Prevalence and Associated Factors of Sexually Transmitted Diseases in Sanam Chaikhet Hospital, Chachoengsao Province, Thailand

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Abstract:

Background: Sexually transmitted diseases (STDs) are disease which transmitted from one person to another via sexual intercourse through vaginal, anal or oral routes. In Thailand the number of gonococcal infection and syphilis are 14.8 and 13.2 cases per 100,000 population respectively and the number is not lessening down since 2015 despite having proper ways to cope with STDs. There are a few numbers of studies reporting prevalence and associated factors of STDs and conducting one in rural area might reveal a hidden cause why the rate of infection is not yet diminishing.

Objective: The study aimed to identify prevalence and associated factors of sexually transmitted diseases in Sanam Chaikhet Hospital, Chachoengsao Province, Thailand.

Methods: This study recruits the data from 22,477 patients who visited Sanam Chaikhet hospital is retrieved as a secondary data from hospital databases and entered SPSS Version 22 to analyze the prevalence and associated factors of STDs.

Results: The prevalence of sexually transmitted diseases in Sanam Chaikhet Hospital is 0.5%. The associated factors of STDs with statistically significant value were pregnancy and age between fifteen to twenty-nine years old.

Conclusion: Considering health education support to the students and people of age group 15-29 years old might be able to cover both of the problems including STDs and unwanted pregnancy.

Keywords: Sexually transmitted diseases, Prevalence, Chachoengsao Province, Thailand

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Background

Sexually transmitted diseases (STDs) are diseases which transmitted from one person to another via sexual intercourse due to body secretion contact which, sometimes, introduced to body through small wound occurred during sexual activity. There are more than 30 species of organism which can cause STDs including bacteria, virus and protozoa. From those over 30 species of organism, most of STDs are majorly caused by only 8 species, 4 of which can be treated nowadays which are syphilis, gonorrhea, chlamydia and trichomoniasis. The other 4 diseases are caused by virus, cannot be completely eradicated. They are hepatitis B virus infection (HBV), human papilloma virus infection (HPV), herpes simplex virus infection (HSV) and human immunodeficiency virus infection (HIV). Though cannot be completely treated, the number of organisms, disease severity and clinical symptom can be lessened through using antiretroviral drugs.[1]

A study in 2016 from World Health Organization (WHO) which accumulated information from more than 205 countries found that the prevalence of non-gonococcal (non-GC) infection in women and men age 15-49 years old is 3.8% and 2.7% respectively. For gonococcal (GC) infection, the prevalence is 0.7% in both male and female. Apart from trichomoniasis, 5.3% in female and 0.6% in male. It is statistically defined that the region which has the largest prevalence of STDs is South Africa especially when talking about male non-GC infection, both sex syphilis and GC infection and lastly, female trichomoniasis. On the other hand, female non-GC infection and male trichomoniasis is mostly found in America.[2] Other studies note that there are more than 124.3 million people worldwide being infected with non-GC, 30.6 million are infected with GC, 110.4 million are infected with trichomonas and 19.9 million are syphilis infection.[3]

Nowadays, more than one million people are sexual transmitted infection daily. A study conducted by WHO in 2016 found that there were more than 376 million people infected with STDs and 80% of which occurred in developing countries including Thailand. The number can be distributed into 4 main diseases which are non-GC, GC, Syphilis and trichomonas infection contributing 127 million, 87 million, 6.3 million and 156 million respectively. The other diseases which caused by virus and cannot be treated also produce aa enormous number which are 500 million cases of HSV infection, 300 million cases of HPV infection and more than 240 million cases of HBV infection currently living with chronic HBV infection.[1]

The current STDs situation in Thailand is gradually worsening. The number has been rising since 2015 through 2019 even though we have been implementing ways to cope with the situation.[5] In Thailand, the highest number of cases goes to GC infection followed by syphilis which account around 14.8 and 13.2 cases per 100,000 population respectively. The rising momentum also goes along with the HIV infection rate which increased 5-9 times during the period.[4] These rising number affect Thailand in many aspects including the expense that the Ministry of Health bear. Center of Disease control and infection of America estimates the expense which is caused by STDs alone to be around 1,600 million dollars yearly.[6]

The complication of STDs depends on each disease individually which cause both short-term and long-term complications such as pelvic inflammatory diseases (PID), ectopic pregnancy, infertility, chronic pelvic pain or even joint pain. Moreover, when the disease progresses while pregnant, the disease can be transmitted through placenta or laboring which can furthermore cause complications. For instance, syphilis can cause complications besides reproductive system such as nervous system, cardiovascular

system, congenital disabilities, preterm labor or even perinatal death.[7] More than million pregnant women with syphilis ended up with more than 200,000 cases of perinatal death and still birth combined. More than 350,000 cases are alive with sequelae of perinatal complication.[8] Another study also found that STDs is directly associated with the increasing number of HIV infection.[9]

By gathering the correlating factors of STDs from studies, it is found that there are numerous risk factors of STDs such as teenage period, refer to population age between 10 and 19[10,11] which have significant probability of getting STDs when comparing with adult period. Other risk factors are people whose parents are farmer, prostitution[12,13] being single parent, having unproper education, those who has history of STDs, smoking, drinking alcohol and substance abusing such as amphetamine, heroine, marijuana.[13,15]

Objective

The study aimed to identify the prevalence and the associated factors of sexually transmitted diseases in Sanam Chaikhet Hospital, Chachoengsao province, Thailand.

Material and Methods

Study design

A quantitative study by cross-sectional study to find the prevalence associated factors of sexually transmitted diseases in the population who came to receive service at Sanam Chaikhet Hospital.

Study population

The information used in the study was retrieved from the people who came to receive service at OPD and ER from 1st January 2020 to 21st June 2021 and STDs which caused by proven or suspected congenital infection and rape must be excluded.

Sample size

Single population proportion formula was used to calculate the sample size by referring to a result of a study "Increase in Sexual Risk Behavior and Prevalence of Chlamydia trachomatis Among Adolescents in Northern Thailand".[25] The study found that the prevalence of non-GC infection of adolescence in the northern part of Thailand was 9.6%.

Considering P = 0.096 (the prevalence of non-GC infection of adolescence in the northern part of Thailand) d = 20 % of P=0.2x0.096=0.0192 with a 95% confidential interval, the value of Z = 1.96 (cut-off value of the normal distribution). Hence, the number of samples we need was 906 cases

However, when the researchers arrived at Sanam Chaikhet Hospital and assessing the information mention earlier, it was found that the prevalence of STDs in the area was lower than the ones we referred. Hence, we decided to retrieve the information of everyone who came to receive services since 1st January 2020 to 21st June 2021. More than 184,684 visits information had been retrieved so we managed the data by screening off the information that might interfere our result including outpatient clinic, non-communicable disease clinic and antenatal care clinic visits, patients who revisited within the period, patients age less than 9 years old and more than 59 years old (the age mentioned were not likely to be infected with STDs hence may causing the result bias). After excluded data, the final number was 22,477 cases.

Data collection

The data was gathering by retrieving secondary data from the Department of Statistics of Sanam Chaikhet Hospital. The secondary data included general information and specific data which was considered important in this study, for instance, pregnancy, teenage pregnancy and substance abuse.

Data analysis

The collected data was entered into SPSS Version 22. By using descriptive statistics, the demographic information was interpreted as mean, percentage, standard deviation etc. To calculate the association between STDs and the risk factors, univariate and multivariate logistic regression analysis was used with 95% confidence interval and p-value less than 0.05 was considered statistically significant.

Definition

Teenage was defined as people who aged 10-19 years old.[10,11] Teenage pregnancy was defined as maternal age less than 20 years old considering the date of labor. STDs (Sexually transmitted diseases) was defined as diseases which transmitted from one person to another through sexual activity via vaginal, anal or oral routes.[24]

Ethical consideration

The information was kept secret by not revealing names and detail of everyone. The data was used only for research purposes. The result was shown as a whole data, not exposing each individual information.

Result

There were 22,477 patients in the study, M: F 1:1.2. 72.2% of the patients were between 15-49 years old as in Table 1. Mean age was 35.12 ± 13.91 years. 89.4% were non-alcoholic drinking and 89.4% had never smoked. Most patients about 99% had no dyslipidemia, diabetes mellitus or hypertension. For socioeconomic status, 73.2% were employee, 25.5% and 28.3% had highest education of elementary school and junior high school respectively as in Table 2. The prevalence of sexually transmitted diseases in Sanam Chaikhet Hospital was 103 out of 22,477 patients (0.5%). The associated factors of STDs with statistically significant value were pregnancy and age between 15-29 years old as in Table 3 but only aged 10-19 and 20-29 years had statistically significant association with STDs as in Table 4.

Table 1 Socio-demographic characteristics among patients in Sanam Chaikhet Hospital, Chachoengsao Province, Thailand

Data	n	%
Gender		
Male	10198	45.4
Female	12279	54.6
Age group		
10-19	3630	16.1
20-29	5134	22.8
30-39	4596	20.4
40-49	4514	20.1
50-59	4603	20.5
Age group		
<15	1644	7.3
15-49	16230	72.2
>49	4603	20.5
Body mass index		
Underweight	2481	11
Normal	8254	36.7
Obese I	3514	15.6
Obese II	5524	24.6
Obese III	2704	12
Alcohol drinking		
Non-alcohol drinking	20095	89.4
Alcohol drinking	2235	9.9
Ex-alcohol drinking	147	0.7
Smoking status		
Never	20093	89.4
Current smoker	2236	9.9
Ex-smoker	148	0.7

Table 2 Socio-demographic characteristics among patients in Sanam Chaikhet Hospital, Chachoengsao Province, Thailand

	N	%
Dyslipidemia		
Yes	201	0.9
No	22276	99.1
Diabetes mellitus		
Yes	207	0.9
No	22270	99.1
Hypertension		
Yes	231	1
No	22246	99
Occupation		
Unemployed	715	3.2
Agriculture	1062	4.7
Employee	16460	73.2
Student	3289	14.6
Civil service	626	2.8
Merchant	194	0.9
Other	131	0.6
Education level		
Below elementary school	1298	5.8
Elementary school	5730	25.5
Junior high school	6360	28.3
High school	1299	5.8
High Vocational Certificate	119	0.5
Bachelor degree	580	2.6
Master/doctor degree	54	0.2
Not specified	7037	31.3
Age (years)	35.12 ± 13.91	
Body mass index (kg/m^2)	24.04 ± 5.18	

Table 3 Factors associated with sexually transmitted diseases in Sanam Chaikhet Hospital, Chachoengsao Province, Thailand

Variables	Sexually Transmitted Diseases		COR	95% CI	p-value
	No	Yes			
Pregnancy					
Yes	282 (98.6)	4 (1.4)	3.165	1.157-8.66	0.025*
No	22092 (99.6)	99 (0.4)	1		
Age group					
<15	1641 (99.8)	3 (0.2)	0.699	0.197-2.482	0.58
15-49	16142 (99.5)	88 (0.5)	2.086	1.14-3.816	0.017*
>49	4591 (99.7)	12 (0.3)	1		
Age group					
10-19	3600 (99.2)	30 (0.8)	3.188	1.63-6.236	0.001*
20-29	5096 (99.3)	38 (0.7)	2.853	1.489-5.466	0.002*
30-39	4583 (99.7)	13 (0.3)	1.085	0.495-2.381	0.838
40-49	4504 (99.8)	10 (0.2)	0.849	0.367-1.968	0.703
50-59	4591 (99.7)	12 (0.3)	1		
Body mass index					
Underweight	2464 (99.3)	17 (0.7)	2.066	0.919-4.643	0.079
Normal	8216 (99.5)	38 (0.5)	1.385	0.669-2.868	0.381
Obese I	3499 (99.6)	15 (0.4)	1.284	0.561-2.938	0.554
Obese II	5500 (99.6)	24 (0.4)	1.307	0.607-2.815	0.495
Obese III	2695 (99.7)	9 (0.3)	1		

Table 3 Factors associated with sexually transmitted diseases in Sanam Chaikhet Hospital, Chachoengsao Province, Thailand (con.)

Variables	Sexually Transmitted Diseases		COR	95% CI	p-value
	No	Yes			
Smoking status					
Never	20003 (99.6)	90 (0.4)	1		
Current smoker	2224 (99.5)	12 (0.5)	1.199	0.656-2.194	0.555
Ex-smoker	147 (99.3)	1 (0.7)	1.512	0.209-10.923	0.682
Alcohol drinking					
No alcohol drinking	20006 (99.6)	89 (0.4)	1		
Alcohol drinking	2223 (99.5)	12 (0.5)	1.213	0.663-2.221	0.53

Table 4 Multivariate logistic regression analysis to assess relationships between potential factors associated to sexually transmitted diseases in Sanam Chaikhet Hospital, Thailand

Variables	Sexually Transmitted Diseases		AOR	95% CI	p-value
	No	Yes			
Pregnancy					
Yes	282 (98.6)	4 (1.4)	2.26	0.82-6.23	0.115
No	22092 (99.6)	99 (0.4)	1		
Age group					
10-19	3600 (99.2)	30 (0.8)	3.119	1.593-6.107	0.001*
20-29	5096 (99.3)	38 (0.7)	2.753	1.432-5.291	0.002*
30-39	4583 (99.7)	13 (0.3)	1.067	0.486-2.341	0.872
40-49	4504 (99.8)	10 (0.2)	0.848	0.366-1.964	0.7
50-59	4591 (99.7)	12 (0.3)	1		

Discussion

The prevalence of STDs infection in this research was slightly below the average of each disease in the STDs group, which might be explained by the current situation that was still affected by COVID-19, which could result in decreased patients going to the hospital. Patients might neglect and overlook those symptoms and chose not to come to the hospital to reduce the risk of COVID-19 infection due to the minor symptom or even asymptomatic presentation of most STDs by the way they could go to pharmacy and received medication by themselves.

In relation to STDs, it was evident that only the age group and pregnancy were statistically significantly correlated. Firstly, the age group was in adolescence, which was reproductive period, resulting in a frequent sexual intercourse and subsequently caused STDs. The second was pregnancy, which was expected to occur in conjunction with STDs from other factors, such as no condom uses in contraception. With reduced prevention, STDs including unwanted and intentional pregnancies were increased.

The factors which were not associated with STDs in this research include teenage pregnancy, drinking alcohol and smoking cigarette. According to other research, these factors should be associated with STDs by, for example, lacking restraint from various compounds in liquor and cigarettes, or the teenage pregnancy which the age group was already a risk factor. This might be due to the insufficient number of case studies. When looking back at the results of this research, no patients had been infected with STDs and getting pregnant in adolescence at the same time so by increasing the number of case studies, this might result in more efficient interpretation of the number.

Limitation

The prevalence of STDs at Sanam Chaikhet Hospital was below the standard average, so we imply some patients came to another hospital or the symptoms were not recognized by themselves. Laboratory investigation at community hospitals could be difficult and slow to conduct, so on many occasions, when doctors saw patients with STDs, they might not test until they have a definite diagnosis. Rather, they would provide an empirical treatment instead. These might affect the prevalence of the disease in this study.

Conclusion

The results of this study showed that factors associated with STDs were the age range between 15-29 years old and pregnancy. If we look at the problem as a whole, we might consider providing health education which support the students and people of that age group, which is expected to be able to cover both of the problems including STIs and unwanted pregnancy.

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