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Original Article

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Prevalence and Profile of Adolescents with Sexually Transmitted Infections at the Dermatology and Venereology Polyclinic of Ngoerah Hospital, Bali, Indonesia

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ABSTRACT

Background: Sexually Transmitted Infections (STIs) have been considered a public health threat in all countries, both in developed and developing countries. STIs have a direct impact on sexual and reproductive health through stigmatization, infertility, cancer, and pregnancy complications that can increase the risk of HIV. **Purpose:** This study aims to identify cases of adolescent patients with STIs at Ngoerah Hospital, Denpasar, Bali in the period 2021 to 2023. **Methods:** This study uses a descriptive observational study with a cross-sectional design. The research was conducted at the Dermatology and Venereology Polyclinic and the Medical Record Installation of Ngoerah Hospital, Denpasar, Bali. After the data was collected, it was tabulated in tabular form and grouped descriptively. **Result:** A total of 46 patient samples were obtained, with an average age of 16.7 years. Adolescents with STIs were more commonly found in female (63%). Based on their last education, the highest number of patients were junior high school graduates (58.7%) with a history of multipartner sexual intercourse (56.5%). Only 15.2% claimed to be married. The most common type of STIs was syphilis (50%), followed by condyloma acuminata (45.6%). A total of 67.4% of adolescents were known to have HIV-positive status. **Conclusion:** The picture of STIs in teenagers is more common in female with a junior high school education. Most teenagers have multi-partner partners with a history of having sexual relations with commercial sex workers (CSWs). The most common type of STIs in teenagers is syphilis (50%), and 67.4% are infected with HIV.

Keywords: sexually transmitted infections, adolescents, young adults, infectious disease.

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BACKGROUND

Sexually Transmitted Infections (STIs) are considered a public health threat in all countries, both developed country and developing country.[1] STIs are a broad category of clinical syndromes brought on by pathogens that are commonly acquired and spread through sexual activity that is performed using the fingers, other body parts (such as frottage or skin-to-skin rubbing/contact), sex toys that have come into contact with another person's genitalia or bodily fluids, or vaginal sex.[2]

The Indonesian Ministry of Health Regulation Number 25 of 2014 defines adolescents as individuals aged 10–18 years who are not yet married.[3] Adolescents are a potential group that needs serious attention because adolescents are considered a group that has a risk of sexual and reproductive health This condition makes adolescents vulnerable to sexual deviations and the risk of experiencing sexually transmitted infections. Current global data indicate that, due to a complex interplay of biological, psychological, sociocultural, and evolving behavioral factors, sexually active adolescents exhibit the highest incidence rates of sexually transmitted diseases

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(STDs)—including HIV in certain regions—compared to other age groups.[4]

WHO data in 2020 estimated approximately 374 million new cases of sexually transmitted infections annually, comprising chlamydia (129 million), gonorrhea (82 million), syphilis (7.1 million), and trichomoniasis (156 million).[1] The 2017 SDKI (National Population and Family Planning Board) data shows that based on age, women aged 15-19 years and married men aged 20-24 years are the groups with the highest prevalence of STIs or their symptoms (21% and 4%, respectively).[5]

STIs have a direct impact on sexual and reproductive health by causing complications such as infertility, cancer, pregnancy-related issues, and increased HIV risk, while also contributing to significant social consequences, including stigma. In developing countries, STIs infections and complications are one of the top five reasons for high morbidity and management costs.[6] This study aims to identify cases of adolescent patients with sexually transmitted infections at Ngoerah Hospital, Bali, Indonesia in the period 2021 to 2023. This study is expected to be a source of information regarding the prevalence and profile of adolescent patients with sexually transmitted infections at Ngoerah Hospital, Bali, Indonesia, which can be linked as a risk factor.

METHODS

This study used a descriptive observational research method with a *cross-sectional* design. The research was conducted at the dermatology and venereology polyclinic and medical record installation of Ngoerah Hospital, Bali, Indonesia. The inclusion criteria in this study were adolescent patients aged 10–18 years with a diagnosis of sexually transmitted infection undergoing treatment at Ngoerah Hospital, Bali, Indonesia, in the period January 2021 to December 2023. The exclusion criteria in this study were that subjects would be excluded if the data in the medical records were incomplete according to the required research variables. The sampling technique in this study used the *total sampling* method from the medical records of the affordable population. All samples that were identified and met the inclusion and exclusion criteria were included in the study during the period from January 2021 to December 2023. The data were collected, subsequently tabulated in tabular form, and grouped descriptively. Numerical data will be presented in the form of mean ± standard deviation or median ± minimum-maximum value. Categorical data will be presented in the form of frequency and percentage. The Ethics Committee of Ngoerah Hospital, Bali, Indonesia has reviewed this study.

RESULT

In this study, a total of 862 patient visits for sexually transmitted infections were recorded at the Dermatology and Venereology Polyclinic, Ngoerah Hospital, Bali, Indonesia, from 2021 to 2023. Of these, 46 adolescent patients (5.33%) were included for demographic profile analysis. Patient characteristics are presented in Table 1.

Based on Table 1, the average age of the patients was 16.7 years, with an age range of 11–18 years. More girls (29 people or 63%) than boys (17 people or 37%) were found to have sexually transmitted infections. In terms of educational background, the highest number of patients were junior high school graduates (27 people or 58.7%), followed by high school graduates (15 people or 32.6%) and elementary school graduates (4 people or 8.7%). Most teenagers admitted to having a history of multipartner sexual relations (56.5%), with 26 teenagers admitting to having had relations with commercial sex workers. A total of 2 patients (4.3%) claimed to have never had sexual relations before. Only 7 adolescent patients (15.2%) claimed to be married.

The most common type of sexually transmitted infection found was syphilis, with 23 cases (50%), followed by condyloma acuminata with 21 cases (45.6%), bacterial vaginosis with 1 case (2.2%), and vulvovaginal candidiasis with 1 case (2.2%). Most patients had received treatment before (95.7%), and only two patients (4.3%) were receiving treatment for the first time. A total of 31 adolescents (67.4%) in this study were known to have HIV-positive status.

A total of 13 adolescents (28.3%) had other co-infections, as shown in Table 2. The most common co-infection was condyloma acuminata, with 4 cases (30.8%), followed by bacterial vaginosis, with 3 cases (23.1%).

Table 1. Characteristics of adolescent patients with STIs at Ngoerah Hospital, Bali, Indonesia

Demographic	Total (%)
Age (mean; range)	16,70 (11-18)
Gender	
Male	17 (37,0)
Female	29 (63,0)
Education	
Elementary school	4 (8,7)
Junior high school	27 (58,7)
Senior high school/ equivalents	15 (32,6)
Number of partners	
None	2 (4,3)
Single partner	18 (39,1)
Multipartner	26 (56,5)
Sexual partners	
Commercial Sex Workers (CSWs)	26 (56,5)
Date/friends	14 (30,4)
Husband/wife	4 (8,7)
Denied	2 (4,3)
Marital status	
Not married	39 (84,8)
Maried	7 (15,2)
HIV infection	
Yes	31 (67,4)
No	15 (32,6)
Treatment	
No	2 (4,3)
Yes	44 (95,7)
Sexually transmited infection type	
Syphilis	23 (50,0)
Condyloma acuminata	21 (45,6)
Bacterial vaginosis	1 (2,2)
Candidiasis vulvovaginitits	1 (2,2)
Coinfection	
Yes	13 (28,3)
No	33 (71,7)

HIV = Human immunodeficiency virus

Table 2. Types of co-infections in adolescent patients with STIs at Ngoerah Hospital, Bali Indonesia.

Type of Co-infection	Total (%)
Bacterial vaginosis	3 (23,1)
Vulvovaginal candidiasis and nongonococcal cervicitis	1 (7,7)
Vulvovaginal candidiasis	1 (7,7)
Condyloma acuminata	4 (30,8)
Molluscum contagiosum	1 (7,7)
Nongonococcal cervicitis and condyloma acuminata	1 (7,7)
Gonococcal urethritis	1 (7,7)
Nongonococcal urethritis	1 (7,7)

DISCUSSION

World Health Organization data estimated an annual incidence of approximately 376 million new infections from four curable STIs (chlamydia, gonorrhea, trichomoniasis, and syphilis), corresponding to an average of more than one million new infections per day.[7] In this study, the total number of STI patient visits at the dermatology and venereology polyclinic of Prof. Dr. I.G.N.G. Ngoerah in 2021–2023, with a total of 46 STI patients in adolescents, or 5.33%. Data by Shannon and Klausner in the United States found that the majority of STI patients are aged 15–24 years, with an estimated 20 million new STI cases each year.[8]

The mean age of the patients in this study was 16.7 years, with an age range of 11–18 years. The incidence of STIs was higher among adolescent girls, at 29 patients (63%), compared to adolescent boys, at 17 patients (37%). The high prevalence of STIs found among adolescent girls and young women compared to adolescent boys may be due to increased biological vulnerability, decreased educational and economic opportunities, older sexual partners, increased risk of sexual coercion, and cultural norms and gender inequalities that increase this risk.[9] Women may get tested more frequently than men because they may do so for nonspecific symptoms like vaginal discharge, whereas men only get tested for issues that are clearly related to infections, including urethritis.[2] Research by Appiah et al. conducted on adolescent girls based on the results of an examination of a group of women aged 15–24 years found that the incidence of STIs occurred in 14.1% of adolescent girls.[10] However, other research in Madrid found that adolescent boys had a higher prevalence, namely 62.6%. This is because same-sex relationships are not prohibited and support the findings of same-sex couples in the analysis results.[11]

Based on educational status, this study found that more patients had a junior high school education, namely 27 people (58.7%), who were classified as having a low level of education (elementary and junior high school). Research conducted by Mensch et al. shows that education affects the incidence of STIs in adolescents due to a lack of education about STIs from an early age. The research shows that insufficient attention is paid to the influence of school participation and academic skills on infections in adolescence. School attendance and academic skills are not significantly related to sexually transmitted infections in boys and girls.[12]

Risk factors that increase the transmission of STIs include having unprotected sexual contact with multiple partners, having a history of STIs, sexual violence, alcohol use, prostitution, having a sexual partner who also has concurrent sexual contact or a history of STIs, drug use, and drug use through injection.[13] In this study, 26 adolescent patients (56.5%) with STIs had more than one partner (multipartner) and 26 adolescents (56.5%) admitted to having used commercial sex workers (CSWs). Based on research conducted in Malawi, the risk of having multiple sexual partners is found to be higher in women with low socioeconomic status and higher in women in urban areas than in rural areas.[14]

The incidence rate of syphilis is 6,3 cases per 100.000 people per year. Syphilis infection is closely associated with HIV status, as it increases the risk of HIV acquisition among HIV-negative individuals and facilitates direct transmission among people living with HIV. This occurs through disruption of the anogenital skin and mucous membranes, as well as by enhancing the circulation of antigen-presenting cells that serve as potential targets for HIV infection.[15,16] Findings from this study indicated that syphilis was the most common sexually transmitted infection among adolescents, followed by condyloma acuminata, and a total of 31 adolescent patients (67.4%) were HIV–positive. Evidence indicates that sexually transmitted infections increase susceptibility to HIV acquisition; therefore, STIs are regarded as important cofactors in HIV transmission.[17]

In this study, the most common type of STI was syphilis, found in 23 patients (50%), followed by condyloma acuminata in 21 patients (45.6%). These results differ from research in South America, which found that 32% of adolescents suffer from at least one STI, with chlamydia being the most prevalent (23%), followed by trichomoniasis (5.6%), herpes simplex (4.6%), and gonorrhea (3.1%). No positive cases of hepatitis B, hepatitis C, or HIV were detected, but 1% of adolescents tested positive for syphilis. These different results are due to the fact that data collection was carried out in secondary hospitals, not in referral centers.[18]

Among adolescents with STIs, two adolescents (4.3%) were receiving treatment for the first time. In low- and middle-income countries, disease surveillance systems remain weak, resulting in limited data on adolescent patients with STIs. Ensuring access to sexual and reproductive health services is essential for this population. Evidence indicates that available health services in many countries do not fully address the sexual and reproductive health needs of adolescents. Community stigma surrounding STIs further compounds this issue, often leading affected individuals to conceal their condition and delay appropriate therapy.[19]

Coinfection was defined as when a case was diagnosed with more than one STIs, which was considered an infection within the same episode.[20] The initial assessment is based on findings from the first check-up, while co-infections are identified during a comprehensive examination or may emerge during follow-up. In this study, 13 (28.3%) adolescents with other co-infections were found. Where the most co-infections were with condyloma acuminata (30.8%) and bacterial vaginosis (23.1%). This is in accordance with research in Hong Kong where there were 15% of patients with other co-infections. Young people tend to experience co-infections. Those who are younger tend to seek sensation, have more sexual partners and rarely use condoms. The widespread use of contraceptives other than condoms may have decreased condom use among adolescents.[20]

Sexually transmitted infections in adolescents were found in 5.33% of total visits and were more common in female with a junior high school education. Most adolescents had multipartners with a history of sexual intercourse with commercial sex workers (CSWs). Only 15.2% of adolescents were married, and 4.2% of adolescents had never received therapy for sexually transmitted infections before. The most common type of sexually transmitted infection in adolescents is syphilis (50%), with 67.4% of adolescents infected with HIV. A total of 28.3% of adolescents experience co-infection, with the most common co-infection being condyloma acuminata (30.8%).

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