

**Resurgence of Sexual Transmitted Diseases in a Tertiary Care Hospital of Northern Odisha, India**

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**Abstract:**

**Background:** The prevalence of Sexual transmitted diseases varies from region to region with change in socio cultural practices, demographic & health seeking behaviors. Now association of HIV not only facilitate the STD progression but also helps in spreading the disease in community. In addition to that lack of awareness, education & limited government funding in prevention contributing the burden of disease. Hence the present study was carried out to assess the current status & magnitude of the STDs in our area who attended the tertiary care hospital.

**Methods:** The current study is a cross-sectional record-based study of different types of STDs who attended the tertiary care hospital. Relevant data of total 1665 patients were collected from 2018 to 2022. Socio demographic details, clinical examination findings & laboratory investigations reports were also collected.

**Results:** There was over all surge of STDs from 2018 to 2022. Most of the patients belong to rural background (59.5%) with age group 21-30(35.3%). Among 1665 patients of STD, majority of patients were herpes genitalis (74.2%) followed by genital wart (14.3%).

**Conclusion:** There was over all surge of STD patients in recent years. Findings from this study will be helpful for evaluating the actual burden of disease in community, prevention of morbidities & development of future strategic planning cum guidelines.

**Keywords:** Resurgence, sexual transmitted diseases, Northern Odisha, cross-sectional study, Tertiary Hospital.

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**Introduction**

Sexually transmitted infections (STIs), previously known as venereal disease are steadily rising all over the world since year 2000. The term “venereal” is derived from roman goddess of love “Venus”. According to world health organization (WHO), 374 million cases are newly diagnosed with STI each year, among them most are teenager and chlamydia is the most common STI. [1] The epidemiological profile of STI varies from country to country and from one region to another with change in socio-cultural, demographic and health factor. The clinical pattern of the disease depends on the interaction between host and pathogen. After the breakout of HIV pandemic in 1981-1990, the approach to all STI management have changed significantly. Presence of HIV virus in a sexual partner not only facilitate STI acquisition but also helps its spread from one to another partner.

Moreover, the reversal is also true. Hence partner notification is an important step in management of STI, which also helps in preventing STI spread in community. [2] However, most of the new cases of STI can be attributed to changing ways of finding sexual partners due to widespread use of social media and dating application particularly in younger population.

Apart from that lack of education, socio-cultural practice and lack of awareness of the disease also contribute to the disease progression. In recent years different parts of our country has registered increase in cases of STI, but no such study has been done in our area. The aim of this study was to ascertain the recent trend of STI and to investigate various aspect of clinic-demographic feature of the diseases in our area.

## Material & Methods

The present study is a record based cross-sectional descriptive study of 1665 patients of sexual transmitted diseases (STD) who attended the tertiary care center. Available history & demographic data of patients attending the Pandit Raghunath Murmu Medical College and Hospital, Baripada a tertiary care center of Northern Odisha was collected from the available registered & files. The study was started after receiving approval from the institutional ethics committee. Total of 1665 patients were taken in the study between January 2018 & December 2022 using following criteria.

**Inclusion Criteria:** Patients diagnosed with different types of sexual transmitted diseases STDs between January 1, 2018, and December 31, 2022, with complete records were included in the study.

**Exclusion Criteria:** Patients with incomplete record were excluded from the study.

**Study Tools:** Data were extracted from available records using a case data extraction sheet. To study the surge of different STDs in tertiary care hospital, patients were divided year wise from 2018 - 2022. Patients' complete history and socio demographic information such as age, gender, area of residence, occupation, marital status, education & clinical parameters such as types of lesions, systemic involvement and co morbidities such as DM, HTN, pulmonary TB, Alcoholic liver disease (ALD) and oral candidiasis were extracted from records. Data of laboratory investigations such as complete blood

count, liver function test, renal function test, gram stain, pus culture and sensitivity, erythrocyte sedimentation rate, RPR, VDRL, HIV, HBsAg, HCV, TPHA, biopsy and HSV antibodies were recorded from available records & files.

**Data Collection Method:** Data of 1665 STDs patients were extracted from different registers of department of dermatology from January 1, 2018, and December 31, 2022, using data abstraction form. This study included detailed history of patients, their socio demographic information, clinico dermatological findings and laboratory reports of all STDs patients. In addition to this, data regarding systemic involvement and co morbidities such as DM, HTN, pulmonary TB, ALD and oral candidiasis were also included in the study.

**Analysis of Data:** After data collection, the data obtained were cleaned, compiled and tabulated year wise from 2018 to 2022. Data were analyzed with the help of IBM SPSS Statistics, version 21.0 (Developed by IBM corps, Armonk New York). Descriptive data were presented with frequency & percentage.

## Results

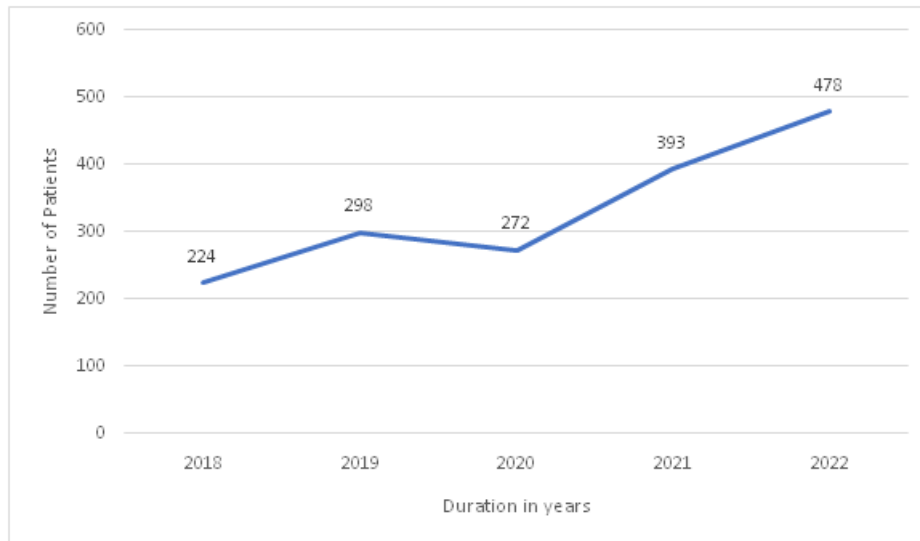
Total of 1665 number of sexual transmitted diseases (STD) patients' data were collected from year 2018 to 2022, from register of PRM, medical college Hospital, Baripada.

The demographic characteristics of all 1665 STD patients attending the facility are depicted in Table 1.

**Table 1: Showing the gender details of Patients (N=1665)**

Study period	2018	2019	2020	2021	2022
Number of patients	224	298	272	393	478
Male	132	156	150	225	280
Female	92	142	120	168	195
Transgender	0	0	2	0	3

Among 1665 STD patients, males, female and transgender were 943(56.6%), 717(43.0%), 5(0.3%) respectively. Male outnumbered female 1.3:1.



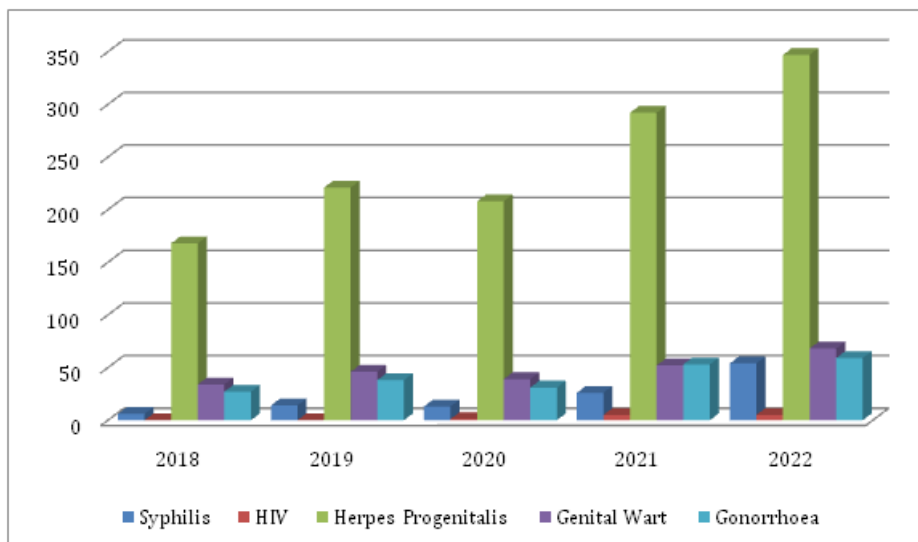
**Figure 1: Trend of STD patients from year 2018 to 2022**

Line diagram showing increasing number of STD cases in all genders over the years from 2018-2022.

**Table 2: Showing different types of STD patients 2018-2022**

Years disease	2018	2019	2020	2021	2022
Syphilis	6	14	13	26	54
HIV	0	0	1	5	5
Herpes Progenitalis	168	221	208	292	347
Genital Wart	34	46	39	52	68
Gonorrhoea	27	38	31	53	59
Total patients year wise	224	298	272	393	478

Among all STDs, herpes progenitalis was the commonest one affecting 1236 (74.2%) patients, followed by Genital Wart 239 (14.3%) & Gonorrhoea 208 (12.5%). \*Here total no of patients in each year not the sum of individual STDs as one patient may have more than one STD.



**Figure 2: Different sexual transmitted diseases (STD) patients from year 2018 to 2022**

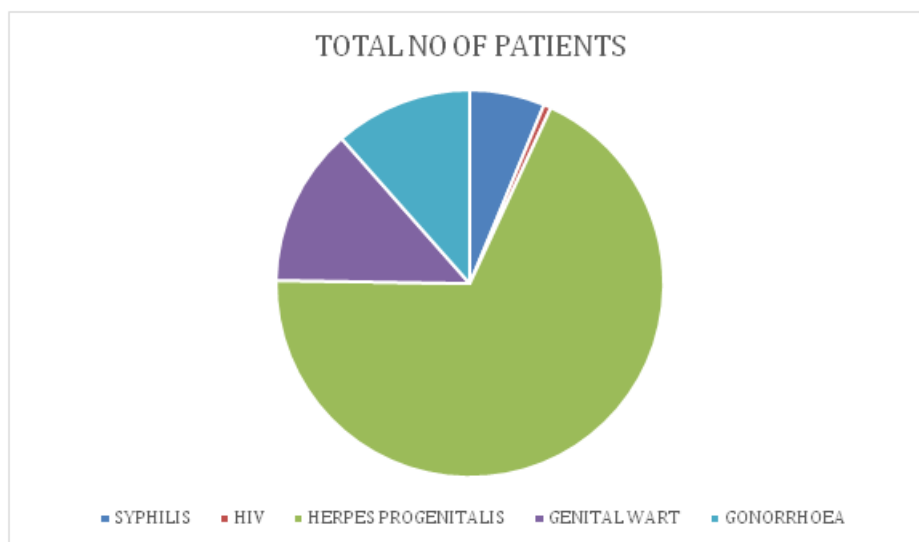


Figure 3: Total pool of different type sexual transmitted diseases (STD) patients.

Table 3: Age distribution of STD patients (n=1665)

Age group	2018	2019	2020	2021	2022
≤ 20	45	60	55	79	95
21- 30	80	98	93	134	183
31-40	55	85	76	99	105
≥41	44	55	48	81	95
Total	224	298	272	393	478

Most of the STD patients belong to age group 21-30 (35.3%), Mean age 28.6 year as shown in Table 3.

Table 4: Area wise distribution of STD patients (n=1665)

Area	2018	2019	2020	2021	2022
Rural	156	162	159	225	289
Urban	68	136	113	168	189
Total	224	298	272	393	478

Majority of the patients belong to rural area 991 (59.5%) as shown in Table 4.

Table 5: Educational Status of STD patients (n=1665)

Year	2018	2019	2020	2021	2022
Illiterate	42	78	56	89	110
Primary education	90	86	81	76	78
Secondary education	55	96	93	125	148
Higher education	37	38	42	103	142

Most the patients had received secondary education 517 (31.1%) followed 362 (21.7%) patients who had received higher education as shown in Table 5.

Table 6: Distribution of occupation of STD patients (n=1665)

Type of profession	2018	2019	2020	2021	2022
Farmer	41	55	45	78	85
Independent profession	47	65	56	89	98
Business	35	50	46	56	67
Labourer/Unskilled worker	57	73	67	98	115
Unemployed	34	50	45	40	80
None	10	5	13	32	33

Most of the patients were labourer by occupation 410 (26.6%) followed by independent profession 355 (21.3%) and farmer 304 (18.2%) as shown in Table 6.

Table 7: Marital Status of STD patients (n=1665)

Marital status	2018	2019	2020	2021	2022
Married	114	178	140	210	245
Unmarried	89	110	89	160	178
Widow	15	6	23	13	30
Separated	6	4	20	10	25

When the marital status was assessed 887 (53.27%) patients found to be married. Data shown in Table 7.

**Table 8: Systemic involvement in STD patients (n=1665)**

Systemic findings	2018	2019	2020	2021	2022
Pneumonitis	8	16	15	35	23
Lymphadenopathy	10	23	17	46	43
Myalgia	23	28	19	36	32
Hepatitis	4	3	5	7	4
Orchitis	0	1	2	0	2

Lymphadenopathy was the most common systemic involvement found among STD patients 139 (34.5%) followed by myalgia 138 (34.3%) and pneumonitis 97(5.8%) respectively, as shown in Table 8.

**Table 9: Co-morbidities observed among STD patients (n=1665)**

Co-morbidities	2018	2019	2020	2021	2022
Diabetes	4	8	8	15	28
Hypertension	6	9	4	13	14
Pulmonary TB	3	2	5	10	8
Alcoholic liver disease	8	13	16	26	34
Oral candidiasis	7	5	3	18	26

Among the Co-morbidities alcoholic liver disease was the most common 97 (33.1%), followed by oral candidiasis 59 (20.1%) and hypertension 46 (15.6%) as shown in Table 9.

## Discussions

Sexually transmitted diseases (STIs) have a significant impact on sexual and reproductive health globally. More than 1 million STIs are acquired every day. In 2020, WHO estimated 374 million new cases of STI [3]. The common STIs are chlamydia, gonorrhea, syphilis, and trichomoniasis. In our country, India, the prevalence of these four curable STIs among general populations is between 0 and 3.9 percent [4]. Sexually transmitted infections are usually viewed as shameful diseases, and affected individuals are stigmatized and often socially condemned. The overall number of reported STDs has been on the rise all over the world since 2014, with infections disproportionately affecting young people under the age of 25. This current study shows various associations that might have caused an increase in STD cases in this part of the country, which has a predominantly rural background with a migratory population.

In our study, there was an overall rise in STD cases from 2018 to 2022, except for 2020. This rising trend was evident in all STDs, of which herpes genitalis is the most common, contributing 2/3rd of all cases, followed by genital warts and gonorrhea, which had shares of 15% and 13% of total STD cases, respectively. This might be due to the asymptomatic nature of genital herpes infection, which helps its chronicity and easy transmission from one partner to another. Rising cases of other STDs like syphilis and HIV may be attributed to a lack of awareness about the disease, the absence of safe sexual practices, migration, and socio-cultural issues, as the majority of patients were from tribal communities. This finding is in contrast to other studies where chlamydia infection is the most common. It may be due to the early treatment of patients with antibiotics by health care workers under the NHSRC (National Health Systems

Resource Centre) using a syndromic approach [5]. In year 2021 & 2022 sharp rise of STD cases occurred which was 44.5% & 21.6% higher than the preceding year respectively. This could be due to less reporting of STD cases, reduced public health expenditure to contain the spread of sexual transmitted disease as the same was diverted towards COVID-19 pandemic [6]. Male outnumbered in most of the studies i.e. Gani et al. & Giannouchos TV et al which is in accordance with our study [7, 8]. This could be due to lack of personal hygiene, social stigma and less vocal about sexual health in female patients mostly from tribal community.

This study confirms highest prevalence of STI is in older adolescents (20-30) years living in rural background followed by in high-risk group (<20 years). This finding is similar to studies done by Monteiro IP et al & Shannon CL et al., higher prevalence of STD cases possibly explained by no access to Sexual & Reproductive health (SRH) information by WHO among the low educated rural adolescents living in poor households [9, 10]. Cultural norms also forced the guardians to feel embarrassed or ashamed to discuss such topics with their adolescent children. Hence, limited access to reliable and complete SRH information making them vulnerable to contract various STDs in their prime years [11].

Educational status was assessed in many studies. Studies by Slurink IA et al and Willemstein IJM et al shows lack of higher education, consent and awareness play a contributing factor for spread of various STDs [12, 13]. Lack of higher education can be associated with higher levels of stigma and discrimination around sexual health issues. This may prevent individuals from seeking help, getting tested, or discussing sexual health openly, leading to the spread of STDs. This observation reflected in our

study where only 21.7 % had received higher education. Among the STD patients 24.6% were laborer, 14.9% unemployed & 15.2% were doing business similar to study carried out by Muñoz-Laboy M et al & Adegun et al. [14, 15] Migration & use of social media & dating applications particularly in young unemployed population seems to be supporting these occupational findings. These findings suggest that the increased mobility and connectivity facilitated by migration and social media may be contributing to the spread of STDs among young, unemployed individuals. Additionally, there is a need for targeted education and outreach programs to address the specific risk factors associated with these populations.

It is noteworthy that 42% of married patients had extramarital sexual affairs as assessed by Jain A et al, our results were no different (53.2%) [16]. such an observation attributed to high-risk polygamous sexual behaviors in tribal community. Fear of judgment and social consequences can prevent people from getting tested and treated for STDs, leading to the reemergence of these infections in the community.

Lymphadenopathy was most common systemic involvement (5.8%) found in our study; it is due co-existence with other bacterial STD as well as HIV infections whereas Lymphadenopathy was found in 83% & 50% in studies by Jain A et al & Shah BJ et al respectively [16, 17]. Among other complications myalgia and orchitis was found in 34.3% and 1.2% respectively in untreated gonorrhea patients. 32.4% of patients reported hepatitis mostly due to intake of anti-retroviral (ART) medication. Additionally, culturally sensitive approaches should be implemented to overcome the barriers of stigma and discrimination that hinder access to testing and treatment services in tribal communities.

**Limitations of the Study:** It was a descriptive record based cross sectional study in a tertiary care hospital with limited access. This was a single center study with lack of complete information. Multicentric studies at community level should be conducted to reveal the actual burden of the disease.

### Conclusion

There was over all surge of STD cases from 2018 to 2022 attending a tertiary care hospital in northern Odisha. Most of the patients belong to rural background (59.5%) with age group 21-30(35.3%). Among all the STD patients, majority of the patients were herpes progenitalis (74.2%) followed by genital wart (14.3%). The rationality behind the surge of STD patients should be investigated for factors like lack of public awareness, health seeking behaviors, limited resources for these neglected diseases and lack of training among community health workers. Data from this study will be helpful for evaluating the actual burden of the disease in the community and prevention of morbidities, socio economic crisis and

development of future strategic planning cum guidelines.

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