# Factors associated with work accidents in fishermen in Tahah Pilih Village Banyuasin Regency in 2022

Entianopa [1], Sugiarto [2], Yusfrini Desilva Asri [2*]

[1,2,3]Program Studi Kesehatan masyarakat, Sekolah Tinggi Ilmu Kesehatan Harapan Ibu
Jambi, Indonesia
*Correspondence email : (entianopa24@gmail.com)

## Abstract

**Background** Fishermen's work accidents are a problem of work safety in the world, including in Indonesia. Sometimes the weather is extreme, increasing the risk of accidents and death for fishermen. (Objective) The research objective was to determine the relationship between knowledge, attitudes, PPE and machine availability tools for fishermen in Tanah Choose Village, Banyuasin District, Banyuasin Regency in 2022.

**Method**: This research is a quantitative study with a cross-sectional design. This research method is interview and observation. The results of the study were analyzed invariably and bivariate using the Chi-Square statistical test.

**Results: 56.2%** of respondents experienced work accidents, 20.8% of respondents had good knowledge, 52.1% of respondents with a positive attitude, 50% of respondents used complete PPE, and 33.3% of respondents used machine safety devices. Bivariate results show that there is no relationship between knowledge and work accidents (p-value = 0.614), there is no relationship between attitude and work accidents (p-value = 0.687), there is no relationship between PPE and work accidents (p-value = 1.000), there is no relationship between the availability of machine safety devices and work accidents (p-value = 1,000)

**Conclusion**: It is hoped that fishermen will improve their attitude, use complete PPE when working, and use safety devices on every work machine and equipment.

**Keywords:** knowledge, attitudes, PPE, work accidents, fishermen.

## Abstrak

**Latar Belakang** : Kecelakaan kerja nelayan menjadi masalah keselamatan kerja di dunia, termasuk di Indonesia. Kadangkala cuaca yang ekstrim, meningkatkan risiko kecelakaan dan kematian pada nelayan. (Tujuan) penelitian untuk mengetahui hubungan pengetahuan, sikap, APD dan alat ketersediaan mesin pada nelayan di Desa Tanah Pilih, Kecamatan Banyuasin, Kabupaten Banyuasin Tahun 2022.

**Metode** : Penelitian ini merupakan penelitian kuantitatif dengan desain cross sectional. Metode penelitian ini adalah wawancara dan observasi. Hasil penelitian dianalisis secara univariat dan bivariat menggunakan uji statistik Chi-Square.

**Hasil** : 56,2% responden mengalami kecelakaan kerja, 20,8% responden berpengetahuan baik, 52,1% responden dengan sikap positif, 50% responden menggunakan APD lengkap, dan 33,3% responden menggunakan alat pengaman mesin. Hasil bivariat menunjukkan tidak ada hubungan pengetahuan dengan kecelakaan kerja (p-value = 0,614), tidak ada hubungan sikap dengan kecelakaan kerja (p-value = 0,687), tidak ada hubungan APD dengan kecelakaan kerja (p-value = 1,000), tidak ada hubungan ketersediaan alat pengaman mesin dengan kecelakaan kerja (p-value = 1,000).

**Kesimpulan** : Diharapkan bagi nelayan untuk memperbaiki sikap, menggunakan APD yang lengkap saat bekerja, dan menggunakan alat pengaman pada setiap mesin dan peralatan kerja.

**Kata kunci:** pengetahuan, sikap, APD, kecelakaan kerja, nelayan

## INTRODUCTION

In every 15 seconds, 160 workers have a work accident, and every 15 seconds,[1] a worker dies as a result of work accidents or work-related diseases in 2018 as many as 39 water transportation [2] accidents occurred. The causes vary from human error to natural factors. Natural factors accounted for 38% of the causes of water transportation accidents occurring, followed by human error at 37%, technical at 23%, and other factors at 2%. According to data from DFW (Destructive Fishing Watch) in Indonesia, 83 fishermen were recorded as missing in the archipelago's seas for 6 months from December 2020 to June 2021 due to marine disasters and accidents. The high rate of accidents among fishermen shows the high level of vulnerability of fishermen when earning a living [3]

The results of research conducted by [4] were 88.3% of fishermen experiencing work accidents. There is a relationship between knowledge about occupational safety and health and the incidence of work accidents in the fishermen's group (p=0.043), and there is a relationship between unsafe actions and the occurrence of work accidents in the fishermen's group (p=0.021). Research conducted by Kalalo, Kaunang, & Ka-watu in Belang Village, Belang District, Southeast Minahasa Regency stated that there was a relationship between knowledge and attitudes about OSH and the incidence of work accidents in fishermen groups (p=0.000), there was a relationship between attitudes about K3 with the incidence of work accidents in fishermen groups (p=0.002) [5]. Based on data from the South Sumatra Maritime Affairs and Fisheries Service, the number of households in capture fisheries districts/cities and subsectors in the province of South Sumatra, 2019 -2021 reached 54,277 marine fisheries households and 64,035 general fisheries households. In South Sumatra alone there are 17 regencies and only 2 regencies that have marine fisheries household businesses, namely Ogan Komering Ilir District with 10,050 marine fisheries households and Banyuasin District with 44,227 marine fisheries households with[6]

Research conducted by Isyatun Mardhiyah Syahri (2018) in Belawan, North Sumatra states that 87% of fishermen experience work accidents. The types of accidents that occurred to fishermen were slipping (14.29%), shipwreck (7.14%), drowning (14.29%), being hit by sea animal venom (35.71%), being bitten by a snake (7.14), hit by a crank engine (7.14%), hit by a knife (7.14%) and exposed to nets (7.14%). In addition, fishermen also experience complaints while working, including back pain, itching, coughing, dizziness, hearing loss, numbness in the hands, vomiting, and back pain. The most common accident is exposure to sea animal venom, while the most common complaint is back pain. [7]. Research conducted by Latif, Yulyanti, & Rudiansyah on the north coast of In-Dramayu found that out of 58 fishermen, 46.4% experienced a sea accident in the Indramayu region, others occurred in the Java Sea and Papua. 29% of cases had an accident due to slipping/falling. 85.7% of cases occurred due to unsafe actions and there was a significant relationship (α = 5%), in control cases unsafe actions 14.3% and 50% of cases or controls worked in unsafe conditions between unsafe actions with fishermen's work accidents. There is a significant relationship between the use of damaged PPE and fishermen's work accidents [8].

Tanah Choose Village is one of the villages located in Banyuasin Regency, South Sumatra province. Tanah Pick Village is called a multicultural village because most of the villagers in Banyuasin work as fishermen, gardeners, and farmers at the same time. Fishermen look for fish in the sea using boats measuring 10-20 GT. Based on the results of an initial survey conducted by researchers in Tanah Choose Village, Banyuasin Regency on Thursday 24 March 2022, information was obtained that at least 77 people were working as

fishermen. Based on interviews conducted by researchers, it was found that 5 out of 6 fishermen had work accidents. Types of accidents experienced by fishermen include being stabbed (punctured by fish/shrimp spines), and exposure to venom/poisons from marine biota (stung by jellyfish and pinned by crabs), this usually occurs during the process of sorting catches. The next work accident experienced by fishermen was slipping due to the slippery condition of the boat and the fishermen not using boat shoes. Fishermen say that the most frequently injured parts of the body are the hands and feet. Several fishermen have experienced quite severe accidents such as being hit by crank engines or hit by fans. There are even fishermen who until now have physical disabilities as a result of being hit by machines. The high rate of accidents among fishermen shows the high level of vulnerability of fishermen when making a living. Judging from the background above, the writer is interested in examining factors related to work accidents of fishermen in Tanah Choose Village, Banyuasin Regency, South Sumatra. (Research Purpose) to determine the relationship between knowledge, attitudes, PPE, and machine availability tools for fishermen in Tanah Choose Village, Banyuasin District, Banyuasin Regency in 2022.

## METHOD

This study uses a quantitative approach with a cross-sectional design which aims to determine the factors associated with work accidents among fishermen in Tanah Choose Village. The research location is in Tanah Choose Village, Banyuasin Regency. The research sample was 48 fishermen.

Research using a total sampling technique. With measuring tools questionnaires and checklist sheets. The method used in this research is interview and observation. The results of the study were analyzed un-variety and bivariate using the Chi-Square statistical test.

## RESULTS
## Univariate Analysis
### 1. Characteristics of Respondents

**Table 1.** Characteristics of Respondent's Research on Factors Associated with Work

| Variabel | Mean | SD | min | maks |
|---|---|---|---|---|
| Age | 31,94 | 10,992 | 15 | 55 |
| Years of service | 11,96 | 9,482 | 1 | 35 |
| Length of working | 9,29 | 2,880 | 4 | 15 |

Based on table 1 above it can be seen that the average age of the respondents is 31.94 years. The minimum age of the respondent is 15 years and the maximum age is 55 years with the average working period of the respondents being 11.96 years. The minimum working period of the respondent is 1 year and the maximum working period of the respondent is 35 years and the average working period of the respondent is 9.29 hours. The minimum working time for the respondent is 4 hours and the maximum working time for the respondent is 15 hours.Accidents in Fishermen in Tanah Choose Village, Banyuasin Regency in 2022

**Table 2.** Distribution of Respondents by Education

| Last Education | Frequency | Presentase (%) |
|---|---|---|
| No School | 9 | 18 |
| elementary school | 29 | 60,4 |
| Middle School | 7 | 14,6 |
| high school | 3 | 6,2 |
| Jumlah | 48 | 100 |

Based on table 2 above, shows that out of 48 respondents there were 9 (18.8%) respondents who did not attend school, 29 (60.4%) respondents had elementary school education, 7 (14.6%) respondents had junior high school education, and 3 (6.2%) respondents have high school education. Respondent characteristics based on work accident descriptions, knowledge, attitudes, machine safety

equipment, and personal protective equipment (PPE) in Tanah Choose Village,

Banyuasin Regency are illustrated in (table 3)

**Table 3**. Results of Univariate Analysis of Respondent's Research on Factors Associated with Work Accidents for Fishermen in Tanah Choose Village, Banyuasin Regency in 2022

| Description | Frequency | Percentage (%) |
|---|---|---|
| Work accident | | |
| -Yes | 27 | 56,2 |
| -No | 21 | 43,8 |
| Types of work accidents | | |
| − Drown | 5 | 18,52 |
| − Attacked by Fish | 10 | 37,70 |
| − Damage by Coral Reefs | 0 | 0,0 |
| − Exposed to Animal Venom | 3 | 11,11 |
| − Blunt Wounds | 5 | 18.52 |
| − Sprain | | |
| − Exposed to Electric Current | 2 | 3,7 |
| − Others (hit by machines, due to work equipment, etc.) | 0 | 0,0, |
| − Injured Body Parts | 2 | 3,7 |
| Injured Body Parts | | |
| − Head | 1 | 3,7 |
| − Neck | 0 | 0,0 |
| − Body | 1 | 3,7 |
| − Hands | 20 | 74,08 |
| − Legs | 5 | 18,52 |
| Knowledge | | |
| − Less | 15 | 31,2 |
| − Enough | 23 | 47,9 |
| − Fine | 10 | 20,8 |
| Attitude | | |
| − Negative | 23 | 47,9 |
| − Positive | 25 | 52,1 |
| Machine safety device | | |
| − Incomplete | 24 | 50 |
| − complete | 24 | 50 |
| Personal protective equipment (PPE) | | |
| − Incomplete | 32 | 66,7 |
| − complete | 16 | 33,3 |

Based on table 3 it can be seen that the number of work accidents for fishermen in Tanah Choose Village, Banyuasin Regency is 27 (56.2%). Of the 27 respondents who had work accidents, 5 (18.52%) of respondents had drowned, and 10 (37.70%) respondents were attacked by fish. such as being punctured by fish spines, scratched by fish gills, and fish teeth), 3 (11.11%) of respondents were exposed to animal

venom, 5 (18.52%) were exposed to blunt objects, 2 (7.4%) of respondents were sprained, and 2 (7.4%) respondents were hit by machines, due to work equipment, etc. Of the 27 respondents who had a work accident, 1 (3.7%) of the respondents had an injury to the head, 1 (3.7%) of the respondents had an injury to the body, 20 (74.08%) of the respondents had an injury

on the hands, and 5 (18.52%) respondents experienced injuries to the legs.

The table above shows that out of 48 respondents 15 (31.2%) of them had less knowledge, 23 (47.9%) respondents had sufficient knowledge and 10 (20.8%) respondents had knowledge good, 23 (47.9%) respondents have negative attitude

## 1. Bivariate analysis

The relationship between knowledge and work accidents, the relationship between knowledge and work accidents, the relationship between PPE (personal safety

and 25 (52.1%) respondents have a positive attitude.

The table above shows that out of 48 respondents there were 32 (66.7%) respondents who did not use machine safety devices and 24 (50%) respondents did not use complete PPE while working

equipment) and work accidents, and the relationship between the availability of machine safety equipment and work accidents in Tanah Choose Village, Banyuasin Regency is shown in (table 4).

**Table 4.** Results of Bivariate Analysis of Respondent's Research on Factors Associated with Work Accident in Fishermen in Tanah Choose Village, Banyuasin Regency 2022

| Variable | Work Accident | | | | Total | | p-value |
|---|---|---|---|---|---|---|---|
| | Ever | | Never | | | | |
| | n | % | n | % | n | % | |
| Knowledge | | | | | | | |
| − Less | 10 | 66,7 | 5 | 33,3 | 15 | 100 | |
| − Enough | 12 | 52,2 | 11 | 47,8 | 23 | 100 | 0,614 |
| − Fine | 5 | 50,0 | 5 | 50,0 | 10 | 100 | |
| Total | 27 | 56,2 | 21 | 43,8 | 48 | 100 | |
| Attitude | | | | | | | |
| − Negative | 14 | 51,9 | 13 | 48,1 | 27 | 100 | |
| − positive | 13 | 61,9 | 8 | 38,1 | 21 | 100 | 0,687 |
| Total | 27 | 56,2 | 21 | 43,8 | 48 | 100 | |
| Personal Protective Equipment (PPE) | | | | | | | |
| − incomplete | 14 | 56,3 | 10 | 41,7 | 24 | 100 | |
| − complete | 13 | 54,2 | 11 | 45,8 | 24 | 100 | 1,000 |
| Total | 27 | 56,2 | 21 | 43,8 | 48 | 100 | |
| Machine Safety Devices | | | | | | | |
| − incomplete | 16 | 50,0 | 16 | 50,0 | 32 | 100 | |
| − complete | 11 | 68,8 | 5 | 31,2 | 16 | 100 | 0,355 |
| Total | 27 | 56,2 | 21 | 43,8 | 48 | 100 | |

Based on table 4 above, it can be seen that the results of the analysis of knowledge with work accidents in Tanah Choose Village, Banyuasin Regency, show that of the 15 respondents who had less knowledge, there were 10 (66.7%) respondents who had experienced work accidents and 5 (33) .3% of respondents never experienced a work accident. Of the 23 respondents who had sufficient knowledge, there were 12 (52.2%) respondents had experienced work accidents and 11 (47.8%) respondents had never experienced work accidents. Of the

10 respondents who had good knowledge, there were 5 (50.0%) respondents had experienced work accidents, and 5 (50.0%) respondents had not had work accidents.

Based on the results of statistical analysis (p-value = 0.614) > $\alpha$ = 0.05. So it can be concluded that there is no relationship between knowledge and work accidents in the village of Tanah Choose Banyuasin Regency in 2022.

The results of an analysis of attitudes towards work accidents in Tanah Choose Village, Banyuasin Regency in 2022 show that out of 23 respondents who had a

negative attitude, 14 (56.5%) had experienced work accidents, and 13 (43.5%) respondents had never had an accident. work. Of the 21 respondents who had positive knowledge, there were 13 (56.0%) respondents had experienced work accidents and 8 (44.0%) respondents had never experienced work accidents.

The results of the statistical analysis were obtained (p-value = 0.687) > $\alpha$ = 0.05, so it can be concluded that there is no relationship between attitude and work accidents in the village of Tanah Select, Banyuasin Regency in 2022.

The results of the analysis of PPE with work accidents in Tanah Select Village, Banyuasin Regency in 2022 show that of the 24 respondents who did not use the complete PPE, 15 (58.3%) of respondents had experienced work accidents, and 10 (41.7) %) of respondents never had a work accident. Of the 24 respondents who used complete PPE, there were 13 (54.2%) respondents had experienced work accidents, and 11 (45.8%) respondents did not experience work accidents.

The results of statistical analysis were obtained (p-value = 1.000) > $\alpha$ = 0.05 so that it can be concluded that there is no relationship between PPE and work accidents in Tanah Choose Village, Banyuasin Regency in 2022.

The results of an analysis of the availability of machine safety devices for work accidents in Tanah Choose Village, Banyuasin Regency show that of the 32 respondents who did not have machine safety devices, there were 16 (50.0%) respondents who had experienced work accidents and 16 (50.0%) ) the respondent never had a work accident. Of the 16 respondents who had machine safety devices, 11 (68.8%) had experienced work accidents and 5 (31.2%) had never had work accidents.

Based on the results of the statistical analysis obtained (p-value = 0.355) > $\alpha$ = 0.05, it can be concluded that there is no relationship between the availability of machine safety devices and work accidents

in Tanah Choose Village, Banyuasin Regency.

## DISCUSSION

The proportion of fishermen with less knowledge was 31.2%, fishermen with sufficient knowledge were 47.9% and fishermen with good knowledge were 20.8% of respondents. 66.7% of respondents who lack knowledge experience work accidents. This shows that respondents who have less knowledge are more at risk of experiencing work accidents. However, based on the results of statistical tests, the knowledge variable obtained p-value = 0.614 > ($\alpha$ = 0.05) shows that there is no relationship between knowledge and work accidents in Tanah Choose Village, Banyuasin Regency.

This research is in line with research conducted by 9 which states that there is no relationship between knowledge and work accidents (p-value = 0.233).

Knowledge is the result of knowing, and this occurs after people sense a particular object, knowledge or the cognitive domain is a very important domain in shaping one's actions [10]

Knowledge is included in the category of unsafe action (unsafe behavior) which can affect work accidents. Unsafe behavior has a high risk of causing work accidents, besides being able to endanger oneself, unsafe behavior will also endanger others.

Based on the results of statistical tests it was found that there was no relationship between knowledge and work accidents in fishermen in Tanah Choose Village, Banyuasin Regency, this is because there are many factors that can affect work accidents in fishermen. Knowledge has [6] levels, namely knowing, understanding, application, analysis, synthesis, and evaluation. Many fishermen have quite good knowledge but still experience work accidents, this is because respondents only know without understanding, thus influencing fishermen's behavior. Furthermore, the risk of fishermen's accidents also comes from fishermen's work processes such as during the process

of preparing, catching, and handling catches. Besides that, the working hours of fishermen, who on average work > 10 hours at sea, cause fishermen to lack rest, which triggers fatigue and can reduce the concentration of fishermen who are at risk of work accidents.

In this study, the proportion of fishermen with a positive attitude was 25 (52.1%) and the proportion of fishermen with a negative attitude was 23 (47.9%). Of the 25 respondents who had a positive attitude, 61.9% had a work accident and of the 23 respondents who had a negative attitude, 51.9% had a work accident. Based on the results of statistical tests, shows that there is no relationship between attitude and work accidents among fishermen in Tanah Select Village, Banyuasin Regency with p-value = 0.687 > ($\alpha$ = 0.05)

The results of this study are not in line with research [5] which states that there is a relationship between attitudes and work accidents in fishermen groups with (p-value = 0.002)

Attitude is one of the human factors known as unsafe conditions which are dangerous actions in the workforce. However, humans are not the only factors that cause work accidents, environmental factors and equipment are also factors that have a major influence on work accidents. A positive attitude towards work safety values does not always manifest as concrete action. Attitude is a predisposition to act on behavior, attitude is a closed reaction that has not been in the form of action or activity [10].

Based on the results of the study it was found that the attitude of fishermen in Tanah Pick Village was positive because fishermen realized that there was potential in every tool, material, and machine used while working, fishermen also realized that the use of PPE was able to protect and prevent work accidents but in reality not all fishermen use complete PPE on the grounds that using PPE is a hassle and makes them feel uncomfortable while working. Fishermen think that it is actually very good if they have a first aid kit on the

fishing boat, and they realize that the marine environment is far from medical care, so they really need a first aid kit on the fishing boat in the event of an accident. but in reality, none of the fishermen have a first aid kit due to several reasons, one of which is the price which is quite expensive.

WHO theory in notoatmodjo, 2012 states that resources are one of the reasons that influence a person's actions, the resources in question include facilities, money, time, energy, and so on. This proves that an attitude has not automatically materialized into an action, in order to turn an attitude into a real action a supporting factor or a condition that allows [10]. A positive attitude of fishermen cannot be fully manifested due to circumstances and conditions of fishermen while working, such as the conditions of the fishermen's work environment, extreme weather, conditions of the fishing boat, and the fishermen's work process itself.

Based on the statistical test results, it was found that (p-value = 1.000) < ($\alpha$ = 0.05) which means that there is no relationship between the completeness of the use of PPE and work accidents in fishermen in Tanah Choose Village, Banyuasin Regency.

This research is in line with research conducted by [9] which stated that there is no relationship between knowledge and work accidents with a value (p-value = 0.835).

PPE is personal protective equipment used to control the risk of work accidents. Many things can affect work accidents. Some fishermen who use PPE still experience work accidents because the PPE used is incomplete and appropriate so fishermen are still at risk of work accidents. The use of PPE is a form of practice or action.

The use of PPE that is not appropriate, the condition of PPE that is starting to wear out, and the fishermen's work factor itself where fishermen have to be in direct and continuous contact with various organisms that can cause fishermen to experience work accidents such as being pierced by fish spines, injured by gills or fish teeth, and

even the possibility of being exposed to animal venom.

Furthermore, the choppy sea environment factors make the ship unbalanced so that even if they use PPE such as boots, fishermen can experience work accidents such as falling or even being thrown and drowning in larger wave situations.

The injuries experienced by fishermen can be fatal, one of which is a stab wound because it penetrates deep enough to penetrate the body. In addition, the danger of infection with germs and the risk of tetanus is greater if the object that is stabbed is dirty. Injuries like this are also very risky for fishermen with a history of diabetes. Therefore, fishermen's compliance with the use of PPE must be increased. Increasing knowledge and improving attitudes is the main thing to improve behavior. Creating a safe workplace and minimizing the risk of work accidents is the responsibility of the warehouse manager and the fishermen themselves.

Based on the research results, it was obtained p-value = 0.355 > ($\alpha$ = 0.05), so it can be concluded that there is no relationship between the availability of machine safety devices and work accidents in Tanah Choose Village, Banyuasin Regency.

This research is not in line with research conducted by (Salsabila, 2020) which states that the equipment factor significantly affects work accidents p = 0.024 < (α = 0.05), the risk of work accidents for fishermen with unsafe equipment is [3] times greater than safe equipment (OR=2.562 95%CI 1.121-5.858)

A machine safety device is a device/system whose shape is adapted to the type and use of the machine as well as potential hazards and risks in the workplace [12]. Machine safety devices used by fishermen on boats are safety devices that are made manually and generally use wood. Machines that do not move but can cause burns are fenced with wood around them. For moving machines, iron plates are attached to the rotating machine area. In addition, fishermen also use floor coverings at the bottom of the boat which is the boundary between the engine and the control room.

Some fishermen only use the floor of the boat as a boundary between the engine and the control room without using other safeguards under the floor of the boat. The weakness of this safety is, if the installation of the boat floor is not in accordance with the number or sequence it should be, then this will be very risky for fishermen to fall on top of the machine.

The results showed that there was no relationship between machine safety devices and work accidents because most fishermen's work activities were carried out not near the machine, fishermen quite rarely interacted with ship engines unless there was a problem or damage to the machine. Based on the results of a questionnaire from 48 respondents, only [2] of them had experienced an accident caused by a machine. The low level of relationship between the availability of machine safety devices and work accidents does not necessarily make researchers decide that the availability of machine safety devices has no effect on reducing the risk of work accidents for fishermen. It is fitting for every machine and equipment to be provided with safety devices to eliminate or minimize the risks faced by workers.

Furthermore, the choppy sea environment factors make the ship unbalanced so that even if they use PPE such as boots, it is possible for fishermen to experience work accidents such as falling or even being thrown and drowning in larger wave situations.

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This research is not in line with research conducted by (Salsabila, 2020) which states that the equipment factor significantly affects work accidents p = 0.024 < (α = 0.05), the risk of work accidents for fishermen with unsafe equipment is 3 times greater than safe equipment (OR=2.562 95%CI 1.121-5.858)

A machine safety device is a device/system whose shape is adapted to the type and use of the machine as well as potential hazards and risks in the workplace 12. Machine safety devices used by fishermen on boats are safety devices that are made manually and generally use wood. Machines that do not move but can cause burns are fenced with wood around them. For moving machines, iron plates are attached to the rotating machine area. In addition, fishermen also use floor coverings at the bottom of the boat which is the boundary between the engine and the control room.

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The results showed that there was no relationship between machine safety devices and work accidents because most fishermen's work activities were carried out not near the machine, fishermen quite rarely interacted with ship engines unless there was a problem or damage to the machine. Based on the results of a questionnaire from 48 respondents, only 2 of them had experienced an accident caused by a machine. The low level of relationship between the availability of machine safety devices and work accidents does not necessarily make researchers decide that the availability of machine safety devices has no effect on reducing the risk of work accidents for fishermen. It is fitting for every machine and equipment to be provided with safety devices to eliminate or minimize the risks faced by workers.

## CONCLUSION

Based on the results of the study it can be concluded that most fishermen experience work accidents. The part of the fisherman's body that gets most injured is the hand due to the work process of fishermen who have to come into direct contact with various organisms, where fishermen don't know the possibility of being pricked by a thorn, scratched by the gills of fish/other marine animals, exposed to fish teeth, fishing hooks, knives, and other work tools. Based on the results of the study, it was found that of 48 respondents, 56.2% had work accidents, 31.2% had less knowledge, 47.9% of respondents had sufficient knowledge, and 20.8% of respondents had good knowledge. 47.9% have a negative attitude and 52.1% have a positive attitude. There are 33.3% of respondents do not use machine safety devices. There are 50% of respondents do not use complete PPE while working.

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