



# Analysis of Skin Disorders Among Traditional Fishermen in Tanjung Balai, Asahan District

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<p><b>Track Record Article</b></p> <p>Accepted: 04 June 2024 Revised: 23 May 2024 Published: 01 August 2024</p> <p><b>How to cite :</b> Harahap, A. P., Salmah, U., &amp; Mahyuni, E. L. (2024). Analysis of Skin Disorders Among Traditional Fishermen in Tanjung Balai, Asahan District. <i>Contagion : Scientific Periodical of Public Health and Coastal Health</i>, 6(2), 813–826.</p>	<p style="text-align: center;"><b>Abstract</b></p> <p><i>Skin disorders are diseases often found in the community caused by fungi, bacteria, viruses, and marine life characterized by rashes, itching, and others. Traditional fishermen are a group of people at high risk of skin disorders due to exposure to seawater, unhygienic working environment conditions, incomplete behaviour of using fishermen's protective equipment when working and personal hygiene behaviour classified as harmful. This study aims to analyze skin disorders among traditional fishermen in Tanjung Balai, Asahan District. The research employs a quantitative, analytical survey with a cross-sectional design. The study was conducted in Tanjung Balai, Asahan District, from August 2023 to March 2024. The research population consisted of all traditional fishermen, totalling 110, 110 traditional fishermen, with the sample taken based on the total population of 110 fishermen in Tanjung Balai, Asahan District. The sampling technique used was total sampling. Data collection was conducted using questionnaires that have been tested for validity, reliability, and observation. Data analysis involved two steps: univariate analysis using descriptive statistics and frequencies and bivariate analysis using the chi-square test with a significance level of 95% (<math>p\text{-value} \leq 0.05</math>). The statistical analysis results indicated significant associations between skin disorders and factors such as duration of work (<math>p=0.001</math>), use of personal protective equipment (<math>p=0.038</math>), and fishermen's hygiene (<math>p=0.014</math>). It is recommended that traditional fishermen use complete personal protective equipment and maintain better personal hygiene after working to prevent the occurrence of skin disorders.</i></p> <p><b>Keywords:</b> <i>Skin disorders, traditional fishermen</i></p>
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## INTRODUCTION

Skin diseases are among the most commonly encountered ailments in tropical countries, including Indonesia. Their prevalence in developing countries can range from 20-80% (Warren et al., 2024). The incidence of skin diseases in Indonesia remains relatively high, posing a significant health issue (Akther et al., 2023). Data indicate that Indonesia's skin disease cases have been increasing annually (Fahira & Susilawati, 2022).

Occupational diseases are illnesses that arise due to the effects of the work environment or are related to job activities (Pratiwi & Diah, 2023). These diseases occur because workers are exposed to various hazardous substances in the workplace (Jufriзал et al., 2023). Skin diseases are increasingly prevalent and predominantly occur in Indonesia, especially among workers (Andriani et al., 2020; Astri et al., 2023). Occupational Skin Diseases (OSDs) rank as the second most common occupational illness, following musculoskeletal disorders, accounting for approximately 22% of all occupational diseases (Annissa & Annisa, 2023).

Skin disorders are a prevalent health issue in Indonesia (Adella et al., 2024). According to the 2020 Indonesian Health Profile, the prevalence of skin disorders is 0.49% cases per 10,000 population, with 4.2% new cases per 100,000 population. Epidemiological data in Indonesia show that 97% of 389 skin disorder cases, such as contact dermatitis, consist of 66.3% irritant contact dermatitis and 33.7% allergic contact dermatitis (Kemenkes, 2020).

The prevalence of skin disorders in North Sumatra reaches 27.5%. In Medan City, the number of skin disorder cases includes 25,529 allergic skin diseases and 19,513 infectious skin diseases. In Asahan District, skin disorders rank among the top ten diseases, with allergic skin diseases being the ninth most common, totalling 2,465 cases in 2019 and increasing to 2,871 cases in 2020 (Badan Pusat Statistika, 2022).

Traditional fishermen are a high-risk group for skin disorders due to exposure to sunlight, seawater, and unsanitary working conditions (Indrayani et al., 2023). Skin disorders among traditional fishermen can have adverse effects on their health (Sillehu et al., 2024). Continuous exposure to seawater can cause various skin problems, such as dry skin, scaly skin, redness, and even skin cancer (Dayrit et al., 2022). Seawater contains pathogenic bacteria, including commonly found species such as *Staphylococcus aureus*, *Vibrio* spp., *Pseudomonas aeruginosa*, and *Aeromonas* spp., which can lead to skin disorders (Nielsen et al., 2021; Sillehu et al., 2024). Skin infections caused by these bacteria can manifest as folliculitis, furunculosis, cellulitis, or even more severe infections like skin necrosis (Nielsen et al., 2021).

Unsanitary working conditions, such as dirty boats or non-sterile equipment, can increase the risk of skin infections among traditional fishermen (MU & Jaysawal, 2024). Skin infections like scabies, athlete's foot (tinea pedis), and other fungal infections are common among fishermen (Al-kahfaji, 2022). Skin diseases in fishermen may be due to the work environment, such as seawater, which, due to its salinity, affects the skin. In this case, seawater possesses primary irritant properties that can cause skin disorders (Lisa et al., 2022).

Fishermen engage in wet work, making it a conducive environment for the development of skin diseases or disorders such as fungal infections (Birawida et al., 2020; Pati et al., 2023). Skin disorders are commonly experienced by traditional fishermen, often due to inadequate personal hygiene practices among some fishermen (Harfika & Suryani, 2023). This lack of attention to personal cleanliness can result in skin problems and other complaints. Skin diseases are likely to occur when the working environment is dirty and humid, facilitating the development of skin issues (Lubis et al., 2023). Therefore, maintaining personal hygiene and wearing personal protective equipment should always be prioritized by fishermen during work (Pratiwi & Diah, 2023).

The use of inadequate personal protective equipment poses a greater risk of developing skin disorders. Research findings from Aisyah & Arrazy (2023) indicate a significant relationship between the use of personal protective equipment and skin disorders. Personal hygiene is a practice aimed at maintaining health and cleanliness from head to toe; with good personal hygiene, individuals can avoid the risk of skin disorders. Previous research by Wibisono et al. (2018), also found a significant relationship between personal hygiene and skin disorders.

Traditional fishermen in Tanjung Balai Asahan Regency experience many skin disorders; a preliminary survey was conducted on 30 traditional fishermen, 19 of whom had skin disorders. The behaviour of using personal protective equipment is still relatively poor; only 2 traditional fishermen use complete personal protective equipment; the personal hygiene behaviour of traditional fishermen is more in the poor category, with only 5 traditional fishermen in the good category. The average working life of traditional fishermen in Tanjung Balai Asahan Regency is more than 5 years and there are 18 traditional fishermen who are at the age of >35 years.

Research on the analysis of skin disorders among traditional fishermen is crucial for understanding the prevalence, types, and associated risk factors of these skin issues. A comprehensive understanding of skin disorders among traditional fishermen can aid in developing appropriate prevention and management strategies and increase awareness of the importance of self-protection and hygienic practices among fishermen.

Based on the background description above, skin disorders among fishermen require attention as they pose a hindrance to their ability to work, potentially reducing the productivity of fishermen. The aim of this study is to analyze skin disorders among traditional fishermen in Tanjung Balai, Asahan District.

## **METHODS**

This study is an analytical survey research using a cross-sectional design. The research was conducted in Tanjung Balai, Asahan District, from August 2023 to March 2024. The research population comprises all traditional fishermen in Tanjung Balai, Asahan District, totalling 110 individuals. The sample was taken based on the total population of 110 traditional fishermen, utilizing total sampling. Data collection procedures involved questionnaires and observation sheets. The questionnaire instrument used for personal hygiene consisted of 15 questions covering body cleanliness, hair cleanliness, hand cleanliness, and foot cleanliness, rated on a Likert scale with 3 points: never given a score of 1, sometimes given a score of 2,

and always given a score of 3. The observation sheet used for the use of Personal Protective Equipment (PPE) comprised protective clothing, gloves, boots, and hats or head coverings, rated on a Goodman scale, with a score of 1 if used and 0 if not used.

The data analysis involved two steps: first, univariate analysis using frequency distribution, and second, bivariate analysis using the chi-square test with a significance level of 95% ( $\alpha = 0.05$ ). Data analysis was conducted using the statistical software SPSS version 27.

The principal researcher obtained an ethical approval certificate from the Health Research Ethics Committee of the Sumatera Utara University (No: 145/KEPK/USU/2024). Additionally, permission was sought from the academic administrators of the higher education institution and relevant authorities prior to data collection, aiming to obtain informed consent from the respondents before distributing the questionnaire.

## RESULTS

Analysis The frequency distribution analysis of characteristics among Traditional Fishermen in Tanjung Balai, Asahan District is as follows:

**Table 1. Characteristics of Traditional Fishermen in Tanjung Balai, Asahan District**

Characteristics of Traditional Fishermen	n	%
Age		
Productive (15-64 years)	100	90.9
Non-productive (>64 years)	10	9.1
Education		
Low education (Elementary and junior High School)	74	67.3
High education (Senior High School)	36	32.7
Years of service		
New (<8 years)	51	46.4
Long (>8 years)	59	53.6

According to Table 1, the majority of Traditional Fishermen in Tanjung Balai, Asahan District, are characterized as follows: 100 fishermen (90.9%) are in the productive age group, 74 fishermen (67.3%) have a low level of education, and 59 fishermen (53.6%) have long years of service (> 8 years).

The frequency distribution analysis of the use of personal protective equipment among Traditional Fishermen in Tanjung Balai, Asahan District, is as follows:

**Table 2. Frequency Distribution of Personal Protective Equipment Use among Traditional Fishermen in Tanjung Balai, Asahan District**

<b>Personal Protective Equipment Use</b>	<b>n</b>	<b>%</b>
Wearing protective clothing with short sleeves while working		
Using	50	45.5
Not using	60	54.5
Wearing gloves while working		
Using	52	47.3
Not using	58	52.7
Using protective footwear or boots every time while working		
Using	75	68.2
Not using	35	31.8
Wearing a hat while working		
Using	69	62.7
Not using	41	37.3

According to Table 2, the most common personal protective equipment used among Traditional Fishermen in Tanjung Balai, Asahan District, is as follows: 60 fishermen (54.5%) wear protective clothing covering short sleeves while working, 58 fishermen (52.7%) wear gloves while working, 75 fishermen (68.2%) use protective footwear or boots every time they work, and 69 fishermen (62.7%) wear hats while working. Based on the personal protective equipment (PPE) used among Traditional Fishermen in Tanjung Balai, Asahan District, the complete use of personal protective equipment (PPE) can be summarized as follows:

**Table 3. Frequency Distribution of Personal Protective Equipment Complete Use among Traditional Fishermen in Tanjung Balai, Asahan District**

<b>Use of Personal Protective Equipment</b>	<b>n</b>	<b>%</b>
Complete	12	10.9
Incomplete	98	89.1
Total	110	100.0

According to Table 3, it is evident that the majority of Traditional Fishermen in Tanjung Balai, Asahan District, use incomplete PPE, with 98 fishermen (89.1%) falling into this category.

The frequency distribution analysis of personal hygiene across all body parts of Traditional Fishermen in Tanjung Balai, Asahan District, is as follows:

**Table 4. Frequency Distribution of Personal Hygiene Across All Body Parts of Traditional Fishermen in Tanjung Balai, Asahan District**

<b>Personal Hygiene Across All Body Parts</b>	<b>n</b>	<b>%</b>
Body Cleanliness		
Good	32	29.1
Poor	78	70.9
Hair Cleanliness		
Good	10	9.1
Poor	100	90.9
Hand Cleanliness		
Good	53	48.2
Poor	57	51.8
Foot Cleanliness		
Good	52	47.3
Poor	58	52.7

According to Table 4, the most common personal hygiene characteristics among Traditional Fishermen in Tanjung Balai, Asahan District, are as follows: body cleanliness, with 58 fishermen (52.7%) having good body cleanliness; hair cleanliness, with 69 fishermen (62.7%) having good hair cleanliness; hand cleanliness, with 57 fishermen (51.8%) having poor hand cleanliness; and foot cleanliness, with 58 fishermen (52.7%) having poor foot cleanliness. Based on personal hygiene across all body parts, the personal hygiene of Traditional Fishermen in Tanjung Balai, Asahan District, can be summarized as follows:

**Table 5. Frequency Distribution of Personal Hygiene of Traditional Fishermen in Tanjung Balai, Asahan District**

<b>Personal Hygiene of Traditional Fishermen</b>	<b>n</b>	<b>%</b>
Good	49	44.5
Poor	61	54.5
Total	110	100.0

According to Table 5, it is evident that the majority of Traditional Fishermen in Tanjung Balai, Asahan District, have poor personal hygiene, with 61 fishermen (54.5%) falling into this category.

The frequency distribution analysis of skin disorders among Traditional Fishermen in Tanjung Balai, Asahan District is as follows:

**Table 6. Frequency Distribution of Skin Disorders among Traditional Fishermen in Tanjung Balai, Asahan District**

<b>Skin Disorders among Fishermen</b>	<b>n</b>	<b>%</b>
Affected	71	64.5
Not affected	39	34.5
Total	110	100.0

According to Table 6, it is evident that the majority of Traditional Fishermen in Tanjung Balai, Asahan District experience skin disorders, with 71 fishermen (64.5%) being affected.

The results of the analysis of the relationship between fishermen characteristics and skin disorders among Traditional Fishermen in Tanjung Balai, Asahan District are as follows:

**Table 7. Relationship between Fishermen Characteristics and Skin Disorders among Traditional Fishermen in Tanjung Balai, Asahan District**

Fishermen Characteristics	Skin Disorders				Total		P value
	Not affected		Affected		n	%	
	n	%	n	%			
Age							
Productive	38	34.5	62	56.4	100	90.9	0.094
Non-productive	1	0.9	9	8.2	10	9.1	
Education							
Low education	26	23.6	48	43.6	74	67.3	1.0
High education	13	11.8	23	20.9	36	32.7	
Years of service							
New	32	29.1	19	17.3	51	46.4	0.001
Long	7	6.4	52	47.3	59	53.6	

According to Table 7, the relationship between age and skin disorders among Traditional Fishermen in Tanjung Balai, Asahan District, indicates that both productive-age and non-productive-age fishermen are similarly affected by skin disorders, with 62 fishermen (56.4%) and nine fishermen (8.2%) respectively experiencing skin issues. Statistical analysis yielded a p-value of 0.094 ( $p > 0.05$ ), indicating no significant relationship between age and skin disorders among traditional fishermen in Tanjung Balai, Asahan District.

The relationship between education and skin disorders among Traditional Fishermen in Tanjung Balai, Asahan District shows that both low and high education levels are similarly affected, with 48 fishermen (43.6%) and 23 fishermen (20.9%) respectively experiencing skin issues. Statistical analysis yielded a p-value of 1.0 ( $p > 0.05$ ), indicating no significant relationship between education and skin disorders among traditional fishermen in Tanjung Balai, Asahan District.

The relationship between years of service and skin disorders among Traditional Fishermen in Tanjung Balai, Asahan District, indicates that those with longer service periods ( $> 8$  years) are more frequently affected by skin disorders, with 52 fishermen (47.3%) compared to those with shorter service periods ( $< 8$  years), where 19 fishermen (17.3%) experienced skin issues. Statistical analysis yielded a p-value of 0.001 ( $p < 0.05$ ), indicating a

significant relationship between years of service and skin disorders among traditional fishermen in Tanjung Balai, Asahan District.

The analysis of the relationship between the use of personal protective equipment and skin disorders among Traditional Fishermen in Tanjung Balai, Asahan District, is as follows:

**Table 8. Relationship between the Use of Personal Protective Equipment and Skin Disorders among Traditional Fishermen in Tanjung Balai, Asahan District**

Personal Protective Equipment (PPE) Use	Skin Disorders				Total		<i>P value</i>
	Not affected		Affected		n	%	
	n	%	n	%			
Complete	8	7.3	4	3.6	12	10.9	0.038
Incomplete	31	28.2	67	60.9	98	89.1	

According to Table 8, the relationship between the use of personal protective equipment (PPE) and skin disorders among Traditional Fishermen in Tanjung Balai, Asahan District, shows that those with incomplete PPE usage are most affected by skin disorders, with 67 fishermen (60.9%) experiencing issues, compared to those with complete PPE usage, where only eight fishermen (7.3%) experienced skin problems. Statistical analysis yielded a p-value of 0.038 ( $p < 0.05$ ), indicating a significant relationship between PPE usage and skin disorders among traditional fishermen in Tanjung Balai, Asahan District.

The analysis of the relationship between personal hygiene and skin disorders among Traditional Fishermen in Tanjung Balai, Asahan District, is as follows:

**Table 9. Relationship between Personal Hygiene and Skin Disorders among Traditional Fishermen in Tanjung Balai, Asahan District**

Personal Hygiene of Traditional Fishermen	Skin Disorders				Total		<i>P value</i>
	Not affected		Affected		n	%	
	n	%	n	%			
Good	24	21.8	25	22.7	49	44.5	0.014
Poor	15	13.6	46	41.9	61	54.5	

Based on Table 9 above, the relationship between personal hygiene and skin disorders among Traditional Fishermen in Tanjung Balai, Asahan District, shows that those with poor personal hygiene are most affected by skin disorders, with 46 fishermen (41.9%) experiencing issues, compared to those with good personal hygiene, where 24 fishermen (21.8%) experienced skin problems. Statistical analysis yielded a p-value of 0.014 ( $p < 0.05$ ), indicating a significant relationship between personal hygiene and skin disorders among traditional fishermen in Tanjung Balai, Asahan District.



## DISCUSSION

Skin diseases among traditional fishermen are dermatological disorders caused by their occupation and work environment. These diseases emerge during their work activities or are induced by factors present in their work environment (Annissa & Annisa, 2023). According to research findings, 64.5% of traditional fishermen in Tanjung Balai, Asahan District, suffer from skin conditions such as dry and scaly skin, patches on the skin (white, red, or brown), and itching.

Based on research findings, it is known that 90.9% of traditional fishermen in Tanjung Balai, Asahan District, are of productive age (18-65 years), indicating that individuals within this age range are capable of continuing to work as fishermen. The results of the analysis show no significant relationship between age and skin disorders among traditional fishermen in Tanjung Balai, Asahan District. Both productive (18-65 years) and non-productive (>65 years) age groups are equally at risk of developing skin disorders. This may be due to the disproportionate number of respondents between the productive (18-65 years) and non-productive (>65 years) age groups.

Younger ages pose a greater risk to fishermen's health, as do older ages (Embuai et al., 2019). As age increases, the level of fatigue rises more quickly, and a person's age affects their physical condition, abilities, and capacity for activity. When skin changes occur due to ageing, immunity also decreases. This, combined with skin itching, can make individuals more susceptible to skin infections.

This research aligns with the study by Kasiadi et al. (2018), which shows no relationship between age and skin disorders among fishermen. This finding is further supported by the research of Fahira and Susilawati (2022), which also indicates no correlation between age and skin disorders among fishermen. The need for a relationship between age and skin disorders in this study might be due to the unequal number of respondents in different age groups.

Education is a learning process that must be undertaken and fulfilled by everyone. Research findings indicate that 67.3% of traditional fishermen in Tanjung Balai, Asahan District, have low educational levels (elementary and junior high school), with the average education of fishermen ranging from elementary school graduates to high school graduates. Engaging in fishing activities does not require individuals to have a high level of education.

The results of the analysis show no significant relationship between education and skin disorders among traditional fishermen in Tanjung Balai, Asahan District. The educational attainment of traditional fishermen does not prevent them from experiencing skin disorders.

There is a lack of a relationship between education level and skin disorders among traditional fishermen because the primary causes of skin disorders are more influenced by environmental and occupational factors, such as excessive sun exposure, contact with seawater, and poor working conditions.

This research aligns with the study by Febriyanto and Falaq (2021), which found no relationship between education and skin disorders among fishermen. This finding is further supported by the research of Sukmawati et al. (2023), which also reported no relationship between education and skin disorders among traditional fishermen. In their study, most fishermen had low educational levels, but the prevalence of skin disorders did not show significant differences across different education levels.

The employment duration refers to the length of time traditional fishermen have worked in their profession. Employment duration is categorized into two: long-term if a fisherman has worked for  $\geq 8$  years and short-term if less than eight years. Research findings indicate that 53.6% of traditional fishermen in Tanjung Balai, Asahan District, have long-term employment ( $\geq 8$  years). Many residents in Tanjung Balai, Asahan District, are traditional fishermen due to demographic factors, the proximity of their homes to the docks, and the predominance of fishing as a hereditary occupation.

The results of the analysis show a significant relationship between employment duration and skin disorders among traditional fishermen in Tanjung Balai, Asahan District. The longer a person engages in fishing, the higher the potential for skin condition deterioration. Prolonged employment increases exposure to environmental hazards, which affects the skin's resilience. This research aligns with the study by Kasiadi et al. (2019), which found a relationship between employment duration and skin disorders among fishermen. Fishermen with longer employment durations are more prone to skin disorders due to frequent exposure to occupational hazards.

Personal protective equipment (PPE) is a tool used to prevent diseases and injuries related to work (Maharja & Ikhsan, 2023). The PPE used by fishermen includes long-sleeved shirts, hats, gloves, and boots, which serve to protect them from seawater, marine animals, and other microbiological hazards (Riry et al., 2022).

Research findings indicate that most traditional fishermen in Tanjung Balai, Asahan District, do not use complete PPE while working, and some do not use any PPE at all due to discomfort while working. The lack of comprehensive PPE use among fishermen is due to their lack of awareness about the importance of proper PPE usage. They only use minimal protective equipment and find using PPE uncomfortable while working (Zurimi, 2019).

The results of the analysis show a significant relationship between the use of personal protective equipment (PPE) and skin disorders among traditional fishermen in Tanjung Balai, Asahan District. Traditional fishermen who do not use complete PPE are at a higher risk of developing skin disorders.

Non-compliance with using PPE, such as protective clothing, gloves, and footwear while hauling or pulling fishing nets, can lead to skin disorders. Fishermen frequently experience skin redness and itching due to inadequate PPE usage. This research aligns with the study by Annissa and Annisa (2023), which found a relationship between PPE use and skin complaints among fishermen. The findings are further supported by Latumanase et al. (2023), who demonstrated that there is a connection between PPE use and skin disorders among fishermen. Fishermen who do not adhere to proper PPE usage are at a higher risk of experiencing skin disorders.

Personal hygiene is the manner in which fishermen maintain their health and cleanliness in their daily lives, including body, hair, hand, and foot hygiene. Based on research findings, it is known that 54.5% of traditional fishermen in Tanjung Balai, Asahan District, have poor personal hygiene.

The analysis results indicate a significant relationship between personal hygiene and skin disorders among traditional fishermen in Tanjung Balai, Asahan District. Traditional fishermen who do not maintain good personal hygiene are at risk of developing skin disorders. Some fishermen neglect their own cleanliness and health, leading to skin problems and other complaints. Skin diseases are likely to occur in work environments that are dirty and humid, facilitating the development of skin issues (Salmariantity et al., 2021). This research aligns with the study by Harfika and Suryani (2023), which demonstrates a relationship between personal hygiene and skin disorders among fishermen.

## CONCLUSIONS

Based on the results of this study, it can be concluded that the prevalence of skin disorders among traditional fishermen in Tanjung Balai, Asahan District is 64.5%. The skin disorders observed among these fishermen include dry and scaly skin, patches on the skin (white, red, brown), and itching. Factors associated with skin disorders among traditional fishermen in Tanjung Balai, Asahan District, include years of service ( $p$ -value=0.001), use of personal protective equipment ( $p$ -value=0.038), and fishermen's hygiene ( $p$ -value=0.014).

Recommendations from this study include encouraging traditional fishermen in Tanjung Balai, Asahan District, to use complete personal protective equipment to prevent skin

disorders. Additionally, fishermen are advised to maintain better personal hygiene after work to prevent the occurrence of skin disorders. Finally, it is recommended that traditional fishermen in Tanjung Balai, Asahan District, seek alternative employment once they are no longer in the productive age group to prevent skin disorders.

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