

## Factors Related to HIV/AIDS Risk Behavior in Ship Crew at Tenau Kupang Port

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### ABSTRACT

**Background:** In 2022, East Nusa Tenggara recorded the highest number of HIV-AIDS cases in the province, with a total of 151 patients. HIV-AIDS infections are spread across six districts: Oebobo (27.8%), Maulafa (18.5%), Kelapa Lima (22.5%), Alak (16.5%), Kota Lama (4.6%), and Kota Raja (10%). HIV cases in Indonesia have fluctuated from 2019 to 2022 due to a significant percentage of high-risk behaviors exhibited by high-risk groups, including ship crew members. This study aims to analyze the factors related to HIV/AIDS risk behaviors in ship crew members.

**Subjects and Method:** This was a cross-sectional study conducted at Tenau Port, Kupang, East Nusa Tenggara, Indonesia from November to December 2024. The study population consists of all crew members (ABK) on domestic cargo ships arriving and docking at Tenau Kupang Port in 2024, estimated to be 225 ABK. A simple random sampling technique was used, with 96 samples selected based on the Lemeshow formula. Data were collected using a questionnaire.

**Results:** The chi-square test results revealed a significant relationship between knowledge ( $p = 0.029$ ; OR = 2.734; 95% CI: 1.188–6.296), ship docking duration ( $p = 0.014$ ; OR = 3.215; 95% CI: 1.342–7.702), and peer support ( $p = 0.000$ ; OR = 27.586; 95% CI: 3.476–218.930) with HIV/AIDS risk behavior. Attitude ( $p = 0.272$ ; OR = 0.455; 95% CI: 0.145–1.427), education ( $p = 1.000$ ; OR = 1.136; 95% CI: 0.089–18.711), income ( $p = 0.587$ ; OR = 0.587; 95% CI: 0.516–5.093), frequency of going home ( $p = 0.657$ ; OR = 0.753; 95% CI: 0.324–1.752), and marital status ( $p = 1.000$ ; OR = 0.948; 95% CI: 0.424–2.127) showed no significant relationship. It is necessary to increase socialization to raise awareness of HIV/AIDS prevention among ABK members and foster positive social support within the crew.

**Conclusion:** There is a need to increase knowledge about the risks of HIV/AIDS through outreach and counseling.

**Keywords:** Risky Behavior, HIV/AIDS, Ship Crew Members.

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### BACKGROUND

Human Immunodeficiency Virus (HIV) is a virus that infects white blood cells, leading to a decrease in human immunity. Acquired

Immunodeficiency Syndrome (AIDS) is a collection of symptoms caused by the weakened immune system resulting from HIV

infection (Kemenkes RI, 2020). Globally, since the beginning of the epidemic, 84.2 million people have been infected with HIV, and approximately 40.1 million people have died from HIV-related causes. By the end of 2021, 38.4 million people were living with HIV worldwide, and 650,000 of them died from HIV-related illnesses. In 2020, the number of men living with HIV was higher than women, with 660,000 men and 640,000 women affected. According to WHO estimates, 680,000 people died from HIV in 2020. As of June 2022, the total number of people living with HIV across all provinces reached 519,158 (Sharfina, Yetti and Hardisman, 2023a).

In Indonesia, new HIV cases have been reported consistently since January 1, 1987. In 2019, there were 741 new cases; this number significantly increased to 4,228 cases in 2020, before dropping to 416 cases in 2021 and 579 cases in 2022. This fluctuation highlights the significant variability of HIV and AIDS cases each year (Dinkes Prop NTT, 2022; 94). The NTT Provincial Health Profile data from 2022 shows that Kupang City has the highest number of HIV-AIDS cases in NTT, with 151 sufferers. These cases are spread across six sub-districts: Oebobo (27.8%), Maulafa (18.5%), Kelapa Lima (22.5%), Alak (16.5%), Kota Lama (4.6%), and Kota Raja (10%). In terms of gender, men are more affected, comprising 63% of cases, compared to 47% in women. The highest number of cases is in the age group of 25-49 years, with 403 people affected, including 252 men and 151 women (Dinkes Prop NTT, 2022; 94).

HIV infection and sexually transmitted infections (STIs) have become public health concerns, extending to social, economic, and cultural issues. In 2023, the number of people living with HIV (PLHIV) in Indonesia, according to the AIDS Epidemic Model (AEM), was estimated at 515,455,

a decrease from 526,841 in 2022. New HIV infections in Indonesia continue to decline, mirroring the global trend. The target for controlling HIV/AIDS by 2030 is to achieve "3 Zeros": (1) no new HIV infections, (2) no AIDS-related deaths, and (3) no stigma or discrimination through the STOP program (Suluh, Tes, Obati, dan Pertahankan). The STOP target for 2030 is 95-95-95, meaning that 95% of people living with HIV know their status, 95% of those diagnosed with HIV receive treatment, and 95% of those receiving treatment achieve viral suppression. With this commitment, it is hoped that all sectors—government, private, and community—will work together to help achieve HIV elimination by 2030.

The port is considered one of the largest concentrations of high-risk men (HRM) with characteristics of Man, Mobile, Money, and Macho (4M), acting as a bridge for HIV transmission between key populations and the general public. Crew members (ABK) are often away from their wives and families for extended periods, typically around three months. According to the 2015 Integrated Biological and Behavioral Survey (STBP), the HIV prevalence among the ABK group was 0.33% (Kemenkes RI, 2016). Interventions aimed at preventing and controlling HIV/AIDS at ports focus on behavioral changes, particularly among men, as they are a key population with significant influence on other groups, including wives, children, and the general public. Essentially, zero infections in men would lead to zero infections in women and children (Sharfina, Yetti and Hardisman, 2023a).

One major factor contributing to the rapid transmission of HIV/AIDS is risky sexual behavior, which is prevalent among high-risk male populations (Risti). Adult men in professions with high mobility, such as ship crew members, stevedores (TKBM),

and truck drivers, are particularly vulnerable to contracting HIV due to their extended periods away from their families. This extended absence increases the likelihood of seeking sexual services from sex workers to satisfy sexual desires. According to the 2015 Integrated Biological and Behavioral Surveillance (STBP) report, the HIV prevalence among the ABK group was 0.33%, the TKBM group 0.25%, and truck drivers 1.8% (Vera and Rico, 2023a).

Long periods away from home can lead to unhealthy sexual behaviors, such as engaging in sex with unmarried partners, especially without using condoms. Additionally, irregular personal hygiene and sanitation can further contribute to the spread of diseases, including HIV/AIDS. A study by Darlis et al., (2019) found a correlation between condom use and HIV/AIDS risk behavior among ABK at Soekarno-Hatta Port, Makassar. Other factors influencing risky sexual behavior include attitude ( $p < 0.001$ ), the desire to seek FSW ( $p < 0.001$ ), and condom use ( $p < 0.001$ ) (Magfirah et al., 2017). Other research highlights that factors statistically related to risky sexual behavior include marital status, education, frequency of returning home, length of stay at port, age at first sexual encounter, knowledge, attitude, and exposure to information media (Octaryana & Hatma Ratna Djuwita, 2014). Additionally, a sailor's relatively high income may contribute to a luxurious and extravagant lifestyle, further influencing risky behaviors.

## SUBJECTS METHOD

### 1. Study Design

This study employs a quantitative, observational analytic research design aimed at identifying factors related to the potential transmission of HIV/AIDS. The study uses observation and interviews with a cross-sectional approach, where both independ-

ent and dependent variables are measured simultaneously (Notoatmojo, 2003). The research was conducted in November-December 2024 at Tenau Kupang Port.

### 2. Population and Sample

The estimated population consists of 225 crew members (ABK) whose ships are anchored or docked at Tenau Kupang Port. Based on sample size calculations using the Lemeshow formula, a total sample size of 96 individuals was determined. A simple random sampling technique was used, and data were collected using a questionnaire.

### 3. Study Variables

The independent variables in this study include knowledge, attitudes, education, income, frequency of returning home, marital status, docking time, and peer support. The dependent variable is HIV/AIDS risk behavior.

### 4. Operational Definition of Variables

**HIV/AIDS risk behavior:** are behaviors that facilitate the transmission of HIV/AIDS, such as unprotected sex and injection drug use.

**Knowledge:** is the respondents' understanding or comprehension of matters related to HIV/AIDS.

**Attitudes:** is the reaction or response of the ship crew respondents toward HIV/AIDS.

**Education:** is formal education refers to education obtained from Elementary School to Academy/Higher Education.

**Income:** is the money received from work.

**Frequency of returning home:** in this study refers to how often respondents go home to meet their partner and family.

**Marital status:** is a legal and social union between individuals that establishes rights and obligations between them, as well as within their family and society.

**Docking time:** refers to the period during which a ship is stationed at a dock for

loading, unloading, maintenance, or repairs.

**Peer support:** refers to the encouragement, assistance, or influence provided by friends in various aspects of life, including emotional, social, or practical support.

**5. Study Instruments**

This research uses a questionnaire as a data collection tool. The questionnaire is designed to include various questions that address the objectives of the research, such as questions about risk behaviors, knowledge, education, income, frequency of returning home, marriage, length of time the ship has been docked, and support from friends.

**6. Data analysis**

Data analysis was conducted using a chi-square test and odds ratio to assess the influence of the independent variables on the dependent variable.

**7. Research Ethics**

This research was approved by the Research Ethics Committee of the Faculty of Public Health (FKM) at Nusa Cendana University, Kupang, under ethical approval number 002677/KEPK FKM UNDANA/-2024.

**RESULTS**

**1. Sample Characteristic**

The table below presents the characteristics of respondents based on the age category of Crew Members (ABK) at Tenau Kupang Port in 2024. The data shows that the majority of respondents were in the 21 - 30 years age category, accounting for 39.6%. In contrast, the fewest respondents were in the ≥51 years age category, representing 13.5% (see table 1).

**Table 1. Characteristics of Respondents Based on Age Categories of Crew Members (ABK) at Tenau Port, Kupang, in 2024**

No	Age Category of Respondents	Frequency	Percentage (%)
1	≤ 20 Years	18	18,8
2	21 – 30 Years	38	39,6
3	31 – 40 Years	17	17,7
4	41 – 50 Years	10	10,4
5	≥51 Years	13	13,5
	<b>Total</b>	<b>96</b>	<b>100,0</b>

The data below provides information on the characteristics of respondents based on their highest level of education. The results show that the majority of respondents interviewed by the researcher had graduated from high school or its equivalent, accounting for 62.5%. The

fewest respondents were graduates of junior high school or its equivalent, representing 3.1%. Additionally, none of the respondents were uneducated, did not complete elementary school, or were elementary school graduates (see table 2).

**Table 2. Characteristics of Respondents Based on Education Level of Crew Members (ABK) at Tenau Port, Kupang, in 2024**

No	Education	Frequency	Percentage (%)
1	No School/Not Completed Elementry School	0	0
2	Elementary School/Equivalent	0	0

No	Education	Frequency	Percentage (%)
3	Junior High School/Equivalent	3	3,1
4	Senior High School/Equivalent	60	62,5
5	Academy/University	33	34,4
	<b>Total</b>	<b>96</b>	<b>100,0</b>

Table 3 shows that 39.5% of the respondents interviewed had worked as Crew Members for ≤1 year. The fewest respondents were those who had worked for a period of 6-9 years, accounting for

11.5%. However, it can be concluded that the majority of respondents in the study had worked for ≥2 years, representing 60.5%.

**Table 3. Characteristics of Respondents Based on Length of Service as Crew Members (ABK) at Tenau Port, Kupang, in 2024**

No	Length of Employment	Frequency	Percentage (%)
1	≤ 1 Year	38	39,5
2	2 – 5 Years	31	32,3
3	6 – 9 Years	11	11,5
4	≥10 Years	16	16,7
	<b>Total</b>	<b>96</b>	<b>100,0</b>

**2. Bivariate Analysis**

**Table 4. Results of Statistical Testing for Independent and Dependent Variables**

Variables	Risky Behavior for HIV/AIDS Transmission		Total	p	OR	95% CI	
	Risky	Non Risky				Lower limit	Upper limit
<b>Knowledge</b>							
Poor	25	16	41	0.029	2.73	1.19	6.29
Good	20	35	55				
<b>Attitude</b>							
Negative	5	11	16	0.272	0.46	1.15	1.43
Positive	40	40	80				
<b>Education</b>							
Low	1	1	2	1.000	0.14	1.09	18.71
High	44	50	94				
<b>Income</b>							
Low	8	6	14	0.587	1.62	0.52	5.09
High	37	45	82				
<b>Frequency of Returning Home</b>							
Seldom Return	28	35	63	0.657	0.75	0.32	1.75
Frequent Return	17	16	33				
<b>Marital Status</b>							
Married	25	29	54	1.000	0.95	0.42	2.13
Single	20	22	42				
<b>Docking Time</b>							
Long	34	25	59	0.014	3.22	1.34	7.70
Short	11	26	37				
<b>Peer Support</b>							

Variables	Risky Behavior for HIV/AIDS Transmission		Total	p	OR	95% CI	
	Risky	Non Risky				Lower limit	Upper limit
Yes	16	1	17	0,000	27,586	3,476	218,930
No	29	50	79				

The data shows that 25 respondents with risky behavior related to HIV/AIDS transmission have poor knowledge about HIV/AIDS, while 20 other respondents have good knowledge. Additionally, 16 respondents who are not at risk have poor knowledge, and 35 respondents have good knowledge. There was a relationship between knowledge and risky behavior that has the potential for HIV/AIDS transmission among ship crew members (OR= 2.73).

Regarding attitudes, 5 respondents with negative attitudes exhibited risky behavior, while 11 exhibited non-risky behavior. In contrast, 40 respondents with positive attitudes engaged in risky behavior, and 40 others exhibited non-risky behavior. There is no significant relationship between attitudes and behavior with the potential to transmit HIV/AIDS among ship crew members (p= 0.272).

Regarding education, 2 respondents with low education had one with risky behavior and another with non-risky behavior. Meanwhile, 94 respondents with higher education included 44 with risky behavior and 50 with non-risky behavior. There is no relationship between education and risky behavior related to HIV/AIDS transmission among ship crew members.

Of the 45 respondents with risky behavior, 8 had low incomes and 37 had high incomes. Among the 51 respondents without risky behavior, 6 had low incomes and 45 had high incomes. There was no significant relationship between income and risky behavior that could lead to

HIV/AIDS transmission among ship crew members (p= 0.587).

There are 63 respondents who rarely go home to gather with other family members. Among these 63 respondents, 28 were found to be at risk, while 35 were not at risk. Additionally, 33 respondents frequently go home, of which 17 were at risk and 16 were not at risk. There is no significant relationship between the frequency of going home and risky behavior with the potential to transmit HIV/AIDS among ship crew members (p= 0.753).

Of the 54 respondents who are married or have been married, 25 were found to be at risk and 29 were not at risk. There were 42 respondents who are not married or have never been married, 20 of whom were at risk and 22 were not at risk. This data suggests that marital status, whether married or unmarried, is not strongly associated with HIV/AIDS risk behavior. There is no relationship between marital status and risky behavior that could transmit HIV/AIDS among Crew Members at Tenau Kupang Port in 2024.

Regarding the length of time a ship is docked, 45 respondents were at risk, including 34 who had ships docked for a long period and 11 with ships docked for short periods. Meanwhile, 51 respondents were not at risk, 25 of whom had long-term docking ships and 26 had short-term docking ships. This suggests that respondents with long-term mooring ships are more likely to engage in risky behavior, whereas those with short-term mooring ships are more likely to exhibit non-risky behavior.

There is a significant relationship between the length of time a ship is docked and risky behavior with the potential to transmit HIV/AIDS among ship crew members (OR= 3.215;  $p= 0.014$ ).

Additionally, 17 respondents were invited by friends/colleagues to seek out Female Sex Workers (FSWs), and all of these 16 respondents exhibited risky behavior. In contrast, 79 other respondents were not invited by friends/colleagues, with 29 engaging in risky behavior and 50 not engaging in risky behavior. There is a relationship between invitations from friends/ colleagues and risky behavior that has the potential to transmit HIV/AIDS among ship crew members (OR= 27.59;  $p < 0.001$ ).

## DISCUSSION

Knowledge is very important for someone to have in working because with good knowledge will lead someone to be able to recognize and better understand substances that can be harmful to health. In this case, the ship crew will try to eliminate or reduce the risks that can cause a disease. Someone who does not have sufficient knowledge certainly does not always have adequate behavioral changes in behaving well. Meanwhile, those who have sufficient knowledge but whose behavior is actually risky are likely because the level of knowledge they have only reached the knowing stage which is the lowest level of knowledge so that they have not been able to encourage respondents not to engage in risky behavior of contracting HIV/AIDS (Darlis, Gobel and Yusriani, 2020). In this study, it was found that more respondents had knowledge in the good category.

However, the number of high-risk behaviors in respondents with poor knowledge and low in respondents who had good knowledge, and vice versa. In respon-

dents who were not at risk, poor knowledge actually had low risk behaviors and high numbers in respondents who had good knowledge (OR= 2.734;  $p= 0.029$ ). This finding is supported by the results of previous studies that showed a relationship between knowledge of HIV/AIDS and risky behavior in ship crew members (Suryono et al., 2011).

Attitude is a closed reaction or response from a person to a stimulus or object. The attitude discussed in this study is the attitude regarding efforts to prevent risky behavior of HIV/AIDS. The attitude of preventing HIV/AIDS in Crew Members is very important in efforts to prevent the spread of this virus in the ship's workplace. An open, responsive and proactive attitude towards prevention and appropriate action can help protect individual health, prevent the risk of transmission and create a safer work environment (Sharfina et al., 2023b). Most respondents in this study had a positive attitude, namely 80 respondents and 16 respondents were negative. In line with previous findings that found more respondents who had a good attitude, namely 52.94% of respondents and the remaining 47.06% had a less positive attitude (Susanto and Hadisaputro, 2023).

Although the attitudes of the respondents were more positive, there were also quite a lot of risky behaviors in the field. This is because the attitudes of respondents who are already positive have not been able to facilitate changes in a person's behavior. This is also known through the large number of respondents who have good knowledge about HIV/AIDS, but the behavior of the Crew (ABK) themselves is still at risk of HIV/AIDS transmission. The results of statistical tests show that there is no relationship between attitudes and risky behavior that has the potential to transmit HIV/AIDS. In line with other findings that

also show that the two variables do not show significant values (FR, Susanto and Hadisaputro, 2023). According to Sari's research conducted on ABK at Cilegon Port, it also stated that attitude factors do not influence their intention to change risky sexual behavior to safer sexual behavior (Sari, 2013). Therefore, respondents who have good attitudes still have risky behavior.

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have spiritual religious strength, self-control, personality, intelligence, noble morals and skills needed by themselves and society (Rahman *et al.*, 2022). It is also well established that education enhances an individual's ability to access media and information while fostering greater openness to developments and changes in their environment, including knowledge about HIV/AIDS (Iswanto, 2011). In this study, it was found that most of the respondents studied were high school/high school/ equivalent graduates, namely 62.5%. While the other 34.4% were college/university graduates and the remaining 3.1% were junior high school/junior high school/ equivalent graduates. Previous findings found that most of the respondents studied also had a high school/high school/ equivalent education, namely 65.9% (Magfirah, Arsin and Nyorong, 2017). Education up to the high school/high school/ equivalent level is already included in the higher education category. Thus, it is known that almost all respondents studied already have a high education category.

Education is very closely related to a person's learning ability to absorb information. It is not surprising that the knowledge and attitudes of most respondents are also good. Even so, the behavior of many of

the Ship's Crew is still at risk of contracting HIV/AIDS. Statistical results show no relationship between education and risky behavior that has the potential to transmit HIV/AIDS. In line with previous research conducted on ABK at Hurnala Tulehu Port in 2023 which showed no relationship between education and risky behavior for HIV/AIDS in ABK in the area (FR, Susanto and Hadisaputro, 2023). In addition, it is known that education also has no relationship to HIV/AIDS prevention behavior in Housewives in Banyumas Regency in 2022 (Sanad *et al.*, 2022). Other findings also show no effect of education on the incidence of HIV/AIDS (Kurniawati, 2022). Research on men who have sex with men (MSM) also indicates no correlation between education level and HIV/AIDS status (Afriyanti, Waluyo and Yona, 2020).

Income is the amount of money or goods received from other parties as a result of business activities. The greater the amount of money received, the greater the workload borne by a Ship's Crew (ABK). The heavy workload and distance from the family environment make it difficult for ABK to channel their fatigue to family members they trust so that their escape is to hire FSW services to have fun releasing the fatigue they have endured while working. The results of this study indicate that as many as 82 respondents who have incomes in the high category with 37 respondents at risk and 45 other respondents are not at risk. High income is also closely related to the ability of the Ship's Crew (ABK) to hire FSW. This can be seen through the researcher's investigation of respondents with high incomes, most of whom get FSW at hotels/inns/homestays and the rest in localizations. The higher the respondent's income, the higher the risk of engaging in HIV/AIDS risky sexual behavior, because they have enough money for



sex transactions supported by other variables, namely the affordability of sex transactions where overall respondents know the existence of sex transaction places around the port (karaoke places, massage parlors, hotels/inns/home stays and localizations) (Vera and Rico, 2023b).

However, it is known that the results of this study indicate no relationship between income and risky behavior for HIV/AIDS transmission. This is in line with previous research that found no relationship between income and HIV/AIDS risk behavior in ship crew (Suryono et al., 2011). This is because risky behavior does not only occur in respondents with high incomes, but also in respondents with low incomes. This finding is further supported by previous research, which demonstrated a significant association between income level and risk behavior, as well as between homelessness in the past six months and risk behaviour (Davey-Rothwell et al., 2012). Previous studies reported that fees for commercial sex workers (FSWs) ranged from 100,000 IDR for lower-class workers to 400,000 IDR for upper-class workers (Erwanda et al., 2024). Given their monthly income, ship crew members can still afford to hire FSWs when their ships are docked.

Ship crew members are a high-risk group for contracting HIV/AIDS due to their frequent use of sex worker services. This risk is associated with their job's high mobility, which limits their time spent with family and often leads to prolonged stress. In this study, the frequency of returning home refers to how often ABK return to their families in a year. The results revealed that 63 respondents rarely returned home, with 28 respondents identified as at risk and 35 not at risk. Meanwhile, 33 respondents often returned home, of whom 17 were at risk and 16 were not. Statistical tests showed no significant relationship

between the frequency of returning home and risky behavior related to HIV/AIDS transmission in ship crew. This is because both frequent and infrequent homecomings were associated with relatively high-risk behaviors. Returning home regularly and spending time with family could offer support and encouragement for ABK to avoid sexual encounters with sex workers by fostering a sense of attachment to their partners. Additionally, frequent homecomings could help ship crew satisfy their biological needs with their partners, thus strengthening their marital relationships.

The study found that 54.2% of respondents were married, 43.7% were unmarried, and 2.1% were divorced. Thus, most of the respondents were married, which aligns with previous research showing that most ABK respondents were married (Sididi, Rahman and Yusriani, 2020). In a similar study, 97.6% of respondents were married, with only 2.4% being unmarried (Mardalina, 2015). Other studies also reported that 75.1% of ship crew were married (Darlis, Gobel and Yusriani, 2019). Married respondents tend to be more sexually active (Zhuang et al., 2012). Being away from a spouse for extended periods, such as the >2 weeks typical for ship crew, can result in unmet sexual needs, potentially leading to unsafe sexual behavior that increases the risk of HIV/AIDS transmission (Aristanto, 2013). According to the findings, the long sailing times of ship crew often compel married individuals to fulfill their sexual needs by hiring sex workers. Statistical tests revealed no relationship between marital status and risky behavior related to HIV/AIDS transmission among ship crew. Engagement with sex workers is not limited to married ship crew members but is also common among unmarried individuals. Several factors contribute to this behavior, including peer pressure from fellow crew

members, easy access to sex workers, and social reinforcement. Interviews with respondents revealed various reasons for hiring sex workers, such as peer invitations (16.7%), separation from their spouses (6.3%), and personal desires (14.6%). Among these, peer invitations and personal desires emerged as the most influential factors. The combination of unmet sexual needs and peer influence creates a strong temptation to engage in risky behavior. Statistical tests show a relationship between the length of time a ship is docked and risky behavior that has the potential to transmit HIV/AIDS. This finding is consistent with previous studies, which also identified a significant relationship between the duration of ship docking and risky behavior in ship crew related to HIV/AIDS transmission (Susanto and Hadisaputro, 2023). Ships that dock for longer periods (more than one day) present a higher risk for HIV/AIDS transmission. This is primarily because ABK experience boredom during long trips and miss their family or spouse. To alleviate their boredom when the ship docks, ship crew often seek entertainment, and those unable to control their biological urges may turn to easily accessible FSW services (Susanto and Hadisaputro, 2023). The data from this study showed that 60 respondents had ships that docked for an extended period; of these, 34 were at risk, and 26 were not at risk. In contrast, 36 respondents had ships with short docking periods; 11 of them were at risk, and 25 were not at risk. These findings suggest that longer docking times are associated with a higher risk of HIV/AIDS-related behavior, with respondents being 3.215 times more likely to engage in risky behavior when their ship docks for a longer duration.

The demanding nature of seafaring work often requires crew members to be

away from their families for extended periods, leading to prolonged boredom and stress. This stress is often heightened by the inability to fulfill sexual needs while separated from their partners. In such circumstances, ship crew tend to form close emotional bonds with one another, sharing personal feelings and experiences. A study on adolescents in Bekasi found that peers play a significant role in shaping sexual behavior—teenagers with sexually active friends are more likely to engage in similar behavior at an earlier age (Ginting et al., 2023). Likewise, unmarried ship crew members who have never used the services of FSWs are also susceptible to peer influence.

Peer influence can lead ship crew members who previously avoided risky behavior to engage in it, particularly when they struggle to control their biological urges. Peer pressure often results in planning to hire FSW services when the ship docks. A study by Magfirah et al. (2017) reported that among 286 ship crew members whose vessels were docked for more than a week, 44.8% were at high risk for HIV/AIDS, largely due to boredom and sexual frustration during long periods at sea. In that study, 16 at-risk respondents admitted to hiring FSW services upon encouragement from friends or colleagues. These findings align with research by Darlis et al. (2019), which found a significant link between coworker influence and risky sexual behavior related to HIV/AIDS transmission among crew members at Soekarno-Hatta Makassar Port. Conversely, a study by Sharfina et al. (2023b) identified a positive correlation between coworker support and HIV/AIDS preventive behaviors among ship crew members. Research by Warsini (2020) highlights the crucial role of social support in alleviating depression. Therefore, it is recommended that

health offices collaborate with counselors to provide mental health services for ship crew members while docked. Counseling can help strengthen both individual resilience and internal support within the ship crew community.

#### **AUTHORS CONTRIBUTIONS**

Neltji Mars Dere, the principal investigator, played a key role in selecting the research topic, designing the methodology, collecting field data, conducting tests, analyzing results, and compiling the research findings. Pius Weraman, Imelda F. E. Manurung, Yendris K. Syamruth, and M. M. Dwi Wahyuni contributed to the writing process by reviewing the accuracy of the research approach, methodology, and data analysis. They also provided valuable input in drafting the journal.

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#### **CONFLICT OF INTEREST**

There is no conflict of interest in this study.

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