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INFECTIONS CLINIC IN SOUTH-WEST NIGERIA**

## **PATTERN OF CLINICAL PRESENTATIONS AT A SEXUALLY TRANSMITTED INFECTIONS CLINIC IN SOUTH-WEST NIGERIA**

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### **ABSTRACT**

**Introduction:** Sexually transmitted infections are crucial in public health, they impact sexual and reproductive health in all age groups, especially the reproductive age group. Identifying the common clinical presentations is essential and this was the objective of this study.

**Methods:** This was a retrospective cross-sectional study. Ethical approval was sought and obtained. Data were obtained from the clinical and relevant laboratory records of 190 patients managed at the Sexually Transmitted Infections Clinic of UNIOSUN Teaching Hospital. The data gathered covered a period spread over 20 years. Analysis was done using the IBM Statistical Product and Service Solutions (IBM®SPSS®Statistics) version 25.0. Association between categorical variables was carried out using the Chi-square and Fisher exact tests.

**Results:** The majority of the patients (n=160, 84.2%) were females and young adults (n=155, 76.3%). The age range was between 14 and 82 years with a mean age of 31.91±9.2 years. The majority of females (n=85, 44.7%) had candidiasis, with or without other infections, while a diagnosis of

pelvic inflammatory disease (PID) was made in 39 (20.5%) of the women. Fifteen patients (7.9%) had gonorrhoea while 5 (2.6%) had syphilis. Other common cases seen were non-specific vaginitis (20.5%), perineal warts (7.3%), and herpes infection (3.7%). About 93.2% of the patients had favourable outcomes on follow-up visits.

**Conclusion:** Women and young adults are likely to present more at the Sexually Transmitted Infections Clinics in our Hospital. The commonest diagnoses are candidiasis, pelvic inflammatory disease and non-specific vaginitis.

**Keywords:** sexually transmitted diseases; sexually transmitted infections; special treatment clinics; candidiasis

### **INTRODUCTION**

Sexually transmitted infections (STIs) and sexually transmitted diseases (STDs) are among the top five types of diseases for which adults worldwide most commonly seek medical attention. STIs directly impact sexual and reproductive health through infertility, pregnancy complications, cancers and stigmatization; these diseases also

increase the risk of infection and transmission of the Human immunodeficiency virus (HIV).<sup>1</sup>

STDs denote a diverse group of infectious diseases with a wide variety of bacterial and viral pathogens presenting wide-ranging clinical manifestations. They are spread primarily through intimate person-to-person sexual contact, including vaginal, oral and anal intercourse. Those who have STIs are infected with the pathogen but may be asymptomatic and could infect others, while those with STDs present with the clinical manifestations of the disease.

More than one million STIs are acquired daily worldwide, most of which are asymptomatic and an estimated 374 million new infections with one of the four STIs: chlamydia, gonorrhoea, syphilis and trichomoniasis are said to occur yearly. STDs account for several billions annually in healthcare costs globally.<sup>1,2</sup>

An important principle of STI care is the timely management of infections, with assurances of confidentiality and specialized care, mostly at designated special treatment clinics. However, factors such as poor funding, inadequate manpower, illiteracy, poverty, easy access to over-the-counter antibiotics and lack of awareness of the availability of specialized treatment clinics have all been responsible for lower patronage of these clinics.<sup>1,2</sup>

Also, STDs are now being diagnosed and managed in various healthcare settings; thus, most reported cases are from providers in non-STD clinics, such as private physician offices and community health centres while some patients fall into the hands of quacks and are ultimately mismanaged, thus increasing their chances of ending up with preventable sequelae.<sup>1,2</sup>

In low-income and middle-income countries (LMICs), there are often limited resources and testing capabilities for most of these infectious diseases. Thus, the World Health Organization (WHO) and Center for Disease Control and Prevention (CDC) developed a syndromic approach to diagnose and treat

patients presenting with consistently recognized signs and symptoms of an STI.<sup>2-5</sup> The syndromic approach is not without its shortcomings but has been a very useful tool in the management of patients in our local clinics.

Data on the prevalence of STI/STD is sparse in Nigeria and Africa, but there are indications from local studies done to suggest a widespread of these infections, some with late presentations and sequelae.<sup>6-8</sup> It is however important to have baseline information on the epidemiology of STIs to facilitate the design, implementation and monitoring of targeted intervention programmes in the management of these patients.

We aimed to study the pattern of clinical presentations over the years at our local Specialized Treatment Clinic where patients with STDs/STIs are seen.

## METHODS

### *Study Area*

The study was conducted at the Specialized Treatment Clinic (STC) at the UNIOSUN Teaching Hospital, Osogbo, Nigeria. This clinic is jointly run by the Departments of Medical Microbiology and Parasitology and Community Medicine. The hospital is a tertiary health institution situated at the core of Osogbo city, where it delivers qualitative health care services to the people of the city and its environs. Until recently, the STC clinic experienced low patronage partly due to industrial actions by healthcare workers, availability of substitute points of care and lack of awareness on the part of the populace to the existence of the clinic. However, most of these factors are being addressed.

### *Study Design*

This was a retrospective cross-sectional study using data collected from the patients' clinical notes.

### *Study Population*

Data from the clinical and relevant laboratory records of patients seen at the STC, spreading over a period between June



2002 and March 2022, were used in the study. Most of the patients presented to the clinic on account of genital discharge, itching, ulcer or swelling. Some also presented on account of dysuria or dyspareunia with other constitutional symptoms. They had genital examinations performed; urethral, vaginal and endocervical swabs were taken when necessary for microscopy, culture and susceptibility testing. Blood for VDRL and serology was also obtained from the patients when required. The samples collected were processed in the hospital laboratory using standard methods.

#### **Data Collection**

The Clinical and relevant laboratory data were sorted according to the year of presentation, organized and entered directly into an excel spreadsheet. The information extracted from the case notes included biodata, date of presentation, presenting complaints, diagnosis, treatment and outcome on follow-up. The patients with lost data or incomplete data entry were excluded from the study. The records of data for about five years; 2009-2012 and 2016 were unavailable and thus excluded from the final data analysis.

#### **Data Analysis**

Data collected were entered into a Microsoft Excel spreadsheet, cleaned and analysed with the IBM Statistical Product and Service Solutions (IBM®SPSS®Statistics) version 25. Categorical variables were presented as proportions and percentages. Numeric data were presented using mean and standard deviation. Association between categorical variables was tested using the Chi-square and Fisher's exact test when frequencies in a cell were less than 5. The confidence level was set at 95%, and the level of significance was set at  $p < 0.05$ .

## **RESULTS**

Data of a total of 190 patients' were available for this study. The majority of the patients, (n=160, 84.2%) were females. The

age range was between 14 and 82 years with a mean age of  $31.91 \pm 9.2$  years (Table 1). The majority of the patients seen comprised young adults aged between 20-29 years (n=84, 42.6%) and 30-39 years (n=61, 33.7%). A number of the women, (n=85, 44.7%) had candidiasis, while a diagnosis of pelvic inflammatory disease (PID) was made in 39 women (20.5%), and 15 patients (7.9%) were managed for gonorrhoea while 5 (2.6%) patients had syphilis (Table 2).

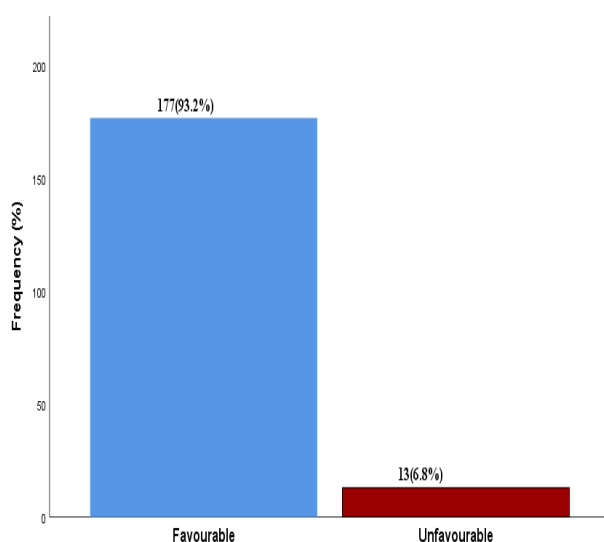
**Table 1: Patients' Age Group and Gender**

Variable	Frequency (n=190)	Percentage
<b>Age group (Years)</b>		
<20	7	3.7
20-29	81	42.6
30-39	64	33.7
40-49	31	16.3
≥50	7	3.7
Mean (±SD)	31.91 (±9.2)	
<b>Gender</b>		
Male	30	15.8
Female	160	84.2

**Table 2: Diagnoses among Patients**

Variable	Frequency (n=190)	Percentage*
Candidiasis	85	44.7
Gonorrhoea	15	7.9
PID	39	20.5
Non-specific vaginitis/vaginitis	39	20.5
UTI	12	6.3
Genital warts	14	7.3
Genital herpes infection	7	3.7
Syphilis infection	5	2.6
HIV Infection	3	1.6
Others	3	1.6

\*Some patients presented with multiple infections



**Figure 1: Patients' Outcome on Clinic Visit for Follow-up in 1-2 Weeks**

Some other common cases seen were vaginitis (n=39, 20.5%), genital warts (n=14, 7.3%), urinary tract infections (UTI) (n=12, 6.3%) and herpes infection (n=7, 3.7%). Three (1.6%) of the patients were seropositive for the Human Immunodeficiency Virus. Other STIs accounted for 1.6% of the cases seen (Table 2). Most (n=177, 93.2%) of the patients were treated successfully and discharged while 6.8% of them were referred for other specialist care such as surgical or gynaecological care on account of complications or sequelae of the diseases (Figure 1).

## DISCUSSION

In this study, we described the pattern of clinical presentations of patients managed at the Special Treatment Clinic (STC) which caters for people with sexually transmitted infections at our centre. Data from 190 patients were analyzed. There were 160 females representing a majority of the total study group; this follows a known pattern of presentations in STC from many centres.<sup>6,8</sup> The highest number of patients seen comprised young adults aged between 20-29 years (42.6%) and 30-39 years (33.7%). This is not unexpected as these age groups are usually sexually active and tend to change

sexual partners more frequently than other age groups.<sup>9-12</sup> They could also be easily influenced by peer pressure, and all together would account for a higher prevalence of STDs among these age groups as reported in studies in Nigeria, from across Africa, and globally.<sup>9-12</sup>

The most common diagnosis made in women was vaginal candidiasis, which was seen in 44.7% of the patients. *Candida* species are normal flora of the lower genital tracts, thus vaginal candidiasis is not classified as a sexually transmitted but a sexually related infection, occurring commonly in sexually active women as a result of the change in vagina ecosystem and pH.<sup>13,14</sup> It is one of the leading causes of women's presentation at the STC and Gynecologic clinics after bacterial vaginosis.<sup>6,15,16</sup> A few of the patients involved in this study also presented with a sexually transmitted co-infection alongside vaginal candidiasis. This is not unexpected, as candidiasis often presents with other STIs, both occurring on the same background of distortion to the normal vaginal milieu.<sup>14</sup>

The commonest sexually transmitted diseases diagnosed based on our study were pelvic inflammatory disease (PID) (20.5%) and non-specific vaginitis/vaginosis (20.5%). Diagnosis in most of these patients was made clinically as they were culture-negative for the established causes of PID and vaginitis or vaginosis. There is a similar report on the prevalence of vaginosis from Ibadan, also in Southwest Nigeria with a prevalence of 24.9% for non-specific vaginosis among commercial sex workers.<sup>17</sup> A study from Northcentral Nigeria also found a high prevalence of vaginosis among their study subjects.<sup>18</sup> The syndromic approach was largely used in the clinical management of these cases with good clinical outcomes.

A diagnosis of gonorrhoea was made in about 7.9% of the patients. This is similar to a prevalence of 7% from a study conducted in Northcentral Nigeria,<sup>18</sup> while a lower prevalence of 3.4% was found among patients in another study from Southwest Nigeria.<sup>12</sup> The World Health Organization

(WHO) estimated the pooled 2016 global prevalence of urogenital gonorrhoea to be 0.9% in women and 0.7% in men,<sup>19</sup> the incidence rate which is a measure of new infections or diagnoses in a specific period was 20 per 1000 women and 26 per 1000 men globally over the same period translating into 86.9 million new cases. WHO African region had the highest incidence rate, with as high as 8.2% in East Africa and 4.6% in South Africa,<sup>19</sup> however, no specific prevalence rate was available for Nigeria in this estimate. These prevalence and incidence rates suggest gonorrhoea is still very much a big public health concern, but poorly reported, underdiagnosed or misdiagnosed, and mostly mismanaged especially in our local environment. These all go with possible sequelae such as urethral stricture, pelvic inflammatory disease, and infertility. The rise in cases of multi-resistant *Neisseria gonorrhoea* is likewise a disturbing trend.<sup>19</sup>

A few of the patients (2.6%) were diagnosed with syphilis. In most populations across the globe, the prevalence of syphilis dropped drastically due to the discovery of penicillin, however, the prevalence is higher in sub-Saharan Africa than in other world regions as exemplified by pregnant women who undergo routine antenatal screening for syphilis.<sup>20,21</sup> In a study involving a multivariate analysis of pre-penicillin and post-penicillin periods across the globe, antenatal syphilis prevalence was only associated with residence in sub-Saharan Africa.<sup>20</sup> In 2019, according to WHO, 1% or more of antenatal care attendees in 38 of 78 reporting countries tested positive for syphilis. In these 78 reporting countries, an average of 3.2% of antenatal care attendees tested positive for syphilis, the majority in African countries.<sup>21</sup> There is also a strong correlation between syphilis prevalence and those of Herpes Simplex Virus-2 and HIV prevalences, suggesting that common risk factors may be responsible for the spread of all three of these sexually transmitted diseases.<sup>20</sup> This, in fact, was similar to findings from our study as a number of the patients whose records were studied

presented with sexually transmitted diseases of viral origin. About 7.3% of the patients had genital warts from the Human papillomavirus while 3.7% also presented with genital herpes. However, there were only 3 (1.6%) patients with a record of Human Immunodeficiency Virus infection at our clinic. This is relatable to the overall prevalence rate of HIV in the country which has been on the decline over the years and is currently 1.4%, with an even lower prevalence in Osun State (0.9%).<sup>23</sup> However, not all our patients had HIV screening results documented as there is a separate clinic for people living with HIV within the hospital.

## CONCLUSION

Sexually transmitted infections and diseases are still high on the list of public health diseases for which patients seek treatment. More efforts need to be made towards driving strategies aimed at public health education on sexually transmitted diseases.

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**Conflict of Interest:** All authors – none to declare.

**Ethical Approval:** Ethical approval was sought and obtained from the Research Ethics Committee of Ladoke Akintola University of Technology Teaching Hospital Osogbo, Osun State. Approval number: UTH/REC/2022/09/625.

**Authors' Contributions:** OOO conceived and designed the study, ARO conducted research, ATA and CAA provided research materials, BJA and AEO collected and organized data. AOO interpreted data. ARO wrote the initial and final draft of the article and provided logistic support. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

## REFERENCES

- World Health Organization. *Sexually transmitted infections (STIs)*. Available at: [https://www.who.int/en/news-room/fact-sheets/detail/sexually-transmitted-infections-\(stis\)](https://www.who.int/en/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis)) (Accessed August 2, 2022)
- Barrow RY, Ahmed F, Bolan GA, Workowski KA. Recommendations for Providing Quality Sexually Transmitted Diseases Clinical Services, 2020. *MMWR Recommendations and Reports* 2020; 68:1
- Center for Disease Control and Prevention. *STI Treatment Guidelines*. Available at: <https://www.cdc.gov/std/treatment-guidelines/default.htm> (Accessed September 7, 2022)
- Pan American Health Organization/World Health Organization. *Syndromic Management of Sexually Transmitted Infections*. Available at: <https://www.paho.org/en/topics/sexually-transmitted-infections/syndromic-management-sexually-transmitted-infections> (Accessed September 7, 2022)
- Zemouri C, Wi TE, Kiarie J, Seuc A, Mogasale V, Latif A, et al. The performance of the vaginal discharge syndromic management in treating vaginal and cervical infection: a systematic review and meta-analysis. *PLoS One*. 2016; 11:e0163365
- Nwadike VU, Olusanya O, Anaedobe GC, Kalu I, Ojide KC. Patterns of sexually transmitted infections in patients presenting in special treatment clinic in Ibadan south western Nigeria. *Pan Afr Med J*. 2015; 21:222
- Omatola CA, Iyeh SD, Abuh SJ, Mofolorunsho CK, Okolo MLO, Akoh PQ. High rate of sexually transmitted infections (STIs) among asymptomatic pregnant women in a resource-poor setting in the middle belt zone of Nigeria. *Hosts and Viruses*. 2020; 7(1):10-19
- Asemota OO. Trichomoniasis in Nigeria: A review. *Biomed Res*. 2018; 29(12):2532-2539
- Newman L, Rowley J, Vander Hoorn S, Wijesooriya NS, Unemo M, Low N, et al. Global Estimates of the Prevalence and Incidence of Four Curable Sexually Transmitted Infections in 2012 Based on Systematic Review and Global Reporting. *PLoS One*. 2015; 10(12):e0143304
- Torrone EA, Morrison CS, Chen PL, Kwok C, Francis SC, Hayes RJ, et al. Prevalence of sexually transmitted infections and bacterial vaginosis among women in sub-Saharan Africa: An individual participant data meta-analysis of 18 HIV prevention studies. *PLoS Med*. 2018; 15:e1002511
- Kreisel KM, Spicknall IH, Gargano JW, Lewis FMT, Lewis RM, Markowitz LE, et al. Sexually Transmitted Infections Among US Women and Men: Prevalence and Incidence Estimates, 2018. *Sex Transm Dis*. 2021; 48(4):208-214
- Nwadike VU, Olusanya O, Anaedobe GC, Kalu I, Ojide KC. Patterns of sexually transmitted infections in patients presenting in special treatment clinic in Ibadan south western Nigeria. *Pan Afr Med J*. 2015; 21:222
- Chayachinda C, Rekhawasin T, Thamkhantho M, Aneklap P. Acute Vaginal Candidiasis: A review of treatment guidelines and Siriraj experience. *Thai J Obst Gynae*. 2021; 29:306-12
- Vieira-Baptista P, Bornstein J. Candidiasis, Bacterial Vaginosis, Trichomoniasis and Other Vaginal Conditions Affecting the Vulva. In: *Vulvar Disease: Breaking the Myths*. 2019:167-205
- Chirenje ZM, Dhibi N, Handsfield HH, Gonese E, Tippet Barr B, Gwanzura L, et al. The etiology of

- vaginal discharge syndrome in Zimbabwe: results from the Zimbabwe STI etiology study. *Sex Transm Dis.* 2018; 45:422–8
16. Dunaiski CM, Kock MM, Jung H, Peters RPH. Importance of Candida infection and fluconazole resistance in women with vaginal discharge syndrome in Namibia. *Antimicrobial Resis Inf Contr.* 2022; 11:1–8
17. Bakare RA, Oni AA, Umar US, Adewole IF, Shokunbi WA, Fayemiwo SA, et al. Pattern of sexually transmitted diseases among commercial sex workers (CSWs) in Ibadan, Nigeria. *Afr J Med Med Sci.* 2002; 31:243–7
18. Raimi MO, Owobi OE. Assessment of the Rate of Sexually Transmitted Diseases in Kubwa F.C.T. Abuja, Nigeria. *Sci J Pub Health.* 2017; 5(5):365-376
19. Kirkcaldy RD, Weston E, Segurado AC, Hughes G, Kirkcaldy RD, Weston E, et al. Epidemiology of gonorrhoea: a global perspective. *Sex Health.* 2019; 16:401–11
20. Kenyon CR, Osbak K, Tsoumanis A. The Global Epidemiology of Syphilis in the Past Century - A Systematic Review Based on Antenatal Syphilis Prevalence. *PLoS Negl Trop Dis.* 2016; 10(5):e0004711
21. World Health Organization. Data on syphilis. <https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/data-on-syphilis> (Accessed October 8, 2022)
22. Awofala AA, Ogundele OE. HIV epidemiology in Nigeria. *Saudi J Biol Sci.* 2018; 25:697–703
23. NACA Nigeria. Nigeria Prevalence Rate. <https://naca.gov.ng/nigeria-prevalence-rate/> (Accessed October 10, 2022)