

# Perception Difference on Sexually Transmitted Infections between Domestic and Foreign Ship Crews (A Study at Merak Port of Banten)

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**Abstract** — Crew is one component in the vulnerable community of Sexually Transmitted Infections (STIs) in the port. According to the Integrated Biological and Behavior Surveillance Survey (STBP) report in 2011 at 5 ports in Indonesia, 58% of crews were associated with Women Sex Workers (WSW) and 50% had unprotected sex. This can have an impact on STIs transmission. The crews who came to the Merak Port of Banten were from domestic and abroad. Is there any difference of perception on STIs transmission among domestic and foreign crew at Merak Port of Banten? This was a comparative quantitative descriptive research, a cross sectional study design. The population and samples were domestic and foreign crews at Merak Port of Banten. Questionnaire was used as research instrument. The sampling method was done through purposive sampling based on the criteria the first ship that arrived in the port. The sampling technique was done on random ship based on ship arrival day, i.e. the first ship that came on that day. The sampling for domestic ship was done on Monday, Wednesday, And Sunday. Meanwhile the abroad ships were on Tuesday, Thursday and Saturday. Univariate and bivariate data were analyzed through Chi square test. Multivariate was analyzed through logistic regression with significance  $p < 0.05$ . The respondents were 100 domestic ship crews and 100 foreign crews. Both groups were significantly different in age and revenue variable ( $p < 0.05$ ). There is a significant difference in ship crew type variable and revenue for perception analysis on STIs transmission, questionnaire on perceived barriers, cues to action and self-efficacy ( $p < 0.05$ ). Regarding the multivariate analysis on perception of STIs transmission, type of ship crew has significant difference ( $p = 0.031$ ; OR 1.930; 95% CI 1.06-3.51). There is perception difference on STIs transmission between domestic and foreign ship crews at Merak Port of Banten ( $p = 0.031$ ; OR 1.930; 95% CI 1.06-3.51), with OR value 1.930, foreign crews have better perception on transmission STIs than domestic crews.

**Keywords:** *perception, STIs, domestic and foreign ship crews*

## I. INTRODUCTION

Sexually Transmitted Infections (STIs) are diseases caused by invasions of virus, bacteria, parasitic and genital organisms that are mostly transmitted through sexual intercourse, whether of different types or of the same sex. The rate of STIs (HIV) spread tends to be increasing. One of those belong to the sexual-risk behavior groups is the ship crew who become the customers of commercial sex workers. Ship crews are one component in the port community who are a high-risk target to contract STIs (HIV / AIDS) because they often use the services of sex workers. This is due to their duties and functions with high mobility so that they have little time meeting family and often experience prolonged stress [1][2].

Based on the 2011 Integrated Biological and Behavior Surveillance Survey (STBP) in 2011 at 5 ports in Indonesia, it was found that 58% of ship crews were associated with Female Sex Workers (WSW) within last year, and 16% was associated with nonpermanent partners. Regarding sexual intercourse with WSW and non-permanent couples, only 8% used condoms while 50% had unprotected sex [3]. Their sexual behavior pattern is very risky for contracting the disease because of frequent related activities (50%) with WSW and changing couples without using condoms (31.2%). It was also found that some (60%) of ship crews had been infected with sexual diseases. This is very worrying as they can spread the disease to their partner. If a spouse is infected with a sexually transmitted disease, it can interfere with the reproductive fertility of the couple [1]. Further, the Health Belief Model contains several primary components (or constructs) that predict whether and why people will take action to prevent, detect, or control illness conditions. These constructs include perceived susceptibility, perceived severity, perceived benefits and

perceived barrier to engaging in a behavior, cues to action, and self-efficacy [4]

Since the 1950s, the Health Belief Model has been one of the most widely used conceptual framework in health behavior research, both to explain change of health-related behaviors and as a guiding framework for interventions [5].

Based on the preliminary study at Merak Port of Banten on October 3, 2016 it was revealed that many of the crew members in Merak Port of Banten came from outside of Merak. In addition, there were also ship crews who anchored from abroad. The objectives of this study were to compare the differences on STIs perception among domestic and foreign ship crews at Merak Port of Banten.

II. METHOD

It is a quantitative research with cross sectional study design. The research was conducted at Merak Port of Banten in May 2017.

The population in this study was both the domestic and foreign crews at Merak Port of Banten in May 2017. The sampling method in this research was purposive sampling based on the criteria the first ship that arrived at the port. The sampling for domestic ship was done on Monday, Wednesday, And Sunday. Meanwhile the one for foreign ships was conducted on Tuesday, Thursday and Saturday. The total sample in this study was 200 people in which 100 people were domestic crew and 100 were abroad one. The bivariate analysis technique was done using Chi Square Test. Meanwhile, the multivariate analysis was done through logistic regression.

III. RESULT

TABLE I. THE OVERVIEW RESEARCH SUBJECT CHARACTERISTICS AND SHIP CREW TYPE

Characteristic of domestic and foreign ship crews		Ship Crews				p value
		Domestic		Foreign		
		N	%	n	%	
Sex	Male	99	99	100	100	1.000
	Female	1	1	0	0	
Age	≤ 21 years old	6	6	0	0	0.029
	> 21 years old	94	94	100	100	
Education	≤ High school	85	85	76	76	0.108
	> High school	15	15	24	24	
Revenue	≤ 2 million	17	17	0	0	0.000
	> 2 million	83	83	100	100	
Marital Status	Not married	30	30	22	22	0.197
	Married	70	70	78	78	

\*) p <0.05 significance; Chi Square test

The result of statistical analysis on table I shows significant difference in the characteristics of domestic ship crews with foreign ship crews based on age (p = 0.029) and income (p = 0.000).

TABLE II. BIVARIATE ANALYSIS ON THE RELATIONSHIP BETWEEN INDEPENDENT AND CONFOUNDING VARIABLES ON PERCEPTION AGAINTS STIs TRANSMISSION

Independent and confounding variable	Ship Crews	Ship Crews				p value	OR	95% CI
		Domestic		Foreign				
		n	%	n	%			
Ship crew type	Domestic	59	59.0	41	41.0	0.002	2.45	1.35-4.33
	Foreign	37	37.0	63	63.0			
Age	≤ 21 y.o.	5	83.3	1	16.7	0.107	5.66	0.65-49.34

Independent and confounding variable	Ship Crews	Ship Crews				p value	OR	95% CI
		Domestic		Foreign				
		n	%	n	%			
Education	> 21 y.o.	91	46.9	103	53.1	0.539	1.25	0.62-2.52
	≤ High school	79	49.1	82	50.9			
Revenue	> High school	17	43.6	22	56.4	0.003	5.75	1.59-20.68
	≤ 2 million	14	82.4	3	17.6			
Marital Status	> 2 million	82	44.8	101	55.2	0.104	1.69	0.89-3.21
	Not married	30	57.7	22	42.3			
	Married	66	44.6	82	55.4			

\*) p <0.05 significance; Chi Square test

The result of statistical analysis in table II shows the perception on STIs transmission among domestic and foreign ship crews type with Chi square test (p = 0.002; OR 2.450; 95% CI 1.38-4.33) which means that the perception on STIs transmission among foreign ship crews is 2.450 times significantly higher than domestic ship crews. The income variable shows significant difference (p = 0.03; OR 5.748; 95% CI 1.59-20.68) which means that income factor has an effect on STIs transmission perception, 5.748 times on crew.

TABLE III. RELATIONSHIP BETWEEN PERCEPTION QUESTIONNAIRE GROUP AND SHIP CREWS TYPE

Questionnaire Group	Ship crews type		p value
	Domestic	Foreign	
Perceived Susceptibility	21.84 ± 3.24	22.02 ± 2.89	0.905
Perceived Severity	20.84 ± 2.66	20.93 ± 2.82	0.288
Perceived Benefits	24.63 ± 3.18	25.18 ± 3.92	0.165
Perceived Barriers	21.63 ± 2.96	22.28 ± 3.57	0.013*
Cues to Action	18.67 ± 2.94	20.29 ± 2.36	0.001*
Self-Efficacy	15.2 ± 3.08	16.83 ± 2.28	0.001*

The result of statistical analysis on table III shows that the Perceived Barriers (p = 0.013), Cues to Action (p = 0.001) and Self-Efficacy (p = 0.001) of foreign ship crews are significantly higher than domestic ship crews (p < 0.05).

TABLE IV. MULTIVARIATE ANALYSIS ON THE RELATIONSHIP BETWEEN INDEPENDENT AND CONFOUNDING VARIABLES WITH PERCEPTIONS ON STIs TRANSMISSION

Independent and confounding variable	Perception on STIs Transmission	Perception on STIs Transmission		
		p value	OR	CI 95%
Ship crew type	Domestic	0.031	1.930	1.06-3.51
Age	Foreign	0.570	1.957	0.19-19.85
	≤ 21 years old			
Revenue	> 21 years old	0.058	3.656	0.96-13.96
	≤ 2 million			
Marital Status	> 2 million	0.262	1.479	0.74-2.93
	Not married			
	Married			

\*) p <0.05 significance; Logistic Regression

The result of statistical analysis on table 4 shows the factor that have a significant effect on STIs transmission perception is the type of ship crews (p = 0.031; OR 1.930; 95% CI 1.06-3.51) and it means that foreign ship crews have 1.930 times higher STIs transmission perception than domestic crew. The age (p = 0.570; OR 1.957; 95% CI 0.19-19.85), income (p = 0.058; OR 3.656; 95% CI 0.96-13.96) and marital status (p = 0.262; OR 1.479; 95% CI 0.74-2.93) variables show no significant results (p > 0.05).

#### IV. DISCUSSION

Based on the characteristics of research subjects, there are only age and income variables that are significant. According to the Ministry of Health, the incidence of HIV/AIDS is more prevalent in the adult age group until the end. In 2017, it was recorded that 85.4% of HIV cases occurred at the age of 25-49 years; 5.4% at age < 20 years and 9.2% occurred at > 50 years [6]. The ship crews have the rules or regulations on the fixed salary system; the salary of the ship crew and the skipper are adjusted to the International Transport Workers Federation standard [7].

The result of bivariate analysis on ship crew type on STIs transmission perception ( $p = 0.02$ ; OR 2.450; 95% CI 1.38-4.33) shows significant difference ( $p < 0.05$ ) meaning that the foreign ship crew has 2.450 times better perception than the domestic one. In regards to each question on STIs transmission perception, the 36 questions are grouped into 6 (six) groups: Perceived Susceptibility, Perceived Severity, Perceived Benefits, Perceived Barriers, Cues to Action and Self-Efficacy.

The domestic ship crew's answers to the questionnaire show the lowest average score in the Perceived Susceptibility group in the question; "Changing partners during sex but using a condom will not be at risk of infecting STIs (2.92)". Further, among foreign ship crew, the lowest average score of the susceptibility group is in the question; "Changing partners during sex but using a condom will not be at risk of infecting STIs (2.29)". The results show that those domestic and foreign ship crews have the same perception that having sex alternately will be safe when condoms are used. Meanwhile, changing couples even if condoms used is at risk of contracting STIs when the caps are leaked and improperly used [8]. According to the Ministry of Health in Indonesia in 2006, it is said that the best way to prevent STIs is to avoid direct contact by avoiding changing sexual partners and using condoms correctly and consistently. HIV/AIDS can only be prevented through social vaccine which involves spreading education on protecting oneself, using 100% condom, and changing sexual behavior [9]. The perceived threat to the risks will arise. This refers to the extent to which a person thinks of an illness or pain as a threat to himself. The assumption is that if the perceived threat increases then the prevention behavior will increase. Behavior on perceived threats is based on Perceived Susceptibility that everyone can develop health problems according to the conditions they feel [10].

Group of Perceived Severity among domestic ship crew scores lowest on the question; "Sex partners who suffer from STIs are not necessarily infectious to me (2.82)". The group of Perceived Severity among the foreign ship crew scores lowest on the question; "Sex partners who got STIs are not necessarily transmitted to me (1.83)". These results show that the domestic and foreign ship crews have the same perception erroneously; whereas sex couples who contract STIs will definitely transmit the disease to their partner. According to Puspitas, STIs are transmitted due to invasion of viral, bacterial, parasitic and genital organisms that are mostly transmitted through sexual contact [11]. Thus, if a person is infected, it is easy to transmit the illness to their sex partner [12].

The perceived benefit group among domestic ship crew scores the lowest on the question; "I do not use condoms due to limited access to buy the cap (2.01)". Meanwhile benefit perceived group among foreign ship crews has the lowest score on the question; "I do not use condoms because limited access to buy the cap (1.92)". In some vessels, especially the domestic, the supply of condoms is quite limited. Contrastingly, the availability of condoms in foreign ship crews is higher. It can be seen from the amount of condom stock in the medicine list document. However, it is possible that the ship crew frequently take the condoms so that the stock is reduced. Further, the travel duration of the ship crews from one place to another place makes it hard to add the inventory stock. For the prevention of STIs transmission due to sex intercourse, condoms remain to be used since consistent and appropriate use of condoms will prevent transmission of STIs to the ship crews. According to Centers for Disease Control and Prevention (CDC) in 2010, the proper use of condoms will reduce the risk of contracting STI and HIV. Condom use and sexual health education among sex work venues is a significant predictor of HIV risk reduction [13][14]. According to the Theory of Health Belief Model (HBM), the possibility of individuals taking precautions depends directly on the outcome of two beliefs or health beliefs: perceived threat of injury and illness and benefits and costs [15].

Group of Perceived Barriers among domestic ship crews scores the lowest value on the question; "I do not use a condom when having sex because I have allergies (2.49)". The group of Perceived Barriers among foreign ship crews has the lowest value in the question; "I do not use a condom during sex because I have allergies (1.88)". There are some people who are allergic and uncomfortable in having sex using a condom but it is not an obstacle to use condoms during risky sex. The data reveal that in the intercourse of ship crews with WSW and non-permanent partner, only 8% uses condoms, while 50% of the ship crew has more unprotected sex [3]. This indicates risky behavior among ship crews to contract STIs.

Group of Cues to Action among domestic ship crew has the lowest score on the question; "I imitate my friends who also use condoms when having sex (2.63)". In this perception, the ship crews imitate the use of condoms because of the influence of the environment, i.e. their friend. Therefore, the influence of the environment is very influential on the behavior of a person as suggested by Schiffman. One's perception about the environment is not only based on sensory devices, hearing, touching, but also based on an element of feeling [16]. Group of Cues to Action among foreign ship crews value the lowest on the question; "I do not wear condoms because condoms do not protect me from any other infectious disease (1.85)". Condoms are very protective of STIs transmission to the ship crews. WHO (2006) mentions that condoms can reduce the risk of being infected with sexually transmitted infections from the sexual partners. Proper and consistent use of condoms are not only associated to reduced HIV transmission [17][18] but also to reduced urethral infections [19].

The lowest score on group of self-efficacy among domestic ship crews is on the question; "I believe that condoms can reduce the risk of STIs (3.72)". Condoms are one of the ways to prevent STIs through vaginal, rectal or oral sex.

Transmission of sexually transmitted infections is commonly through unprotected intercourse, unprotected anal intercourse and oral sex without using condoms [20]. Group of self-efficacy among foreign ship crews scores the lowest on the question; “VCT tests will help me in reducing the risk of STIs (4.02)”. VCT is a process for someone who wants to know HIV's self-status by doing a blood test for HIV. VCT is very important to find out HIV status early on. The general purpose of VCT is to promote behavioral changes that reduce the risk of infection and the spread of HIV infection. Broadly, the purpose of VCT is divided into two, namely the prevention of HIV and the entrance to therapy and care [21].

Multivariate analysis of ship crew type on perception of STIs transmission shows significant difference ( $p < 0.031$ ; OR 1.930; 95% CI 1.06-3.51). It means that foreign ship crews have 1,930 times higher perception on STIs transmission than domestic ship crews. The results of the study are in accordance with a study conducted by Goedel who examines the perceptions on behavior and sexual risk of homosexual in New York City [22]. The study analyzes the perceptions on sexual behavior and risk. The study also links to ethnicity and race of respondents that result significant difference ( $p < 0.05$ ). Meanwhile, the results of different research conducted by Gani in West Sumatra Province that examines the knowledge of STIs among housewives point out no relationship between knowledge with STIs ( $p > 0.05$ ) [23]. Differences in the results of this research with previous research are related to the characteristics of the respondents as well as the culture and ethnic backgrounds of the different ship crews. It is strengthened by several theories that suggest that many external factors affect sex behavior. These factors include residence, family, friends, and community [24].

Statistical analysis based on the age with perception on STI transmission ( $p = 0.570$ ; OR 1.957; 95% CI 0.19-19.85) shows no significant difference ( $p > 0.05$ ). This is in accordance with Clifton's study about HIV testing, risk perception, and behavior in the British population in 2016 in the UK ( $p > 0.05$ ) [25]. Age affects one's capability and mind-set; at an age to adulthood, individuals will play an active role in society and social life [21].

The result of statistical analysis on education variable with perception on STIs transmission ( $p = 0.539$ ; OR 1.247; 95% CI 0.62-2.52) shows no significant difference ( $p > 0.05$ ). This is in line with Jendri's study who finds no relationship between education level and STIs incidence at STIs clinic, Pasar Minggu Public Health Center ( $p > 0.05$ ) [26]. The results of this research are different from Cliftona's et al. in 2016 in the UK ( $p < 0.05$ ) [25]. According to Annisa, education is a very important partner as a benchmark in determining the socio-economic status of a person. In addition, education also plays a role in the actions that will be done by a person in regards to efforts in preventing HIV/AIDS [27]. Senior high school is a secondary school that students attend in the three or four grades before college. The respondents' education is mostly  $\leq$  high school ( $> 80\%$ ). This is consistent with the theory stating that education levels have an effect on the diffusion and difference in the spread of HIV/STIs in specific populations or communities [28].

The result of statistical analysis on revenue variable with perception on STIs transmission ( $p = 0.003$ ; OR 5.748; 95% CI 1.59-20.68) shows significant difference ( $p < 0.05$ ). The results of the research are in accordance with the ones from the research of Li Li in China which reveals that there is a relationship between income in the population of people with HIV/AIDS ( $p < 0.05$ ) [29]. The result of statistical analysis with correlation test on domestic ship crews' income shows that there is a significant relationship between incomes with perception on STIs transmission among domestic ship crews ( $p < 0.05$ ). Those differences are caused by difference on income grouped into category  $\leq 2$  million and  $> 2$  million among domestic ship crews. Therefore, it is divided and tested in the test of correlation. Meanwhile, the foreign ship crews are not tested on correlation based on income because foreign ship crews' income is  $> 2$  million.

The result of statistical analysis on marital status variable with perception on STIs transmission ( $p = 0.104$ ; OR 1.694; 95% CI 0.89-3.21) exhibits no significant difference ( $p > 0.05$ ). This is in contrast to Kamilah's research which reveals that there is a relationship between marital status and the incidence of HIV ( $p < 0.05$ ) [30]. In this study, the researchers find that most of the respondents have been married ( $> 70\%$ ). Therefore, this result is different from previous research. The incidence of STIs is higher among unmarried, divorced or separated people compared to married people in fulfilling their sexual needs [30]. Based on the overall statistical analysis, the domestic ship crews have a negative perception on STIs transmission ( $< 70\%$ ). The low perception on STIs transmission among the domestic ship crews will implicate the possibility of domestic ship crews in Merak Port of Banten susceptible to STIs transmission. Individual with less knowledge about HIV/AIDS is at risk of contracting HIV/AIDS than those with good knowledge [31].

There are 3 perception questionnaires groups on the significant transmission of STIs, Perceived Barriers ( $p = 0.013$ ), Cues to Action ( $p = 0.001$ ) and Self Efficacy ( $p = 0.001$ ) that are significantly different ( $p < 0.05$ ). It reveals that foreign ship crews' perception is significantly higher than the domestic ones. The possibility of such difference is due to ship crews' factor of residence, information factors both through social media and print, and the communities in ship crews' residence. This result is in accordance with several studies. One of them is a research by Pratiwi and Basuki which show a significant difference in sexual behavior with the dwelling ( $p < 0.05$ ) [32].

## V. CONCLUSION

There is perception difference on STIs transmission between domestic and foreign ship crews at Merak Port of Banten ( $p = 0.031$ ; OR 1.930; 95% CI 1.06-3.51). Foreign ship crews have a 1.930 times better perception on transmission of STIs than domestic ship crews.

## ACKNOWLEDGEMENTS

The authors thank the Health Human Resources Development and Empowerment Agency (BPPSDMK) of Ministry of Health of Indonesia for the funds granted for the research.

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