Bangladesh Med J. 2024 Jan; 53(1)
DOI: https://doi.org/10.3329/bmj.v52i3.81061

Original Article

Assessment of Perception of Sexually Transmitted Infections among Urban Women: A Cross-Sectional Study

***Nurunnabi M[1], Sultana H[2], Rayhan MG[3], Eva MM[4], Muktadir SMA[5], Halim KS[6]**

Abstract

Public health concerns about sexually transmitted infections (STIs) are becoming more widespread, particularly in developing countries with dense populations and high rates of population mobility. Their prevalence rises with widespread exposure to risk factors. Promoting knowledge and comprehension of STI prevention is essential to shielding women of reproductive age groups (15-45 years) from its harmful effects. This household-based cross-sectional study was directed to assess the level of perception of sexually transmitted infections among 273 purposively selected urban women residing in Moghbazar, Malibagh, and Shantibagh areas of Dhaka South City Corporation, Bangladesh. Data were collected using a pre-tested semi-structured questionnaire based on participants' convenience. The participants had a mean age of 32.8±4.2 years, ranging from 18 to 45 years, with the maximum (40.3%) of them were in age group 31-40 years. In terms of education, over half (54.6%) had completed secondary education, mostly similar to their partners (52.7%) and their average monthly household income was 18765.2±3262.8 BDT. The mean age at marriage was 19.8±2.1 years, with 10.3% marrying before 18. The average duration of marriage was 9.2±6.3 years. The most commonly used contraceptive methods were oral pills (60.4%) and condoms (41.0%). Majority of the women (51.3%) had a poor perception of STIs, while more than one-third (36.1%) had an average perception, and 12.6% had a good perception. The level of STIs perception among women was significantly associated with age, education, spouse's education, and marital duration ($p<0.05$). The survey uncovered that most women in the selected urban regions had a poor to average perception of STIs, with only one in ten having a good perception. Implementing comprehensive sexual and reproductive health education can reduce the current and future burden of STIs.

Keywords: *Sexually transmitted infections, perception's level, urban women, Bangladesh*

1. *Dr. Mohammad Nurunnabi, Assistant Professor, Department of Community Medicine and Public Health, Sylhet Women's Medical College. Email: nur.somch@gmail.com
2. Dr. Hafiza Sultana, Professor and Head, Department of Health Education, National Institute of Preventive and Social Medicine (NIPSOM), Dhaka.
3. Dr. Md. Golam Rayhan, Medical Officer, Ramgati Upazila Health Complex, Laxmipur, Chittagong.
4. Dr. Mehruba Manir Eva, Medical Officer, Department of Medicine, Oasis Hospital, Sylhet.
5. Dr. S. M. Al Muktadir, Post Graduation Trainee, Dental Unit, Sylhet MAG Osmani Medical College Hospital, Sylhet.
6. Dr. Kazi Shafiqul Halim, Professor and Head, Department of Epidemiology, NIPSOM.

*For Correspondence

INTRODUCTION

Sexually transmitted infections (STIs) are a significant health issue, primarily affecting young people in both developing and developed countries.[1] It is rapidly increasing due to economic, social, and demographic factors.[2-4] The spread of STIs is driven by various factors, including emerging pathogens, antibiotic resistance, inadequate health education, low income, and evolving sexual behaviors. These behaviors include frequent unprotected sex with multiple partners, increased demand for prostitution, and a declining average age of sexual initiation.[5,6] STIs affect both men and women, but their health consequences are often more severe for women.[7] In pregnant women, STIs also lead to serious health complications for the baby.[8]

Reproductive health problems accounts for one-third of all health issues among women of reproductive age in developing countries and one-fifth of global health concerns.[9] STIs contributing to 8.9% of diseases affecting women.[10] STIs remain a substantial global health concern, with approximately 1.0 million new infections occurring dail.[11] In 2016, more than 490 million people had genital herpes, while around 300 million women had HPV, which causes cervical and anal cancer. To address this, WHO developed the worldwide Health Sector Strategy on STIs (2016-2021), which aims to reduce congenital syphilis to fewer than 50 cases per 100,000 live births, and both syphilis and gonorrhoea infections by 90% between 2018 and 2030.[12] WHO estimated 374 million new infections with chlamydia (129 million), gonorrhea (82 million), syphilis (7.1 million), and trichomoniasis (156 million) in

2020. In 2022, WHO projected that 254 million people had hepatitis B.[12,13]

STIs are mainly spread through unprotected sexual contact through sexual contact (vaginal, oral, or anal sex) but can also be conveyed during pregnancy, childbirth, breastfeeding, or through infected blood.[14] Over 30 microbes (bacteria, viruses, and parasites) are transmitted through sexual contact. Eight pathogens cause most STIs: four curable (syphilis, gonorrhea, chlamydia, trichomoniasis) and four viral (hepatitis B, HSV, HIV, HPV). The most prevalent and curable STIs are increasing antimicrobial resistance poses a growing threat to treatment. Viral STIs such as HIV, genital herpes, hepatitis B, HPV, and HTLV-1 have limited treatment options. HIV, HSV, and HTLV-1 are lifelong infections with no cures, though treatments can suppress HIV and HSV.[13]

Knowledge and awareness of STIs have become urgent issues, as they pose significant risks to health security and are influenced by key socioeconomic factors. STIs are most common among marginalized populations with fractional access to healthcare. Providing effective interventions to these groups is challenging but offers significant public health benefits.[12,15] To accomplish the Sustainable Development Goals, STI prevention and control should be an essential component of comprehensive sexual and reproductive health services. This study aimed to assess perceptions of STIs among women in Dhaka, the capital city, where STIs cases have been rising over the past few decades.

MATERIALS AND METHODS

Study design and settings

A household-based cross-sectional study was conducted to assess the level of perceptions on sexually transmitted infections among urban women in the purposively selected areas of Moghbazar, Malibagh, and Shantibagh in Dhaka South City Corporation, Bangladesh.

Sample selection criteria

A total of 273 married women, aged 18-45 years and homemakers, were purposively selected for the study. Women engaged in occupations other than homemaking were excluded. The sample size was calculated based on the knowledge of STDs among women in Dhaka (77.2%), with a 95% confidence interval (CI) and a 5% relative precision.[15]

Data collection procedures

The data collection was carried out by using a pre-tested semi-structured questionnaire through face-to-face interview after obtaining informed written consent from each participant during the period January to December, 2018. Pretested done with 35 women resided in Mirpur 10, Dhaka. The questionnaire was divided into three sections: the socio-demographic profile of women, reproductive health information, and their perceptions of STIs.

Scoring measures

To ensure accurate responses, the questionnaire used a binary 'yes' or 'no' format. Perception was measured by assigning '1' point for each correct answer and '0' for incorrect ones, with scores ranging from 0 (all incorrect) to 48 (all correct), indicating STI knowledge levels. Participants scoring ≥38 (≥80%) were classified as having 'Good Knowledge,' those scoring ≥28 (60-79%) as having 'Average Knowledge,' and those scoring <28 (<60%) as having 'Poor Knowledge.' The utmost score achieved in this study was 48.

Statistical analysis

Data were entered and analyzed using IBM SPSS Version 25 (New York, USA). Descriptive statistics were presented as frequencies (percentages) for categorical data and means (±SD) for continuous data. The Chi-square ($\chi 2$) test and Fisher exact test were used to assess associations. A p-value <0.05 at a 95% confidence interval was considered statistically significant.

Ethical approval

The questionnaire included a detailed explanation of the study's purpose and a consent form. Participation was entirely voluntary, and privacy and data security were strictly maintained following IRB guidelines and the ethical standards of the 1964 Declaration of Helsinki and its subsequent amendments or equivalent ethical standards. Ethical approval was granted by the Inistitutional Review Board of National Institute of Preventive and Social Medicine, Dhaka 1212, Bangladesh. (Reference: NIPSOM/IRB/2017/250)

RESULTS

Table I represents the socio-demographic profile of women. The respondents' mean age was 32.8±4.2 years, ranging from 18 to 45 years, with the majority (40.3%) in the 31-40 age group. Most were Muslim (80.6%) and lived in nuclear families (72.5%). Regarding education, over half (54.6%) had completed secondary level, compared to 52.7% of their partners. Nearly half of the partners (49.5%) were day laborers. The average monthly household income was 18,765.2±3,262.8 BDT, with the majority (87.2%) belonging to low-income families earning ≤20,000 BDT per month.

Table-I: Socio-demographic outlines of women (n=273)

Variables		Frequency (n)	Percent (%)
Age groups (in years)			
	18-24	42	15.4
	25-30	75	27.5
	31-40	110	40.3
	>40	46	16.9
	Mean±SD	32.8±4.2	
Religion			
	Muslim	220	80.6
	Hinduism	40	14.7
	Christianity	13	4.7
Education			
	Illiterate	31	11.4
	Primary	65	23.8
	Secondary	149	54.6
	Higher secondary and above	28	10.3
Spouse's education			
	Illiterate	38	13.9
	Primary	31	11.4
	Secondary	144	52.7
	Higher secondary and above	60	22.0
Spouse's occupation			
	Day laborer	135	49.5
	Businessmen	68	24.9
	Service holders	54	19.8
	Others (Unemployed, retired etc.)	16	5.9
Family type			
	Nuclear	198	72.5
	Joint/ extended	75	27.5
Monthly household incomes (Bangladeshi taka)			
	≤15000	98	35.9
	15001-20000	140	51.3
	>20000	35	12.8
	Mean±SD	18765.2±3262.8	

Table II states the reproductive health information of the participants. The mean age at menarche was 14.9±1.4 years, and the mean age at marriage was 19.8±2.1 years, with 10.3% marrying before the age of 18. The average duration of marriage was 9.2±6.3 years. Regarding conception, 88.3% of women conceived during their marriage, with the mean age at first conception being 20.3±1.8 years. The mean number of living children was 2.2±0.8, and 21.2% had more than two children. The most commonly used contraceptive methods were oral pills (60.4%) and condoms (41.0%).

Table-II: Women's reproductive health related information (n=273)

Variables		Frequency (n)	Percent (%)
Age at menarche (in years)			
	<14	68	24.9
	≥14	205	75.1
	Mean±SD	14.9±1.4	
Age at marriage (in years)			
	<18	28	10.3
	≥18	245	89.7
	Mean±SD	19.8±2.1	
Duration of marital age (in years)			
	<5	67	24.5
	≥5	206	75.5
	Mean±SD	9.2±6.3	
Conception history			
	Conceived	241	88.3
	Never conceived	32	11.7
Age at first conception (in years) (n=241)			
	<18	4	1.7
	≥18	237	98.3
	Mean±SD	20.3±1.8	
Number of living children (n=241)			
	≤2	215	78.8
	>2	58	21.2
	Mean±SD	2.2±0.8	
Use of contraceptive methods			
	Oral pills	165	60.4
	Condom	112	41.0
	Injectables	31	11.4
	Others (IUD and implant)	11	4.0

*Multiple responses

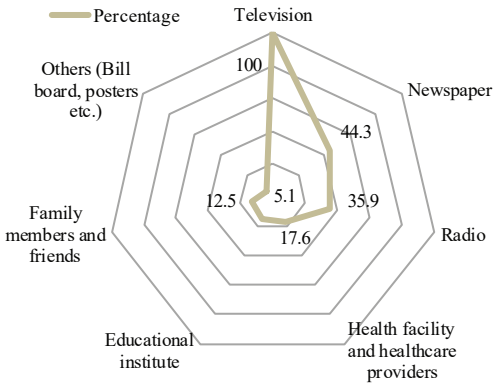

Figure 1: Sources of information on STIs (n=273)

Figure 1 shows the sources of information about STIs. The majority of respondents received STI-related information from mass media, including television (100%), newspapers (44.3%), and radio (35.9%). In contrast, a smaller proportion received information from health facilities and healthcare providers (17.6%) or educational institutions (15.0%).

Table III contains the perceptions of the women about STIs. Most respondents were unaware that STIs are caused by bacteria (84.2%) and fungi (96.0%). None mentioned chlamydia, genital herpes, trichomoniasis, or genital candidiasis. However, most (92.2%) knew about HIV/AIDS, and about a third (30.4%) were aware of Hepatitis B. Most respondents (85.0%) understood that STIs could be transmitted through sexual intercourse, but many (84.2%, 80.2%) did not know that STIs could be spread through blood transfusion or shared needles. Regarding risk factors, the majority (56%, 64.1%) knew that unprotected sex and multiple partners were major risks for contracting STIs. Common STI symptoms recognized included blood in urine (86.4%), weakness (75.8%), genital itching (80.2%), and genital ulcers (50.9%). However, most respondents (92.3%) did not know that pain during intercourse could be a symptom of STIs. Most respondents were unaware that STIs could lead to premature birth (100%), ectopic pregnancy (99.6%), infertility (71.8%), or stillbirth (65.9%), although 83.9% knew that STIs could cause cervical cancer. Many did not know that STIs could be prevented by vaccination (91.9%) or by consistent condom use (85.0%). About half of the respondents were aware that reducing the number of sexual partners or having a single partner could prevent STIs. The majority (67.0%) knew that some STIs could be treated with antibiotics, and 15.0% were aware that viral STIs cannot be cured but their symptoms can be managed with medication.

Table-III: Perceptions of women about STIs (n=273)

Perceptions related variables Causative agents of STIs	Yes n(%)	No n(%)
Bacteria	43(15.8)	230(84.2)
Virus	123(45.1)	150(54.9)
Fungus	11(4.0)	262(96.0)
Name of common STIs		
Syphilis	14(5.1)	259(94.9)
Gonorrhea	38(13.9)	235(86.1)
HIV/AIDS	252(92.2)	21(7.8)
Hepatitis B	83(30.4)	190(69.6)
Hepatitis C	23(8.4)	250(91.6)
HPV infection	5(1.8)	268(98.2)
Chalmydial infection	0(0)	273(100)
Genital herpes	0(0)	273(100)
Trichomoniasis	0(0)	273(100)
Genital candidiasis	0(0)	273(100)

Table-III: Perceptions of women about STIs (n=273)

Perceptions related variables Causative agents of STIs	Yes n(%)	No n(%)
Mode of transmission of STIs		
Sexual intercourse	232(85.0)	41(15.1)
Blood transfusion	43(15.8)	230(84.2)
Sharing needles	54(19.8)	219(80.2)
Vertical transmission	14(5.1)	259(94.9)
Risk factors of getting STIs		
Sex without condom	153(56.0)	120(44.0)
Multiple partners	175(64.1)	98(35.9)
Drug abusers share needles during exchange	66(24.2)	207(75.8)
Pregnancy	65(23.8)	208(76.2)
Blood transfusion	144(52.7)	129(47.3)
Sign and symptoms of STIs		
Abdominal pain	3(1.1)	270(98.9)
Discharge from penis/vulva	38(13.9)	235(86.1)
Itching in genitalia	219(80.2)	54(19.8)
Burning pain on urination	70(25.6)	203(74.4)
Pain during intercourse	21(7.7)	252(92.3)
Genital ulcers	139(50.9)	134(49.1)
Swelling in genitalia	90(33.0)	183(67.0)
Blood in urine	236(86.4)	37(13.6)
Failure to urinate	8(2.9)	265(97.1)
Loss of weight	129(47.3)	144(52.7)
Weakness	207(75.8)	66(24.2)
Asymptomatic	8(2.9)	265(97.1)
Complications of STIs		
Infertility	77(28.2)	196(71.8)
Permanent damage of reproductive system	154(56.4)	119(43.6)
Premature birth	0(0)	273(100)
Stillbirth	93(34.1)	180(65.9)
Ectopic pregnancy	1(0.4)	272(99.6)
Miscarriage	103(37.7)	170(62.3)
Cancer of cervix	229(83.9)	54(16.1)
Ways to prevent STIs		
Most reliable way of avoiding infection is not having sex	41(15.1)	232(85.0)
Vaccines	22(8.1)	251(91.9)
Reducing the number of sex partners	122(44.7)	151(55.3)
Keeping a sexual relationship with only one person	132(48.4)	141(51.6)
Correct and consistent use of the condom	32(11.7)	241(88.3)
Ways to treat STIs		
Some STIs can be treated with antibiotics	183(67.0)	90(33.0)
Viral STIs cannot be cured, but their symptoms can be managed with drugs	41(15.0)	232(85.0)

Figure 2 illustrates that more than half of the women (51.3%) had poor perception of STIs, 36.1% had average perception, and 12.6% had good perception.

Table IV shows that the level of perception of women regarding STIs was significantly associated with their age (p=0.06), education (p=0.000), spouse's education (p=0.001), and duration of marital age (p=0.023).

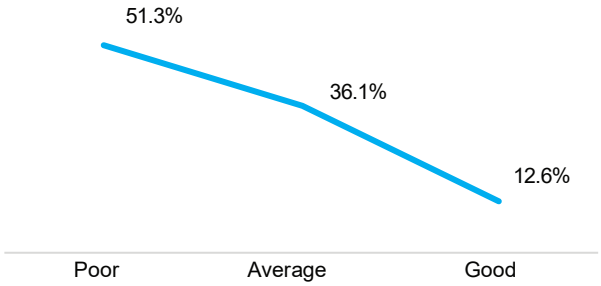

Figure 2: Level of perceptions on STIs (n=273)

Table IV: Association with different variables with level of perceptions on STIs (n=273)

Variables	Catagories	Level of perceptions				χ^2 value	p-value
		N n(%)	Good n(%)	Average n(%)	Poor		
Age groups	18-24 years	42	5(11.9)	14(33.3)	23(54.8)	13.926	**0.016**
	25-30 years	75	9(12.0)	35(46.7)	31(41.3)		
	31-40 years	110	13(11.8)	32(29.1)	65(59.1)		
	>40 years	46	3(6.5)	14(30.4)	29(63.0)		
Education	Illiterate	31	0(0.0)	6(19.4)	25(80.6)	46.321	**0.000**
	Primary	65	2(3.1)	15(23.1)	48(73.8)	(FT value)	
	Secondary	149	13(8.7)	51(34.2)	85(57.1)		
	HS & above	28	4(14.3)	10(35.7)	14(50.0)		
Spouse's education	Illiterate	38	1(2.6)	7(18.4)	30(78.9)	48.542	**0.001**
	Primary	31	2(6.5)	5(16.1)	24(77.4)	(FT value)	
	Secondary	144	23(16.0)	46(31.9)	75(52.1)		
	HS & above	60	12(2.0)	28(46.7)	20(33.3)		
Duration of marital age	<5 years	67	13(19.4)	23(34.3)	31(46.3)	8.965	**0.023**
	≥5 years	206	11(5.3)	70(34.0)	125(60.7)		

Chi-square and Fisher exact test done, p<0.05 considered as statistically significant value

DISCUSSION

This study found that the mean age of the women was 32.8±4.2 years, with 42.9% being under the age of 30. A similar age distribution was observed in a study conducted in Rajshahi, Bangladesh.[16] Regarding education, more than half (54.6%) had completed secondary school, compared to 52.7% of their partners. Nearly half of the partners (49.5%) were day laborers. The average monthly household income was 18,765.2±3,262.8 BDT, with the majority (87.2%) belonging to low-income families earning ≤20,000 BDT per month. According to the BBS 2022 reports, the literacy rate was relatively high in this study.[17]

In this study, the mean age at marriage was 19.8±2.1 years, with 10.3% marrying before the age of 18. Child marriage is more common in rural areas, where girls are married before the age of 18, compared to urban areas.[18] The mean duration of marriage was 9.2±6.3 years. The length of marital life influenced the perception of STIs, a finding also observed in the study.[19] Of the women, 88.3% conceived during marriage, with the average age at first conception being 20.3±1.8 years. The most common contraceptive methods were oral pills (60.4%) and condoms (41.0%). According to a survey by NIPORT in 2021, condoms and oral pills are the most commonly used contraceptive methods in the country.[20]

The study found that most women were unaware that STIs are caused by bacteria (84.2%) and fungi (96.0%), and none mentioned chlamydia, genital herpes, trichomoniasis, or genital candidiasis. However, the

majority (92.2%) were aware of HIV/AIDS, and about a third (30.4%) knew about Hepatitis B. Most respondents (85.0%) understood that STIs could be transmitted through sexual intercourse, but many (84.2%, 80.2%) were unaware that STIs could be spread through blood transfusions or shared needles. Regarding risk factors, most women (56%, 64.1%) recognized that unprotected sex and multiple partners are major risks for contracting STIs. Common STI symptoms such as blood in urine (86.4%), weakness (75.8%), genital itching (80.2%), and genital ulcers (50.9%) were identified, but 92.3% did not know that pain during intercourse could also be a symptom. Many were unaware that STIs could lead to premature birth (100%), ectopic pregnancy (99.6%), infertility (71.8%), or stillbirth (65.9%), although 83.9% knew that STIs could cause cervical cancer. Most women did not know that STIs could be prevented by vaccination (91.9%) or by consistent condom use (85.0%), but about half were aware that reducing the number of sexual partners or having only one partner could prevent STIs. The majority (67.0%) knew that some STIs could be treated with antibiotics, and 15.0% understood that viral STIs cannot be cured but their symptoms can be managed with medication. These findings are consistent with studies on the knowledge, awareness, and perception of sexually transmitted diseases or infections among various groups of women.[21-26]

The current study found that over half of the women (51.3%) had poor perception of STIs, 36.1% had an average perception, and 12.6% had a good perception. Poor perception or knowledge level among the women also found in the studies.[4,10,27,28] The level of perception of women regarding STIs was significantly associated with their age, education, spouse's education, and marital duration ($p<0.05$). Several studies have demonstrated a substantial relationship between socio-demographic characteristics and an individual's perception, knowledge, and attitudes towards sexually transmitted infections.[29,30]

CONCLUSIONS

The study found that most women in the selected urban areas had a poor to average perception of STIs, with merely about one in ten having a good perception. This could be attributed to these families' poor socioeconomic position, which includes criteria such as education, occupation, and income. Urban areas are sometimes given less importance in awareness and education efforts than rural or urban slum communities. To address societal norms causing women's reluctance in urban areas, multi-level interventions are needed. These can be implemented alongside structural reforms through collaboration with families, cross-sectoral groups, and community health centers.

AUTHOR'S CONTRIBUTIONS:

Conceptualization, methods and literature reviews: Nurunnabi M, Sultana H, and Halim KS; Data collection: Rayhan MG, Eva MM, and Muktadir SMA; Statistical analysis: Nurunnabi M; Preparation of draft manuscript: Nurunnabi M, Sultana H, Rayhan MG, Eva MM, and Halim KS; and Finalization of manuscript: Nurunnabi M, Sultana H, Rayhan MG, Eva MM, Muktadir SMA, and Halim KS. All the authors approved the final manuscript.

ACKNOWLEDGMENTS:

The authors thank all of the women who participated in this study.

COMPETING INTERESTS:

The authors have declared that they have no competing interests.

REFERENCES

1. Folasayo AT, Oluwasegun AJ, Samsudin S, Saudi SN, Osman M, Hamat RA. Assessing the knowledge level, attitudes, risky behaviors and preventive practices on sexually transmitted diseases among university students as future healthcare providers in the central zone of Malaysia: a cross-sectional study. International journal of environmental research and public health. 2017;14(2):159.
2. Grad AI, Senila SC, Cosgarea R, Tataru AD, Vesa SC, Vica ML, Matei HV, Ungureanu L. Sexual behaviour, attitudes and knowledge about sexually transmitted infections: A cross-sectional study in Romania. Acta dermatovenerologica croatica. 2018;26(1):25.
3. El-Tholoth HS, Alqahtani FD, Aljabri AA, Alfaryan KH, Alharbi F, Alhowaimil AA, Alkharji A, Alrwaily A, Obied A, Al-Afraa T. Knowledge and attitude about sexually transmitted diseases among youth in Saudi Arabia. Urology annals. 2018;10(2):198-202.
4. Zin NM, Ishak I, Manoharan K. Knowledge, attitude and practice towards sexually transmitted diseases amongst the inmates of women shelters homes at Klang Valley. BMC public health. 2019;19:1-7.
5. Da Ros CT, da Silva Schmitt C. Global epidemiology of sexually transmitted diseases. Asian journal of andrology. 2008;10(1):110-4.

6. Chen FH. Rational behavioral response and the transmission of STDs. Theoretical population biology. 2004;66(4):307-16.
7. Shipitsyna E, Krasnoselskikh T, Zolotoverkhaya E, Savicheva A, Krotin P, Domeika M, Unemo M. Sexual behaviours, knowledge and attitudes regarding safe sex, and prevalence of non-viral sexually transmitted infections among attendees of youth clinics in St. Petersburg, Russia. Journal of the european academy of dermatology and venereology. 2013;27(1):e75-84.
8. Chen XS, Yin YP, Chen LP, Thuy NT, Zhang GY, Shi MQ, Hu LH, Yu YH. Sexually transmitted infections among pregnant women attending an antenatal clinic in Fuzhou, China. Sexually transmitted diseases. 2006;33(5):296-301.
9. Sharma P, Sherkhane MS. Knowledge and attitude about sexually transmitted infections among women in reproductive age group residing in urban slums. International journal of community medicine and public health. 2017;4(1):20-4.
10. Masood A, Dwivedi S, Singh G, Gupta S, Mishra P, Hassan MA. Perception of RTIs/STIs including HIV/AIDs among women of reproductive age group in Allahabad. Indian journal of preventive & social medicine. 2011;42(1):19-23.
11. Global strategy for the prevention and control of sexually transmitted infections- breaking the chain of transmission: 2006-2015. World Health Organization: 2007. Available from: https://iris.who.int/bitstream/handle/10665/43853/9789241563475_eng.pdf Cited on May 12, 2023)
12. Report on global sexually transmitted infection surveillance, 2018. World Health Organization: 2018. Available from: https://iris.who.int/bitstream/handle/10665/277258/9789241565691-eng.pdf (Cited on May 12, 2023)
13. Sexually transmitted infections (STIs): Fact Sheets. World Health Organization: 2024. Available from: https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis)
14. Nurunnabi M, Islam F, Sultana H, Haque A, Afroz L, Alam MR, Rahman MM, Abbas MG. Stigma on Sexually Transmitted Diseases and the Patients. Journal of Rangamati Medical College. 2019; 2(2):4-8.
15. Hossain M, Mani KK, Sidik SM, Shahar HK, Islam R. Knowledge and awareness about STDs among women in Bangladesh. BMC public health. 2014;14(1):775
16. Mondal NI, Hossain K, Islam R, Mian AB. Sexual behavior and sexually transmitted diseases in street-based female sex workers in Rajshahi City, Bangladesh. Brazilian journal of infectious diseases. 2008;12(4):287-92.
17. Statistical Yearbook Bangladesh 2022. Bangladesh Bureau of Statistics: 2023. Available from: https://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/b2db8758_8497_412c_a9ec_6bb299f8b3ab/2023-06-26-09-19-2edf60824b00a7114d8a51ef5d8ddbce.pdf (Cited on July 22, 2023)
18. State of the World's Children. UNICEF: 2016. Available from: https://www.girlsnotbrides.org/child-marriage/bangladesh (Cited on July 22, 2023)
19. Lan PT, Faxelid E, Chuc NT, Mogren I, Lundborg CS. Perceptions and attitudes in relation to reproductive tract infections including sexually transmitted infections in rural Vietnam: A qualitative study. Health policy. 2008;86(2-3):308-17.
20. Urban Health Survey 2021. National Institute of Population Research and Training (NIPORT): 2022. Available from: https://niport.portal.gov.bd/sites/default/files/files/niport.portal.gov.bd/publications/66c4accd_4c6a_4aab_902c_781a77aa8768/2023-01-30-06-04-9310fc1f3902cdd03884124c600ddc8d.pdf (Cited on July 22, 2023)
21. Gurvey JE, Adler N, Ellen JM. Factors associated with self-risk perception for sexually transmitted diseases among adolescents. Sexually transmitted diseases. 2005;32(12):742-4.
22. Ahmad F, Hossain KJ, Ahmed M, Rajia J, Salma U, Haque A, Sultana H, Nurunnabi M, Abbas MG. Health related quality of life and relative attributes among substance users. Journal of sylhet women's medical college. 2023;13(1):20-27
23. Olivi M, Santana RG, Mathias TA. Behavior, knowledge and perception of risks about sexually transmitted diseases in a group of people over 50 years old. Revista latino-americana de enfermagem. 2008; 16:679-85.

24. Mou SZ, Bhuiya FA, Islam SM. Knowledge and perceptions of sexually transmitted diseases, HIV/AIDS, and reproductive health among female students in Dhaka, Bangladesh. International Journal of advanced medical and health research. 2015;2(1):9-15.

25. De Waure C, Mannocci A, Cadeddu C, Gualano MR, Chiaradia G, Vincitorio D, Di Stanislao F, De Vito E, Langiano E, Boccia A, Ricciardi W. Knowledge, attitudes and behaviour about Sexually Transmitted Infections: a survey among Italian university female students. Epidemiology, biostatistics, and public health. 2015;12(2).

26. Obiechina NJ, Diwe K, Ikpeze OC. Knowledge, awareness and perception of sexually transmitted diseases among Nigerian adolescent girls. Journal of obstetrics and gynaecology. 20021;22(3):302-5.

27. 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; 16(6):1080.

28. Naeem FK, Suror H, Aneed AA. Knowledge and attitude about sexual transmitted disease among women in reproductive age in Al-Nasiriyah Governorate-Iraq. Indian journal of forensic medicine & toxicology. 2020;14(4):2662-7.

29. Mutaru AM, Asumah MN, Ibrahim M, Sumaila I, Hallidu M, Mbemah JM, Atakole BA, Zakaria DY. Knowledge on sexually transmitted infections (STIs) and sexual practices among Nursing Trainees in Yendi Municipality, Northern Region of Ghana. European journal of health sciences. 2021;6(4):33-47.

30. Winarto H, Habiburrahman M, Kusuma F, Nuryanto KH, Anggraeni TD, Utami TW, Putra AD, Syaharutsa DM. Knowledge, Attitude, and practice towards sexually transmitted infections among women of reproductive age in an urban community health centre in Indonesia. The open public health journal. 2023;16(1).