



## The Relationship Between Knowledge, Attitude, and Experience with Behaviour of Personal Protective Equipment (PPE) Use Among Fishermen

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#### ABSTRACT

Small-scale fishermen typically engage in fishing using traditional tools and methods, which carry a high risk of occupational accidents and work-related illnesses. This study aims to analyze the relationship between knowledge, attitude, and experience with the behaviour of personal protective equipment (PPE) use among fishermen in Tambakboyo Village, Tuban Regency. The research employed a survey design with a cross-sectional observational approach. The study population consisted of 200 rompok fishermen from Jetis Hamlet, Tambakboyo Village, Tambakboyo District, based on data provided by the local village administration. A total of 134 respondents were selected through simple random sampling. The independent variables in this study were knowledge, attitude, and experience, while the dependent variable was the behaviour of PPE application. Data collection instruments included questionnaires assessing knowledge, attitude, and experience, as well as a checklist form to evaluate PPE usage behaviour. The results showed a significant relationship between knowledge ( $p = 0.000 < 0.05$ ) and attitude ( $p = 0.000 < 0.05$ ) with PPE usage behaviour. However, no significant relationship was found between experience and PPE usage behaviour ( $p = 0.615 > 0.05$ ). In conclusion, knowledge and attitude are associated with PPE use behaviour among fishermen, whereas experience is not. It is recommended that fishermen prioritise occupational safety and health by consistently and properly using PPE before and during fishing activities.

**Keywords:** Knowledge, Attitude, Experience, Behavior, PPE.

#### ABSTRAK

Nelayan kecil umumnya melakukan penangkapan ikan menggunakan alat dan bahan secara tradisional, yang memiliki risiko tinggi terhadap kecelakaan kerja dan penyakit akibat kerja. Penelitian ini bertujuan untuk menganalisis hubungan antara pengetahuan, sikap, dan pengalaman dengan perilaku penerapan alat pelindung diri (APD) pada nelayan di Desa Tambakboyo, Kabupaten Tuban. Penelitian ini menggunakan desain survei dengan pendekatan cross-sectional melalui observasi. Populasi dalam penelitian ini adalah nelayan rompok di Dusun Jetis, Desa Tambakboyo, Kecamatan Tambakboyo sebanyak 200 orang, berdasarkan data dari perangkat desa setempat. Sampel berjumlah 134 responden yang diambil secara simple random sampling. Variabel bebas dalam penelitian ini meliputi pengetahuan, sikap, dan pengalaman, sedangkan variabel terikat adalah perilaku penerapan APD. Instrumen yang digunakan berupa kuesioner mengenai pengetahuan, sikap, dan pengalaman, serta formulir pemeriksaan kelengkapan perilaku penerapan APD. Analisis data menggunakan uji Koefisien Kontingensi dan uji Lambda. Hasil uji menunjukkan bahwa terdapat hubungan yang signifikan antara pengetahuan ( $p = 0,000 < 0,05$ ) dan sikap ( $p = 0,000 < 0,05$ ) dengan perilaku penerapan APD. Namun, tidak terdapat hubungan yang signifikan antara pengalaman dengan perilaku penerapan APD ( $p = 0,615 > 0,05$ ). Kesimpulannya, pengetahuan dan sikap berhubungan dengan perilaku penggunaan APD pada nelayan, sedangkan pengalaman tidak. Disarankan agar nelayan memprioritaskan keselamatan dan kesehatan kerja dengan selalu menggunakan APD secara baik dan benar sebelum dan selama melaut.

**Kata Kunci:** Pengetahuan, Sikap, Pengalaman, Perilaku, APD.

## INTRODUCTION

Indonesia, as the largest archipelagic country in the world, has a total area of 7.81 million km<sup>2</sup>, consisting of 3.25 million km<sup>2</sup> of ocean and 2.01 million km<sup>2</sup> of land. Due to the greater proportion of sea area, Indonesia is categorized as a maritime nation (Ningsih & Febriyanto, 2021). According to data from the Central Statistics Agency (BPS) in 2022, 59.31% of the Indonesian population worked in the informal sector, with 0.21% employed as fishermen. The Ministry of Marine Affairs and Fisheries recorded that in 2020 there were 5.23 million fishermen across the country, with the highest concentrations found in Central Java, South Sulawesi, West Java, and East Java (Badan Pusat Statistik Indonesia, 2022).

Most fishermen in Indonesia are small-scale or traditional fishermen who operate in coastal areas (Zakariya, 2020). Tuban Regency is one such coastal area, with a shoreline stretching 66 km and 5,030 fishermen recorded in 2021. Tambakboyo District ranks second in the number of marine fishing households (Badan Pusat Statistik Kabupaten Tuban, 2023). However, the high risk of work-related accidents in this sector remains a serious concern, with 586 occupational accidents recorded in Tuban Regency in 2021, including 72 cases in Tambakboyo Village (Pemerintah Kabupaten Tuban, 2021).

Fishing accidents, especially among traditional fishermen, are largely attributed to the low implementation of Occupational Safety and Health (OSH) systems, particularly the use of personal protective equipment (PPE) such as life jackets (Pemerintah Kabupaten Tuban, 2021). The Occupational Safety Post (UKK) at Tambakboyo Health Center has carried out several health promotion activities, yet reports show that injuries caused by fishing nets, hooks, oyster shells, and slipping on boats are still common (Pos Upaya Kesehatan Kerja Puskesmas Tambakboyo, 2022).

To ensure the safety of fishermen at sea, the Ministry of Marine Affairs and Fisheries has regulated safety standards through Ministerial Regulation No. 1/PERMEN-KP/2020, which mandates the use of safety equipment such as life jackets, lifebuoys, helmets, first aid kits, and GPS. However, small-scale fishermen remain a vulnerable group due to their reliance on traditional fishing methods and limited knowledge of occupational safety (Food and Agriculture Organization of The United Nations, 2022; Badan Penelitian dan Pengembangan Kesehatan, 2018).

A preliminary survey conducted in March 2023 in Tambakboyo Village found that nearly 90% of small-scale fishermen did not prioritize safety while at sea. Most lacked standard life-saving equipment and were unaware of proper PPE standards. Few felt comfortable using PPE such as gloves or life jackets. In addition, health worker outreach related to OSH was minimal, and the active involvement of the local fisherman's group (Rompok Nelayan) was found to be low.

Previous studies have shown that knowledge and attitudes are significantly associated with PPE usage (Ningsih & Febriyanto, 2021; Yulita et al., 2019), while work experience is also an influential factor, as much of the knowledge among fishermen is passed down through generations (Marasut, 2022). Risk mitigation efforts such as avoiding fishing during bad weather and equipping boats with proper safety gear are essential (Kusuma, 2022).

The novelty of this study lies in its exploratory focus on the relationship between knowledge, attitudes, and experience with PPE usage behavior specifically among small-scale fishermen in Tambakboyo Village, Tuban Regency—an area with the second highest number of marine fishing households in the region. This research is particularly important as it captures the gap between OSH promotion interventions and the actual PPE usage behavior in the field. The findings are expected to serve as a basis for evidence-based policy interventions aimed at improving occupational safety among traditional fishermen. This study aims to analyze the relationship between knowledge, attitudes, and experience with PPE usage behavior among fishermen in Tambakboyo Village, Tuban Regency.

## RESEARCH METHODS

The type of quantitative research used in this study is analytical observational, aimed at producing systematic, factual, and accurate data concerning the facts and characteristics of a specific population or region, using a cross-sectional design. In this design, both the independent and dependent variables are measured simultaneously (Notoatmodjo, 2017). This research will

be conducted among fishermen in the Rompok Nelayan (fishermen group) of Jetis Hamlet, Tambakboyo Village, Tuban Regency, and is scheduled to take place in September 2024.

The population is defined as a generalization area consisting of objects or subjects that possess specific qualities and characteristics determined by the researcher for further study and conclusion (Sugiyono, 2020). The study population consists of 200 fishermen from the Rompok Nelayan in Jetis Hamlet, Tambakboyo Village, based on data provided by the local village administration. The required sample size for this study is 134 respondents, determined using probability sampling with a simple random sampling technique. Simple random sampling is a method where every element or member of the population has an equal chance of being selected as a sample (Sugiyono, 2020). The selection of 134 fishermen as research participants was conducted randomly, ensuring the sample was representative of the population.

The instruments used in this study include a questionnaire assessing knowledge of personal protective equipment (PPE), attitudes, and experience, along with a checklist form to assess the completeness of PPE use and PPE application behavior among small-scale fishermen. Data were analyzed using SPSS version 2.1 (computerized statistical analysis). A Contingency Coefficient test at a 95% confidence level ( $p < 0.05$ ) was used to analyze the relationship between experience and attitude with PPE behavior, while the Lambda test was used to assess the relationship between knowledge and PPE behavior among fishermen in Tambakboyo Village. The Lambda test can also be calculated manually (Aini & Inayah, 2020). This study has obtained an Ethical Clearance Certificate from the Ethics Committee of the Faculty of Health, Universitas Muhammadiyah Gresik, with certificate number: 062/KET/II.3.UMG/KEP/A/2024, as part of efforts to protect the human rights and welfare of research participants.

## RESULTS

**Table 1.** Frequency Distribution by Age, Last Educational Attainment, and Personal Protective Equipment (PPE) Usage Behaviour of Fishermen in Rompok, Jetis Hamlet, Tambakboyo Village, Tambakboyo Subdistrict, Tuban Regency, 2024

Variables	Frequency (n)	Percentage (%)
<b>Age of Fishermen</b>		
< 15 years	0	0.0
15-64 years	125	93.3
> 64 years	9	6.7
Total	134	100
<b>Last Education Level</b>		
Elementary School (SD/MI)	88	65.7
Junior High School (SMP/MTs)	30	22.4
Senior High School (SMA/SMU & SMK)	16	11.9
Higher Education (University)	0	0.0
Total	134	100
<b>Personal Protective Equipment (PPE) Usage Behaviour</b>		
Low	81	60.4
High	53	39.6
Total	134	100

Based on Table 1, out of the 134 fishermen in Rompok, Jetis Hamlet, Tambakboyo Village, Tambakboyo Subdistrict, Tuban Regency in 2024, the majority (93.3%) were within the productive age range of 15–64 years. In terms of education, most of them were elementary school (SD/MI) graduates, accounting for 65.7%. Furthermore, the data show that the majority (60.4%) exhibited low levels of personal protective equipment (PPE) usage behaviour.

**Table 2.** Use of PPE Before & During Fishing Activities among Fishermen in Rompok Dusun Jetis, Tambakboyo Village, Tambakboyo Sub-district, Tuban Regency, 2024

Personal Protective Equipment (PPE)	No		Yes	
	f	%	f	%
Life jacket or life vest	93	69.4	41	30.6
Life buoy or rescue float	15	11.2	119	88.8
Safety helmet	126	94.0	8	6.0
Safety hand gloves	18	13.4	116	86.6
Safety boots (rubber boots)	116	86.6	18	13.4
First Aid Kit	116	86,6	18	13.4

Based on Table 2, the examination of Personal Protective Equipment (PPE) among fishermen in Rompok Dusun Jetis, Tambakboyo Village, Tambakboyo District, Tuban Regency in 2024 shows that the majority of fishermen (88.8%) provided a life buoy or rescue float when going to sea. Meanwhile, 94.0% of fishermen were most unwilling to use a safety helmet.

**Table 3.** Frequency Distribution of Knowledge among Fishermen in Rompok Dusun Jetis, Tambakboyo Village, Tambakboyo District, Tuban Regency, 2024

Knowledge about PPE	Frequency (n)	Percentage (%)
Poor	62	46.3
Fair	17	12.7
Good	55	41.0
Total	134	100

Based on Table 3, it was found that knowledge about personal protective equipment (PPE) among fishermen in Rompok Dusun Jetis, Tambakboyo Village, Tambakboyo District, Tuban Regency in 2024 was nearly half in the "poor" category, amounting to 46.3%.

**Table 4.** Cross Tabulation of Knowledge and Behaviour of PPE Use among Fishermen in Rompok Dusun Jetis, Tambakboyo Village, Tambakboyo District, Tuban Regency, 2024

Knowledge	PPE Usage Behaviour				Total		p-value
	Low		High				
	f	%	f	%	f	%	
Poor	62	76.5	0	0,0	62	46.3	0.000
Fair	15	18.5	2	3,8	17	12.7	
Good	4	4.9	51	96.2	55	41.0	
Total	81	100	53	100	134	100	

**Description:** N=134; Lambda=0,784;  $\alpha=0,05$  (5%)

Based on Table 4, it is evident that fishermen with a low level of knowledge about personal protective equipment (PPE) mostly demonstrated low PPE usage behaviour, accounting for 76.5%, while none (0.0%) exhibited high usage behaviour. Fishermen with a moderate level of knowledge also predominantly showed low PPE usage behaviour at 18.5%, compared to only 3.8% who demonstrated high usage. Meanwhile, those with good knowledge mostly exhibited high PPE usage behaviour, at 96.2%, with only 4.9% showing low usage behaviour.

The inferential test results in Table 4 using Lambda analysis show a p-value of 0.000 (< 0.05), indicating that the alternative hypothesis ( $H_a$ ) is accepted and the null hypothesis ( $H_0$ ) is rejected. Therefore, it can be concluded that there is a significant relationship between knowledge and PPE usage behaviour among fishermen in Tambakboyo Village, Tuban Regency.

**Table 5.** Frequency Distribution of Fishermen's Attitudes Towards PPE in Rompok Jetis, Tambakboyo Village, Tambakboyo Subdistrict, Tuban Regency, 2024

<b>Fishermen's Attitudes Towards Personal Protective Equipment (PPE)</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
Negative	79	59.0
Positive	55	41.0
Total	134	100

Based on Table 5, the attitude toward personal protective equipment (PPE) among fishermen in Rompok, Jetis Hamlet, Tambakboyo Village, Tambakboyo Subdistrict, Tuban Regency in 2024 was mostly categorised as negative, accounting for 59.0%.

**Table 6.** Cross Tabulation of Attitudes and Behaviour in the Use of Personal Protective Equipment (PPE) Among Fishermen in Rompok, Jetis Hamlet, Tambakboyo Village, Tambakboyo Subdistrict, Tuban Regency.

Attitude	PPE Usage Behaviour				Total	p-value	
	Low		High				
	f	%	f	%	f		%
Negative	79	97.5	0	0.0	79	59.0	0.000
Positive	2	2.5	53	100	55	41.0	
Total	81	100	53	100	134	100	

**Description:** N=134; Contingency Coefficient=0,696;  $\alpha=0,05$  (5%)

Based on Table 6, it is shown that fishermen with a negative attitude toward PPE predominantly exhibit low PPE usage behaviour, accounting for 97.5%, compared to none (0.0%) who show high usage behaviour. Conversely, fishermen with a positive attitude toward PPE mostly demonstrate high PPE usage behaviour, accounting for 100.0%, while only 2.5% show low usage behaviour.

**Table 7.** Frequency Distribution of Fishermen's Experience in Rompok Dusun Jetis, Tambakboyo Village, Tambakboyo Subdistrict, Tuban Regency in 2024

<b>Experience of Fishermen</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
< 5 years	18	13.4
> 5 years	116	86.6
Total	134	100

Based on Table 7, it was found that the majority of fishermen in Rompok, Jetis Hamlet, Tambakboyo Village, Tambakboyo Subdistrict, Tuban Regency, in 2024 had more than five years of fishing experience, accounting for 86.6%.

**Tabel 8.** Tabulasi Silang Pengalaman Dengan Perilaku Penerapan Alat Pelindung Diri Pada Nelayan Rompok Dusun Jetis Desa Tambakboyo Kecamatan Tambakboyo, Kabupaten Tuban

Experience	PPE Implementation Behaviour				Total		p-value
	Low	High					
	f	%	f	%	f	%	
< 5 years	12	14.8	6	11.3	18	13.4	0.615
> 5 years	69	85.2	47	88.7	116	86.6	
Total	81	100	53	100	134	100	

**Description:** N=134; Contingency Coefficient=0,050;  $\alpha=0,05$  (5%)

Based on Table 8, it is shown that fishermen with less than 5 years of experience mostly exhibited low PPE implementation behaviour (14.8%) compared to high PPE implementation behaviour (11.3%). Meanwhile, those with more than 5 years of experience also predominantly displayed low PPE behaviour (85.2%) compared to high PPE behaviour (88.7%).

The inferential analysis in Table 8 using the Contingency Coefficient test yielded a p-value of 0.615 ( $> 0.05$ ), indicating that the alternative hypothesis ( $H_a$ ) is rejected and the null hypothesis ( $H_0$ ) is accepted. This means there is no significant relationship between experience and PPE implementation behaviour among fishermen in Tambakboyo Village, Tuban Regency.

## **DISCUSSION**

### **The Relationship Between Knowledge and Personal Protective Equipment (PPE) Use Behaviour Among Fishermen (A Study in Tambakboyo Village, Tuban Regency).**

The results of bivariate analysis using the Lambda test showed a significance value or probability of 0.000, which is less than the standard significance level of 0.05 ( $p < 0.05$ ). This indicates a significant relationship between knowledge and PPE use behaviour among fishermen in Tambakboyo Village, Tuban Regency. This finding aligns with the study by Anggraini and Utami (2022), which demonstrated a correlation between knowledge and discipline in PPE usage. Similarly, Nurhayati, Setyaningrum, & Fadillah, (2017) found a significant association between knowledge and PPE use. Ningsih and Febriyanto (2021) also concluded that knowledge had a significant relationship ( $p < 0.05$ ) with the incidence of occupational accidents among fishermen.

Knowledge is a critical factor in shaping individual behaviour. When fishermen are given information or guidance about the importance of using PPE while working, they are more likely to understand its protective value and its role in safeguarding their health and safety from various occupational hazards (Rahmawati et al., 2022). Behaviour rooted in knowledge tends to be more enduring compared to behaviour based on habit or imitation alone (Hendrawan et al., 2020).

According to Dewi (2023), the limited use of PPE among fishermen is often due to poor understanding, limited financial resources, and behavioural tendencies. This is supported by the findings of PPE checks conducted before and during fishing activities among fishermen in Rompok Jetis, Tambakboyo Village, Tuban Regency, in 2024, which revealed that 69.4% did not use life jackets, 94.0% refused to wear safety helmets, and 86.6% did not use rubber boots or carry first aid kits. These figures are particularly concerning given the inherently dangerous nature of fishing, including unpredictable weather and high sea waves, which can cause traditional fishing boats—often lacking proper safety standards—to capsize or sink. Moreover, most fishermen do not carry or wear personal safety equipment while at sea.

Based on the findings, the researcher assumes that the generally low level of knowledge among the fishermen is due to their limited educational background—65.7% had only completed primary school (SD/MI). Additionally, their willingness to learn is hindered by a lack of access to information, underutilisation of mobile technology, and the absence of regular occupational health and safety (OHS) outreach from the relevant authorities. The Health Office of Tuban Regency, through the Occupational Health Post (UKK) at Tambakboyo Health Centre, has only held one OHS awareness session in 2018, attended by 30–35 individuals comprising fishermen and community leaders. Consequently, the dissemination of information remains uneven across the fishing community in Rompok Jetis Hamlet.

### **The Relationship Between Attitudes and Personal Protective Equipment (PPE) Use Behaviour Among Fishermen (A Study in Tambakboyo Village, Tuban Regency).**

The results of bivariate analysis using the Contingency Coefficient test showed a significance or probability value of 0.000, which is less than the standard significance threshold of 0.05 ( $p < 0.05$ ). This indicates a significant relationship between attitude and PPE use behaviour among fishermen in Tambakboyo Village, Tuban Regency. This finding is consistent with the study by Silalahi et al. (2022), which identified attitude as one of the factors associated with PPE usage. Similarly, Utami et al., (2020) found that 77.3% of respondents with negative attitudes showed a significant association between attitude and PPE compliance, with a p-value of 0.032 ( $\alpha < 0.05$ ). Mustofa et al. (2019) also reported that predisposing factors such as attitude had a strong and significant influence on PPE use behaviour. Furthermore, Fauzan (2021) concluded that a positive attitude towards PPE use was more beneficial than the attitude observed during PPE application at sea, with a p-value of 0.000 ( $\alpha < 0.05$ ). These results were

supported by Hendrawan et al. (2020), who confirmed that attitude significantly affects behaviour regarding PPE use.

Attitude can be defined as a readiness to respond to objects in a particular environment, formed through a process of internalisation or evaluation of those objects (Adventus, 2019). In relation to fishermen's attitudes towards PPE, the 2024 data from Rompok fishermen in Jetis Hamlet, Tambakboyo Village, Tuban Regency showed that the majority (59.0%) had negative attitudes. This suggests that most fishermen do not prioritise their own safety at sea; for them, the ability to catch fish is sufficient regardless of the risks involved. Meanwhile, the Tuban Regency Government has expressed serious concern regarding traditional fishermen's occupational safety, noting that approximately 85% of work accidents are due to poor implementation of occupational health and safety (OHS) systems—particularly the lack of PPE use, such as life jackets (Pemerintah Kabupaten Tuban, 2021).

Based on these findings, the researcher assumes that the generally negative attitude among fishermen is largely due to discomfort and the perception that PPE restricts their movement. This attitude is also influenced by years of fishing experience, which may lead them to neglect using PPE even when it is available and carried on board.

### **The Relationship Between Experience and Personal Protective Equipment (PPE) Use Behaviour Among Fishermen (A Study in Tambakboyo Village, Tuban Regency).**

The results of the bivariate analysis using the Contingency Coefficient test showed a significance or probability value of 0.615, which is greater than the standard significance level of 0.05 ( $p > 0.05$ ). This indicates that there is no significant relationship between work experience and PPE use behaviour among fishermen in Tambakboyo Village, Tuban Regency. This result aligns with the study by Marasut (2022), which found no correlation between experience and PPE use behaviour. In general, the knowledge fishermen possess is based solely on work experience, and the profession is often passed down through generations.

These findings are also consistent with Simbage et al. (2021), who found that fishermen's understanding of occupational safety is primarily based on their own experiences. For instance, if the weather is favourable, they will go to sea, and if the weather is poor, they will refrain from fishing. Therefore, experience does not directly influence PPE use. Similarly, Ningsih & Febriyanto (2021) concluded that the knowledge of traditional fishermen is mainly acquired from hands-on experience, such as knowing how to catch fish or navigate by the wind direction. This highlights the urgent need for policymakers to provide occupational safety and health education to traditional fishermen in order to improve their quality of life and minimise the risk of workplace accidents.

Amar (2021) also found that the longer a fisherman has been working, the more likely they are to neglect using PPE, believing they are already familiar with sea conditions. Their empirical experience and knowledge passed down from ancestors lead to a disregard for proper PPE usage. This is supported by the data from Rompok fishermen in Jetis Hamlet, Tambakboyo Village, Tuban Regency in 2024, which shows that the majority (71.6%) have over 10 years of experience, yet most (60.4%) exhibit low levels of PPE use behaviour.

According to the Health Research and Development Agency of the Ministry of Health of the Republic of Indonesia (Badan Penelitian dan Pengembangan Kesehatan, 2018), low compliance in PPE use among small-scale fishermen is due to a lack of perception and awareness regarding occupational safety and health. Many work accidents or occupational diseases occur because knowledge is acquired only through experience, habits, or tradition. Hufon & Mindiharto (2021) also noted that with longer work experience, fishermen tend to feel overly confident and familiar with their tasks, leading to reduced vigilance and unsafe behaviours.

Based on this study, the researcher assumes that the work experience of fishermen in Rompok Jetis is primarily related to technical fishing skills, such as catching fish, reading wind directions, and interpreting weather patterns. However, experience in the proper and safe use of standard PPE is very limited, due to a lack of education and outreach from the Department of Marine Affairs and Fisheries and the Health Department regarding occupational safety and health for traditional/small-scale fishermen.

Furthermore, the researcher's direct observation revealed that the PPE or safety equipment used by fishermen in Jetis Hamlet is often improvised and does not meet national standards or international regulations such as SOLAS (Safety of Life At Sea). For example, used car inner tubes are used as floatation devices (life buoys), and empty jerry cans are used as substitutes for life jackets. These alternative tools have not undergone proper durability testing to determine their effectiveness or safety.

## CONCLUSION

Based on the research findings, it can be concluded that there is a relationship between knowledge and attitude with the behaviour of personal protective equipment (PPE) usage among fishermen (a study in Tambakboyo Village, Tuban Regency), although no significant relationship was found between experience and such behaviour. This finding suggests that experience alone is not sufficient to promote safe working behaviour without adequate education. Therefore, it is recommended that future research broaden its scope by considering other characteristics of fishermen and incorporating additional supporting variables that may influence PPE usage behaviour. In doing so, the research findings can serve as a more comprehensive reference for the formulation of occupational safety policies for fishermen.

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