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### Prevalence of Sexually Transmitted Infections in Premarital Age Adolescents at Siloam Hospital Semarang Period 2019 – 2022

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#### ABSTRACT

**Background:** Sexually transmitted infection (STI) is an infectious disease that is transmitted through sex. Changing times and views on sexuality are thought to have caused major shifts in sexual habits and lifestyles. Adolescents are uniquely at risk for STIs from a behavioral and biological perspective. **Methods:** This study is a descriptive study by collecting secondary data in the form of medical records at dermatology and venereology clinics at Siloam Hospital Semarang for the period 2019 - 2022 to see the number of STI cases in premarital adolescents, namely ages  $\leq 24$  years in males and  $\leq 20$  years in females. **Results:** The number of STI cases in premarital adolescent boys in 2019 was 28 people (36.4%). In 2020 there were 50 people (25.9%). In 2021 there will be 93 people (29.1%). And in 2022, there will be 112 people (27.7%). Then in premarital adolescent girls, in 2019, there was 1 case of STI (1.3%), 2 people (1%) in 2020, 7 people (2.2%) in 2021, and 8 people (2%) in 2022. Even though the percentage has fluctuated, the number of cases has continued to increase. **Conclusion:** The number of STI cases in premarital adolescents, age  $\leq 24$  years for males and  $\leq 20$  years for females, in the 2019 - 2022 period at Siloam Hospital Semarang continues to increase every year. Many factors are thought to influence this phenomenon.

#### 1. Introduction

Sexually transmitted infection (STI) is an infectious disease that is transmitted through sex. All sexual intercourse techniques through the vagina, rectum, or mouth can be a vehicle for transmitting sexually transmitted infections. STIs that often occur in the community include gonorrhoea, syphilis, chlamydia, condyloma, bacterial vaginosis, and others.<sup>1</sup> According to WHO, there are an estimated 376 million new cases of STIs worldwide each year.<sup>2</sup> In 2018, the Indonesian Ministry of Health's data and information center stated that Indonesia was the fifth most at-risk country for STIs in Asia. The total number of STI cases handled in 2018 was 140,803 cases from 430 STI service

facilities.<sup>3</sup> Meanwhile, Central Java is one of the provinces with the highest STI cases in Indonesia, with Semarang as one of the cities with the highest incidence. In 2017 there were 1314 cases, and in 2018 there were 1233 cases.<sup>4</sup> The rapid development of technology and trade has caused sexually oriented products such as pictures, advertisements, and other pornography to be widely available in sex shops and online media. Changing times and views on sexuality are thought to have caused major shifts in sexual habits and lifestyles.<sup>5</sup> As a result, STI increased year after year.<sup>1</sup>

Adolescence is a dynamic growth and development phase in an individual's life. This period is a period of

transition from childhood to adulthood which is characterized by accelerated physical, psychological, emotional, and social development. According to the National Family Planning Coordinating Board (BKKBN), youths are aged 10-24 years. Adolescents are divided into early adolescents (10-13 years), mid-adolescents (14-17 years), and late adolescents/young adults (18-24 years). Teenagers have unique characteristics, one of which is the nature of wanting to imitate something they see, the circumstances, and the environment around them.<sup>3,6</sup> Adolescents are uniquely at risk for STIs from a behavioral and biological perspective. Behaviorally, adolescents are more likely to engage in high-risk sexual behavior, such as changing partners or having sex without a condom. From a biological point of view, female adolescents are particularly vulnerable to STIs, such as infection by chlamydia or condyloma, because of lower cervical mucus production, which increases the risk of cervical erosion.<sup>7</sup> STI rates in adolescents have increased since 2014, with young women and young men who have same-sex sex at increased risk.<sup>7</sup> This study aims to conduct research on STI cases in premarital adolescents, namely ages  $\leq 24$  years for males and  $\leq 20$  years for females, at Siloam Hospital Semarang.

## 2. Methods

This research is a descriptive study by collecting secondary data in the form of medical records at the dermatology and venereology clinic of Siloam Hospital Semarang from 2019 to 2022 to see the number of STI cases. Age  $\leq 24$  years for males and  $\leq 20$  years for females from year to year. The target population in this study were STI sufferers aged  $\leq 24$  years for males and  $\leq 20$  years for females who came to the dermatology and venereology clinic at Siloam Hospital Semarang. The reachable population of this study was people with skin and venereal diseases who came to the dermatology and venereology clinic of Siloam Hospital Semarang period from 2019 to 2022. The sample in this study were STI sufferers aged  $\leq 24$  years in males

and  $\leq 20$  years in females who came to the dermatology and venereology clinic Siloam Hospital Semarang during the period from 2019 to 2022, which meets the inclusion and exclusion criteria. The inclusion criteria were men/women aged  $\leq 24$  years for men and  $\leq 20$  years for women suffering from STIs, while exclusion criteria were men/women aged  $> 24$  years for men and  $> 20$  years for women suffering from STIs. Criteria The sampling technique used is technique consecutive. In this sampling technique, each subject's data is from the medical records of STI patients aged  $\leq 24$  years in males and  $\leq 20$  years in females who come to the dermatology and venereology clinic of Siloam Hospital Semarang period from 2019 to 2022 will be included in the data analysis.

The research specimens are medical records, namely important files or records containing information about STI sufferers who come to the dermatology and venereology clinic of Siloam Hospital Semarang. The period from 2019 to 2022. This research was conducted at the dermatology and venereology clinic of Siloam Hospital Semarang in the period from Jun 15<sup>th</sup> to Jul 2<sup>nd</sup>, 2023. The variables observed were the incidence of STIs, age, and gender. Data analysis was carried out univariately using SPSS software version 25. Data analysis was performed to present the frequency distribution of each variable test in the form of frequency and percentage.

## 3. Results

This research was conducted at the dermatology and venereology clinic of Siloam Hospital Semarang. Patients who come to check themselves and get treatment are not only from the Semarang area but also from areas outside Semarang. From the research results, the number of STI cases at Siloam Hospital Semarang is increasing every year. From 2019 to 2022, there were 995 STI cases, with the number of cases continuing to increase every year, starting from 77 cases in 2019, 194 cases in 2020, 320 cases in 2021, and 404 cases in 2022.

Table 1. Total STI cases at the dermatology and venereology polyclinic of Siloam Hospital Semarang in 2019-2022.

Year	Total STI cases
2019	77
2020	194
2021	320
2022	404
Total	995

Table 2. Frequency distribution of STI types and age at dermatology and venereology polyclinic of Siloam Hospital Semarang in 2019-2022.

STI	2019				2020				2021				2022			
	≤20 years		21-24 years		≤20 years		21-24 years		≤20 years		21-24 years		≤20 years		21-24 years	
	F	M	M	F	F	M	M	F	F	M	M	F	F	M	M	F
Gonorrhoea	0	1	20	0	0	10	30	2	3	21	56	13	3	21	64	2
Syphilis	0	0	1	0	0	0	0	0	0	0	2	0	1	1	1	0
Condyloma acuminata	0	1	3	1	0	0	6	4	1	0	6	5	2	0	10	6
Herpes genital	1	0	2	1	2	0	3	2	3	2	6	4	2	0	1	8
Chancroid	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0
Trichomonas	0	0	0	0	0	0	0	0	0	0	0	1	0	1	12	1
Total	1 (1,3%)	2 28 (36,4%)	26 3	2 (1%)	10 50 (25,9%)	40 8	7 (2,2%)	23 93 (29,1%)	70 23	8 (2%)	112 (27,7%)	17				

The number of STI cases among premarital adolescent boys (≤24 years) in 2019 was 28 people (36.4%). Then in 2020, it will be 50 people (25.9%), and in 2021, it will be 93 people (29.1%). And in 2022, it will be 112 people (27.7%). Then among premarital female adolescents (≤20 years), in 2019, there was 1

case of STI (1.3%), followed by 2 people (1%) in 2020, 7 people (2.2%) in 2021, and 8 people (2%) in 2022. Even though there were ups and downs in percentage for both sex groups, the number of cases continued to increase.

Table 3. Gender frequency distribution at dermatology and venereology polyclinic of Siloam Hospital Semarang in 2019-2022.

Gender	≤20 years	21-24 years
Male	59	224
Female	18	51

#### 4. Discussion

Sexually transmitted infections affect millions of people each year, and their prevention and early detection remain a challenge among major public health systems. More than 100 million new STIs, excluding HIV, occur each year in people under the age of 25.<sup>7</sup> In developing countries in Southeast Asia, including Indonesia, sexually transmitted infections are common and are increasing every year. Even the

late teens are not spared from this.<sup>8,9</sup> The youngest age of STI sufferers found in this study was 16 years old. This is in accordance with research by Jing Zhang et al., which stated that the incidence of STIs in adolescents and young adults increased from 6986 per 100 000 population (6.9%) in 1990 to 7088 per 100 000 population (7.0%) in 2019.<sup>10</sup> Based on this study, gonorrhoea is the most common STI found in premarital adolescents. On research by Nirmalasari et

al., the most STI disease in the age of 15-19 years is also held by gonorrhoea.<sup>5</sup> Different results are shown by research by Monteiro et al. in the United States, where his research on STIs in adolescents found chlamydia to be the most common infection, while gonorrhoea was the least common infection.<sup>11</sup>

STI incidence was higher in males than females in this study. There were 59 men and 16 women aged  $\leq 20$  years, and 224 men and 51 women aged  $\leq 20$  years. 21-24 years. This is in accordance with research by Rizkianti et al., which states that there are more male adolescents than female adolescents who have had sexual relations outside of marriage in Indonesia.<sup>12</sup> Boys are more likely to have sexual intercourse than girls. It has been suggested that males and females have different experiences of puberty and sexual behavior in that males are more likely to have positive expectations about sex, while females appear to have emotional reasons for having sex, most of which are related to other needs such as the needs for love, self-esteem, and self-certainty.<sup>12</sup>

The increase in STIs in premarital adolescents from year to year is certainly not without reason. There are factors that may influence it for reasons such as the following: the habit of changing sexual partners because the majority are unmarried, the freedom to choose sexual partners on the internet in line with the advancement of mass media and the internet, lack of information about how to prevent STIs, and so on.<sup>13</sup> The mass media/internet may be the biggest influence. With the explosive development of information technology, the internet has become a part of everyday life. Over time, internet-based social platforms have played an important role in communication and interaction between individuals. The internet is becoming more and more accessible, and its use is increasing. More than half of the world's population (55%) is estimated to have internet access. In most European countries and the United States, this figure is over 90%. Access can be obtained from both mobile phones and computers, where the average person aged  $\leq 20$  years has both items.<sup>14</sup> The rapid development of technology causes sexually oriented

products such as pictures, advertisements, and pornography to spread on the internet.<sup>5</sup> As a result, this can affect sexual attitudes. Internet usage frequency influences three things sub-indicators of sexual attitudes, namely premarital sex, sex outside of marriage, and homosexual behavior. Research by Liu et al. in China stated that there was a significant relationship between the increased frequency of internet exposure with increased incidence of premarital sex, sex outside marriage, and homosexual behavior. This will also indirectly increase the risk of STIs.<sup>15</sup> Research by Nirmalasari et al. found that the most risk factor for the incidence of STIs was MSM, which was 56.8%.<sup>5</sup> The high prevalence of STIs in homosexuals is due to several things, namely, anal sex is the main choice for homosexual couples, so the possibility of cuts or abrasions when anal penetration is higher, the large number of homosexual couples who have sex without a condom, homosexual men can have more than one sex partner, homosexual couples who are still afraid to go to health services because of stigma and discrimination by society, causing delays in the diagnosis and provision of STI treatment.<sup>5</sup>

Research by Korra et al. also stated that there was a significant relationship between adolescent exposure to mass media and unsafe sexual behavior. The greater exposure to sexual information obtained by adolescents through the mass media, the greater the motivation of adolescents to engage in sexual activity.<sup>16</sup> Buhi et al., in their research, also found that some teens even meet sex partners via the internet, and these teens are more likely to engage in behavior typically considered high-risk, such as having earlier first sex and having more partners.<sup>17</sup> Because premarital adolescents are the average age of a person who is still studying (school/college), they are surrounded by many friends, the influence of solicitations from friends can also have an effect, just like research by Korra et al. Relationships with peers are very influential in adolescent sexual behavior. If a teenager has friends who are sexually active, it will be more likely that the teenager will also be sexually

active, considering that at that age, teenagers want to be accepted by their environment.<sup>16</sup>

## 5. Conclusion

The number of STI cases in premarital adolescents, age  $\leq 24$  years for males and  $\leq 20$  years for females, from 2019 to 2022 at Siloam Hospital Semarang continues to increase every year.

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