

# Awareness, Knowledge of Sexually Transmitted Infections (STIs) and Factors Associated with Risky Sexual Behaviour among STI Patients

Prince Kumar Patel<sup>1</sup>, Tej Bali Singh<sup>2</sup>, Satyendra Kumar Singh<sup>3</sup>, Swati Singh<sup>4</sup>

<sup>1,2</sup>Centre of Biostatistics, Institute of Medical Sciences, Banaras Hindu University, Varanasi

<sup>3,4</sup>Department of Dermatology and Venereology, Institute of Medical Sciences, Banaras Hindu University, Varanasi

Corresponding Author: Prince Kumar Patel

DOI: <https://doi.org/10.52403/ijhsr.20231001>

## ABSTRACT

**Background & Objective:** Sexually transmitted infections (STIs) are major public health problems and the leading cause of morbidity in developing countries. Risky sexual practice exposes for the acquisition of STI. This study aims to determine awareness, knowledge of STIs and various associated factors regarding risky sexual behavior.

**Methods:** A hospital-based cross-sectional study design was conducted among STIs patients between 15 to 60 years old from a tertiary care centre during August 2022 to March 2023. Data were collected through self-administered structured questionnaire. Bivariate analysis involved the use of the Chi-square test for assessing the significance of associations between factors associated with risky sexual behavior among STI patients and sociodemographic variables.

**Results:** A total of 194 patients with STIs were included. The mean age ( $\pm$ SD) for the enrolled patients was 32.8 ( $\pm$ 9) years. Majority of STIs positive patients were found in the age group of 25–34 years. Knowledge of specific STIs was highest for HIV/AIDS (96.4%) whereas lower percentages were noted for rest others STIs. Family/parents were poor (8.8%) sources of information compared TV/radio (78.9%). Unemployment, more than one partners, sex in drunken state, using drugs to enhance sexual experience, etc. are various factors found to be significantly associated with high-risk sexual behavior.

**Interpretation & conclusions:** This study revealed that a low percentage of participants were adequately aware of the common types, symptoms, and complications of STIs. Due to a lack of adequate knowledge of STIs, young individuals frequently participate in high-risk activities. There is a need to focus on promoting the sexual education of adolescents and young adults. Counseling, education, and information are significant preventive measures to be used against the spread of sexually transmitted infections.

**Keywords:** Awareness, knowledge, sexual behavior, sexually transmitted infections

## INTRODUCTION

Risky behavior during sexual activity continues to play a role in the rise of STIs, particularly in young people and adolescent populations. The term "sexually transmitted infections" (STIs) refers to a group of clinical syndromes that may be contracted or spread through sexual activity and may be caused by a variety of pathogens, such as bacteria,

fungi, viruses, and parasites. STIs continue to be a serious public health issue in underdeveloped nations [1-2]. Currently, more than one million STIs are acquired daily across the world; the majority of them are completely asymptomatic [3]. The global burden of STIs is increasing with estimates of 374 million new infections of STI as per

the World Health Organization (WHO) report of 2020.

When transitioning from childhood to adulthood, youngsters are very eager to try anything without being concerned with the consequences. Due to a lack of adequate knowledge of STIs young individuals frequently participate in high-risk activities including consuming alcohol, taking drugs, and smoking. Adverse results of these behaviors forced them to engage in dangerous sexual behaviors such as having numerous partners, having sex with commercial sex workers, having sex without protection, having sex while intoxicated, and taking drugs to enhance their sexual experience [4-7]. Despite worldwide efforts, research revealed that the prevalence of risky sexual behaviors is largely rising in developing nations as a result of young people's innate tendency to take risks. Awareness of STIs is essential for reducing the adverse impacts on young adults' reproductive health. [8,9]. Insufficient knowledge about STIs is the major barrier to successfully preventing infection among young adult populations [10]. Since the lack of knowledge of STIs may lead to a delay in treatment [11], it may complicate the infection process. The health seeking behavior of STIs may largely depend on knowledge about STIs [12]. This study aims to determine awareness, knowledge of STIs and various associated factors regarding risky sexual behavior.

## **MATERIALS & METHODS**

**Study Area:** The present study was conducted in a tertiary care centre, at STI clinic of the Department of Dermatology & Venereology, Sir Sunderlal Hospital, Institute of Medical Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh.

**Study Design and Participants:** The present study was a hospital-based cross-sectional study, conducted during August 2022 to March 2023 and aimed to determine the awareness, knowledge of sexually transmitted infections (STIs) and various

associated factor regarding risky sexual behavior. Moreover, information regarding the sexual behavior-associated risk was gathered from the participants. In this current study interview schedule was used as the main tool of data collection. A systematic sampling method was used to select study participants. The following inclusion criteria were used: (i) written consent for participation in the study (ii) STI positive patients in age group of 15-60 years, (iii) no psychiatric or behavioral problems. The questionnaire was divided into the following main sections: (i) general demographic characteristics (19 questions); (ii) awareness related STIs (14 questions); (iii) knowledge related to STIs and effective sources of information (8 questions), (iv) evaluation of sexual behavior-associated risk as well as their treatment seeking behaviors and barriers to accessing STI services (33 questions).

**Sample Size calculation:** The minimum sample size was determined using the formula for single proportion:  $N = Z_{1-\alpha/2}^2 P * (1 - P) / \epsilon^2$

Based on the estimated awareness level of 14% [13], 95% confidence level (Z-score value: 1.96) and 5% precision level, the estimated minimum sample size was approximately 185 (Z= 1.96; P = 0.14; E = 0.05). Adding 5% of the minimum sample size for the expected nonresponsive rate, a final sample size of 194 was obtained.

**Data Analysis:** Data were entered and analyzed using SPSS software version 27. Categorical variables were presented as frequencies and percentages.

**High risk sexual behavior:** High risk sexual behavior in the present study is defined as sexual intercourse with multiple partners.

## **STATISTICAL ANALYSIS**

Bivariate analysis involved the use of the Chi-square test for assessing the significance of associations between factors associated with risky sexual behavior among STI patients and sociodemographic variables.

## RESULT

A total 194 STI positive patients were enrolled in this study. Table 1 summarizes the key socio-demographic characteristics of the study subjects. The majority of the respondents were male (71.6%), rural (61.3%), Hindu religious followers (87.6%) and heterosexual (85.1). The mean age ( $\pm$

standard deviation [SD]) for the enrolled patients was 32.8 ( $\pm 9$ ) years. Maximum number of STI patients was found in the age group of 25–34 years. Among all respondents approximately 76% respondent were married (including 3 widows and 1 widower) and 24% respondent were unmarried.

Variable	Categories	Frequency	Percent
Sex	Male	139	71.6
	Female	55	28.4
Age	18-24	37	19.1
	25-34	75	38.7
	35-44	58	29.9
	$\geq 45$	24	12.4
Religion	Hindu	170	87.6
	Muslim	24	12.4
Place of residence	Rural	119	61.3
	Urban	75	38.7
Type of family	Nuclear	94	48.5
	Joint	100	51.5
Qualification	Illiterate	23	11.9
	Primary & Middle	27	13.9
	High School & Intermediate	72	37.1
	Higher Education	72	37.1
Caste	OBC	106	54.6
	General	47	24.2
	SC/ST	41	21.1
Occupation	Students and unemployed	73	37.6
	Gov / Private services	59	30.4
	Driver / Migrant Laborer	40	20.6
	Farmer / Daily Wager	22	11.3
Sexual orientation	Heterosexual	165	85.1
	Bisexual	29	14.9
Marital Status	Married	147	75.8
	Unmarried	47	24.2

Table 2 shows the respondents' awareness of STIs. The findings of this study show that 96.4% of respondents were aware about HIV/AIDS whereas lower percentages were noted for Hepatitis B (50.5%), Syphilis (37.5%), Herpes (30.9%), Pelvic inflammatory disease (27.3%), Gonorrhoea (21.6%), Chlamydia (14.9%). Awareness of specific STIs was highest for HIV (96.4%) (64.9%), and internet (62.4). Family/parents were found to be poor source of information.

whereas for others types of STIs it was found poor. Majority (92.8%) were aware that multiple partners can enhance risk of getting STIs. Only 38 % respondents were known that only few types of STIs were curable. The four major sources of information in decreasing order of importance were the TV/radio (78.9%), health workers (65.5%), and newspapers/magazines

Variable	Response	Frequency (Percentage)
Multiple partners enhance risk of STIs	Yes	180 (92.8)
	No	0 (0)
	Don't Know	14 (7.2)
STIs can transmitted from mother to baby	Yes	113 (58.2)
	No	9 (4.6)
	Don't Know	72 (37.1)
STIs are curable	Yes	9 (4.6)
	No	10 (5.2)
	Few of them are curable	74 (38.1)
	Don't Know	101 (52.1)

Source of information	TV /Radio	153 (78.9)
	Health workers	127 (65.5)
	Newspapers/Magazines	126 (64.9)
	Internet	121 (62.4)
	Text books	71 (36.6)
	Teachers	41 (21.1)
	Family/Parents	17 (8.8)
Awareness of STIs	HIV / AIDS	187 (96.4)
	Hepatitis B	98 (50.5)
	Syphilis	73 (37.5)
	Genital Herpes	60 (30.9)
	Pelvic inflammatory disease	53 (27.3)
	Gonorrhoea	42 (21.6)

Table 3 shows the respondents' knowledge related to STIs. Most commonly known symptoms of STI were itching on the genital area (66%), sores on sexual organs (64.4%), and burning sensation on the genital area (40.7%). Almost all the studied subjects knew that sexual intercourse (92.8%) and blood transfusion (92.3%) is a route of transmission for STIs. Increasing the risk of HIV/AIDS (85.6%) was reported as the commonest complications due to STIs

followed by risk of other infectious conditions (71.6%), fertility problems (40.2), some kind of cancer (29.9) and stillbirth (25.8%). The most popularly known modes of transmission were sexual intercourse (92.8%); blood transfusion (92.3%) and sharing needle (82.5%). There were equally misconceptions that STI can be transmitted by sharing clothes/things (46.9%), sharing food (27.8%), and mosquito bite (35.6%).

Variable		Response in number (%)		
		Yes	No	Don't know
Known STI symptoms	Itching on genital area	128(66.0)	8 (4.1)	58 (29.9)
	Sores on sexual organs	125(64.4)	3 (1.6)	66 (34.0)
	Burning sensation on the genital area	79 (40.7)	8 (4.1)	107 (55.2)
	Discharge from a genital area	65 (33.5)	12 (6.2)	117 (60.3)
	Lower abdominal pain	56 (28.9)	21(10.8)	117 (60.3)
	fluid-filled lesion on sexual organs	62 (32.0)	14 (7.2)	118 (60.8)
	Failure to urinate	54 (27.8)	26(13.4)	114 (58.8)
complications of STIs	risk of HIV/AIDS	116(85.6)	4 (2.1)	24 (12.3)
	risk of other infectious conditions	139(71.6)	11 (5.7)	44 (22.7)
	Fertility problems	78 (40.2)	9 (4.6)	107 (55.2)
	Some kind of cancer	50 (29.9)	23(11.9)	113 (58.2)
	Stillbirth	50 (25.8)	22(11.3)	122 (62.9)
	Miscarriage	56 (28.9)	21(10.8)	117 (60.3)
	Modes of STI transmission	Sexual intercourse	180(92.8)	3(1.6)
Blood transfusion		179(92.3)	6 (3.1)	9 (4.6)
Sharing needle		160(82.5)	10 (5.1)	24 (12.4)
Mother to child		113(58.2)	11 (5.7)	70 (36.1)
Sharing clothes/things		91 (46.9)	74(38.10)	29 (14.9)
Sharing food		54 (27.8)	115(59.3)	25(12.9)
Mosquito bite		69 (35.6)	91 (46.9)	25 (12.9)
Transmission of STIs through different sexual activities	Vaginal sex	185(95.4)	5 (2.6)	4 (2)
	Anal intercourse	145(74.8)	20 (10.3)	29 (14.9)
	Oral sex	95 (49.0)	29 (14.9)	70 (36.1)
	Kissing	55 (28.4)	79 (40.7)	60 (30.9)

On analyzing the various factors associated with number of sexual partners for high risk sexual behavior among patients attending STI clinic, the finding shows that occupation, partner have other partners, sex in drunken state, forced sex against your will, taken any

drugs/ alcohol before sex, drugs to enhance your sexual experience, history of treatment for drug abuse, sexual orientation, were various factors found to be significantly associated with high risk sexual behavior ( $P < 0.05$ ) (Table 4).

Table 4: Factors associated with high-risk sexual behavior				
Factors associated with sexual preference	Number of Sexual Partner		$\chi^2$	p- value
	Single N (%)	Multiple N (%)		
Sexual Intercourse				
Protected	10 (1.1)	2 (2.1)	6.086	0.014
Unprotected	80 (88.9)	92 (97.9)		
Occupation				
Students and Unemployed	49 (54.4)	19 (20.2)	26.238	0.000
Gov/ Private Services	23 (25.6)	34 (36.2)		
Driver / Migrant Labourer	9 (10.0)	29 (30.9)		
Farmer / Daily Wager	9 (10.0)	12 (12.8)		
Age at first sexual intercourse				
< 18	16 (17.8)	13 (13.8)	0.54	0.463
≥18	74 (82.2)	81 (86.2)		
Partner have other partner				
Yes	28 (31.1)	61 (64.9)	23.447	0.000
No	55 (61.1)	25 (26.6)		
Not Sure	7 (7.8)	8 (8.5)		
Sex in drunken state ever				
Yes	24 (26.7)	60 (63.8)	25.594	0.000
No	66 (73.3)	34 (36.2)		
Forced sex against your will				
Yes	8 (8.9)	9 (9.6)	0.026	0.872
No	82 (91.1)	85 (90.4)		
Ever taken any drugs/ alcohol before sex (past 3 month)				
Yes	23 (25.6)	60 (63.8)	27.202	0.000
No	67 (74.4)	34 (36.2)		
Ever used drugs to enhance your sexual experience				
Most of the time	3 (3.3)	7 (7.4)	20.543	0.000
Only some times	15 (16.7)	42 (44.7)		
Not at all	72 (80.0)	45 (47.9)		
History of treatment for drug abuse				
Yes	2 (2.2)	12 (12.8)	7.271	0.007
No	88 (97.8)	82(87.2)		
History of Migration				
Yes	41 (45.6)	70 (74.5)	16.059	0.000
No	49 (54.4)	24 (25.5)		
Sexual orientation				
Heterosexual	84 (93.3)	72 (76.6)	9.984	0.002
Bisexual	6 (6.7)	22 (23.4)		
Alcohol consumption				
Yes	32 (35.6)	61 (64.9)	15.832	0.000
No	58 (64.4)	33 (35.1)		

## DISCUSSION

Several studies have revealed that sexually transmitted infections are the cause of the multiplicity of complications and result in poor sexual and reproductive health due to delays in treatment as a result of a lack of knowledge about STIs [14]. Health-seeking behavior may largely depend on knowledge about STIs. Majority (92.8%) were known that multiple partners can enhance risk of getting STIs. Awareness about STIs (HIV/AIDS) in general has increased over the last three decades due to the widespread publicity given to the disease. This finding is similar to that reported by studies conducted in Tanzania, North Central Nigeria, Thailand, Germany, and Europe in general in which the most commonly known STI was also HIV/AIDS [15–18]. However,

awareness about other STIs might not be encouraging. The major sources of information were the radio/television (electronic media), health workers, and newspapers/magazines. This contrasts with reports of a study conducted in North Western Nigeria in which the major sources of information were school lessons, mass media, and health magazines [19] and that conducted in Thailand in which the major sources of information were school, Internet, and hospital/clinic [20]. The fact that the electronic media are the major source of information is because of most people have access to transistor radios and adolescents especially have cell phones sets with in-built radios. These give them continuous access to the news. Maximum patients were adults (≥18 year of age) in both males and females.

According to Saini, individuals in this age group were comparatively more sexually active therefore were more susceptible to STIs [21]. Similar types of findings were also revealed in majority of other Indian studies [22,23]. Limited studies are available in Indian context related to the high-risk sexual behavior among patients attending STI clinic. The discrepancies between the current findings and the previous studies could be different definitions of risky sexual practices which ranges from having a large number of sexual partners, having unprotected sex, starting sex in earlier age, to sexual intercourse under the influence of substances such as alcohol or cocaine [24-27]. The finding of this study was similar to other study conducted in India and Uganda showed that except alcohol intake before last sexual encounter and condom use at last sexual encounter; all other demographic behaviors were significantly associated ( $p < 0.05$ ) with risky sexual behaviors [28,29].

## CONCLUSION

In public areas, greater hoardings are required, further expanding the use of television and newspapers to raise awareness of STI. STI/RTI clinics may reach to a greater number of people in the general public and those in high-risk groups taking full use of these tertiary care facilities. Improved treatment seeking, early detection, and treatment, together with increased STI/RTI awareness, can help in closing certain gaps in the worldwide effort to fight HIV/AIDS and other STIs.

### Declaration by Authors

**Ethical Approval:** Approved

**Acknowledgement:** None

**Source of Funding:** None

**Conflict of Interest:** The authors declare no conflict of interest.

## REFERENCES

1. Genuis SJ, Genuis SK. Managing the sexually transmitted disease pandemic: a time for reevaluation. *American Journal of Obstetrics and Gynecology*. 2004 Oct 1;191(4):1103-12.
2. Mayaud P, Mabey D. Approaches to the control of sexually transmitted infections in developing countries: old problems and modern challenges. *Sexually transmitted infections*. 2004 Jun 1;80(3):174-82.
3. WHO.STIs. Available online: [https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-\(stis\)](https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis)) (accessed on 22 November 2021)
4. Dahal S, Pokharel PK, Yadava BK. Sexual behavior and perceived risk of HIV AIDS among returnee labor migrants from Overseas in Nepal. *Retrovirology*. 2012 Dec;9(1):1-.
5. Organista KC, Worby PA, Quesada J, Arreola SG, Kral AH, Khoury S. Sexual health of Latino migrant day labourers under conditions of structural vulnerability. *Culture, Health & Sexuality*. 2013 Jan 1;15(1):58-72.
6. Rwenge M. Sexual risk behaviors among young people in Bamenda, Cameroon. *International family planning perspectives*. 2000 Sep 1:118-30.
7. Oluwatoyin FE, Oyetunde MO. Risky sexual behaviour among secondary school adolescents in Ibadan North Local Government Area, Nigeria. *JNHS*. 2014; 3:34-44.
8. Exavery A, Lutambi AM, Mubyazi GM, Kweka K, Mbaruku G, Masanja H. Multiple sexual partners and condom use among 10–19-year-olds in four districts in Tanzania: what do we learn. *BMC public health*. 2011 Dec; 11:1-9.
9. G Silassie A, W Giorgis M, Negasi K, Fisaha Y, Zerihun Z, Gebremariam K, Gerense H, Malloy P. Knowledge, attitude and practice of condom utilization among Axum preparatory school students.
10. Dula J, Oljira L, Geda B, Kinati T. Knowledge of Sexually Transmitted Disease and Barriers to Seeking Sexual and Reproductive Health Care among Chercher High School Students. *Advances in Pharmacoepidemiology and Drug Safety*. 2017;6(1):216.
11. Nguyen SH, Dang AK, Vu GT, Nguyen CT, Le TH, Truong NT, Hoang CL, Tran TT, Tran TH, Pham HQ, Dao NG. Lack of knowledge about sexually transmitted diseases (STDs): Implications for STDs prevention and care among dermatology patients in an urban city in Vietnam. *International journal of environmental research and public health*. 2019 Mar;16(6):1080.
12. Tsadik M, Lam L, Hadush Z. Delayed health care seeking is high among patients presenting with sexually transmitted infections in HIV hotspot areas, Gambella town, Ethiopia.

- HIV/AIDS-Research and Palliative Care. 2019 Aug 30;201-9.
13. Singh Swati, Satyendra Kumar Singh, and Tej Bali Singh. "Awareness of sexually transmitted infection (STI)/reproductive tract infections (RTI) and HIV/AIDS in STI/RTI-affected married women of rural areas of Varanasi district, Uttar Pradesh: a cross-sectional study." (2015).
  14. Nguyen SH, Dang AK, Vu GT, Nguyen CT, Le TH, Truong NT, Hoang CL, Tran TT, Tran TH, Pham HQ, Dao NG. Lack of knowledge about sexually transmitted diseases (STDs): Implications for STDs prevention and care among dermatology patients in an urban city in Vietnam. *International journal of environmental research and public health*. 2019 Mar;16(6):1080.
  15. Sekirime WK, Tamale J, Lule JC, Wabwire-Mangen F. Knowledge, attitude and practice about sexually transmitted diseases among university students in Kampala. *African health sciences*. 2001;1(1):16-22.
  16. Samkange-Zeeb, F. N., Spallek, L., & Zeeb, H. (2011). Awareness and knowledge of sexually transmitted diseases (STDs) among school-going adolescents in Europe: a systematic review of published literature. *BMC public health*, 11(1), 1-12.
  17. NARHS P. National HIV/AIDS and Reproductive Health Survey. Federal Republic of Nigeria Federal Ministry of Health, Abuja, Nigeria. 2012.
  18. Qian HZ, Wang N, Dong S, Chen H, Zhang Y, Chamot E, Shi X, Gao J, Vermund SH, Shao Y. Association of misconceptions about HIV transmission and discriminatory attitudes in rural China. *AIDS care*. 2007 Nov 1;19(10):1283-7.
  19. Svensson, L., & Waern, S. (2013). Knowledge of and attitudes to sexually transmitted diseases among Thai university students.
  20. Aliyu AA, Dahiru T, Ladan AM, Shehu AU, Abubakar AA, Oyefabi AM, Yahaya SS. Knowledge, sources of information, and risk factors for sexually transmitted infections among secondary school youth in Zaria, Northern Nigeria. *Journal of Medicine in the Tropics*. 2013 Jul 1;15(2):102.
  21. Saini, N., Meherda, A., & Kothiwala, R. (2014). Study of Pattern and Trend of Sexually Transmitted Infections at Tertiary Care Hospital in Central Rajasthan.
  22. Suvirya S, Singh R, Senthamizh P, Sharma V. Treatment seeking behaviour of STI clients in a tertiary care centre of North India: A cross sectional study. *Indian Journal of Sexually Transmitted Diseases and AIDS*. 2016 Jan;37(1):7.
  23. Chandragupta TS, Badri SR, Murty SV, Swarnakumari G, Prakash BV. Changing trends of sexually transmitted diseases at Kakinada. *Indian Journal of Sexually Transmitted Diseases and AIDS*. 2007 Jan 1;28(1):6.
  24. Glen-Spyron, C. (2015). Risky sexual behavior in adolescence.
  25. Rockwell, J. A. (2016). Association between HIV/AIDS education and reduced risky sexual behaviors amongst African American adolescents living in the United States in 2013.
  26. Mersha, A., Teji, K., Darghawth, R., Gebretsadik, W., Shibiru, S., Bante, A., ... & Abayneh, N. (2018). Risky sexual behaviors and associated factors among preparatory school students in Arba Minch town, Southern Ethiopia. *Journal of Public Health and Epidemiology*, 10(12), 429-442.
  27. George G, Beckett S, Cawood C, Khanyile D, Govender K, Kharsany AB. Impact of HIV testing and treatment services on risky sexual behaviour in the uMgungundlovu District, KwaZulu-Natal, South Africa: a cross-sectional study. *AIDS Research and Therapy*. 2019 Dec; 16:1-1.
  28. Prince Kumar Patel, Prof. T.B. Singh, Prof. Satyendra Kumar Singh et.al. Awareness and knowledge of sexually transmitted infections among patients attending tertiary care hospital. *Int J Health Sci Res*. 2023; 13(7):222-227
  29. Rutaremwa, G., Agaba, P., Nansubuga, E., & Nankinga, O. (2016, April). Association between Risky Sexual Behaviour and having STIs or HIV among young persons aged 15-24 years in Uganda. In 2016 Annual Meeting. PAA.

How to cite this article: Prince Kumar Patel, Tej Bali Singh, Satyendra Kumar Singh, Swati Singh. Awareness, knowledge of sexually transmitted infections (STIs) and factors associated with risky sexual behaviour among STI patients. *Int J Health Sci Res*. 2023; 13(10):1-7. DOI: [10.52403/ijhsr.20231001](https://doi.org/10.52403/ijhsr.20231001)

\*\*\*\*\*