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The Relationship Between Knowledge And PPE Use And Dermatitis Prevention Among Fishers In The Coastal Area Of Lhokseumawe

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ABSTRACT

Background: Dermatitis is an occupational skin disease that may affect fishers due to repeated exposure to seawater, sunlight, and biological agents during daily activities. Preventive practices, adequate knowledge, and appropriate personal protective equipment (PPE) use are important for protecting skin health in coastal working environments. Methods:This descriptive-analytic study employed a cross-sectional design involving 62 fishers selected through simple random sampling. Data were collected through interviews using a structured questionnaire that had undergone validity and reliability testing. Uni variate analysis was used to describe the study variables, while bi variate analysis was performed using the Chi-square test at a 95% confidence level (α = 0.05). Results: The findings showed that 64.52% of respondents demonstrated good dermatitis-prevention practices, 79.03% had good knowledge, and 90.32% reported appropriate PPE use. Bi variate analysis revealed significant relationships between knowledge and dermatitis prevention (p = 0.004) and between PPE use and dermatitis prevention (p = 0.001). Both variables were statistically associated with dermatitis-prevention practices among the participating fishers.Conclusion:Knowledge and PPE use were significantly associated with dermatitis-prevention practices among fishers in the coastal area of Lhokseumawe. These findings highlight the importance of continuous health education, regular occupational health counseling, and consistent PPE use to support skin-health protection in coastal communities. However, the cross-sectional design limits causal interpretation, and the findings should be interpreted as associations rather than evidence of cause and effect. Targeted health-promotion interventions may help strengthen preventive practices among fishers.

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INTRODUCTION

Skin diseases are common health problems, particularly among groups exposed to high-risk occupational environments. Skin diseases may be caused by various external (exogenous) and internal (endogenous) factors and may present with symptoms ranging from itching and redness to infection. Globally, skin diseases have a relatively high prevalence, with approximately 10–20% of the population having sought healthcare for skin disorders (Rahma, Setyaningsih, & Jayanti, 2017). This indicates that skin disease remains a public health issue requiring serious attention.

Occupational health and safety (OHS) is a right of every worker in both formal and informal sectors. Fishers, who are among informal-sector workers, face a high risk of health problems because of demanding working conditions and extreme environments. Exposure to seawater, sunlight, marine biological materials, and limited use of personal protective equipment (PPE) are major risk factors that may trigger skin diseases, including dermatitis (Layuk, 2026).

Coastal fishers commonly face various health problems, including malnutrition, respiratory infections, diarrhea, and skin diseases. These conditions are influenced by environmental factors such as poor sanitation, limited access to clean water, and low use of healthcare facilities (Hariani, 2025). Dermatitis is one of the skin conditions commonly experienced by fishers. It is an inflammation of the skin characterized by symptoms such as erythema, edema, vesicles, and lichenification accompanied by itching (Sirait & Samura, 2021).

Dermatitis affects not only physical health but also social and economic well-being. Physically, it causes discomfort that may interfere with daily activities. Economically, dermatitis can reduce work productivity, increase treatment costs, and lead to lost workdays (Pratiwi et al., 2022). In addition, visible skin conditions may cause psychological distress, including embarrassment, anxiety, and reduced self-confidence (Pratiwi et al., 2022).

Among fishers, dermatitis is often caused by exposure to seawater with high salt content, which can irritate the skin. Exposure to marine organisms and fungi, as well as persistently wet working conditions, can also increase the risk of skin infections (Sirait & Samura, 2021). Working without adequate protection can worsen these conditions, especially when good personal hygiene practices are not maintained.

Personal hygiene factors, such as the cleanliness of the skin, hands, feet, and work clothes, play an important role in dermatitis prevention. Poor personal hygiene can increase the risk of skin disease. Other contributing factors include allergies to certain substances, exposure to irritants, and limited knowledge (Sukesi, Nisa, & Fitri, 2025). Therefore, preventive efforts are essential to reduce dermatitis among fishers.

Dermatitis can be prevented by improving knowledge, using personal protective equipment, and maintaining good personal hygiene. Prevention also includes reducing exposure to irritants and allergens and increasing awareness of the importance of skin health (Sukesi et al., 2025). Using PPE such as gloves and protective footwear, along with bathing after work, are simple but effective measures for preventing dermatitis (Pramana & Utami, 2021).

Globally, occupational skin diseases are among the most common

work-related illnesses. The International Labour Organization (ILO) has reported that approximately 80% of occupational skin diseases are contact dermatitis, with irritant contact dermatitis being the predominant type (Asrul, Naiem, & Muis, 2021). In Indonesia, data from the Ministry of Health indicate that dermatitis cases remain high, reaching hundreds of thousands annually (Kemenkes RI, 2015).

The Basic Health Research (Riskesdas) results indicate that dermatitis prevalence in Indonesia remains relatively high, including in Aceh Province, where the number of cases is substantial (Riskedas, 2018). This shows that dermatitis remains a significant health problem, particularly among coastal communities with greater exposure risks.

Lhokseumawe, a coastal city in Aceh Province, has a sizeable fishing population. Fishers' daily direct contact with seawater and potentially unhygienic working environments may increase their risk of dermatitis. However, their preventive practices remain suboptimal, particularly regarding PPE use and personal hygiene.

Based on this background, dermatitis among fishers is a health problem influenced by individual factors and the work environment. This study therefore aimed to analyze factors associated with dermatitis prevention among fishers in the coastal area of Lhokseumawe, providing a basis for interventions and efforts to improve fishers' health.

METHODS

This study used a descriptive-analytic approach with a cross-sectional design, in which independent and dependent variables were measured at the same time. It aimed to analyze factors associated with dermatitis prevention among fishers in the coastal area of Lhokseumawe during the study period.

The study population consisted of all fishers living in the coastal area of Lhokseumawe City. The sample size was determined using Slovin's formula with a 10% margin of error, and respondents were then selected using simple random sampling. The study included 62 respondents.

This study used primary and secondary data. Primary data were collected through face-to-face interviews using a structured questionnaire covering knowledge, personal protective equipment (PPE) use, and dermatitis-prevention practices. Secondary data were obtained from community health centers, the health department, and relevant scientific literature. The study was conducted in the coastal area of Lhokseumawe City. Data collection began with obtaining research permission, followed by selecting respondents who met the inclusion criteria, conducting face-to-face interviews, and checking data completeness. Univariate and bivariate analyses were performed using the chi-square test with Stata version 15.

Data were presented as frequency-distribution tables for univariate analysis and cross-tabulation tables for bivariate analysis to facilitate interpretation of the findings.

RESULTS AND DISCUSSION

Table 1
Frequency Distribution Of Respondents By Characteristics Related To Dermatitis Among Fishers In The Coastal Area Of Lhokseumawe

No	Variable	Frequency	Percentage
1	Age		
	≤35 years	53	85,48
	36–50 years	9	14,52
Total		62	100,00
2	Educational Status		
	Completed elementary school	10	16,13
	Completed junior high school	26	41,94
	Completed senior high school	22	35,48
	College/Bachelor's degree	4	6,45
Total		62	100,00
3	Housing Type		
	Permanent	53	85,48
	Semi-permanent	7	11,29
	Wooden boards	1	1,61
	Plywood	1	1,61
Total		62	100,00
4	Floor Condition		
	Damp	6	9,68
	Not damp	56	90,32
Total		62	100,00
5	Length of Employment		
	<2 years	6	9,68
	≥2 years	56	90,32
Total		62	100,00

Source: Primary data, processed in 2026

Table 2
Frequency Distribution Of Respondents By Dermatitis Prevention Among Fishers In The Coastal Area Of Lhokseumawe

No	Dermatitis Prevention	Frequency	Percentage
1	Good	40	64,52
2	Poor	22	35,48
	Total	62	100,0

Table 3
Frequency Distribution Of Respondents By Knowledge Among Fishers In The Coastal Area Of Lhokseumawe

No	Knowledge	Frequency	Percentage
1	Good	49	79,03
2	Poor	13	20,97
	Total	62	100,0

Table 4
Frequency Distribution Of Respondents By Ppe Use Among Fishers In The Coastal Area Of Lhokseumawe

No.	PPE Use	Frequency	Percentage
1	Good	56	90,32
2	Poor	6	9,68
	Total	62	100,0

Source: Primary data, processed in 2026

Table 5
Relationship Between Knowledge And Dermatitis Prevention Among Fishers In The Coastal Area Of Lhokseumawe

No	Knowledge	Dermatitis Prevention				Total		p-value
		Good		Poor				
		n	%	n	%	n	%	
1	Good	36	73,47	13	26,53	49	100,0	0,004
2	Poor	4	30,77	9	69,23	13	100,0	

Table 6
Relationship Between Ppe Use And Dermatitis Prevention Among Fishers In The Coastal Area Of Lhokseumawe

No	PPE Use	Dermatitis Prevention				Total		p-value
		Good		Poor				
		n	%	n	%	n	%	
1	Complete	40	71,43	16	28,57	56	100,0	0,001
2	Incomplete	0	0,00	6	100,00	6	100,0	

Table 1 shows that the majority of respondents were aged ≤35 years (85.48%), with the largest educational group having completed junior high school (41.94%). Most respondents lived in permanent houses (85.48%), had non-damp floors (90.32%), and had worked for ≥2 years (90.32%). Table 2 indicates that 64.52% of respondents had good dermatitis-prevention practices, while 35.48% had inadequate practices. Table 3 shows that most respondents had good knowledge (79.03%), whereas 20.97% had inadequate knowledge. Furthermore, Table 4 reveals that 90.32% of respondents used personal protective equipment (PPE) appropriately, while 9.68% had inadequate PPE use. As presented in Table 5, inadequate dermatitis-prevention practices were more common among respondents with insufficient knowledge (69.23%) than among those with good knowledge (26.53%). Conversely, good prevention practices were more prevalent among respondents with good knowledge (73.47%) than among those with insufficient knowledge (30.77%). Statistical analysis demonstrated a significant association between knowledge and dermatitis prevention (p =

0.004). Similarly, Table 6 shows that inadequate prevention practices were more common among respondents who did not use complete PPE (100.00%) than among those who used complete PPE (28.57%). Good prevention practices were more prevalent among respondents with complete PPE use (71.43%), while none of the respondents with incomplete PPE use demonstrated good prevention practices (0.00%). Statistical analysis also revealed a significant association between PPE use and dermatitis prevention ($p = 0.001$). These findings indicate that both knowledge and appropriate PPE use were significantly associated with dermatitis-prevention practices among fishers.

Relationship Between Knowledge and Dermatitis Prevention Among Fishers in the Coastal Area of Lhokseumawe

The analysis showed that inadequate dermatitis prevention was more prevalent among fishers with insufficient knowledge (69.23%) than among those with good knowledge (26.53%). Conversely, good dermatitis-prevention practices were more common among fishers with good knowledge (73.47%) than among those with insufficient knowledge (30.77%). The statistical test yielded a p-value of 0.004 ($p < 0.05$), indicating a significant relationship between knowledge and dermatitis prevention among fishers in the coastal area of Lhokseumawe.

These findings are consistent with Mudarris and Amna (2025), who also reported a significant relationship between knowledge and dermatitis prevention, with a p-value of 0.012 ($p < 0.05$). This similarity suggests that knowledge is an important factor in shaping skin-disease prevention behaviors, particularly for at-risk groups such as fishers.

Theoretically, knowledge is a predisposing factor that influences the formation of individual behavior. It reflects an individual's readiness to respond to a stimulus, including matters related to health maintenance. Attitudes shaped by knowledge can lead to particular behavioral tendencies in response to circumstances, including disease-prevention efforts (Kholid, 2023).

Furthermore, according to the theory proposed by Rogers as cited in Kholid (2023), the cognitive domain, or knowledge, is particularly important in shaping behavior. Behaviors based on knowledge tend to last longer and be more effective than behaviors not grounded in knowledge. Therefore, improving fishers' knowledge of dermatitis prevention is a strategic step toward reducing dermatitis risk in coastal areas.

Relationship Between PPE Use and Dermatitis Prevention Among Fishers in the Coastal Area of Lhokseumawe

The analysis showed that inadequate dermatitis prevention was more prevalent among fishers who did not use complete PPE (100.00%) than among those who used complete PPE (28.57%). Conversely, good prevention practices were more common among fishers who used complete PPE (71.43%); no fishers with incomplete PPE use had good prevention practices (0.00%). The statistical test yielded a p-value of 0.001 ($p < 0.05$), indicating a significant relationship between PPE use and dermatitis prevention among fishers in the coastal area of Lhokseumawe.

These findings are consistent with Cahyantiningrum (2021), which reported a significant relationship between the use of personal protective equipment and dermatitis prevention, with a p-value of 0.025 ($p < 0.05$). This reinforces the importance of PPE in protecting against skin disorders caused by workplace exposure.

Theoretically, personal protective equipment (PPE) is a risk-control method used to protect individuals from workplace hazards. PPE may include protective eyewear, work clothing, boots, gloves, and masks, each serving a specific function in protecting particular body parts. PPE use can reduce direct contact with agents that cause dermatitis, such as seawater, chemicals, and microorganisms.

Nevertheless, PPE should not be considered the only method for controlling exposure. It should be combined with other measures, including education, promotion of clean and healthy living behaviors, and workplace environmental controls (Kurniawidjaja & Ok, 2012). Therefore, consistent and complete PPE use is key to strengthening dermatitis-prevention efforts among fishers.

CONCLUSION

The study concluded that knowledge and personal protective equipment (PPE) use were significantly associated with dermatitis prevention among fishers in the coastal area of Lhokseumawe. Knowledge was significantly associated with dermatitis-prevention practices ($p = 0.004$), while PPE use also showed a significant relationship with dermatitis prevention ($p = 0.001$). These findings highlight the importance of improving fishers' knowledge through health education and promoting consistent PPE use to support effective dermatitis-prevention practices. However, given the cross-sectional design, these relationships should be interpreted as associations rather than causal effects.

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