

Research Article



## THE INFLUENCE OF INTERNAL FACTORS ON THE INCIDENCE OF IRRITANT CONTACT DERMATITIS (ICD) IN FISHERMAN IN NIITANASA VILLAGE, LALONGGASUMEETO SUB-DISTRICT, KONAWE DISTRICT

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### ABSTRACT

**Background:** Irritant contact dermatitis (ICD) ranks 9th as the most common disease at the Lalonggasumeeto Health Center, Konawe Regency, reaching 18 cases in 2021 caused by allergies with complaints such as itching, skin redness, dry skin, and scaly. especially in the Niitanasa village community where the majority of the population work as traditional fishermen who usually go to sea from five in the afternoon until dawn. The purpose of this study was to analyze the influence of internal factors on the incidence of irritant contact dermatitis (ICD) in fishermen in Niitanasa Village, Lalonggasumeeto District, Konawe Regency.

**Methods:** The research method used in this research is analytical research with a cross sectional study design. Where in this research design the measurement of the independent variable and the dependent variable is carried out at the same time. The population in this study were all fishermen in Niitanasa Village, Lalonggasumeeto District, totaling + 45 people. The sample for this study is a portion of the population, namely fishermen in Niitanasa Village, obtained through the use of the Slovin formula and the results obtained are 20 fishermen as a sample.

**Results:** Based on the research conducted by the researchers, the results obtained were a p-value  $<0.05$ , which was equal to 0.10, which means that at an  $\alpha$  value of 5% there was a significant relationship between length of work and the incidence of irritant contact dermatitis in fishermen, the p-value  $< 0.05$  which is equal to 0.002, which means that at an  $\alpha$  value of 5% there is a significant relationship between the use of personal protective equipment and the incidence of irritant contact dermatitis in fishermen and a p-value  $<0.05$  which is equal to 0.002, which means that at an  $\alpha$  value of 5% there is a significant relationship between personal hygiene and the incidence of irritant contact dermatitis in fishermen.

**Conclusion:** For fishermen on personal hygiene (personal hygiene) are expected to maintain personal hygiene to maintain health, always get used to washing hands with soap after work and bathing and always change clothes or pants after work and also always wash clothes, pants and gloves with detergent to prevent irritant contact dermatitis ICD The use of PPE is mandatory for all fishermen.

**Keywords:** Fishermen, Dermatitis, Work Period, Personal protective equipment, personal hygiene

## INTRODUCTION

Skin health problems in fishermen is one of the environmental-based diseases. This disease arises due to several factors such as environmental factors, exposure characteristics, agent characteristics, and individual factors. Inadequate personal hygiene can result in fungal, bacterial, viral, parasitic infections, skin disorders and other complaints. If the working environment conditions are dirty and damp, this will cause skin diseases to develop easily. The impact of dermatitis can affect the physical and economic. Physical appearance of a rash that takes a long time to develop. Meanwhile, the impacts that can affect the economy are direct costs for disease treatment, loss of working days and work productivity (1).

In America, the prevalence of ICD was found to be 55.6% in two Intensive Care Units (ICU). In Germany there are 4.5 cases per 10,000 workers with ICD cases. Compared to DKA there are 4.1 cases per 10,000 workers. And the highest incidence of ICD was found in salon workers (46.9 cases per 10,000 workers/year), bakery workers (23.5 cases per 10,000 workers/year) and cake shop workers (16.9 cases per 10,000 workers/year) (2).

Geographically, Indonesia is the largest country with 17,502 islands with a sea area of 5.8 million consisting of archipelagic and sovereign waters of 3.1 million km<sup>2</sup> and Indonesia's EEZ covering 2.7 km<sup>2</sup> out of 1 million km<sup>2</sup>. Live by the traditional fishing methods of Indonesian coastal fishermen who make a living from the sea. Furthermore, most families in coastal areas are economically unproductive in the sense that they only rely on fisheries to meet their economic needs (3).

There are several factors that influence skin disease, namely internally and externally. Internally such as the amount of work, personal hygiene of workers and protective equipment used at work (PPE), while externally such as workplaces and chemicals. Workers with a working period of approximately 2 years are more tolerant to irritants and allergies. On the other hand, workers with experience of less than 2 years can be used as a factor indicating that some workers do not have enough experience to do their job (4)

Fishermen with more or less personal hygiene are more susceptible to skin diseases caused by daily fishing. The habit of fishermen in not maintaining personal hygiene, such as fishermen only bathing once a day, clothes are not washed with soap, only dried. This habit needs to be broken and improved by standard hand washing procedures using soap. This habit can trigger the risk of irritant contact dermatitis (ICD) (5).

Fishermen who do not use personal protective equipment (PPE) will quickly transmit skin disease which is not enough to prevent exposure to irritants. Fishermen do not wash personal protective equipment (PPE) after work because they are often exposed to sea water. Fishermen are not comfortable working with personal protective equipment (PPE) because it only slows them down. Personal protective equipment (PPE) that should be used includes boots, clothes that are covered from top to bottom, long gloves and hats. An epidemiological study in Indonesia showed that 97% of 389 cases were contact dermatitis, of which 66.3% were irritant contact dermatitis and 33.7% were allergic contact dermatitis Based on Basic Health Research by the Department Health 2017

The national prevalence of dermatitis is 6.8% (based on respondent complaints). A total of 13 provinces have a prevalence of dermatitis above the national prevalence namely, Gorontalo, Central Sulawesi, North Sulawesi, South Kalimantan, Central Kalimantan, East Nusa Tenggara, DI Yogyakarta, Java Central, West Java, Jakarta, Bangka Belitung, Nanggro Aceh Darussalam, and including West Sumatra.(6)

According to data from the Lalonggasumeeto Health Center UPT, irritant contact dermatitis (ICD) ranks 9th as the most common disease at the Lalonggasumeeto Health Center, Konawe Regency, reaching 18 cases in 2021 which are caused by allergies with complaints such as itching, reddened skin, dry skin, and scaly . especially in the Niitanasa village community where the majority of the population work as traditional fishermen who usually go to sea from five in the afternoon until dawn.

The first research survey which took place in February 2023 was carried out through observation and interviews with coastal residents. At that time, there was a group of fishermen who had finished fishing and were about to go home with a total of 3 people. Symptoms of irritant contact dermatitis are common in fishermen who do not wear personal protective equipment and do not wash their hands often. This study aims to determine the internal factors for the incidence of irritant contact dermatitis (ICD) in fishermen in Niitanasa Village, Lalonggasumeeto District.

## METHODS

Research method used in this research is analytical research with a cross sectional study design. Where in this research design

the measurement of the independent variable and the dependent variable is carried out at the same time. The population in this study were all fishermen in Niitanasa Village, Lalonggasumeeto District, totaling +45 people. The sample for this study amounted to 20 people. Data analysis in this study used univariate analysis and bivariate analysis.

## RESULTS

### Incidence Of Irritant Contact Dermatitis

Irritant contact dermatitis is inflammation of the skin caused by materials or substances that stick to the skin with symptoms including redness, swelling, formation of small blisters on the skin, dryness, peeling and scaling. The following is a table of Frequency Distribution of respondents based on the Incidence of Irritant Contact Dermatitis.

**Table 1. Frequency distribution of respondents based on the incidence of irritant contact dermatitis in fishermen in Niitanasa Village, Lalonggasumeeto District.**

Incidence of irritant contact dermatitis	(n)	(%)
Suffering Dermatitis	8	40
Not Suffering Dermatitis	12	60
<b>Total</b>	<b>20</b>	<b>100</b>

Based on the distribution of respondents in Table 1, it shows that many fishermen do not experience irritant contact dermatitis after carrying out fishing/fishing activities at sea with a percentage of 60% or 12 people while fishermen who experience irritant contact dermatitis after carrying out fishing/fishing activities with a percentage of

40% or 8 people out of a total of 20 fishermen respondents.

**Years Of Service**

Working Period is the length of work that has been passed by workers until the time the research takes place. The following is a table of Frequency Distribution of respondents based on Years of Service.

**Table 2. Frequency distribution of respondents based on working period for fishermen in Niitanasa Village, Lalonggasumeeto District**

Years Of Service	(n)	(%)
≥2 Years	6	30
<2 Years	14	70
<b>Total</b>	<b>20</b>	<b>100</b>

Based on the distribution of respondents in Table 2, it shows that most of the respondents worked as fishermen with a working period of < 2 years with a percentage of 70% or 14 people while the working period of respondents as fishermen > 2 years was at least with a percentage of 30% or 6 people out of a total of 20 fishermen respondent.

**Personal Protective Equipment**

Personal Protective Equipment is PPE in the form of gloves and safety shoes that are used by workers while working. The following is a table of Frequency Distribution of respondents based on the use of personal protective equipment.

**Table 3. Frequency distribution of respondents based on use of personal protective equipment for fishermen in Niitanasa Village, Lalonggasumeeto District.**

Personal Protective Equipment	(n)	(%)
Use	7	35
Do Not Use	13	65

Total	20	100
Based on the distribution of respondents in Table 3 it shows that most of the respondents who work as fishermen do not use/do not use personal protective equipment with a percentage of 65% or 13 people although some respondents say they use PPE but in the category of equipment used it is incomplete while fishermen use wearing personal protective equipment (PPE) at least with a percentage of 35% or 7 people out of a total of 20 fishermen respondents.		

**Personal Hygiene**

Personal Hygiene is a personal health effort that includes washing hands with soap and running water, washing feet with soap and running water, washing work clothes, bathing after work, and frequent bathing. The following is a table of Frequency Distribution of respondents based on Personal Hygiene.

**Table 4. Frequency distribution of respondents based on personal hygiene of fishermen in Niitanasa Village, Lalonggasumeeto District.**

Personal Hygiene	(n)	(%)
Good	9	45
Not Enough	11	55
<b>Total</b>	<b>20</b>	<b>100</b>

Based on the distribution of respondents in Table 4, it shows that most of the respondents who work as fishermen have poor personal hygiene with a percentage of 55% or 11 people, while fishermen whose personal hygiene is in a good category, namely with a percentage of 45% or 9 people out of a total of 20 fishermen respondents.

**Tabel 5. Bivariate Analysis**

Variabel	Incidence of Irritant Contact Dermatitis						Results Statistic test
	Suffering Dermatitis		Not Suffering Dermatitis		Total		
	n	(%)	n	(%)	n	(%)	
Years Of Service							
>2 Years	5	25	1	5	6	30	$\alpha = 0,05$ p-Value = 0.10
<2 Years	3	15	11	55	14	70	
Personal Protective Equipment							
Use	6	30	1	5	7	35	$\alpha = 0,05$ p-Value = 0.002
Do Not Use	2	10	11	55	13	65	
Personal Hygiene							
Good	7	35	2	10	9	45	$\alpha = 0,05$ p-Value = 0.002
Not Enough	1	5	10	50	11	55	

**DISCUSSION**

**The relationship between working period and the incidence of irritant contact dermatitis in fishermen in Niitanasa Village, Lalongasumeeto District in 2023.**

According to the KBBI Compilation Team (1992) length of work is the length of time to carry out an activity or the length of time a person has worked. Working period affects the incidence of work-related contact dermatitis. The longer a person's working period, the more frequently workers are exposed to and in contact with chemicals. The duration of exposure and contact with chemicals will increase the occurrence of occupational contact dermatitis. ICD is usually caused by the use of hazardous materials continuously and repeatedly, such as soapy water, cleaners, spirits, chemicals and work related to water (wet).

It is known that the length of service for fishermen with the longest working period is > 2 years. Based on the results of the study, it was found that there was a significant relationship with a p value of 0.010. This research is in accordance with Kasiadi's research (2018). where the results of research conducted found a link between

working time and skin disease. According to him, those who work longer are more at risk of developing skin diseases. This research is strengthened by research from Retnoningsih (2012), said that if new workers are less likely to be exposed to long-term contact with a contact frequency of 8 hours, it cannot affect the incidence of skin diseases, but long

According to the longer the workers are in contact with seawater and the longer the working period, the more likely they are to develop irritant contact dermatitis. Fishermen who have worked for more than 2 years are often exposed to environmental hazards, sea water, sunlight, and aquatic biota, making them vulnerable to skin diseases which indirectly contribute to skin diseases. When it is related to the results of the study, it shows that out of a total of 6 fishermen with >2 years of service, there were 5 people (25%) who experienced dermatitis due to fishing activities and 1 person (5%) who did not experience KI dermatitis due to fishing activities. Meanwhile, out of 14 fishermen with <2 years of service, there were 3 people (15%) who had dermatitis due to fishing activities and 11 people (55%) who did not have KI dermatitis due to fishing activities. Extending working time beyond the ability

to work for a long time is usually not accompanied by optimal work efficiency, effectiveness and productivity, in fact, usually there is a decrease in the quality and results of work and working for prolonged periods will lead to fatigue, health problems and disease.(7)

### **The relationship between the use of personal protective equipment (PPE) and the incidence of irritant contact dermatitis in fishermen in Niitanasa Village, Lalonggasumeeto District in 2023.**

Personal Protective Equipment (PPE) is a set of safety equipment used by workers to protect all or part of their body from the possibility of exposure to potential hazards in the work environment against work-related accidents and diseases. One part of the body that is quite sensitive to various diseases is the skin.

Based on the results of this study, in table 5 it can be seen that the respondents who did not use personal protective equipment were more than those who used personal protective equipment (PPE). In addition, based on table 11, out of a total of 7 fishermen who used personal protective equipment during fishing activities, 6 people (30%) experienced dermatitis due to fishing activities and 1 person (5%) did not experience irritant contact dermatitis. While of the 13 fishermen who used personal protective equipment during fishing activities, there were 2 people (10%) who had dermatitis and 11 people (55%) who did not experience KI dermatitis due to fishing activities.

Based on the statistical test results, the p-value  $<0.05$ , which is equal to 0.002, means that at an  $\alpha$  value of 5% there is a significant relationship between the use of personal protective equipment and the

incidence of irritant contact dermatitis in fishermen in Niitanasa Village, Lalonggasumeeto District. There is a link between the use of complete PPE and the occurrence of irritant contact dermatitis, meaning that workers who use personal protective equipment have a high potential to suffer from irritant contact dermatitis, while workers who have used personal protective equipment also have the potential to develop irritant contact dermatitis because the PPE used does not meet standards, including shoes. work that is not waterproof, and does not reach the knee because it allows sea water or marine products to get on the skin and gloves that are not waterproof. The use of PPE that does not comply with standards causes the skin to become unprotected and easily exposed to irritants, thus increasing the potential for irritant contact dermatitis.

The results of another study that support this research, which was conducted by Arie Retnoningsih in 2017, showed that the use of PPE has a significant relationship with the incidence of irritant contact dermatitis with a p value of 0.000.

### **The relationship between Personal Hygiene and the Incidence of Irritant Contact Dermatitis in fishermen in Niitanasa Village, Lalonggasumeeto District in 2023.**

Personal Hygiene is one of the basic human abilities to fulfill their needs in order to maintain their life, health and well-being in accordance with their health conditions, the client is declared to be disturbed by his own nursing if he is unable to carry out self-care. And vice versa, dirty habits and environment will be the source of the emergence of various kinds of diseases, including skin diseases. Even though it is

relatively mild, if it is not treated seriously, it can worsen the condition of skin disorders.

Based on the results of this study, in table 5 it can be seen that there are more respondents who have more or less personal hygiene than good personal hygiene. And based on table 12 it shows that out of a total of 9 fishermen with good personal hygiene, there were 7 people (35%) who had dermatitis due to fishing activities and 2 people (10%) who did not have KI dermatitis. Meanwhile, out of 11 fishermen with less personal hygiene, 1 person (5%) had dermatitis and 10 people (50%) did not experience KI dermatitis due to fishing activities. Based on the statistical test results, the p-value  $<0.05$ , which is equal to 0.002, means that at an  $\alpha$  value of 5% there is a significant relationship between personal hygiene and the incidence of irritant contact dermatitis in fishermen in Niitanasa Village, Lalonggasumeeto District in 2023. Personal hygiene efforts Between washing hands and feet with soap, washing clothes after work and bathing with soap after carrying out fishing activities, some fishermen sometimes forget to do it or rarely do it, thus triggering irritant contact dermatitis. In addition, there is a relationship between irritant contact dermatitis and personal hygiene caused by the habits of fishermen who pay little attention to their physical condition, such as when they return from work they immediately lie down and fall asleep without paying attention to personal hygiene. This is because the fishermen feel tired and sleepy. Unknowingly these habits can cause the skin to be susceptible to irritation quickly.

The results of another study that support this research were conducted, showing that Personal Hygiene had a significant relationship with the incidence of irritant contact dermatitis with a p value of

0.000. There is a tendency for respondents who suffer from dermatitis because they have poor personal hygiene, on the other hand most of the respondents who do not suffer from irritant contact dermatitis have good personal hygiene(9)

## CONCLUSION

The conclusions of this study are as follows: There is a significant relationship between length of work and the incidence of irritant contact dermatitis in fishermen in Niitanasa Village, Lalonggasumeeto District in 2023. ;There is a significant relationship between the use of personal protective equipment and the incidence of irritant contact dermatitis in fishermen in Niitanasa Village, Lalonggasumeeto District in 2023 ;There is a significant relationship between personal hygiene and the incidence of irritant contact dermatitis in fishermen in Niitanasa Village, Lalonggasumeeto District in 2023.

And suggestions that can be recommended are 1. For fishermen on personal hygiene (personal hygiene) it is hoped that they will maintain personal hygiene in order to maintain health, always get used to washing hands with soap after work and bathing and always change clothes or pants after work and also always wash clothes, pants and gloves with detergent to prevent irritant contact dermatitis (ICD). The use of PPE is mandatory for all fishermen. PPE that must be worn, such as long-sleeved clothing, gloves, hats to cover the head which is useful for avoiding skin diseases commonly called irritant contact dermatitis (ICD). For further researchers, it is hoped that the results of this study can be used as data or information for further research by using better, more data and being able to examine the factors that have the highest influence on Personal Hygiene and PPE use on the incidence of dermatitis.

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