16)
False	59	(15.90)
Don't Know	163	(43.94)
Vaccine available to prevent getting Gonorrhea & Syphilis.		
True	127	(34.14)
False	100	(26.88)
Don't Know	145	(38.98)
Condom can protect person from getting HIV.		
True	337	(90.59)
False	23	(6.18)
Don't Know	12	(3.28)
A definite cure for HIV		
True	31	(8.33)
False	310	(83.33)
Don't Know	31	(8.33)
Human papilloma virus can lead to cancer in a woman.		
True	216	(58.06)
False	52	(13.98)
Don't Know	104	(27.96)
A person must havevaginal sex to get STI*.		
True	86	(23.18)
False	244	(65.77)
Don't Know	41	(11.05)
STIs lead to health problems usually more serious for men†.		
True	92	(24.86)
False	131	(35.41)
Don't Know	147	(39.73)
There is vaccine to protect person from getting Hepatitis B.		
True	315	(84.68)
False	26	(6.99)
Don't Know	31	(8.33)
Person must have vaginal sex to get Hepatitis B.		
True	36	(9.68)
False	254	(68.28)
Don't Know	82	(22.04)
Poor level of Knowledge	128	34.41
Fair/Intermediate level of Knowledge	187	50.27
Good/High level of knowledge	57	15.32

**Missing=, †Missing=2*

Information regarding prevention of STI's

The maximum information on prevention about STI's was from the teacher (72%) whereas, 2% got the information from the family member, Films/Videos, and Books/Magazines as shown in Figure 1.

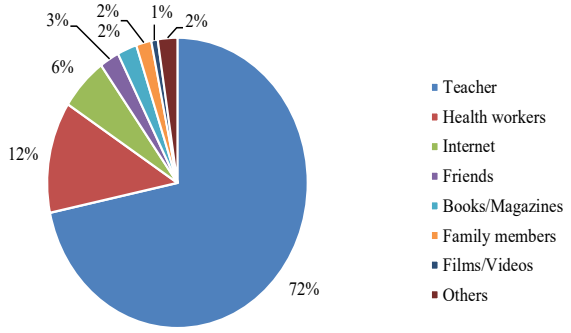

Figure 1. Source of information of STIs among first year students in Nursing Colleges of Bhutan in May to June 2022 (*n*= 371)

Preventive practice against sexually transmitted infections

Students gets the barrier contraceptives from the pharmacy (66.40%) followed by Government Clinic or Health Center or Hospital (18.70%). 71.43% of the students were willing to test for STI as shown in Table 3.

Table 3. Preventive practice against sexually transmitted infections among first year students in Nursing Colleges of Bhutan in May to June 2022 (*n*=371)

Components	*n*	%
Sexual exposure		
Yes	53§	14.25
No	319	85.75
Used any types of barrier contraceptives to prevent STIs (*n*=53§)		
Yes	45	84.91
No	8	15.09
Do you know where you get barrier contraceptives (*n*=372)‡		
Pharmacy	291	78.86
Govt. Clinic/Health Centre/Hospital	69	18.70
Private Doctor/Nurse/Clinic	1	0.27
Friend	2	0.54
Don't know	6	1.63
From where to get treatment for STI(*n*=372)†.		
Pharmacy	23	6.23
Hospital/Health Center/Clinic	343	92.95
Others	3	0.81
How willing are you to do STI testing? (*n*=372)*		
Not willing	16	4.31
Willing	265	71.43
Undecided	90	24.26

*Missing=1, †Missing=2, ‡Missing=3, §Total yes from the sexual exposure = 53.

Overall, 83.06% of the students stated that condom is the commonest barrier methods to prevent STI's followed by abstinence (16.94%) as shown in Figure 2.

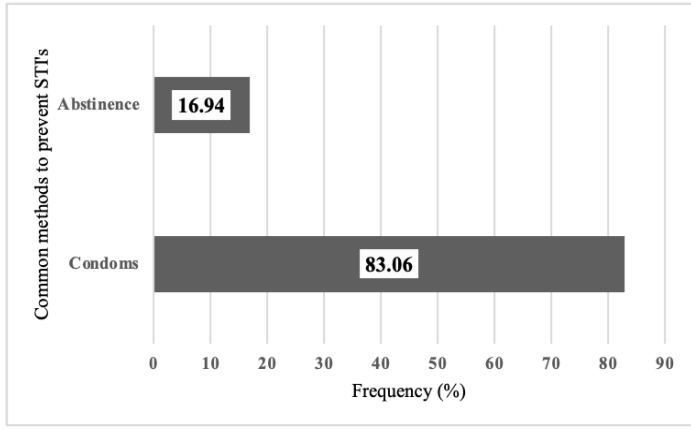

Figure 2. Overall: Commonest barrier methods to prevent STIs among firstt year students in Nursing Colleges of Bhutan in May to June 2022 (*n*=372)

DISCUSSION

This study examined the level of knowledge and preventive practice on STIs among First Year Students in four Nursing Colleges of Bhutan under KGUMSB. The study found that, overall, the students had fair/intermediate (50.27%) level of knowledge on STI's which is slightly higher than a result featured in South Africa (48%), which was conducted to four university students of KwaZulu-Natal Province[11]. In 2022, online cross-sectional study was conducted amongst university students of Royal University of Bhutan had almost similar findings of knowledge level (53.2%)[10]. However, comparing with the present study has low knowledge level than the studies conducted in Brazil[13], Ado Ekiti in South Western Nigeria[4], Jos North local government area in Plateau State of Nigeria[14], Lagos state in Nigeria[15], Ghana[5], Bangladesh[16], India[17], and their findings were above 65%.

In the present study, most of the information for the prevention of STI's had from the teachers, health professionals, Internet and friends. This is consistence with studies in Lagos State of Nigeria[15], Ghana[5] and Brazil[13], where the source of information was from the school, and then family and television. The reasons for information provided by the teacher on preventing STI's, could be that most adolescent spends their time in the school, which serves as pivot for socializing and learning. Schools can serve as venues for the development of sex education and gives an opportunity to continue health promotion and enhancing knowledge on sex education[13]. In Bhutan, sex education is incorporated in the life skill curriculum had a session on sex education twice a month, later they can be prepared to face the challenges[18]. The information on the sexual health and STI's in the public domain such as television, repositories, health ministry's websites thereby, can help to increase awareness on STI's and prevention. Furthermore, the present study found that

more than 90% of the students had adequate information on STI prevention. The students knew that condom is the most effective contraceptive barrier method. This finding is similar in the articles conducted in Brazil and Bhutan[10,13]. In Bhutan, condoms are easily accessible from condom vending machines installed in the public area of every districts[10].

In the present study, Student also reported that gonorrhea is treatable, hepatitis B is vaccine preventable diseases and HIV is anincurable infection. Interestingly, the findings from India and Lagos states in Nigeria presented that all the STIs are curable[15,17].

Data presented in the article from Plateau State of Nigeria that almost 14% of the participant are sexually exposed, out of which, half of them reported condom usage[14]. Similarly, responded in sexual exposure in the present study. However, in the present study for preventive practices, out of 14.25% (53) students, over three-fourth (84.91%) participant uses various kinds of contraceptives and to be specific contraceptives commonly used was condom (94.33%).

Findings from the present study for availing the STIs treatment from the health care services (92.25%) by the participants is higher compared to Ghana (79.2%)[5]. The reasons could be free universal healthcare services to all the Bhutanese. Also, willingness to test for STI by over 70% students in the present study. This is because in Bhutan, healthcare facilities for STI to the Bhutanese are easily accessible, effective and uniform throughout the country.

In Bhutan, Multi-Sectoral Task Force in the districts plays a major role to provide awareness and advocacy programs on STI preventions particularly condom usage promotion. In the present study, overall for preventive methods as condom was identified the commonest barrier methods followed by abstinence. In Ghana, for preventive method as mostly girls reported abstinence, whereas most of the boys reported condom usage as a barrier contraceptive method[5].

CONCLUSIONS

In the present study, it was found that students had fair/intermediate level of knowledge on STI's. Condom was recognized as contraceptives barrier method as well as a preventive measure. Students gets the barrier contraceptives from the pharmacy followed by Government Clinic or Health Center or Hospital. Also, most of the information on preventing STI's, got from the teacher.

However, this present study represents only the first-year nursing students not the senior nursing students and views may differ. The questionnaires were sensitive, there might be incorrect responses. Therefore, further studies are required on knowledge, attitude and behavioral practices to the whole nursing students including second and third year.

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AUTHORS CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

TN: Concept, design, data collection and analysis, manuscript writing and review.

KY: Concept, design, data collection and analysis, manuscript writing and review

RC: Concept, design, data collection and analysis, manuscript writing and review

Author agree to be accountable for all respects of the work in ensuring that questions related to the accuracy and integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

None

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