

Original Article

Analysis of Contact Dermatitis Incidence Factors in Fishermen in The Working Area of Wapunto Health Center

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ABSTRACT

The prevalence of contact dermatitis in the Working Area of Wapunto Public Health Center, increases yearly, that is, in 2018 was 22.3% per 1000 population, in 2019, was 29.4% in 2020, was 35.2%. The purpose of this study was to determine the factors related to contact dermatitis disease in fishermen in the Working Area of Wapunto Public Health Center, Muna Regency. The type of study was observational quantitative with a cross-sectional study design. The total population in this study were 255 families, while the sample was 72 respondents using cluster random sampling. Data analysis using chi-square test. The results of the study showed that there was a relationship between contact time with value $X^2_{count} > X^2_{table}$, namely $19,412 > 3,481$, personal hygiene with value $X^2_{count} > X^2_{table}$ namely $26,331 > 3,481$, history of allergies with value $X^2_{count} > X^2_{table}$, namely $11,250 > 3,481$, use of PPE with value $X^2_{count} > X^2_{table}$ namely $31,065 > 3,481$ with contact dermatitis disease in fishermen in the Working Area of Wapunto Public Health Center, Muna Regency. In conclusion, there is a relationship between contact time, personal hygiene, history of allergies, and PPE use. Therefore, fishermen should reduce the risk or prevent the incidence of contact dermatitis by further improving personal hygiene, such as washing hands and feet using soap, changing work clothes and using clean and not humid PPE.

Keywords : Contact Duration, Personal Hygiene, Personal Protective Equipment, Dermatitis

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INTRODUCTION

Dermatitis is a common skin disease, with 5.7 million doctor visits per year due to dermatitis. The prevalence of contact dermatitis in Indonesia varies widely. 90% of skin diseases are contact dermatitis, both irritant and allergic. Contact dermatitis accounts for 92.5% as one of the occupational diseases, 5.4% due to skin infections, and 2.1% caused by other things ¹.

In Southeast Sulawesi, the incidence of contact dermatitis is considered quite high, where there are four cities/districts with prevalence above the national prevalence of 6.8%, namely Bau-Bau City, Wakatobi,

Kendari, and North Kolaka. Meanwhile, the prevalence of contact dermatitis in Muna Regency was 5.4% ².

Data from the Muna Regency Health Office shows that the prevalence of contact dermatitis has increased every year. Where in 2017 the prevalence of dermatitis was 10.2% who sought treatment at the Public health center, in 2018 the prevalence was 12.89%. who sought treatment at the Public health center. And in 2019 the prevalence of cases who sought treatment at the public health center was 14.89% ³. Meanwhile at Wapunto Health Center, contact dermatitis is always a disease that is included in the top 10 diseases with the

highest incidence. Where in 2018 the prevalence of dermatitis was 22.3% of patients per 1000 population, in 2019 the number of prevalence cases was 29.4% and in 2020 the prevalence of cases was 35.2% ⁴.

Contact dermatitis can cause skin disorders with symptoms such as itching characterized by patches, rashes, skin thickening and inflammation ⁵. There are various factors that influence the incidence of contact dermatitis in fishermen, which is why dermatitis is called a multifactor disease. Lack of attention to personal hygiene in fishermen is the cause of contact dermatitis, where fishermen do not pay attention to their personal hygiene, especially hand hygiene and work clothes. Bad contact habits, because the longer the contact occurs, the greater the likelihood of inflammation or irritation so that it triggers abnormalities in the skin. In addition, allergic history is also one of the causes that risks making the skin more sensitive to dermatitis and fishermen who do not pay attention to the use of Personal Protective Equipment (PPE) when going to sea are causes that can trigger contact dermatitis in fishermen ⁶.

The results of initial observations that have been made, found that most fishermen have experienced symptoms of contact dermatitis, such as red and dry skin, itching on the surface of the skin, and thickening of the skin, especially on the hands and feet. Meanwhile, from the results of open interviews, it was found that they have a habit of long contact and sometimes long in a wet state in the sea and then under the heat of the sun, there are also fishermen who do not pay attention to personal hygiene such as not washing hands and feet with soap after work, not changing work clothes after going to sea. There are also fishermen who do not use PPE, such as work shoes and gloves. This condition triggers the onset of contact dermatitis infection in fishermen.

The purpose of this study was to determine the factors related to contact dermatitis disease in fishermen in the Working Area of Wapunto Public Health Center, Muna Regency.

METHOD

This research is observational quantitative research using a Cross-Sectional Study design. This research was conducted

from February 2 to March 2, 2021, in the Wapunto Health Center Working Area, Muna Regency. The population in this study were all people who worked as fishermen in the Wapunto Health Center Working Area, as many as 255 families with a sample size of 72 families. The research sampling technique used the Cluster Random Sampling technique. Data collection was done using a questionnaire sheet. Data analysis using the Chi-square test, then the data is presented in tabular form and narrated.

RESULTS

Table 1. Frequency Distribution Based on Respondent Characteristics in the Work Area of the Wapunto Health Center, Muna Regency

Characteristics	n	%
Age		
≤ 30	30	41,7
> 30	42	58,3
Education		
Finished Elementary School	37	51,3
Finished Junior High School	25	34,7
Finished High School	10	13,9
Total	72	100,0

Table 2. Frequency Distribution Based on the Incidence of Contact Dermatitis, Length of Contact, Personal Hygiene, History of Allergies, and Use of PPE in the Work Area of the Wapunto Health Center, Muna Regency

Variable	n	%
Contact Dermatitis		
Did not Suffer	32	44,4
Suffered	40	55,6
Length of Contact		
Infrequent	29	54,2
Frequent	43	45,8
Personal Hygiene		
Good	30	41,7
Poor	42	58,3
History of Allergies		
Without	48	66,7
With	24	33,3
Use of PPE		
Used	28	38,9
Did not use	44	61,1
Total	72	100,0

The characteristics of respondents in table 1 show that of the 72 respondents studied, the age group > 30 years of 42 (58.3%) respondents was more than the age ≤ 30 years of 30 (41.7%) respondents. The distribution of

respondents' education, the most was the elementary level as many as 37 (51.3%) respondents and the least was at the high school level, namely 10 (13.9%) respondents.

The distribution of research variables in table 2 shows that out of 72 respondents, 32 (44.4%) of them did not suffer from contact dermatitis and 40 (55.6%) respondents suffered from contact dermatitis. Based on the length of contact, there were 29 (54.2%) respondents who had infrequent contact as fishermen and there were 43 (45.8%) respondents who had frequent contact as fishermen. Based on personal hygiene, there were 30 (41.7%) respondents with good personal hygiene and 42 (58.3%) respondents with poor personal hygiene. Based on allergy history, there were 48 (66.7%) respondents without allergy history and 24 (33.3%) respondents with allergy. Based on the use of PPE, there were 28 (38.9%) respondents

who used and 44 (61.1%) respondents who did not use.

Based on the length of contact with the incidence of contact dermatitis in fishermen in table 3, it is known that among 29 respondents who had a rare length of contact there were 7 (24.1%) respondents who suffered from contact dermatitis. Whereas among 43 respondents who had frequent contact duration there were 33 (76.7%) respondents who suffered from contact dermatitis. The Chi Square test results obtained the value of $X^2_{count} > X^2_{Tabel}$ (19.412 > 2.705), so the alternative hypothesis is accepted, thus there is a relationship between the length of contact with the incidence of contact dermatitis of fishermen in the Wapunto Health Center Working Area. Furthermore, the value of $\Phi (\phi) = 0.519$ which means that there is a moderate relationship.

Table 3. Bivariate Analysis of the Relationship between Length of Contact, Personal Hygiene, History of Allergies, and Use of PPE with the Incidence of Contact Dermatitis in the Working Area of the Wapunto Health Center, Muna Regency

Variable	Contact Dermatitis				Total		Statistical Test
	Did not Suffer		Suffered		n	%	
	n	%	n	%			
Length of Contact							
Infrequent	22	75,9	7	24,1	29	40,3	$X^2_{hit} = 19,412$ $X^2_{tab} = 2,705$ $\Phi = 0,519$
Frequent	10	23,3	33	76,7	43	59,7	
Total	32	44,4	40	55,6	72	100,0	
Personal Hygiene							
Good	24	80,0	6	20,0	30	41,7	$X^2_{hit} = 26,331$ $X^2_{tab} = 2,705$ $\Phi = 0,605$
Poor	8	19,0	34	81,0	42	58,3	
Total	32	44,4	40	55,6	72	100,0	
History of Allergies							
Without	28	58,3	20	41,7	48	66,7	$X^2_{hit} = 11,250$ $X^2_{tab} = 3,841$ $\Phi = 0,395$
With	4	16,7	20	83,3	24	33,3	
Total	32	44,4	40	55,6	72	100,0	
Use of PPE							
Used	24	85,7	4	14,3	28	38,9	$X^2_{hit} = 31,605$ $X^2_{tab} = 2,705$ $\Phi = 0,663$
Did not use	8	18,2	36	81,8	44	61,0	
Total	32	44,4	40	55,6	72	100,0	

Based on personal hygiene with the incidence of contact dermatitis in fishermen table 3, it is known that among 30 respondents who have good personal hygiene there are 6 (20.0%) respondents who suffer from contact dermatitis. While among 42 respondents who had personal hygiene there were 34 (81.0%) respondents who suffered from contact dermatitis. The Chi Square test results obtained the value of $X^2_{count} > X^2_{Tabel}$ (26.331 >

2.705). So that the alternative hypothesis is accepted, thus there is a relationship between personal hygiene and the incidence of contact dermatitis of fishermen in the Wapunto Health Center Working Area. Furthermore, the value of $\Phi (\phi) = 0.605$ which means there is a strong relationship.

Based on the history of allergies with the incidence of contact dermatitis in fishermen in table 3, it was found that among 48

respondents without a history of allergies there were 20 (41.7%) respondents who suffered from contact dermatitis. While among 24 respondents with a history of allergies there were 20 (83.3%) respondents who suffered from contact dermatitis. The Chi Square test results obtained the value of $X^2_{count} > X^2_{tabel}$ (11.250 > 3.841) so that the alternative hypothesis is accepted, thus there is a relationship between allergic history and the incidence of contact dermatitis in fishermen in the Wapunto Health Center Working Area. Furthermore, the value of Phi (ϕ)=0.395 which means that there is a weak relationship.

Based on the use of PPE with the incidence of contact dermatitis in fishermen in table 3, it shows that among 28 (38.9) respondents who used PPE there were 4 (14.3%) respondents who suffered from contact dermatitis. Meanwhile, among 44 (61.0) respondents who did not wear PPE, 36 (81.8%) respondents suffered from contact dermatitis. The Chi Square test results obtained the value of $X^2_{count} > X^2_{tabel}$ (31.605 > 2.705), so the alternative hypothesis is accepted, thus there is a relationship between the use of PPE and the incidence of contact dermatitis in fishermen in the Wapunto Health Center Working Area. Furthermore, the value of Phi (ϕ) = 0.663 which means that there is a strong relationship.

DISCUSSION

Length of Contact is the time span of a person in contact with materials containing chemicals either in a period of hours or days. The length of contact for workers each day is always different depending on the type and process of work. The longer the worker is in contact with chemicals or allergens, the more likely it is that irritation or inflammation of the skin can occur which triggers skin disorders. Generally, the time span of a person working in one day is 8 hours ⁷.

There are respondents who have a length of contact rarely but suffer from the incidence of contact dermatitis, it is known from the results of interviews that when going to sea do not pay attention to personal hygiene such as bathing immediately after work, washing work clothes and not wearing Personal Protective Equipment (PPE) such as the use of work shoes, gloves to avoid irritation of the skin that can cause contact dermatitis when going to

sea. In addition, there are respondents who have frequent contact but do not suffer from contact dermatitis. From the results of the interview, it is known that even though the respondents have frequent contact with irritants, the respondents wear personal protective equipment such as using gloves, work shoes and glasses and apply good personal hygiene so that the respondents are not at risk of suffering from contact dermatitis.

The existence of a relationship between the length of contact with the incidence of contact dermatitis in fishermen is basically related to the working hours of respondents who have exceeded the standard of normal working hours, namely 8 hours / day. From the research results, it is known that normally fishermen catch fish at sea for less than 8 hours. But there are other activities, such as collecting fish from the net to the shelter until the fishermen return to the mainland to sell the caught fish. Where these activities are carried out with the body and clothes used are wet, due to long hours of activity. This is what triggers the onset of dermatitis, due to the growth of fungi or marine animals. Working in wet and humid places can trigger fungi to multiply, which can risk the occurrence of contact dermatitis in fishermen.

Agreed with research done Induha Village with a p-value = 0.027 at a confidence level of 95% or $\alpha = 0.05$ which means that there is a significant relationship between the length of contact with the incidence of contact dermatitis in fishermen in Induha Village, Latambaga District, Kolaka Regency ¹.

Maintaining personal hygiene, including proper handwashing practices, is a crucial preventive measure to minimize the incidence of contact dermatitis. However, it is important to highlight that errors during handwashing can actually serve as triggers for dermatitis, particularly when hands are not thoroughly cleaned and remnants of chemicals remain on the skin surface ⁸.

Handwashing with soap and water is an effective method to remove dirt, irritants, and potential allergens from the hands, reducing the risk of dermatitis. However, incomplete or inadequate handwashing can lead to the persistence of harmful substances on the skin, which can cause or exacerbate dermatitis symptoms ⁹.

There are respondents with good personal hygiene but suffer from contact dermatitis, due to other factors that can cause

contact dermatitis, for example respondents have a long contact with seawater for more than 8 hours so that they often come into contact with irritants, which can trigger contact dermatitis, even though they always maintain good personal hygiene. In addition, there are respondents with poor personal hygiene but do not suffer from contact dermatitis, because respondents do not have long contact with irritants and respondents also use boots, glasses and gloves when going to sea so that respondents are not at risk of suffering from contact dermatitis.

The relationship between personal hygiene and the incidence of contact dermatitis in fishermen is basically related to the unsanitary working environment of the respondents and the inadequate facilities available, which makes fishermen not care about their personal hygiene. The habit of bathing and washing hands and feet is very meaningful considering that these parts of the body are often in direct contact with irritants. Meanwhile, poor hand and foot washing habits can worsen the skin condition, especially for skin that has previously been infected with dermatitis. The same applies to cleaning work clothes, as residue from irritants left on clothes can risk causing infection to the body if worn repeatedly without cleaning first. In washing work clothes, it is also necessary to separate them from the clothes of other family members so that they are not contaminated with residues of irritants or allergens.

In agreement with research by ¹⁰ which states that if someone always maintains personal hygiene well, it will reduce the risk of skin disorders compared to respondents with poor personal hygiene. Also agree with research by ¹¹ which states that there is a relationship between personal hygiene and the incidence of dermatitis in fishermen in Pamandati Village, Laine District.

Allergy is an abnormal response to a material that exists in everyday life. Various kinds of allergic diseases often appear, such as allergies to dust, drug allergies, food allergies and allergies to certain animals. A history of allergies can also be one of the causes of the skin becoming more sensitive to dermatitis skin disease ¹².

There were respondents with no history of allergy but suffered from contact dermatitis. This is caused by other factors, such as lack of attention to personal hygiene such as sharing

towels with fellow workers who suffer from dermatitis and the use of water that is not in accordance with health requirements. In addition, respondents did not use complete PPE when going to sea, for example not using gloves and boots. In addition, there are respondents who have a history of allergies, but do not suffer from contact dermatitis. This is related to the respondents who went directly to the health service to conduct a self-examination when an allergic reaction appeared, so that the health center immediately examined and gave medicine to the respondents. In addition, respondents used complete PPE when going to sea. This makes respondents avoid dermatitis even though they have a history of allergies.

The relationship between allergy history and the incidence of fishing contact dermatitis is basically related to the allergies that respondents have. Respondents who have allergies while at sea are more at risk of dermatitis due to direct contact with irritants.

In line with research conducted on Bajo tribe fishermen in Lora Village, Mataoleo District, Bombana Regency, which obtained a value of $X_2 = 6.786 > X_2 = 3.841$. This shows that there is a relationship between allergic history and the incidence of dermatitis in fishermen ¹³. This finding also aligns with research done to find the risk factor of dermatitis among healthcare worker which state that individuals with a pre-existing history of allergies tend to experience more severe symptoms and a higher intensity of dermatitis compared to those without allergies. The presence of allergies can exacerbate the inflammatory response triggered by contact with irritants in the fishing environment, leading to a more pronounced dermatitis reaction ¹⁴.

By establishing a clear connection between allergies and contact dermatitis, the study's results emphasize the importance of considering individual allergic histories when assessing the risk of dermatitis in this specific occupational group. The direct exposure to irritants in the environment can exacerbate allergic reactions, leading to an increased likelihood of developing dermatitis ¹⁵.

Personal Protective Equipment (PPE) is a set of equipment used by workers to ensure that part or all of their body is protected from the risk of accidents that can arise when working. A worker who uses PPE in accordance with the rules, eating this can reduce the risk of

dermatitis, both the amount and time span of contact dermatitis. Conversely, if workers who rarely and do not wear PPE according to the rules, there will be a greater risk of contact dermatitis, compared to workers who obey wearing PPE.

There are respondents who wear PPE properly, but experience the incidence of contact dermatitis. This is because workers do not apply good personal hygiene such as washing hands and between fingers, washing work clothes, showering after work. In addition, there are respondents who do not wear PPE but do not experience contact dermatitis. This is because workers do not have prolonged contact with seawater under the sun which can cause skin irritation. The relationship between the use of PPE and the incidence of contact dermatitis means that the use of PPE is a risk factor for the incidence of contact dermatitis in fishermen. Where respondents who use PPE correctly and according to the rules have a low risk compared to fishermen who do not use PPE. This is because fishermen are in direct contact with seawater and irritants for a long period of time, namely more than 8 hours / day.

The results of this study are in line with research conducted by ¹⁶ with the title Analysis of Factors of Contact Dermatitis Incidence in Fishermen. The Chi Square test results obtained a value of $p = 0.000$ which means there is a meaningful relationship between the use of PPE and the incidence of contact dermatitis.

The existence of a relationship between the regular use of PPE and the incidence of contact dermatitis, means that if workers do not wear PPE, there is a high risk of contact dermatitis, while workers who already wear PPE can also be at risk of suffering from contact dermatitis due to the use of PPE that does not meet standards, for example the use of work shoes that are translucent and below the knee of the knee which causes seawater to enter on the surface of the skin and hand protection that is not waterproof ¹⁷. Working in a wet place can cause humid conditions on the skin, the use of PPE that does not meet usage standards will make the skin unprotected so that it will be easy for allergens or irritants to irritate the skin surface which is at greater risk of contact dermatitis.

CONCLUSION

This study concluded a relationship

between the length of contact, personal hygiene, history of allergies, and the use of PPE with the incidence of contact dermatitis of fishermen in the Wapunto Health Center Working Area, Muna Regency.

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CONFLICTS OF INTEREST

The authors state that there are no conflicts of interest.

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