THE INCIDENCE OF DERMATITIS IN FISHERMEN IN BONTANG CITY, EAST KALIMANTAN, INDONESIA

by Dina Lusiana Setyowati

Submission date: 18-Feb-2020 09:47AM (UTC+0700)
Submission ID: 1259239829
File name: tis_In_Fishermen_In_Bontang_City,_East_Kalimantan,_Indonesia.pdf (530.78K)
Word count: 4225
Character count: 23242

Volume 5 Issue 4 (2019)

PUBLIC HEALTH OF INDONESIA

e-ISSN 2477-1570
p-ISSN 2528-1542

http://stikbar.org/ycabpublisher/index.php/PHI/

Public Health of Indonesia is an International, peer-reviewed, and open access journal published by the indonesian Public Health Association, Southeast Sulawesi (IAKMI SULTRA) Indonesia, emphasizing on original research findings that are relevant for developing country perspectives including Indonesia. The journal considers publication of articles as original article, review article, perspective, letters to editor and editorial. The journal covers population based studies, impact assessment, monitoring and evaluation, systematic review, meta-analysis, clinic-social studies etc., related to any domain and discipline of public health, specially relevant to national priorities, including ethical and social issues. Articles aligned with national health issues and policy implications are preferred.

An official publication of
Indonesian Public Health Association (IAKMI)
Sulawesi Tenggara

Public Health of Indonesia
Volume 5 Issue 4 (2019)

Public Health of Indonesia

Volume 5 Issue 4 (2019)

Public Health of Indonesia is an open access journal emphasizing on original research findings that are relevant for developing country perspectives including Indonesia. The journal considers publication of articles as original article, review article, short communication / brief reports, education forum, letters to editor, case reports, etc. The journal covers population based studies, impact assessment, monitoring and evaluation, systematic review, meta-analysis, clinic-social studies etc., related to any domain and discipline of public health, specially relevant to national priorities, including ethical and social issues. Articles aligned with national health issues and policy implications are preferred.

The Official Publication of Public Health of Indonesia - YCAB Publisher - IAKMI SULTRA

e-ISSN 2477-1570 | p-ISSN 2528-1542
Public Health of Indonesia is indexed by DOAJ, Google Scholar, Garuda, Sinta, ISJD WorldCat, and Journal TOCs

Public Health of Indonesia

Volume 5 Issue 4 (2019)

PUBLIC HEALTH OF INDONESIA
An International, peer-reviewed, and open access journal published by the Indonesian Public Health Association, Southeast Sulawesi (IAKMI SULTRA), Indonesia
E-ISSN 2477-1570

YCAB Publisher
Kompleks Kendari Permai Blok P 2 No 1
Kelurahan Padaleu, Kecamatan Kambu, Kota Kendari Indonesia
Email: indonesianpublichealth@gmail.com

Volume 5 Issue 4 (2019)

Library of Congress Catagloging-in-Publication Data
Public Health of Indonesia Volume 5 Issue 4 (2019)
P-ISSN 2528-181x | E-ISSN 2477-1570

Editorial Team

TABLE OF CONTENTS

ARTICLES

Public Health of Indonesia
Setyowati, D. L et al. Public Health of Indonesia. 2019 December;5(4): 116-121
http://stikbar.org/ycabpublisher/index.php/PHI/index
ISSN: 2477-1570

Original Research

THE INCIDENCE OF DERMATITIS IN FISHERMEN IN BONTANG CITY, EAST KALIMANTAN, INDONESIA

Dina Lusiana Setyowati*, Risva, Andi Anwar, Nurul Afiah

Public Health Faculty, Mulawarman University, Samarinda, Indonesia

Received: 23 October 2019 | **Revised:** 11 November 2019 | **Accepted:** 14 December 2019
DOI: http://dx.doi.org/10.36685/phi.v5i4.299
Correspondence:
Dina Lusiana Setyowati
Department of Occupational Health and Safety
Public Health Faculty, Mulawarman University, Samarinda, Indonesia,75123.
Email: dina.setyowatik3@gmail.com

ABSTRACT
Background: Occupational skin diseases are the most common occupational diseases in many countries. Dermatitis has become one of the top 10 occupational diseases (PAK) based on the potential incidence, severity, and prevention ability. Fishermen are one of the oldest occupations and have a high risk of occupational accidents or occupational diseases, which one of the risks is dermatitis due to the exposure to sea water containing salt which is high enough to absorb the water from the skin.
Objective: This study aims to determine the incidence of dermatitis, working duration, duration of exposure, history of skin diseases, u of personal protective equipment, and personal hygiene in the fishing communities in North Bontang.
Methods: This study is an analytic observational study with a cross sectional study design. The population in this study was the fishing community in Loktuan Urban-Village, North Bontang. The samples were taken with the purposive sampling and a sample of 154 fishermen was obtained. The data were collected with a questionnaire that has been tested for the validity. The statistical analysis was conducted by Chi Square test with a significance level of 0.05.
Results: The results showed that the history of skin diseases, the duration of exposure are related to the incidence of dermatitis in fishermen.
Conclusion: Further research is needed to find out other risk factors that can cause dermatitis in fishermen.

Keywords: dermatitis, fishermen, history of skin disease, duration of exposure

BACKGROUND

Occupational dermatitis is classified internationally as the second largest occupational disease group after musculo-skeletal disorders (Frosch & John, 2011). Epidemiological data show that contact dermatitis comprises 90 to 95% of all occupational dermatitis. The National Institute of Occupational Safety Hazards (NIOSH) in its annual survey (1975) estimated the actual incidence of occupational dermatitis to be 20-50 times higher tha the reported cases (Lestari & Utomo, 2007). Irritant and allergic contact dermatitis are inflammatory skin conditions caused by skin contact with exogenous agents, that occur with or without simultaneous exposure to e contributing physical agents. The largest number of cases of occupational rmatitis occur in the factory/company sector, but the highest incidence rates occur in agriculture/forestry/fisheries sector. Dermatitis in fishermen is likely caused by the seawater which due to its concentration draws water from the skin; in this case sea water is a cause of chronic skin dermatitis as the primary stimuli

(Lestari & Utomo, 2007). Epidemiologic data show that contact dermatitis comprises 90% to 95% of all occupational skin diseases. Both irritant and allergic contact dermatitis are inflammatory skin conditions caused by skin contact with exogenous agents, with or without a concurrent exposure to a contributory physical agent (Levy, 2006). The greatest number of cases of occupational skin diseases is seen in manufacturing, but the highest incidence rate is seen in agriculture/forestry/fishing.

Fungi or marine animals may also cause skin diseases in fishermen. Fishermen work in wet areas where fungal diseases are prevalent, such as moniliasis (Chew & Maibach, 2006; Kaukiainen et al., 2005). Dermatitis can cause allergies, skin irritation, skin hypersensitivity, and also eczema (Czarnobilska, Obtulowicz, Dyga, Wsolek-Wnek, & Spiewak, 2009). Fishermen are one of the oldest occupations and have a high risk of occupational accidents or occupational diseases, where one of the risks is dermatitis due to the exposure to sea water containing salt which is high enough to absorb water from the skin. Working fishermen do not have regular work hours and have a long working time duration with uncomfortable working environment conditions such as the influence of extreme weather. A long sailing is expected and there is a risk of skin damage due to the exposure to sun heat and sea water (El-Saadawy, Soliman, El-Tayeb, & Hammouda, 2014).

Loktuan Urban Village, North Bontang Sub-district is one of the largest settlements in North Bontang Sub-district, Bontang City, adjacent to two large-scale SOE companies, the number of neighborhood associations is 51 Neighborhood, a narrow and dense residential area with the largest number of poor people in Bontang City, and most of the people work as fishermen (Lok Tuan, 2015).

With low economic and educational conditions, the people generally do not pay much attention to the personal hygiene nor use personal protective equipment while working, as a result, it will certainly increase the risk of dermatitis in fishermen. Based on the data from the top 10 diseases in the North Bontang Public Health Center, dermatitis ranks the 3rd as the most suffered disease. The massive incidence of dermatitis in fishermen has the potential to increase every year, therefore, the main focus of this study was to determine the factors associated with the incidence of dermatitis in fishermen in the City of North Bontang, East Kalimantan Province, Indonesia.

METHODS

Study design

This study is an observational analytic study with a cross sectional study approach. Variables in this study are the incidence of dermatitis, working duration, length of contact, history of previous skin diseases, use of PPE (Personal Protective Equipment), personal hygiene, and the use of sea / river water for daily use by fishermen in North Bontang City, East Kalimantan in 2019.

Setting and sample

The study was conducted on April 2019. The population in this study was the people who work as fishermen in Loktuan Urban-Village, North Bontang. Samples were taken with a purposive sampling, with a total sample of 154 fishermen.

Instrument

The instrument was adopted and developed based on the book Occupational and Environmental Health, Recognizing and Preventing Disease Injury, regarding variables dermatitis, personal hygiene, duration of work, length of work, history of skin diseases, and the use of Personal Protective Equipment (Levy, 2006). The instrument was tested in advance to 32 fishermen living in the coastal area of Tanjung Laut Sub-District, South Bontang District before the study was conducted. The data were collected with a questionnaire that has been tested for the validity and reliability. 38 of 50 question items can be used in the research questionnaire with an ordinal scale. The validity results showed that, of 38 items questions, had Pearson correlation > 0.3494.

The reliability results showed Cronbach's alpha of 0.649. Based on the results of statistical tests showed 38 items are valid and reliable questions and can be used for research. Data were collected by 10 trained enumerators who mastered the local language.

Data analysis

The statistical analysis was conducted by Chi Square test with a significance level of 0.05.

Ethical consideration

The study was reviewed and approved by the Ethical Commission of Health and Medical Research, Faculty of Medicine, Mulawarman University Indonesia with approval Number: 102/KEPK-FK/IV/2019, which refers to the International Ethical Guidelines for Biomedical Research Involving Human Subjects and the International ethical guidelines for epidemiological studies from Council for International Organizational Organizations of Medical Sciences (CIOMS 2016). Informed written consent was obtained from the participants prior to data collection. The informed consent stated the purpose of the study, data confidentiality, and the voluntary right of participation in the study, as well as provided the guarantee that no participant suffered any harm as a result of his/her participation in the study.

RESULTS

Most respondents in this study were males (85.1%) and the age group was above 35 years (66.9%). Out of the total respondents, only 2.6% who had dermatitis, with a working duration of more than one year (98.1%) and a length of work above 8 hours a day (57.8%). 28.6% had a history of previous skin disease, only 17.5% of respondents used PPE at work, and those who applied personal hygiene were 81.8%.

Chi Square test showed that the duration of contact with the sea water in which the length of work was more than 8 hours a day ($p = 0.03$) and a history of previous skin disease ($p = 0.006$) were significantly related to the incidence of dermatitis whereas the use of PPE and personal hygiene of the respondents did not affect the incidence of dermatitis in fishermen in Bontang City respectively ($p > 0.05$).

Table 1 Characteristics of Respondents ($n = 154$)

Characteristics of Respondents	*n*	%
Dermatitis		
No	150	97.4
Yes	4	2.6
Sex		
Men	131	85.1
Women	23	14.9
Age (Year)		
< 35	51	33.1
> 35	103	66.9
Use of Personal Protective Equipment (PPE)		
Used	27	17.5
Not Complete	127	82.5
Personal Hygiene		
Good	126	81.8
Less	28	18.2
Working Duration (Year)		
<1	3	1.9
>1	151	98.1
Length of Work (Hour)		
< 8	65	42.2
>8	89	57.8
A History of Previous Skin Disease		
No	110	71.4
Yes	4	28.6
Total	**154**	**100**

Table 2 Relationships of Use of Personal Protective Equipment, Personal Hygiene, Working Duration, Length of Work, A History of Previous Skin Disease, and Dermatitis

Variable	Dermatitis				Total		*p*
	Dermatitis		No Dermatitis		*n*	%	
	n	%	*n*	%			
Use of Personal Protective Equipment (PPE)							
Used	1	3.7	26	96.3	27	100	0.54
Not Complete	3	3.4	124	97.6	127	100	

Table 2 Relationships of Use of Personal Protective Equipment, Personal Hygiene, Working Duration, Length of Work, A History of Previous Skin Disease, and Dermatitis (Cont.)

Variable	Dermatitis				Total		*P*
	Dermatitis		No Dermatitis		*n*	%	
	n	%	*n*	%			
Personal Hygiene							
Good	3	2.4	123	97.6	126	100	0.55
Less	1	3.6	27	96.4	28	100	
Working Duration (Year)							
<1	0	0	3	100	3	100	1.00
>1	4	2.6	147	97.4	151	100	
Length of Work (Hour)							
< 8	4	6.2	61	93.8	65	100	0.03*
>8	0	0	89	100	89	100	
A History of Previous Skin Disease							
No	4	2.6	150	97.4	110	100	0.006*
Yes	0	0	110	100	4	100	

DISCUSSIONS

The results of this study indicate that most fishermen in North Bontang City did not use gloves and shoes as personal protective equipment (PPE) at work (82.5%) of which 3 people (4.7%) had dermatitis. After statistical tests, it was found that there was no relationship between the use of PPE and the incidence of dermatitis in fishermen ($p = 0.54$). This is not in line with the research conducted in Rembang Regency by Norma et al where the results of the study shows a significant relationship between the use of PPE and the incidence of irritant contact dermatitis in salt farmers ($p = 0.042$) (Suryani, 2017). This research is also not in line with Retnoningsih's research in 2017, which shows a p value of 0.000 which means there is a relationship between the incidences of dermatitis in fishermen with the use of PPE (Retnoningsih, 2017).

In the personal hygiene variable, it was found that fishermen who applied personal hygiene by washing their hands using soap and did not use sea / river water for bathing, washing and other daily needs were more (81.8%) than fishermen with less personal hygiene (18.2%) although in fact fishermen with good personal hygiene experienced as much dermatitis (2.4%). This finding is also not in line with a research in Kolaka Regency Southeast Sulawesi who found a close relationship between personal hygiene in fishermen with the incidence of irritant contact dermatitis ($p = 0.0012$) (Zania, 2018).

Similarly, the results of a research conducted on fishermen in Tonyaman Village, Binuang District, Polewali Mandar Regency, stated that there is a relationship between personal hygiene of fishermen with skin disorders (Andan, 2018). This study is also not in line with previous research revealed that personal hygiene is related to the incidence of dermatitis in Lamanggau Village, Wakatobi Regency (Sarfiah, 2016). One cause of skin disorders is good work and personal hygiene while using PPE at work (Andan, 2018).

To maintain skin hygiene, healthy habits must always be considered (Potter, 2005). Efforts to prevent skin disorders that can be done is to maintain personal hygiene. Personal hygiene is an effort of individuals or groups in maintaining health through individual hygiene by controlling environmental conditions and disorders of the skin (Ministry of Health of the Republic of Indonesia, 2015). Retnoningsih (2017) also supports that there is a significant relationship between the incidence of dermatitis in fishermen and the personal hygiene. Working in a damp place as happen in the fishermen can be a major factor in the occurrence of dermatitis since the concentration

of sea water can draw the water from the skin (Iswara Wijaya, 2016). Dermatitis can also occur due to the presence of bacteria such as Mycobacterium marinum, fungi or sea animals which can cause dermatitis (Cahyawati & Budiono, 2011). In theory, prolonged contact with sea water is supposed to cause dermatitis. However, in contrast with what was found in this study, fishermen who worked less than 8 hours a day actually experience dermatitis (6.2%). This could be due to the history of previous skin disease suffered by the fishermen. The results of this study are not in line with what was found in a research which shows that there was a relationship between the work duration and skin disorder in fishermen in Kalinaun Village, Likupang Timur Sub-District, North Minasaha Regency (Langi, Kawatu, & Langi, 2019).

The study by Ambarsari and Mulasari (2018) found exactly the same thing as the results of this study. There was no significant relationship between contact duration and the incidence of dermatitis in garbage collectors in the city of Yogyakarta. Research conducted by Retnoningsih (2017) shows the same results as this study that there is no correlation between the incidence of dermatitis with work period.

The results of the analysis test show a significant relationship between the history of the previous skin disease and the incidence of dermatitis in fishermen in North Bontang City ($p = 0.006$). The disease history is used as a basis for determining whether a disease occurs due to a previous disease, as a result the history of the disease is very important in the healing process of a person. Someone who has previously suffered from dermatitis will be more susceptible to irritants, because the skin's defense will decrease (Kennedy C, 2010), and that previous disease history was not related to the incidence of dermatitis in fishermen in Wakatobi Regency (Sarfiah, 2016).

Workers such as fishermen, who have a history of skin diseases, will more easily experience dermatitis due to work because the protective function of the skin has declined because of the previous skin disorders. A previous study revealed that to have a history of allergies is the dominant factor associated with dermatitis (each OR: 6.74) (Hendra, Nirwana, & Isahak, 2018), and it is in accordance with what happened to fishermen in North Bontang City in which most of the respondents did not experience dermatitis because they did not possess the history of previous skin diseases.

CONCLUSION

The incidence of dermatitis in fishermen is related to the history of the previous skin diseases and the duration of contact. Further research is needed to find out other factors that are suspected as risk factors for dermatitis in fishermen.

Declaration of Conflicting Interest
No competing interests were disclosed.

Acknowledgment
This work was supported by Islamic Development Bank (IsDB), Development of Four Higher Education Institution, Project Implementation Unit of Mulawarman University of Indonesia in Research Center of Medicine and Cosmetic from Tropical Rainforest Resources with contract number: 137/UN17.11/PL/2019.

REFERENCES

Ambarsari, D. D., & Mulasari, S. A. (2018). Faktor-Faktor yang berhubungan dengan keluhan subyektif dermatitis kontak iritan pada petugas pengepul sampah di wilayah Kota Yogyakarta. *Jurnal Kesehatan Lingkungan Indonesia, 17*(2), 80-86.

Andan, F., & Syikir, M,. (2018). Factors that are related to the occurrence of skin interference in fishermen in fishermen housing, Tonyaman Village, Binuang District, Polewali Mandar District.

Cahyawati, I. N., & Budiono, I. (2011). Faktor yang berhubungan dengan kejadian dermatitis pada nelayan. *KEMAS: Jurnal Kesehatan Masyarakat, 6*(2).

Chew, A.-L., & Maibach, H. I. (2006). Occupational issues of irritant contact dermatitis. In *Irritant Dermatitis* (pp. 113-122): Springer.

Czarnobilska, E., Obtulowicz, K., Dyga, W., Wsolek-Wnek, K., & Spiewak, R. (2009). Contact hypersensitivity and allergic contact dermatitis among school children and teenagers with eczema. *Contact Dermatitis, 60*(5), 264-269.

El-Saadawy, M., Soliman, N., El-Tayeb, I., & Hammouda, M. A. (2014). Some occupational health hazards among fishermen in Alexandria city. *Gaziantep Medical Journal, 20*(1), 71-78.

Frosch, P. J., & John, S. M. (2011). Clinical aspects of irritant contact dermatitis. In *Contact Dermatitis* (pp. 305-345): Springer.

Hendra, H., Nirwana, E., & Isahak, M. (2018). Work-Related skin diseases among workers in the sewing section at PT. X Shoe Company in West Java. *Kesmas: National Public Health Journal, 13*(2), 60-64.

Iswara Wijaya, I., Darmada, I., & Rusyati, L. M. M,. (2016). Education and management of chronic irritant contact dermatitis in Sanglah Hospital Denpasar Bali in 2014/2015. *E-Jurnal Medika Udayana*.

Kaukiainen, A., Riala, R., Martikainen, R., Estlander, T., Susitaival, P., & Aalto-Korte, K. (2005). Chemical exposure and symptoms of hand dermatitis in construction painters. *Contact Dermatitis, 53*(1), 14-21.

Kennedy C, T. C., Burd D.A.R., Creamer, D. (2010). Skin hazards of swimming and diving. In: Burns, T., breathnach, S., Cox, N et al (eds). Rook's textbook of dermatology (8th ed). Oxford: Blackwell.

Langi, J., Kawatu, P. A., & Langi, F. L. (2019). Faktor-faktor yang berhubungan dengan gangguan kulit pada nelayan di kelurahan maasing Kecamatan Tuminting Kota Manado. *Kesmas, 8*(2).

Lestari, F., & Utomo, H. S. (2007). Faktor-faktor yang berhubungan dengan dermatitis kontak pada pekerja di PT Inti Pantja Press Industri. *Makara Kesehatan, 11*(2), 61-68.

Levy, B. S. (2006). *Occupational and environmental health: recognizing and preventing disease and injury*: Lippincott Williams & Wilkins.

Lok Tuan, B. U., Bontang,. (2015). Retrieved from https://id.wikipedia.org/wiki/Lok_Tuan,_Bontang_Utara,_Bontang.

Ministry of Health of the Republic of Indonesia. (2015). *Indonesia Health Profile*. Jakarta: Ministry of Health of the Republic of Indonesia.

Potter, P., A. G,. (2005). Nursing fundamental textbooks. Elsevier.

Retnoningsih, A. (2017). Analisis faktor-faktor kejadian dermatitis kontak pada nelayan (Studi kasus di Kawasan Tambak Lorok Kelurahan Tanjung Mas Kecamatan Semarang Utara Kota Semarang Tahun 2017). *Skripsi*.

Sarfiah, S., Asfian, P., & Ardiansyah, R. T,. (2016). Factors related to irritant contact dermatitis in fishermen in Lamanggau Village, Tomia District, Wakatobi Regency in 2016. *Jurnal Ilmiah Mahasiswa Kesehatan Masyarakat Unsyiah*.

Suryani, N. D., Martini, & Susanto, H. S,. (2017). Comparison of risk factors for the occurrence of irritant contact dermatitis between salt farmers and rice farmers in Kaliori District, Rembang Regency. *Jurnal Kesehatan Masyarakat. 5*(4). 444-454

Zania, E., Junaid, & Ainurafiq. (2018). Factors related to contact dermatitis in fishermen in Induha Village Latambaga District Kolaka Regency. *Jurnal Ilmiah Mahasiswa Kesehatan Masyarakat.3*(3), 1-8.

Cite this article as: Setyowati, D. L., Risva., Anwar, A., Afiah, N. The incidence of dermatitis in fishermen in Bontang City, East Kalimantan, Indonesia. *Public Health of Indonesia. 5*(4),116-121.

THE INCIDENCE OF DERMATITIS IN FISHERMEN IN BONTANG CITY, EAST KALIMANTAN, INDONESIA

ORIGINALITY REPORT

9%	6%	6%	4%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Dearman, Rebecca, Boris Lushniak, Ian Kimber, and G Frank Gerberick. "Allergic Contact Dermatitis to Chemicals : Immunological and Clinical Aspects", Immunotoxicology and Immunopharmacology Third Edition, 2006. Publication	2%
2	medcraveonline.com Internet Source	1%
3	Submitted to Universiti Sains Malaysia Student Paper	1%
4	ejscontent.ebsco.com Internet Source	1%
5	garuda.ristekdikti.go.id Internet Source	1%
6	journal.unnes.ac.id Internet Source	1%
7	gerontologist.oxfordjournals.org Internet Source	1%

8	"Kanerva's Occupational Dermatology", Springer Science and Business Media LLC, 2012 Publication	1%

Exclude quotes	On	Exclude matches	< 1%
Exclude bibliography	On		