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# Sexually Transmitted Infections in A Tertiary Hospital of Kathmandu: A Retrospective Study

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## Abstract

**Introduction:** Sexually Transmitted Infections (STIs) are the diseases that are transmitted by sexual contact. This group of diseases poses a huge public health problem.

**Objectives:** To provide an insight on the pattern of STIs in a city based hospital.

**Materials and Methods:** This is a retrospective cross-sectional study. All patients diagnosed with Sexually Transmitted Infections in the Dermatology outpatient of a Kathmandu-based hospital over a period of two years, from January 1, 2018, to December 30, 2019, were included in the study. The diagnosis was made by clinical and laboratory investigations.

**Results:** Out of 157 cases, 119 (75.8%) were males and 38 (24.2%) were females. The mean age of patients was 27.8±8.8 years. Seventy-three (46.5%) patients were married, while 81 (51.6%) patients were unmarried. Unmarried males were significantly more vulnerable to acquire STIs *(p=0.005)*. Males had significantly more premarital or extramarital sexual exposures as compared to females *(p<0.001).* The most common presentation was condyloma acuminata in 84 (53.5%) patients. Consistent use of condoms was reported only in 3 (2.5%) males and 1 (2.6%) female in this study. No association was noted between the education level attained to the practice of safe sexual methods *(p=0.535).*

**Conclusion:** Unmarried males were the most vulnerable group to acquire STIs. The level of education did not seem to make people aware of practicing safe sex. Sexual education seems a must in all levels of education.

**Key words:** condyloma acuminata; genital; gonorrhea; sexually transmitted infections; syphilis

## Introduction

Infections transmitted to one another by sexual contact are broadly known as Sexually Transmitted Infections (STIs).[1] The World Health Organization (WHO) estimates that annually there are approximately 360 million new cases of four curable STIs worldwide among people aged 15-49 years, namely, Chlamydia trachomatis (131 million), Neisseria gonorrhoeae (78 million), Treponema pallidum (6 million) and Trichomonas vaginalis (142 million).[2] However, the prevalence of viral STIs is even higher, with an estimated 417 million people infected with herpes simplex type 2 and approximately 291 million women harboring the human papillomavirus.[2]

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The burden of morbidity and mortality resulting from sexually transmitted pathogens compromises quality of life, sexual and reproductive health, newborn and child health, facilitates HIV transmission, and some even precede cancer.[3] The surveillance of STIs is inadequate in many countries, especially in resource-poor developing countries.[3]

Repeated Integrated Biological and Behavioral Surveillance (IBBS) surveys are the primary source

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of information for STI prevalence among the key populations in Nepal. In this survey high-risk populations in Kathmandu, Pokhara, and only 22 districts in Terai were included.[4] However, this may not represent an accurate community picture.

Some hospital-based studies have been done in the past, which have shown the brunt of STIs is not limited to the high-risk group only.[5,6] This study aims to depict the pattern of STI cases in a tertiary care center in Kathmandu.

## Material and Methods

This is a retrospective cross-sectional study. All the consecutive patients diagnosed with STI from January 1, 2018, to December 30, 2019, at Civil Service Hospital, Department of Dermatology, were included in the study, irrespective of age and sex. In total, 157 patients were included in this study.

Clinical diagnosis, sexual behaviors, and investigation reports of STI cases were recorded and maintained at the Department of Dermatology of Civil Service Hospital. The diagnosis was made by clinical examination. ELISA for HIV, VDRL, and TPHA for syphilis was done in all the cases. Gram stain and Giemsa stain of swabs collected from the urethral pus discharge were done where necessary. Hepatitis B surface antigen and anti-hepatitis C virus serology were not done routinely.

After the ethical clearance from the Institution Review Committee of this institute, data was compiled and analyzed with calculations of frequency and percentage of categorical variables. Chi-square test was used to find any significant association between these variables. For all analyses, the α was set at 0.05. Statistical package for the social sciences version 16 was used for statistical analyses.

## Results

The total STI cases enrolled in the study were 157, of which 119 (75.8%) were male, and 38 (24.2%) were female. The mean age of patients was 27.8±8.8 years (male 28.03±9.3) and (female 27.18±7.27), ranging from 15 to 60 years. The most common age with STIs was 21 to 25 years, with 57 (36.3%) cases. Seventy-three (46.5%) patients were married, while 81 (51.6%) patients were unmarried, 3 were either widows or divorced. A chi-square test on gender and marital status suggested that unmarried males were more vulnerable to STIs than other groups *(p=0.005)*. A total of 107 (68.2%) patients admitted having sex with multiple sex partners or had premarital exposure in the last six months. Males were more likely to have multiple sexual or premarital contacts than females *(P<0.001)*. Most of the patients, 121 (77.1%), had the education of grade 10 or above. Most of the patients were self-employed or doing business 60 (38.2%), followed by students 46 (29.3%), government officers 29 (18.5%), and housewives 17 (10.8%).

The etiological diagnosis of STIs diagnosed in the OPD are shown below (Table 1). The most typical presentation was condyloma acuminata 84 (53.5%), followed by gonorrhoea 38 (24.2%). The next common presentation was syphilis 14 (8.9%), genital herpes 8 (5.1%), and multiple STIs 10 (6.4%).

There were two cases of genital molluscum and a single case of Lymphogranuloma venereum.

Among syphilis, only primary, secondary, and latent were diagnosed. There were no cases of tertiary syphilis.

The patient distribution according to sex in different STIs is presented in the table below (Table 2).

Most of the cases of syphilis were incidental findings on serology testing for other purposes. Cases of HIV were most commonly associated with condyloma and were diagnosed on routine screening of cases. The most common STI in females was condyloma acuminata, which was seen in 28 (73.7%) patients, out of which 5 (13.1%) patients were pregnant. Nine (7.6%) male patients had two or three coexisting conditions.

The use of condom was extremely low; 86 (72.3%) males and 32 (84.3%) females had never used it. Only 2.5% male and 2.6% female consistently used condoms. Neither education level *(p=0.535)* nor gender *(p=0.975)* played any role in seeking protection during sex.

The most common source of infection in males was casual contact in 40 (33.6%) patients and with a known friend in 34 (28.6%) patients. Five (4.2%) male patients were homosexuals, and the same number were apparently infected by Commercial Sex Workers (CSWs). Nine (7.6%) males had multiple sexual contacts and could not suggest a single source of infection. Few female patients (23.7%) could relate their disease to a friend, however most of them, 25 (65.8%), did not know the source of infection. The probable source of infection was significantly more identifiable in males than females *(p=<0.001).* Only 4 cases were found to have HIV among the total of 157 patients.

Out of 107 patients who accepted having premarital or extramarital contacts, the partners were traceable in 50 (46.7%) cases, of whom 5 (male 3 and female 2) had the same disease. Out of 73 married people with STIs, 9 (12.3%) of the spouses had the same condition. Forty-three (27.4 %) patients have had sexual intercourse without protection even after the symptoms of STIs in them.

**Table 1:** Patterns of STIs according to the etiology

| Disease | Number ( %) |
|---|---|
| Condyloma acuminata | 84 (53.5) |
| Gonorrhea | 38 (24.2) |
| Syphilis | 14 (8.9) |
| Genital herpes | 8 (5.1) |
| Multiple diseases | 10 (6.1) |
| Others | 3 (1.9) |

**Table 2:** Table showing sex-wise distribution of patients, their sexual behavior and partner choices

| Characteristics | Male no. (%) | Female no. (%) | Total no. (%) |
|---|---|---|---|
| Diagnosis | 119 | 38 | 157 |
| Condyloma | 56 (47.1) | 28 (73.7) | 84 (53.5) |
| Gonorrhoea | 37 (31.1) | 1 (2.6) | 38 (24.2) |
| Syphilis | 11 (9.2) | 3 (7.9) | 14 (8.9) |
| Herpes genitalis | 3 (2.5) | 5 (13.2) | 8 (5.1) |
| HIV | 3 | 1 | |
| Others | 3 (2.5) | 0 | |
| Multiple | 9 (7.6) | 1 (2.6) | 10 (6.4) |
| Protection during contact | | | |
| Yes | 3 (2.5) | 1 (2.6) | 4 (2.5) |
| No | 86 (72.3) | 32 (84.3) | 118 (75.2) |
| Occasional | 26 (21.8) | 4 (10.5) | 30 (19.1) |
| Unknown | 4 (3.4) | 1 (2.6) | 5 (3.1) |
| Extra / premarital contact in last six months | | | |
| Friend | 34 (28.6) | 9 (23.7) | 43 (27.4) |
| Casual | 40 (33.6) | 4 (10.5) | 44 (28.1) |
| CSW | 5 (4.2) | 0 | 5 (3.2) |
| MSM | 5 (4.2) | 0 | 5 (3.2) |
| Acquaintance | 1 (0.8) | 0 | 1 (0.6) |
| Multiple | 9 (7.6) | 0 | 9 (5.7) |
| None /denied | 25 (21.0) | 25 (65.8) | 50 (31.8) |
| Partner traceable | 38 (32.0) | 12 (31.6) | 50 (46.7) |
| Same disease in spouse | 4 (3.4) | 5 (13.2) | 9 (5.7) |
| Sexual contact after symptoms onset | 32 (26.9) | 11 (29.0) | 43 (27.4) |

**Table 3:** Comparison of the major STIs in various studies. Number in parentheses denotes the sample size of the study

| Disease | This study % (157) | Karki et al.[8] % (2658) | Gyawalee et al.[6] % (130) | Garg et al.[5] % (100) | Narayanan[9] % (686) | Rajiv et al.[12] % (240) | Devi et al.[11] % (435) | PHE[13] % |
|---|---|---|---|---|---|---|---|---|
| Condyloma | 53.5 | 22.6 | 29.2 | 16 | 17.5 | 24.58 | 17.1 | 13 |
| Gonorrhoea | 24.2 | 20.1 | 12.3 | 9 | 10.1 | 0.41 | 1.8 | 13 |
| Syphilis | 8.9 | 27.5 | 20 | 31 | 42 | 38.3 | 11.6 | 1.7 |
| Herpes | 5.1 | 6.8 | 7 | 15 | 17.9 | 31.25 | 32.8 | 8 |
| Mixed | 6.4 | | | 12 | 6.3 | 7.08 | | |
| Chlamydia | | | | | | | | 49 |

PHE: Public Health England

## Discussion

The most common age group with STI in this study was between 21 and 30 years (mean 27.8±8.8 years) similar to the other studies done in Nepal[5-8] and India.[9-11] The age of sexual exposure and sexual behavior in Nepal has not probably changed in the last two decades, despite there being a sea of changes in urbanization.

The predominance of the male population with STIs (male: female; 3.1:1) has also been seen in multiple other studies.[6,8,9] A study in India has shown a minor female predominance.[10] Fewer female cases could be due to fewer symptoms and asymptomatic infections of non-visible parts of the urogenital tract like the cervix.

In this study, STI was most common in the unmarried ones, most common being the unmarried male group (70, 44.6%), similar to the finding by Narayanan.[9] This may insinuate that pre-marital exposures are on the rise. Most of the other studies from this region found married people infected more.[5,6,8,12] The higher proportion of married women suffering from STIs in comparison to married men [women 25/38 (65.7%) vs. men 48/119 (40.3%)] has been found in this study. This finding was consistent to results observed by Gyawalee et al.[6] and Narayanan[9] as well. This may point towards the fact that the source of infection in many of the women could be their husbands.

The rate of use of condoms consistently during contact is negligible in the present study population [4 (2.5%)] which is similar to the finding in the study by Gyawalee et al.[6] These findings point towards an ineffective sexual education in schools and a dangerous situation in the urban communities regarding the condition of STIs. However, Karn et al., [7] found a higher number of patients using a condom in their study, which was conducted in a rural community. This contrasting finding suggests the casual nature of sexual behaviors in city people.

The most common form of extra or premarital contact were casuals 44 (28.1%) followed by friends; 43 (27.4%). The contact with CSWs was low; 5 (3.2%). The commonest source of infection was found to be CSWs in the study by Garg et al.[5], which was conducted 20 years back, and this finding suggests that the pattern of extra or premarital are changing.

Viral STIs are common throughout the world, the commonest being herpes as per WHO report[2] but condyloma acuminata was the commonest in this study. As condyloma acuminata is associated with certain cancers of anogenital regions, they need to be taken seriously. Table 3 below summarizes the pattern of STIs found in different studies of Nepal and India and representative data from the western part of the world from Public Health England (PHE) report[13] where the prevalence of chlamydia is highest.

This study was based on a small sample size comprising the patients presenting to a tertiary hospital which may not represent the accurate picture of the community. The history regarding their sexual behaviors may not be forthcoming in busy OPD as ours. The cases of chlamydia remained undetected due to the lack of testing facilities.

## Conclusion

The cases of STIs are mainly due to apathy of the young people to use protection during exposure. Although sex education is a priority in school, actual application, in reality, is lacking. Genuine sex education is necessary for college-level education as well. The lower number of female cases in almost all studies indicate that the hidden cases might lur in the community and might serve as the reservoirs of infection. Furthermore, if present, the carcinogenic strains of certain virus, should be diagnosed early to prevent malignant transformation. The vaccinations against human papillomavirus should be incorporated in the national immunization program. Moreover, efforts to find the prevalence of chlamydia infections should be made in the settings with resources.

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## References

1. Sharma V, Khandpur S. Epidemiology of Sexually Transmitted Infections. In: Sharma V, editor. Sexually Transmitted Diseases and HIV/AIDS. 2nd ed. New Delhi: Viva Books; 2011. p. 4.
2. WHO. Global health sector strategy on sexually transmitted infections *2016–2021 towards* ending STIs; 2016. [cited 2020 June 18]. Available from: https://apps.who.int/iris/bitstream/

handle/10665/246296/WHO-RHR-16.09-eng.pdf?sequence=1

3. Kinghorn GR. Syphilis and Bacterial Sexually Transmitted Infections. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. Rook's Textbook of Dermatology: 8th ed. West Sussex: Blackwell; 2010. p. 1536–72.
4. National Center for AIDS and STD Control. Factsheet 4*:* Management of Sexually Transmitted Infections (STIs). Kathmandu; 2016. [cited 2020 June 18]. Available from: http://ncasc.gov.np/uploaded/Factsheet2016/Draft_Factsheet_4_STI_diagnsis_and_treament_2016.pdf
5. Garg VK, Agarwalla A, Agrawal S, Deb M, Khanal B. Sexual habits and clinico-etiological profile of sexually transmitted diseases in Nepal. J Dermatol. 2001;28(7):353–9. [PUBMED DOI]
6. Gyawalee M, Pokhrel D. Pattern Of Sexually Transmitted Infections And Sexual Behavior In Patients With Genital Symptoms. Nepal J Dermatology, Venereol Leprol. 2016;12(1):20–7. [DOI PDF]
7. Karn D, Amatya A, Aryal ER, Kc S, Timalsina M. Prevalence of sexually transmitted infections in a tertiary care centre. Kathmandu Univ Med J. 2011;9(34):44–8. [PUBMED DOI]
8. Karki A, Shrestha R, Parajuli N. Pattern of sexually transmitted infections in a tertiary care hospital: A five-year retrospective study. Gd Med J. 2019;1(2):84–7. [DOI]
9. Narayanan B. A retrospective study of the pattern of sexually transmitted diseases during a ten-year period. Indian J Dermatol Venereol Leprol. 2005;71(5):333–7. [PUBMED DOI]
10. Thapar R, Riyaz M, Kaur N. Prevalence and Pattern of Sexually Transmitted Diseases in a Tertiary Care Hospital in Chamba, Himachal Pradesh. Int J Contemp Med Res. 2018;5(5):E5–9. [DOI]
11. Devi SA, Vetrichevvel TP, Pise GA, Thappa DM. Pattern of sexually transmitted infections in a tertiary care centre at Puducherry. Indian J Dermatol. 2009;54(4):347–9. [PUBMED DOI]
12. Rajiv S, Hashba B. A Five Year Retrospective Study of Pattern of Sexually Transmitted Diseases in a Tertiary Care Hospital in North Kerala. Int J Contemp Med Res. 2017;4(3):614–7. [GOOGLE SCHOLAR]
13. Public Health England. Sexually transmitted infections and screening for chlamydia in England*, 2018*. Vol. 13, Health Protection Report; 2019. [cited 2020 July 15]. Available from: https://www.gov.uk/government/statistics/sexually-transmitted-infections-stis-annual-data-tables.