



Differences in Skipper Leadership Type with Vessel Health Risk Level at Tanjung Perak Harbour Surabaya-East Java

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ABSTRACT

The presence of cockroach and rat vectors on ships is an indication of the crew's lack of attention to ship health efforts. The purpose of this study was to analyze the difference between the skipper's leadership type and the level of ship health risk in Tanjung Perak Port, Surabaya, East Java. The research design was a cross-sectional survey with an observation approach. The population was all crew members of 1,164 domestic ship arrivals at Tanjung Perak Port Surabaya-East Java in March 2023 totaling 23,073 crew members. The sample size of 298 respondents was taken with Simple Random Sampling. The instruments used were a questionnaire sheet about the skipper's leadership a supervision checklist sheet for vector inspection and BPP about the level of ship health risk. Analysis with Fisher's Exact Test. The results showed that the skipper's leadership type was mostly democratic, namely 223 people or 74.8%. The level of ship health risk is almost absent of public health risk factors, namely 280 ships or 94.0%. Fisher's Exact Test showed $p=0.000<0.05$. The conclusion is that there is a difference between the skipper's leadership type and the level of ship health risk. The interests of the crew by trying to create a more open relationship can increase and maximise the implementation of ship sanitation. Further research by examining other factors related to the level of ship health risks that have not been studied in this study accompanied by in-depth interviews with all crew members so that the research results are more objective.

Keywords: Leadership, Skipper, Crew, Ship Sanitation.

ABSTRAK

Adanya vektor kecoa dan tikus pada kapal merupakan indikasi kurangnya perhatian kru kapal terhadap upaya penyehatan kapal. Tujuan penelitian ini adalah untuk menganalisis perbedaan tipe kepemimpinan nakhoda dengan tingkat risiko kesehatan kapal di Pelabuhan Tanjung Perak Surabaya-Jawa Timur. Desain penelitian adalah *survey cross-sectional* dengan pendekatan observasi. Populasi adalah seluruh ABK dari 1.164 kedatangan kapal dalam negeri di Pelabuhan Tanjung Perak Surabaya-Jawa Timur bulan Maret tahun 2023 sejumlah 23.073 ABK. Jumlah sampel sebanyak 298 responden diambil dengan *Simple Random Sampling*. Instrumen yang digunakan adalah lembar kuesioner tentang kepemimpinan nakhoda dan lembar supervisi *checklist* pemeriksaan vektor dan BPP tentang tingkat risiko kesehatan kapal. Analisis dengan uji *Fisher's Exact Test*. Hasil penelitian menunjukkan bahwa tipe kepemimpinan nakhoda sebagian besar demokratis, yaitu 223 orang atau 74,8%. Tingkat risiko kesehatan kapal hampir seluruhnya tidak ada faktor risiko kesehatan masyarakat, yaitu 280 kapal atau 94,0%. Uji *Fisher's Exact Test* menunjukkan nilai $p=0,000<0,05$. Kesimpulannya ada perbedaan tipe kepemimpinan nakhoda dengan tingkat risiko kesehatan kapal. Kepentingan kru kapal dengan berusaha menciptakan hubungan yang lebih terbuka dapat meningkat dan memaksimalkan pelaksanaan sanitasi kapal. Penelitian lebih lanjut dengan meneliti faktor lain terkait tingkat risiko kesehatan kapal yang belum diteliti pada penelitian ini disertai dengan wawancara mendalam terhadap seluruh kru kapal agar hasil penelitian lebih objektif.

Kata Kunci: Kepemimpinan, Nakhoda, ABK, Sanitasi Kapal.

INTRODUCTION

The World Health Organisation (WHO) states that more than 100 outbreaks or extraordinary events of infectious diseases have been linked to marine transport. For example, cases in the past year, namely 2017-2019, showed that 239 cruise ships arriving at United States ports experienced gastrointestinal outbreaks, and more than 10,000 passengers and crew members experienced symptoms of vomiting and diarrhoea (Supryatno & Alimin, 2022). In 2022, according to the Decree of the Minister of Health of the Republic of Indonesia, Number HK.01.07/MENKES/1937/2022 concerning Professional Standards for Health Entomologists, cases of diseases caused by vectors and disease-carrying animals in Indonesia itself showed a high incidence, some of which were recorded as endemic diseases (Kementerian Kesehatan Republik Indonesia, 2022). The high incidence of vector-borne diseases and disease-carrying animals in Indonesia is partly due to the increase in transportation modes such as ships and currently, there are at least 456 types of mosquito species, of which 221 are vectors of malaria, dengue fever, filariasis, chikungunya, Japanese Encephalitis, Zika, Schistosomiasis, rabies, and other diseases.

According to the researcher's preliminary study in March 2023, which refers to data on sanitary supervision of conveyance/vessels from KKP Class I Surabaya, Tanjung Perak working area, shows the findings of the ship health risk level in October 2022 of 0.57% of 1,227 total ship arrivals, 71.43% of risk factors found cockroach life and 28.57% of risk factors found signs of rat life; in November 2022 of 0.88% of 1,131 total ship arrivals, 80.0% of risk factors found cockroach life and 20.0% of risk factors found rat life sign; and in December 2022, 0.55% of 1,098 total ship arrivals, 83.33% of risk factors found cockroach life and 16.67% of risk factors found rat life sign. January 2023 at 0.59% of 1,168 total ship arrivals, 100% of risk factors found cockroach life; February 2023 at 1.12% of 1,067 total ship arrivals, 75% of risk factors found cockroach life and 25% of risk factors found signs of rat life; and March 2023 at 1.37% of 1,239 total ship arrivals, 70.59% of risk factors found cockroach life and 29.41% risk factors found signs of rat life. In addition, the researcher also observed the leadership style of the skipper of the vessel, where fussy captains/ skippers tend to have clean vessels or show no risk factors, and ignorant/ indifferent skippers usually have less clean vessels (risk factors, such as the presence of rats and cockroaches, were found).

The presence of cockroach and rat vectors on the ship from the results of this researcher's preliminary study is an indication of the lack of attention of the crew to ship sanitation so that ship health efforts cannot be carried out optimally, thus the ship has sanitation that has a high risk level for human disease transmission. Muhammad et al., (2020) said that ship sanitation efforts are the responsibility of ship owners through ship captains and crew members. The crew is responsible for the cleanliness of the ship and other facilities that support ship sanitation (Setiawan, 2020). Meanwhile, the shipmaster's function is as the leader and overall controller of the implementation of ship sanitation (Syamsudin et al., 2021). According to (Mukaromah & Lailiyah, 2019); (Arumsari et al., 2018); (Ovra et al., 2018), the captain of the ship is responsible for the safety of the ship from disease sources and reports in the form of an MDH (Maritime Declaration of Health) form to the Port Health Office every time it enters a country's territory.

According to the International Health Regulations (IHR) 2005, ship sanitation is one of the efforts aimed at environmental risk factors on ships to break the chain of disease transmission in order to maintain and improve health status (International Health Regulations (IHR), 2005). Ship sanitation includes all aspects of the assessment of ship compartments including kitchens, food storage rooms, holds, warehouses, crew rooms, clean water supply, and food serving, waste treatment and control of disease vectors or rodents, conveyance operators who must then keep the conveyance free from sources of disease or contamination, and also free from disease vectors (Depkes RI, 2008). Regulation of the Minister of Health of the Republic of Indonesia Number 40 of 2015 concerning Ship Sanitation Certification, sanitation inspection is intended to assess the sanitary condition of the ship regarding the presence or absence of public health risk factors, if the sanitation inspection does not find any public health risk factors, the ship is declared free of sanitation measures and can be given a Ship Sanitation Certificate by filling in the SSCEC section and crossing out the SSCC section, but if the sanitation inspection finds public health risk factors, the ship must take sanitation measures according to

the recommendations given the Ship Sanitation Certificate by filling in the SSCC section and crossing out the SSCEC section (Kementerian Kesehatan Republik Indonesia, 2015).

Ship health such as sanitation facilities, food supply, and environmental hygiene on board is an integral part of health behaviour towards sanitation (Suryani & Hendrawan, 2020). The discovery of ship health risk factors (disease development sites and disease vectors), the ship health document in the form of a Ship Sanitation Control Exemption Certificate (SSCEC) will be withdrawn and quarantine and ship sanitation will be carried out (Al Muyassaroh et al., 2020); (Fitriana et al., 2018); (Nurbayani et al., 2021)). (Putra et al., 2020) said that the ship health sanitation indicator is used as a standard measuring tool in providing a certificate of seaworthiness for ships, (Azwar et al., 2021) so that the ship's health condition needs to be maintained so that it does not have the potential to cause health problems to the crew and the people who live around the ship's berth.

Nakhoda is one of the crew members who is the highest leader on the ship and has certain authorities and responsibilities in accordance with the provisions of laws and regulations. (Sutikno, 2018), there are three types or styles of leadership that are widely known and acknowledged, namely, dictatorial type (coercion or absolute power), democratic (through deliberation forums to reach agreement), and free (ignorance, passive behaviour and often avoiding responsibility). The leadership of the ship's captain (Setiawati et al., 2018) is formally hierarchical, because there is only one captain in one ship.

The skipper's leadership is one of the internal factors that affect the level of ship health risk (Al Muyassaroh et al., 2020). The results of the study (Teo et al., 2022) show that there is a relationship between skipper leadership and ship sanitation ($p < 0.05$), meaning that the skipper's leadership style has a direct positive influence on crew attachment. A supportive leadership style can result in high satisfaction when workers work on structured tasks, in addition to leadership that is able to communicate and support the implementation of tasks, able to understand, have a willingness to listen to others receptively, objective and honesty, able to increase the success of staff in carrying out their work.

This study aims to determine the difference between the skipper's leadership type and the level of ship health risk at the Tanjung Perak harbour in Surabaya, East Java.

METHODS

The research design used is a cross sectional survey, which is a study in which the independent variable / causal factor / risk factor and the dependent variable / effect factor / effect factor are collected at the same time, the researcher observes or measures the variable at one specific time, which means that each subject is only observed once and the measurement of the subject variable is carried out during the examination (Adiputra et al., 2021). This cross-sectional research design was conducted with the aim of analysing differences in the type of skipper leadership with the level of ship health risk at Tanjung Perak Port Surabaya, East Java. The population in this study were all crew members from 1,164 domestic ship arrivals at Tanjung Perak Port Surabaya-East Java in March 2023 totalling 23,073 crew members. The sample in this study were crew members from domestic ship arrivals at Tanjung Perak Port Surabaya-East Java in March 2023 totalling 298 crew members. This research sampling technique uses probability sampling with random sampling with simple random sampling.

Inclusion criteria in this study include: 1. Domestic vessels (Republic of Indonesia), 2. Vessels that extend SSCEC and PHQC management. 3. Respondents are permanent crew members on ships with skipper leadership > 1 year, 4. The crew contract period is still valid at the time of the study while the exclusion criteria include: Crew members who are sick and ship passengers. The instruments used in this study were a questionnaire sheet about the skipper's leadership and a Supervision checklist sheet for vector inspection and BPP about the level of ship health risk at Tanjung Perak Port Surabaya-East Java.

Data analysis used descriptive analysis in the form of tables and narratives to identify the type of skipper leadership with the level of ship health risk. Comparative analysis using Chi-Square test at 95% confidence level ($p < 0.05$) to analyse the difference of skipper leadership type with ship health risk level in Tanjung Perak Port Surabaya-East Java and using Fisher's Exact Test.

This study has also obtained a Certificate of Ethical Licence from the Research Ethics Commission of the Faculty of Health, University of Muhammadiyah Gresik with Number: 205/KET/II.3.UMG/KEP/A/2023 in an effort to protect the human rights and welfare of research subjects.

RESULTS

Table 1. Frequency distribution by age of crew members of domestic vessel arrivals at Tanjung Perak Port Surabaya-East Java in March 2023.

Age of Crew Members	Frequency (n)	Percentage (%)
Youth (15 to 24 years)	6	2,0
Prime/Productive (25 to 54 years)	278	93,3
Elderly (> 55 years)	14	4,7
Total	298	100

Table 1 shows that of the 298 crew members from domestic ship arrivals at Tanjung Perak Port in Surabaya, East Java, in March 2023, almost all were between 25 and 54 years old or in their prime/productive age, 93.3%.

Table 2. Frequency distribution by education of crew members from domestic ship arrivals at Tanjung Perak Port in Surabaya, East Java, in March 2023.

Education of Crew Members	Frequency (n)	Percentage (%)
SD/MI	1	0,3
SMP/MTs	13	4,4
SMU / SMA & SMK	163	54,7
Higher Education (D3, S1, S2)	121	40,6
Total	298	100

Table 2 shows that of the 298 crew members from domestic ship arrivals at Tanjung Perak Port Surabaya-East Java in March 2023, the majority have a high school education, 54.7%.

Table 3. Frequency distribution according to length of service of crew members from domestic ship arrivals at Tanjung Perak Port in Surabaya, East Java, in March 2023.

Length of Service Crew Members	Frequency (n)	Percentage (%)
< 1 year	36	12,1
1-5 years	177	59,4
6-10 years	70	23,5
> 10 years	15	5,0
Total	298	100

Table 3 shows that of the 298 crew members from domestic ship arrivals at Tanjung Perak Port Surabaya-East Java in March 2023, most had a length of service of 1 to 5 years, 59.4%.

Table 4. Type of Leadership of Captains of Domestic Vessel Arrivals at Tanjung Perak Port Surabaya-East Java in March 2023.

Skipper Leadership Type	Frequency (n)	Percentage (%)
Dictator	7	2,3
Democratic	223	74,8
Free	68	22,8
Total	298	100

Table 4 shows that the skipper's leadership type or style of domestic ship arrivals at Tanjung Perak Port Surabaya-East Java in March 2023 is mostly democratic, at 74.8%.

Table 5. Ship Health Risk Level of Domestic Ship Arrivals at Tanjung Perak Port Surabaya-East Java in March 2023

Vessel Health Risk Level	Frequency (n)	Percentage (%)
Available	18	6,0
None	280	94,0
Total	298	100

Table 5 shows that the ship health risk level of domestic ship arrivals at Tanjung Perak Port Surabaya-East Java in March 2023 is almost entirely no public health risk factors, namely 94.0%.

Table 6. Cross Tabulation of Skipper Leadership Type with Vessel Health Risk Level at Tanjung Perak Port Surabaya-East Java in 2023.

Skipper Leadership Type	Risk Level Ship Health				Total	<i>p-Value</i>
	Available		Not Available			
	f	%	f	%	f	
Dictator	4	57,1	3	42,9	7	100
Democratic	2	0,9	221	99,1	223	100
Free	12	17,6	56	82,4	68	100
Total	18	6,0	280	94,0	298	100

Notes: N=298; Fisher's Exact Test=40.867; $\alpha=0.05$ (5%)

Table 6 shows that there is a level of vessel health risk or public health risk factors with a dictatorial skipper leadership of 57.1% compared to a democratic leadership type of 0.9%. There was no level of vessel health risk or public health risk factors with a democratic skipper leadership of 99.1% compared to a dictatorial leadership type of 42.9%. The results of inferential testing in table 6 using Fisher's Exact Test analysis showed a value of $p=0.000 < 0.05$. This means there is a difference in the type of skipper leadership with the level of ship health risk in Tanjung Perak Harbour Surabaya-East Java.

DISCUSSION

Crew characteristics

The characteristics of crew members from domestic ship arrivals at Tanjung Perak Port Surabaya-East Java in March 2023 are almost entirely aged between 25 and 54 years or including prime/productive age, namely 93.3%, most of whom graduated from high school / high school & vocational school, namely 54.7%, and most have a working period of 1 to 5 years, namely 59.4%. Age is an individual period that counts from the time of birth to repeated years, the more age, the level of maturity and strength of a person will be more mature in thinking and working, and in terms of public trust, someone who is more mature is trusted from experience and mental maturity than someone who is not yet high in maturity, as well as the higher a person's education, the easier it is to receive information which will affect the level of absorption in carrying out work (Wawan & Dewi, 2019).

According to (Hufon & Sestiono, 2021), the longer a person's working period, the skills will increase because they have adapted to their work environment, but it can also be that someone with a longer working period sometimes has decreased productivity due to boredom so that the level of compliance can decrease, then according to (Ningtias et al., 2020), employees or workforce who work for more than 5 years are expected to have the experience and skills needed to do optimal work.

Type of Captain's Leadership at Tanjung Perak Port

The results showed that the type or style of leadership of the skipper of the domestic ship arrivals at Tanjung Perak Port Surabaya-East Java in March 2023 was dictatorial type only 7 people or 2.3%, free type 68 people or 22.8%, and most with democratic type, namely 223 people or 74.8%, so that the skipper's leadership style has a direct influence on crew attachment. According to (Riefo, 2022), the leadership model that occurs on board is the team leadership model, a team is a special type of group whose members are interdependent, have common goals and must coordinate their activities to achieve these goals, the team has specific roles for its members with the knowledge and skills needed to carry out their roles.

The skipper's leadership type of the domestic ship arrivals at Tanjung Perak Port Surabaya-East Java in March 2023 is known through a closed questionnaire of 30 questions about the skipper's leadership type or style with three leadership types or styles as alternative answers, such as: when answering 1 = "dictator type", 2 = "democratic type", and 3 = "free type".

Schick, (2015) explains that, the leadership of a skipper must have seven characters, including: 1) Realising that there is God as a helper, and this is a basic character; 2) Never thinking of sinking the ship, because the ship and the sea are one unit, all crew members including the skipper try to keep the ship from leaking, because they all want to survive; 3) The democratic leadership style is adopted by the skippers but democracy here is when the ship has not departed, this means that before the ship departs the leader and his crew discuss and express opinions, starting from the preparation for departure, leadership on board, and so on, however, when the ship has been decided to run and has been determined by the management on board starting from the skipper, the mualim, and the head of the engine room, that's when democracy no longer occurs, leadership on board absolutely belongs to the skipper as the person responsible for all activities and events on board; 4) The skipper is chosen based on competence not based on family closeness, being a skipper must be able to be the most responsible person on the ship; 5) The skipper must have clear goals; 6) Sea tolerance, every passing ship will usually greet each other and coordinate on which side they will meet, because if they do not do so it is feared that there will be a collision, besides that at sea people will be very tolerant because if there is a person adrift and needs help the nearest ship must be willing to help regardless of his condition; and 7) Stability of balance, it teaches us to be able to put things in accordance with the needs and according to the capacity of the ship.

Based on the results of this study, the researcher assumes that a leadership style that supports an increase in crew engagement, such as having great responsibility for the safety of the voyage (idealized influence), being able to generate optimism, high enthusiasm for the crew (inspirational motivation), trying to create a conducive work atmosphere (intellectual stimulation), and giving awards for success in completing difficult tasks (individualized consideration) can produce high satisfaction, and can increase the success of the crew in carrying out their work.

Vessel Health Risk Level at Tanjung Perak Port

The results showed that the level of ship health risk from the arrival of domestic ships at Tanjung Perak Port Surabaya-East Java in March 2023, found a level of ship health risk or public health risk factor of only 18 ships or 6.0% and almost entirely no public health risk factors, namely 280 ships or 94.0%, so that ships docked at the port are free from health risk factors, so that the health condition of the ship needs to be maintained so as not to become a breeding ground for disease and disease-transmitting vectors. The level of ship health risk from domestic ship arrivals at Tanjung Perak Port Surabaya-East Java in March 2023 is known through supervision of vector inspection checklists and BPPs in a total of 7 locations checked, namely the kitchen, food raft room, warehouse, sleeping room, officer/officer sleeping room, passenger/passenger sleeping room, and deck/deck room aimed at assessing the sanitary condition of the ship related to the presence or absence of public health risk factors.

Ship sanitation applies to all types of ships, both passenger ships and freight ships (Putra et al., 2020). According to the Regulation of the Minister of Health of the Republic of Indonesia Number 40 of 2015 concerning Ship Sanitation Certification, the purpose of the ship sanitation inspection is to assess the sanitary condition of the ship regarding the presence or absence of public health risk factors. Such risk factors may be evidence of infection or contamination including any stage of growth of vectors, disease-carrying animals that can cause human disease, microbiological, chemical, other risks to human health, signs of insufficient sanitary measures and or information regarding any human cases as referred to in the Maritime Declaration of Health (MDH). Ship sanitation inspection is intended for the issuance of a sanitation certificate to obtain a Sailing Permit or better known as Port Health Quarantine Clearance (Suryani & Hendrawan, 2020).

Based on the results of this study, the researcher assumes that the level of ship health risk is in line with the results of the study that there are still known public health risk factors

(6.0%) such as the presence of cockroaches and rats on board. Ship sanitation that does not meet the requirements will cause many problems both physically, health, aesthetics and human survival, with good ship sanitation is an effort aimed at environmental risk factors on board to break the chain of disease transmission in order to maintain and increase health status.

Differences in the Type of Skipper Leadership with the Level of Ship Health Risks at Tanjung Perak Port Surabaya-East Java

The results showed that there were differences in the type of skipper leadership with the level of ship health risk at Tanjung Perak Port Surabaya-East Java. The results of this study are in line with his research (Teo et al., 2022) showing that there is a relationship between skipper leadership and ship sanitation ($p < 0.05$), meaning that the skipper's leadership style has a direct positive effect on crew attachment, as well as Al Muyassaroh et al., (2020), that skipper leadership is one of the internal factors that influence the level of ship health risk.

Ship sanitation efforts are the responsibility of the ship owner through the skipper and crew (Muhammad et al., 2020). Meanwhile, the ship captain's function is as the leader and overall controller of the implementation of ship sanitation (Syamsudin et al., 2021). According to (Mukaromah & Lailiyah, 2019); (Arumsari et al., 2018); (Ovra et al., 2018), the captain of the ship is the leader of the ship responsible for the safety of ships from sources of disease and report in the form of MDH (Maritime Declaration of Health) forms to the Port Health Office every time they enter the territory of a country. Furthermore (Sutikno, 2018), explains that there are three types or styles of leadership that are widely known and acknowledged, namely, dictatorial type (coercion or absolute power), democratic (through deliberation forums to reach an agreement), and free (ignorance, passive behaviour and often avoiding responsibility). The leadership of the ship's captain (Setiawati et al., 2018) is formally hierarchical, because there is only one captain in one ship.

Based on the results of this study, the researcher assumes that the skipper's leadership with various types or styles is the overall leader and controller of the implementation of ship sanitation, besides that the presence of cockroach and rat vectors on the ship is an indication of the lack of crew attention to ship sanitation so that ship health efforts cannot be carried out optimally, thus the ship has sanitation that has a high level of risk of disease transmission to humans.

CONCLUSION

Based on the research conducted, it can be concluded that there are differences in the skipper's leadership type with the level of ship health risk at Tanjung Perak Port Surabaya-East Java. It is recommended that further research be carried out by examining other factors related to the level of ship health risks that have not been studied in this study accompanied by in-depth interviews with the entire ship crew so that the research results are more objective.

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