

## ORIGINAL RESEARCH

# To study the clinical and epidemiological characteristics of sexually transmitted infection in patients visiting a specialized hospital

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### ABSTRACT

**Aim:** To study the clinical and epidemiological characteristics of sexually transmitted infection in patients visiting a specialized hospital. **Material and methods:** The collected data included the age, gender, residence, marital status, and socio-economic standing of the patients. For all patients, clinical information such as presenting problems, duration of symptoms, comparable concerns in partners, and any previous treatments were recorded. The diagnosis was established using a combination of patient history, clinical examination, and pertinent laboratory tests. Gram stain and potassium hydroxide (KOH) mount were performed on all urethral and vaginal discharge samples according to the data. Serological procedures, such as HIV antibody testing using enzyme-linked immunosorbent assay (ELISA) and rapid plasma regain test (RPR), were conducted on all patients. After diagnosing the patients, they were sent to a STI counselor for counseling. A positive RPR test result was verified using a *Treponema pallidum* haemagglutination (TPHA) test. STIs were classified based on different causative agents. **Results:** Vulvovaginal candidiasis was the most common (non-viral) STI observed in 80(40%) patients in our study followed by genital warts 17(8.5%), molluscum contagiosum 16(8%), gonococcal urethritis 16(8%), herpes genitalis 15(7.5%), chancroid 14(7%), bacterial vaginosis 12(6%), non-gonococcal urethritis 9(4.5%), genital scabies 7(3.5%), LGV 6(3%) and non-gonococcal cervicitis 5(2.5%). **Conclusion:** Our research found that fungal sexually transmitted infections (STIs) and viral STIs like as genital warts, molluscum contagiosum, and genital herpes are increasing gradually, whereas bacterial STIs are decreasing. This pattern aligns with findings from previous studies nationwide.

**Keywords:** Sexually transmitted infections, Retrospective, Gonococcal urethritis, Herpes genitalis, Vaginal discharge

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### INTRODUCTION

Sexually transmitted infections include a variety of illnesses and disorders that are often spread via sexual contact. Each year, over 5% of the Indian population is affected by various sexually transmitted infections (STIs) excluding human immunodeficiency virus (HIV) infection[1]. STI trends and patterns differ between regions, particularly in big countries such as India. The National AIDS Control Organization's 2008-2009 figures show that the HIV prevalence rate in the general population of our nation is 0.29%, while the HIV prevalence in STI clinics is 2.5%[2-4]. Accurately determining the prevalence of sexually transmitted infections (STIs) is crucial for regions or countries to effectively design and execute STI control plans to prevent HIV transmission and the

spread of other STIs. STIs are more often encountered in everyday practice. This area is home to diverse industries, resulting in a higher proportion of migrant residents. Several regional studies have been conducted in other regions of India [5-9], but as far as we know, none have been conducted in this specific location. This research aimed to determine the prevalence and analyze the clinical and epidemiological characteristics and patterns of sexually transmitted infections in patients visiting the STI clinic of a specialized hospital.

### MATERIAL AND METHODS

Medical records from patients who visited the STI clinic at a tertiary care hospital were obtained and examined in a retrospective analysis. The collected

data included the age, gender, residence, marital status, and socio-economic standing of the patients. For all patients, clinical information such as presenting problems, duration of symptoms, comparable concerns in partners, and any previous treatments were recorded. The diagnosis was established using a combination of patient history, clinical examination, and pertinent laboratory tests. Gram stain and potassium hydroxide (KOH) mount were performed on all urethral and vaginal discharge samples according to the data. Serological procedures, such as HIV antibody testing using enzyme-linked immunosorbent assay (ELISA) and rapid plasma regain test (RPR), were conducted on all patients. After diagnosing the patients, they were sent to a STI counselor for counseling. A positive RPR test result was verified using a Treponema pallidum haemagglutination (TPHA) test. STIs were classified based on different causative agents.

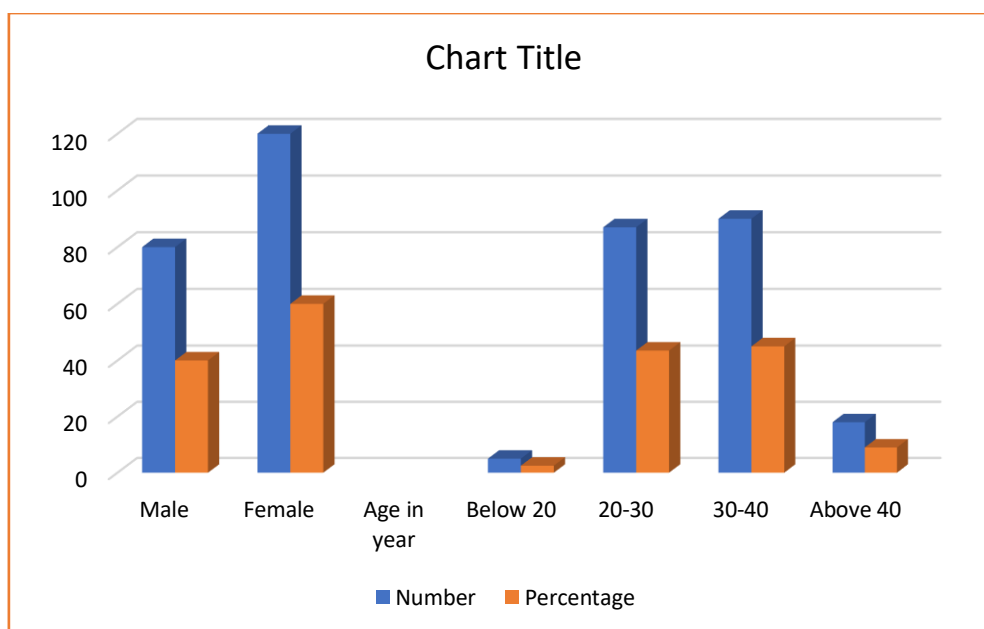
**RESULTS**

During the study period of one years, there were 1798 new clinic attendees. Of these 733 new clinic attendees, 200(27.29%) were diagnosed with STIs. The age of the patients ranged from 18 years to 61 years. Females 120(60%) outnumbered males 80(40%) forming a female to male ratio of 1.5: 1. Maximum of patients 90(45%) were in the age group of 30-40 years followed by 20-30 years age group 87(43.5%), >40 years age group 18(9%) and <20 years age group 5(2.5%)[Table 1].

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**Table 1: Gender and age of the participants**

Gender	Number	Percentage	P value
Male	80	40	0.11
Female	120	60	
Age in year			0.87
Below 20	5	2.5	
20-30	87	43.5	
30-40	90	45	
Above 40	18	9	
Mean Age	32.45±2.65		

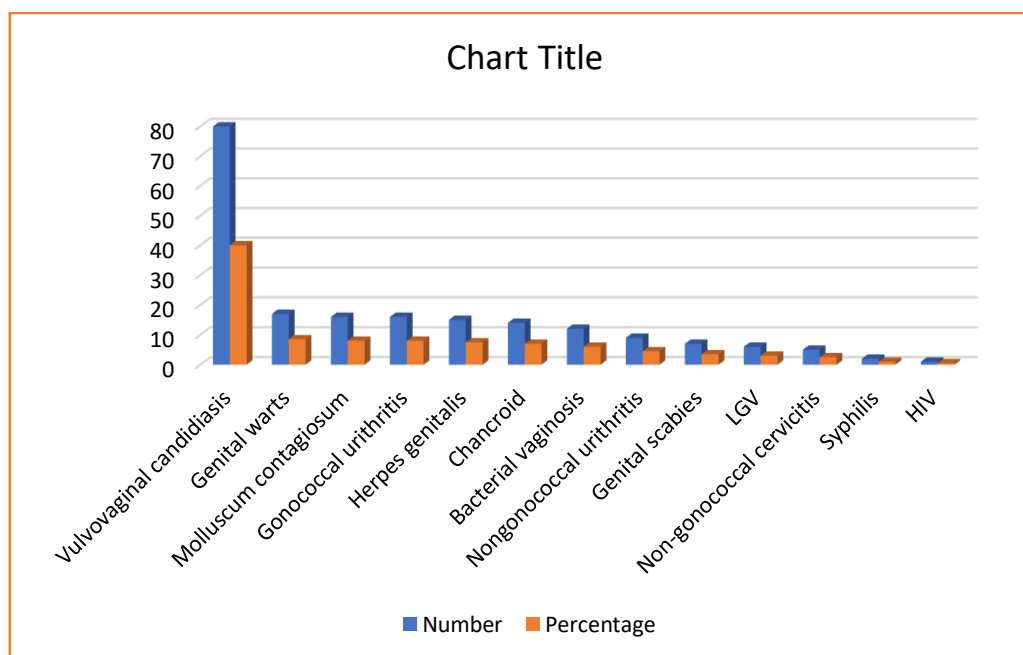


**Figure 1: Gender and age of the participants**

Vulvovaginal candidiasis was the most common (non-viral) STI observed in 80(40%) patients in our study followed by genital warts 17(8.5%), molluscum contagiosum 16(8%), gonococcal urithritis 16(8%), herpes genitalis 15(7.5%), chancroid 14(7%), bacterial vaginosis 12(6%), non-gonococcal urithritis 9(4.5%), genital scabies 7(3.5%), LGV 6(3%) and non-gonococcal cervicitis 5(2.5%) [Table 2].

**Table 2: Patterns of various STIs among patients attending STI Clinic.**

STIs	Number	Percentage
Vulvovaginal candidiasis	80	40
Genital warts	17	8.5
Molluscum contagiosum	16	8
Gonococcal urithritis	16	8
Herpes genitalis	15	7.5
Chancroid	14	7
Bacterial vaginosis	12	6
Nongonococcal urithritis	9	4.5
Genital scabies	7	3.5
LGV	6	3
Non-gonococcal cervicitis	5	2.5
Syphilis	2	1
HIV	1	0.5



**Figure 2: Patterns of various STIs among patients attending STI Clinic**

Among the study population, RPR test was found to be reactive in 4(2%) patients, out of which 3(1.5%) were males and 1(0.5%) were females. HIV seropositivity was seen in only 1(0.5%) male patient and none of female patients were observed to be HIV seropositive [Table 2]. We observed vulvovaginal candidiasis to be the commonest STI. Viral STIs like, genital warts, molluscum contagiosum and genital herpes were second commonest. Bacterial STIs and genital scabies (which is not included in syndromic management) was not uncommon. Counseling regarding risk involved in unprotected sexual contact, vulnerability to acquire HIV infection in presence of other STIs, need for partner treatment, use of condom was done by STI counselor. Partner management was done in 4(2%) cases.

**DISCUSSION**

Sexually transmitted infections are a medical issue

that carries substantial social stigma and has a profound effect on public health. Sexually transmitted infections (STIs) contribute significantly to infertility in both men and women, illness, financial burden on families, and heightened vulnerability to HIV infection. Timely diagnosis and proper treatment significantly reduce the spread of HIV/AIDS. New instances of sexually transmitted infections are decreasing gradually due to improved diagnosis and management services provided by active involvement from NACO. The predominant age group of patients in our research was between 30 and 40 years old, comprising 45% of the total. The vast majority of patients in this age bracket were females, making up 60% of the STI cases. This age group, which is sexually active, is more susceptible to acquiring STIs due to having a larger number of sexual partners, engaging in more concurrent engagements, and changing partners often compared to older age groups [5]. This is also the predominant age group observed to

be having STI in other Indian studies [6-9].

In our study, females 120(60%) outnumbered males 80(40%) forming a female to male ratio of 1.5: 1. which was similar to a study by Singh S et al. [10], Sharma A et al. [11], and Nyati A et al. [12], where the female patients predominately outnumbered the male patients. This might be due to increased referral to STI clinic from Gynaecological OPDs. This was in strike contradiction to the earlier studies where the majority of the patients were males [6-9].

Overall common non-viral STI was the vulvovaginal candidiasis observed in 80(40%) patients followed by viral and bacterial STIs. Although contradictory to the findings of most other studies where either viral or bacterial STI was common, this corroborates with the findings of Goel et al. [13], an Arakkal et al., study [14]. They also observed that the most common STI in male and female was candidal infection followed by viral STI like herpes genitalis and condylomata acuminata. Patel et al. [15], concluded that the current scenario has changed with fungal infections (54%) being the most common STI. Increasing trend of fungal infection was also recorded by Zamzachin G et al., [8].

Behavioral risk factors that have been significantly associated with a higher incidence of vaginal candidiasis include frequent sexual intercourse, receptive oral sex as well as the use of high estrogen oral contraceptives and spermicides. Host-related risk factors that have been significantly associated with candidiasis include antibiotic use, uncontrolled diabetes, conditions with high reproductive hormone levels, immunosuppression and genetic predisposition. Unless proved due to other medical causes such as diabetes, we considered candidal vaginal discharge to be a STI.

In developing countries, there is a constant increase in viral STIs. In our study second most STI was genital warts (8.5%) while molluscum contagiosum (8%) and herpes genitalis (7.5%) were ranked thereafter. This finding is comparable with Vora R et al., [16] study and Devi et al. [17], study. Viral infections are more commonly seen because of their persistence and recurrences. Among bacterial STIs, gonococcal urethritis (8%) was most common while nongonococcal cervicitis (4.5%), was least common as compared with 7% and 12% in studies by Saikia et al. [7], study and Jain VK et al. [18], respectively. Non gonococcal urethritis (NGU) was seen in 4.5% of cases which is comparable with Vora R et al. [16], study and Jain VK et al. [18], study. The decreasing trend of bacterial STIs could be explained as a consequence of 'Syndromic treatment' of STIs by peripheral health workers, increasing sexual health awareness and due to widespread use of broad-spectrum antibiotics.

RPR reactivity was observed in 2% of the STI clinic attendees, which is comparable to a study by Sarkar et al. [19], and contrary to the reports of Vora R et al. [16], and Mewada et al. [20], where the incidence

of VDRL reactivity was 19.41% and 53.3%, respectively. This clearly indicates that there is definitely a decline in the incidence of syphilis in recent times.

HIV infection was observed among 9.62% of patients with STI in a retrospective data analysis of north eastern India [21]. In the present study, HIV seropositivity among STI patients was 0.5% which is incomparable to the reports of Sarkar et al. [19], but is lower as compared with the national average 2.5% taking recent NACO estimates into account [4]. But there are wide variations in seropositivity for HIV among STI patients 2.48% in Vora R et al. [17], study, (8.21%) in Zamzachin et al. [8], study and 17.2% in Saikia et al. [7], study.

Changing trends of STI profile was depicted by Narayan et al., [22]. They compared STI profile between 1990 to 1993, 1994 to 1997, 1998 to 2001, and 2002 to 2004. This period from 1990 to 1993 was depicted as A, from 1994 to 1997 as B, 1998 to 2001 as C and from 2002 to 2004 as D. They observed that during period A, genital discharge whereas during periods B, C, and D, genital ulcerative disease, was predominant. A rising trend was seen in HIV seropositivity during different periods. However, during their study period bacterial STIs like chancroid and gonorrhoea showed a declining trend and viral STI such as genital herpes and genital warts showed an increasing trend. Although most common non-viral STI observed by us, was candidiasis but viral STIs showed a rising trend and bacterial STIs were found to be on declining trend. This finding corroborates with study by Narayan et al. [22], except vulvovaginal candidiasis which was less frequent in their study but more common in our study. This is probably attributed to the availability of broad-spectrum antimicrobial for bacterial STIs. HIV seropositivity in our study showed declining trend which is in contrast to the study by Narayan et al., [22].

## CONCLUSION

Our research found that fungal sexually transmitted infections (STIs) and viral STIs like as genital warts, molluscum contagiosum, and genital herpes are increasing gradually, whereas bacterial STIs are decreasing. This pattern aligns with findings from previous studies nationwide. There is a significant need to raise awareness and give training to healthcare practitioners on STIs, HIV transmission risks, promoting condom use, partner notification, and relationship management. Counseling for venereophobia is essential for the efficacy of STI control regimens.

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