

Original Research Article

Risk factor analysis of HIV/AIDS incidence in HIV/AIDS risk groups in Bitung city

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ABSTRACT

Background: HIV or human immunodeficiency virus is a virus that attacks the human immune system which then has an impact on the decline in the immune system, causing a disease called AIDS. There were 2,384 cases of HIV/AIDS in north Sulawesi, namely 742 cases of HIV and 1,642 cases of AIDS. The highest number of HIV/AIDS cases found in Manado city and Bitung city was also due to the ongoing implementation of the continuous counseling service (LKB), namely for Manado city there were 15 health centers and Bitung city in 9 health centers. This study aimed to analyse the risk factors for the incidence of HIV/AIDS in the HIV/AIDS risk group in Bitung city.

Methods: This research was an analytic observational study with a case control study design. The population of this study was all groups at risk of HIV/AIDS who live in the city of Bitung. The sample in this study was for the group at risk of HIV/AIDS which was divided into groups of positive and negative diagnosed as HIV/AIDS sufferers as many as 150 people. The sampling technique in this study was using the snowball sampling technique.

Results: Univariate analysis showed that the majority of respondents came from the male sex group 53 respondents (35.3%) and the least came from the IDU group 5 respondents (5.3%). The results of the bivariate analysis showed that based on the analysis obtained the value of risky sex behavior ($p=0.000$, $OR=6.35$), blood transfusion ($p=0.265$, $OR=2.64$) and history of STI ($p=0.042$, $OR=4.21$).

Conclusions: This study has proven that risky sexual behavior and history of STIs have a relationship with the incidence of HIV/AIDS. In addition, risky sexual behavior, blood transfusions and history of STIs are risk factors for the incidence of HIV/AIDS in Bitung city.

Keywords: Factor, Group, HIV/AIDS, Risk

INTRODUCTION

HIV or human immunodeficiency virus is a virus that attacks the human immune system which then has an impact on the decline in the immune system, causing a disease called AIDS. HIV attacks white blood cells which are part of the immune system that protects the body from disease.¹

According to data from UNAIDS, the total number of sufferers in various countries is 1.8 million. The Asia Pacific region ranks third as the region with the most HIV and AIDS sufferers worldwide with a total of 5.2 million

people. Indonesia is one of the countries included in the Asia Pacific Region, and Indonesia accounts for 620,000 of the total 5.2 million people in Asia Pacific who are infected with HIV/AIDS. If grouped by background, HIV/AIDS sufferers come from commercial sex workers (5.3%), homosexuals (25.8%), injecting drug users (28.76%), transgender (24.8%), and those in detention (2.6%).²

In the report on the development of HIV-AIDS and STIs in Indonesia in the fourth quarter of 2017. From October to December 2017 the number of people infected with HIV was reported as many as 14,640 people. The highest percentage of HIV infection was reported in the 24-29

year age group (69.2%), followed by the 20-24 year age group (16.7%), and the 50 year age group (7.6%).²

Since the discovery of HIV cases in north Sulawesi in 1997, the number of new cases has been increasing in the last 5 years. There were 2,384 cases of HIV/AIDS in North Sulawesi, namely 742 cases of HIV and 1,642 cases of AIDS. Throughout 2016, 83 new HIV cases were found in the 20-29 year age group and 224 AIDS cases in the 30-49 year age group. Death due to AIDS in 2016 was 1 person in the age group > 50 years.³

If viewed cumulatively, the city of Manado, Bitung city and Minahasa district were still the areas with the highest number of HIV and AIDS cases in north Sulawesi until 2016, while the district that did not have HIV and AIDS cases was South Bolaang Mongondow regency. The highest number of HIV AIDS cases found in Manado city and Bitung city was also due to the ongoing implementation of the continuous counseling service (LKB), namely for Manado city there were 15 health centers and Bitung city in 9 health centers.³

Based on a preliminary study by Kumalasari in 2017 conducted at the Bekasi district hospital from January 2016 to December 2016 it was found that the incidence of HIV/AIDS was 169 cases, including risk factors for HIV/AIDS transmission such as unsafe sex in heterosexuals, MSM, bisexual, the use of unsterile needles in drugs, perinatal, seen from this number from year to year cases of HIV/AIDS still exist and HIV/AIDS is the most cases and is a problem that motivates the author to conduct research related to it.⁴

Risk groups that have a high chance of getting HIV/AIDS infection are heterosexual, bisexual, homosexual, perinatal and IDU. 3 Key populations targeted in the HIV/AIDS control strategy are injecting drug users, female sex workers (FSW), customers or sex partners of FSW, gay, transgender and inmates of prisons or detention centers.⁵

This study was conducted to determine the risk factors for the incidence of HIV/AIDS in the HIV/AIDS risk group where the results of this study were able to determine the factors that caused the incidence of HIV/AIDS so that it was beneficial for the health department and the HIV/AIDS prevention commission in making health policies and preventing an increase in HIV/AIDS. HIV/AIDS sufferers in order to reduce its spread in the community which is part of the successful achievement of the sustainable development goals (SDGs).

METHODS

The research design was an analytical observational epidemiological study with a case and control design (case control study). This research will be conducted in Bitung city. The reason for choosing this location is because Bitung is one of the cities with the highest

number of HIV/AIDS cases in north Sulawesi province. The time for this research was from April to September 2021. The population in this study was all groups at risk of HIV/AIDS in Bitung city. The sample in this study was divided into two groups, namely the case group and the control group, where the sample for the case group was the HIV/AIDS risk group who had been diagnosed with HIV/AIDS positive while the control group was the HIV/AIDS risk group who had been diagnosed with HIV/AIDS negative. The sampling technique in this study was snowball sampling with a total sample of 75 cases and 75 controls, with matching groups at risk of HIV/AIDS. The independent variable in this study is risky sexual behavior, blood transfusions and history of STIs. Meanwhile, the dependent variable in this study is incidence of HIV/AIDS.

Statistical analysis

The data collection instrument for this study was a questionnaire in which the data were analyzed using SPSS. Data analysis was carried out by univariate analysis to get an overview of each variable and bivariate analysis using chi-square test to determine the relationship and risk factor between the independent and dependent variables.

RESULTS

Based on Table 1, shows that respondents who engage in risky sexual behavior and are infected with HIV/AIDS are 73 respondents (77.7%) while only 2 respondents (3.6%) do not engage in risky sexual behavior and are infected with HIV/AIDS. From the table also obtained p value =0.000 so that the p value <0.05 which means that risky sexual behavior has a relationship with the incidence of HIV/AIDS in Bitung city. The OR value obtained is 6.35 where respondents who engage in risky sexual behavior have a 6.35 times risk of being infected with HIV/AIDS compared to respondents who do not engage in risky sexual behavior.

Based on the results presented in Table 2, where respondents who did blood transfusions and were infected with HIV/AIDS were 11 respondents (39.3%) while as many as 64 respondents (52.4%) who did not do blood transfusions and were infected with HIV/AIDS. From the table also obtained p value =0.265 so that the p value >0.05 which means that blood transfusion has no relationship to the incidence of HIV/AIDS in Bitung city. The OR value obtained was 2.64 where respondents who do blood transfusions are at risk of 2.64 times to be infected with HIV/AIDS compared to respondents who do not do blood transfusions.

Table 3 shows that 38 respondents (54.3%) had a history of STIs and were infected with HIV/AIDS, while 37 respondents (46.2%) had no history of STIs and were infected with HIV/AIDS. From the table, the p value =0.042 so that the p value <0.05, which means that a

history of STIs has a relationship with the incidence of HIV/AIDS in Bitung city. The OR value obtained was 4.21 where respondents who have a history of STIs have

a 4.21 times risk of being infected with HIV/AIDS compared to respondents who do not have a history of STIs.

Table 1: Relationship between risky sexual behaviors with the incidence of HIV/AIDS.

Risky sexual behaviors	HIV/AIDS				Total	%	P value	OR
	Yes	%	No	%				
Yes	73	77.7	21	22.3	94	100	0.000	6.35
No	2	3.6	54	96.4	56	100		
Total	75	50	75	50	150	100		

Table 2: Relationship between blood transfusion and the incidence of HIV/AIDS.

Blood transfusion	HIV/AIDS				Total	%	P value	OR
	Yes	%	No	%				
Yes	11	39.3	17	60.7	28	100	0.265	2.64
No	64	52.4	58	47.6	122	100		
Total	75	50	75	50	82	100		

Table 3: Relationship between history of STI with the incidence of HIV/AIDS.

History of STI	HIV/AIDS				Total	%	P value	OR
	Yes	%	No	%				
Yes	38	54.3	32	45.7	70	100	0.042	4.21
No	37	46.2	43	53.8	80	100		
Total	75	50	75	50	150	100		

DISCUSSION

Sexual behavior can be categorized into safe sex behavior and risky sexual behavior where we can have a risk of contracting STIs and HIV and AIDS. One of the things that is considered to be a source of the spread of HIV/AIDS is risky sexual behavior. Risky sexual behavior is a sexual activity, especially related to vaginal and anal sex that is carried out by individuals with their sex partners so that they are vulnerable to contracting sexually transmitted diseases such as HIV/AIDS.⁶ The results of statistical tests carried out obtained a p value of 0.000 ($<\alpha=0.05$), so it was concluded that there was a relationship between risky sexual behavior and the incidence of HIV/AIDS. This is a driving factor in the formation of risky sexual behavior that leads to the transmission of HIV/AIDS, such as performing oral and anal sex with multiple partners without using condoms or lubricants. This result is supported by Enggarwati's research which shows a significant relationship between free sex behavior and the incidence of HIV/AIDS.⁷

Risky sexual behavior has been reported to increase the risk of HIV seroconversion. Several studies have reported that unsafe anal sex in MSM is a risk factor for HIV infection. The higher the frequency of MSM engaging in unsafe anal sex, the higher the risk of HIV seroconversion. The high risk of HIV infection in MSM is often associated with a role in sexual intercourse with a

high risk of HIV infection, especially in partners who act as receptive.⁸ Based on the test, the OR value obtained was 6.35 where respondents who engage in risky sexual behavior have a 6.35 times risk of being infected with HIV/AIDS compared to respondents who do not engage in risky sexual behavior, where the OR value >1 so it can be concluded that the behavior risky sex is a risk factor for the incidence of HIV/AIDS.

History of blood transfusion is one of the entry points for bacteria, viruses, and parasites that cause infection. In a country like the United States the probability of infection from blood transfusions is very low. With the existence of a blood testing unit for germs and viruses that can ensure blood is very safe, but we need to realize that no test is 100% accurate.⁹ Statistical tests performed obtained a p value of 0.265 (≥ 0.05), so it was concluded that there was no relationship between blood transfusions and the incidence of HIV/AIDS. Community groups that have the potential to have a high risk of HIV are the status of blood donors (blood transfusion recipients, blood donors if the equipment is not sterile), babies of mothers who are declared to have AIDS (pregnancy, birth and breastfeeding), narcotics addicts (especially IDUs, piercing with tools exposed to HIV/AIDS). Those who have many sex partners (whether in discotheques or bars, FSW, waria, massage parlors, gay and heterosexual), patterns of sex, initial status of having sex, imprisoned people, families with positive HIV/AIDS sufferers

(partners of sufferers e.g. husband/wife) who do not use protection, users of injecting equipment (lovers of tattoos, piercing with tools exposed to HIV/AIDS) are very likely to be infected with HIV/AIDS.¹⁰

Respondents who have a history of blood transfusions but do not suffer from HIV this is because the blood transfused to the patient has gone through a blood screening test first, namely the IMLTD (transmitted infection through blood transfusion) screening test and is free from infectious diseases such as HIV, HIV, hepatitis C and syphilis.¹¹ The OR value obtained was 2.64 where respondents who do blood transfusions are at risk of 2.64 times to be infected with HIV/AIDS compared to respondents who do not do blood transfusions. Based on the OR value obtained, it was found that the OR value was >1, so it can be concluded that blood transfusion is a risk factor for the incidence of HIV/AIDS.

Sexually transmitted infections can increase HIV transmission, besides that it can also be a cause of infertility, ectopic pregnancy, congenital infections. Untreated STI cases will add to the burden of high morbidity and mortality in women, men, and children. STI prevention and control is an integral part of health care efforts. Transmission of STIs can be controlled by intervening in commercial sex workers and their clients and other high-risk groups in an effective manner.¹²

The results of the statistical test obtained a p value of 0.042 (≤ 0.05), so it was concluded that there was a relationship between a history of STIs and the incidence of HIV/AIDS. The presence of STIs with inflammation or ulceration will increase the risk of HIV infection during unprotected sexual intercourse between a person who has been infected with an STI and a partner who has not been infected. Genital ulcers or someone with a history of genital ulcers is estimated to increase the risk of contracting HIV 50-300 times every time they have unprotected sexual intercourse.¹³ This is not in line with research conducted by Kamilah et al which showed that the results of patients with HIV positive STIs were 120 people (85.1%), while the incidence of HIV positive with negative STIs was 338 people (90.4%).¹⁴

This study is the same as the research conducted by Anissa et al, where the results of the study obtained positive STIs as many as 27 respondents (84.4%), while the negative as many as 5 respondents (15.6%). The OR value obtained was 4.21 where respondents who have a history of STIs have a 4.21 times risk of being infected with HIV/AIDS compared to respondents who do not have a history of STIs. Based on the value of $OR > 1$, it can be concluded that a history of STIs is a risk factor for the incidence of HIV/AIDS.¹⁵

CONCLUSION

Based on the results of the study, risky sexual behavior and history of STIs have a relationship with the incidence

of HIV/AIDS. In addition, risky sexual behavior, blood transfusions and history of STIs are risk factors for the incidence of HIV/AIDS in Bitung city.

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