The Indonesian Journal of Occupational Safety and Health
2023, 12 (3): 424-429
p ISSN: 2301 8046, e ISSN: 2540 7872
http://doi.org10.20473/ijosh.v12i3.2023.424-429

ORIGINAL ARTICLE

Risk of Work Accidents Due to Work Attitude in Speedboat Crews

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ABSTRACT

Introduction: A work accident is an unwanted event that can result in loss that occurs at work. Workplace attitude incompatibility leads to fatigue and a variety of complaints, all of which contribute to the occurrence of work-related accidents. The purpose of this study is to determine whether there is a relationship between work attitude and the risk of work accidents among speedboat crew members at SDF Port, Tarakan City. **Methods:** This research used quantitative analysis with a cross-sectional design. Data were obtained through questionnaires and direct interviews. This research population is the speedboat crew at the Port of SDF Tarakan City; a total of 130 crew members were sampled using a non-probability sampling technique with the accidental sampling method. This study used the Chi-Square test to perform the statistical analyis. **Results:** As many as 64.6% of workers were involved in an accident, with the majority of them slipping. In contrast, 85 workers (65.4%) have the incorrect work attitude. **Conclusion:** It can be concluded that there is a significant relationship between work attitude and the risk of accidents among speedboat crews. The ship's management should make guidelines regarding working in a speedboat. Briefings before and after work are also one of the solutions for ensuring the crew members work according to predetermined standards.

Keywords: risk of work accidents, speedboat crews, work attitude

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INTRODUCTION

Occupational Health and Safety (OHS) aims to promote cooperation, mutual understanding, and effective engagement in the workplace between employers or administrators and employees to fulfill shared responsibilities and duties. OHS implementation is expected to create a workplace that is safe, healthy, and free of environmental contamination, thereby reducing or eliminating workplace accidents and occupational diseases (Sulung, 2016). Occupational Health and Safety Assessment Series (18001: 2007) defines OHS as all situations and factors that affect or may affect the health and safety of employees or other workers (including contract workers and contractor personnel or other people in the workplace). Although safety and prevention of work accidents are regulated in Indonesia by Law No. 1 of 1970 which states that companies are obliged to protect workers' safety, namely by informing workers about the conditions and hazards that exist in the workplace. In general, a work accident is an unwanted and often unexpected event that can cause losses in time, and materials, as well as casualties that occur in a work process or related to work activities (Listautin, 2017).

A work accident is an unwanted event that leads to loss and occurs in the workplace during work (Mora, Suharyanto and Yahya, 2020). In 2019, more than 1.8 million people died on the job in the Asia-Pacific area, according to the International Labor Organization (ILO). According to ILO calculations, the losses that must be borne in developing countries due to work accidents are also high, reaching to 4% of the Gross National Product (GNP). Manual handling work is responsible for more than a quarter of all accidents (Naim, 2020).

The National Transportation Safety Committee (KNKT) observed an upward trend in maritime accident investigation data from 2010 to 2016; 54

Cite this as: *Saputri, A.I. and Febriyanto, K.* (2023) '*Risk of Work Accidents Due to Work Attitude in Speedboat Crews*', *The Indonesian Journal of Occupational Safety and Health*, 12(3), pp. 424-429.

 doi:10.20473/ijosh.v12i3.2023.424-429. Received October 11, 2022; 1st revision January 13, 2022; 2nd revision March 13, 2023; Accepted August 01, 2023; Published: December 2023. Published by Universitas Airlangga.

maritime accidents in Indonesia have resulted in over 300 deaths and over 450 injuries. According to the NTSC, human error was responsible for 41% of ship accidents, with the rest being technical in nature. Weather-related accidents make up only a small percentage of all accidents, if any at all. Humans are the most significant contributors to ship accidents (Febriyanto and Suprayitno, 2020).

The port is a workplace with a relatively high accident rate. Every year, incidents at the port caused by lifting occur. From 2018 to 2021, KNKT recorded 95 ship accidents in Indonesia alone; from 2018 to 2020, KNKT recorded 31% of ship accidents involving fishing vessels. There were 19 cases of ship accidents in 2021, an increase from 12 cases in 2020.

In Indonesia, sea transportation in the form of ships is one of the most common modes of transportation, particularly in the Tarakan area of North Kalimantan. Tarakan is the second gateway for shipping and air traffic after Balikpapan. Furthermore, Tarakan serves as a transit city for people, goods, and services before they are distributed to the remote areas (Berau, Nunukan, Bulungan, and Malinau regencies). Speedboats have become a popular mode of transportation in the distribution process because they are considered a faster, more practical, and cheaper mode of transportation in Tarakan. According to data on the implementation of Search and Rescue (SAR) operations from 2017 to 2021, there have been 11 ship accidents in the North Kalimantan's waters.

Collisions with other speedboats and overcrowding are the leading causes of speedboat accidents. According to the Loss Caution Model theory, several factors including unsafe acts, unsafe conditions, personal characteristics (knowledge and attitudes), and work factors (supervision, work standards) increase the risk of workplace accidents (Hardianti, Martiana and Tualeka, 2018).

One of the risk factors is the occurrence of work accidents to crew members is a non-ergonomic work attitude. The port is a workplace with a relatively high accident rate. Every year, incidents at the port are caused by lifting. The interaction of humans and tools will result in fatigue and various complaints that will contribute to work-related accidents. Workloads and the risk of workplace accidents can be reduced by using ergonomics (Arianto, Wijayanto and Setiyanto, 2018). A speedboat increases the risk of work accidents significantly; if every crew member does not work in an ergonomic position, work accidents will increase as well (Kasenda *et al*., 2020). The crews' standing position on the speedboat is an example of a risky work attitude. Standing upright and leaning on both feet is the proper form of standing posture, which will keep the crew's body balance while on the speedboat (Lopez-García *et al*., 2019).

Based on the preceding explanation and current data, the authors are interested in conducting a study that establishes a relationship between work attitudes and the risk of work accidents to crew members at Tarakan City's speedboat and ferry (SDF) port. Accidents at the SDF port in Tarakan City involve speedboat crews.

METHODS

A quantitative approach with a cross-sectional design was used in this study. The Slovin formula was used to calculate the sample size from N=168 because the study population was known. The following is the calculation formula:

$$n = \frac{N}{1 + N\,(d)^2}$$

where N represents the size of the population and d represents the intended level of precision (0.05). The calculation found 118 respondents, but to prevent data acquisition or loss errors, the authors added 10%, resulting in a total of 130 participants in June 2022. This study used simple random sampling to determine who was in a location that corresponded to the research context.

A questionnaire was used to collect information such as name, age, education level, years of service, length of employment, and questions about work attitudes and the likelihood of workplace accidents. The validity test of the work attitude questions was tested on 30 crew members of the Kampung Baru Tengah Port in Balikpapan City. The validity test results showed that ten questions were both valid (> r table 0.361) and reliable (Cronbach's alpha = 0.709).

The Chi-Square test was used to analyze and interpret data. This research received an ethical consideration certificate from the Commission of Ethical Research for Health, Medical Faculty of Mulawarman University, Samarinda with the number 91/KEPK-FK/VII/2022.

RESULT

The frequency distribution of these respondents includes age, years of service, education, working duration, work accident risk, types of work accidents, and the work attitude of each crew member.

Table 1. Frequency Distribution Of Respondents

Distribution of Respondents	Frequency	Percentage
Age		
17-25	10	7.7%
26-35	40	30.8%
36-45	55	42.3%
46-55	24	18.5%
56-65	1	0.7%
Years of Service		
1-5 years	51	39 .2%
6-10 years	46	35.4%
>10 years	33	25.4%
Education		
Elementary School	10	7.7%
Junior high school	22	17%
Senior high school	93	71.5%
D3/Bachelor	5	3.8%
Working Duration		
1-5 Hours	62	47.7%
>5 Hours	68	52.3%
Work Accident Risk		
Experience	84	64.6%
Not Experiencing	46	35.4%
Type of Work Accident		
Never experienced	46	35.4%
Slip	32	24.6%
Scratched	17	13.1%
Open Wound	3	2.3%
Sprain	12	9.2%
Others	20	15.4%
Work Attitude		
Bad	85	65.4%
Well	45	34.6%

Table 1 shows that the age group with highest number of respondents (55 people) is 36-45 years, with 42.3 %. The lowest number of respondents are in the age group of 56 - 65 years, only one person (0.8%). The majority of respondents (46 people, 35.4%) have worked for 6-10 years. According to the table above, the highest number of respondents, on the education level category, is senior high school graduate, there were 93 people (71.5%), and the lowest number of participants was those with a Bachelor degree, as many as five people (3.8%). The majority of respondents work more than five hours per day.

In the previous three months, 84 respondents (64.6%) were involved in an accident, while 46 (35.4%) were not. Accidents that occurred included falling, slipping, scratching, and having an open wound, and the kind of accident work often experienced by the crew is shown in the table above. Slipped speed boat was the most frequent accident (22.7%), and the work accident that rarely happens was open wound/torn (2.3%). Additionally, work attitude on a speedboat and in the port area were causes with the finding showing 85 people (65.4%) had a hostile work attitude, while 45 people (34.4%) had a positive work attitude.

The Chi-Square test results in Table 2 show that, from 45 respondents with a good work attitude, 10 respondents (11.9%) experienced work accidents and 35 respondents (76.1%) never experienced work accidents. Meanwhile, from 85 respondents with bad work attitudes, 74 (88.1%) of them experienced work accidents, and 11 respondents (23.9%) never experienced work accidents. With a 95% confidence level of the Odds Ratio (OR), it shows that crew members who work with poor work attitudes are 23,545 times more likely to be involved in an accident than speedboat crew members who work with good work attitudes. The Chi-Square test obtained a p-value of 0.000, or p 0.05, indicating a significant relationship between work attitude and the likelihood of workplace accidents experienced by speedboat crews at SDF Port in Tarakan City. When compared to crew members who work in

Table 2. Relationship between Work Attitudes and Risk of Work Accidents

		Work Accident Risk			P Value	OR
		Experience	Not Experiencing	Total		
Work attitude	Bad	74 (88.1 %)	11 (11.9 %)	85 (100%)	0.000	23.545
	Well	10 (23.9 %)	35 (76.1 %)	45 (100%)		

a good working position, speedboat crews who work with a non-ergonomic work attitude while working are at high risk of experiencing a risk of work accidents (Hulshof *et al*., 2021).

DISCUSSION

The results in this study indicate that the respondents with slipping work accidents have the highest number of work accidents, as many as 32 respondents (22.7%). It is because the work attitude of crew members while on a speedboat is not ergonomic; when the crew members threw the ship's rope into the port, their bodies were not in an upright position (they were leaning forward). It was evident from the average crew responses to the questionnaire and the findings of the observations.

The educational background of a person influences all of their actions (Waoma, Widjasena and Lestantyo, 2018; Febriyanto, Rachman and Rahman, 2021). However, the majority of workers in this study had a high school education, which had no a significant impact on the frequency of accidents caused by crew members. More than 60% of respondents have a poor attitude at work. This is because they never had any training for being on a boat. According to Waoma, Widjasena and Lestantyo (2018), intense training sessions can change a person's attitude.

According to the findings by Yahya, Supomo and Nugroho (2021), the human factor was the primary cause of the accidents. From 2010 to 2016, The National Transportation Safety Committee observed an upward trend in maritime accident investigation data; 54 maritime accidents on Indonesian territory have resulted in over 300 fatalities and more than 450 injuries (Febriyanto and Suprayitno, 2020). Therefore, it is not surprising that the majority of workplace accidents on ships are caused by poor work attitudes.

Although mismatches between humans and tools cause fatigue and a variety of complaints that contribute to work-related accidents, ergonomics can reduce the workload and the risk of work accidents (Arianto, Wijayanto and Setiyanto, 2018). This is consistent with research on Work-related Musculoskeletal Problems and Ergonomic Risk Factors, which stated that ergonomics risk is one of the emergent complaints in areas of the body (Lim *et al*., 2021). As many as 85 respondents, or 65.4%, had a poor work attitude, while 45 respondents, or 35.4%, had a positive work attitude. Thus, statistical tests revealed a significant relationship between work attitude and the likelihood of workplace accidents among speedboat crews.

The current study was consistent with the findings of research by Ewin, Pitrah, and Andi (2016). The findings of this study suggest a relationship between work attitude and the occurrence of workplace accidents. The relationship between the two variables has a significant value (0.582) (Aswar, Asfian and Fachlevy, 2016). Workplace accidents caused by poor work attitudes can be avoided by considering several factors that can help reduce the risk of accidents for the crew. For example, by adhering to the regulations outlined in Law No. 1 of 1970 concerning Occupational Safety and Health (Juniarto *et al*., 2021). Then, in each work process, carrying out the accident risk management process, which is a risk control effort. Control efforts are organized according to the International Organization for Standardization (ISO) 31000:2009 in the following order: elimination, substitution, technical control, administration, and personal protective equipment (Sulistyaningtyas, Naiem and Syafar, 2020).

In addition, before starting work, each crew member can engage in some light sports and stretching, which will help to reduce the risk of workplace accidents. Cooperation between workers and port management is required to reduce the occurrence of work accidents. Hardianti, Martiana, and Tualeka (2018) conducted research on An Analysis of Risk Management in the Process of Inspection Activities in the Port Health Office (PHO) Class I Surabaya, which stated that the risk of work accidents had been adequately assessed with the following steps: risk control in the workplace, but the role of workers is one of the supports in the application of risk management for workplace accidents (Hardianti, Martiana and Tualeka, 2018).

Workers' active participation in risk management in the workplace is hoped to reduce the risk of work accidents (Kadir *et al*., 2017). This is consistent with research by Kalalo, Kaunang and Kawatu (2016) regarding The Relationship Between Knowledge Of Attitudes About K3 And The Incidence Of Work Accidents In Fishermen Groups In The Village Of Belang District, Southeast Minahasa Regency which stated that the fishermen's

attitude and level of knowledge about Occupational Safety and Health will affect the risk of work accidents.

CONCLUSION

Ho is accepted based on the results of statistical tests using the Chi-Square test, and it can be concluded that there is a significant relationship between work attitude and the risk of workplace accidents among speedboat crews at SDF Port in Tarakan City.

ACKNOWLEDGMENTS

The researchers thank the speedboat crew at Tarakan City's SDF port for agreeing to be respondents in this research, and the Kesbangpol office for allowing the researcher to conduct the study.

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