

Factors Related to Complaints of Contact Dermatitis on Fish Traders In The Toss 3000 Traditional Market, Batam City

Hengky Oktarizal^{1*}, Rolla Pitaloka², Yuanita Windusari³, Misnaniarti⁴, Andries lionardo⁵, Ashar Kholik Affandi⁶

^{1,2}Program Studi Kesehatan Lingkungan Fakultas Ilmu Kesehatan, Universitas Ibnu Sina, Batam, Indonesia

^{3,4,5,6}Program Studi Kesehatan Masyarakat Fakultas Kesehatan Masyarakat, Universitas Sriwijaya, Palembang, Indonesia

*Corresponding author: hengky.oktarizal@uis.ac.id

Phone : +62852-7204-3639

Abstract: The skin is the largest external organ of the human body that covers all surfaces of the body. The low level of personal hygiene and lack of attention to the use of clean water for fish traders make it easy for fish traders to get diseases, namely water-borne diseases, one of which is skin disease and others. The purpose of this study was to determine the factors associated with complaints of contact dermatitis among fish traders at the Toss 3000 Traditional Market, Batam City in 2021. This type of research uses an analytic survey, with a cross-sectional study design, this study was conducted to determine the factors of contact dermatitis complaints in fish traders based on the availability of clean water by measuring water pH and personal hygiene. The sample in this study were fish traders in the traditional market toss 3000 Batam City with a total of 62 respondents. The sampling technique in this study was Total Sampling and statistical analysis using the Chi-Square test. The results of the Chi Square test analysis showed that there was a relationship between water pH, Clean Water Availability, and Personal Hygiene on fish traders at Toss 3000 Traditional Market Batam City (p-value <0.05). The description of the availability of clean water for fish traders at the Toss 3000 Traditional Market, Batam City in 2021, namely 13 samples (21%) available clean water and 49 samples (79%). There is a relationship between the availability of clean water and complaints of contact dermatitis among fish traders at the Toss 3000 Traditional Market, Batam City in 2021 with a P value of 0.050 <0.05. For traders, pay attention to the availability of clean water in their respective kiosks, by distinguishing between clean water for personal use and fish cleaning purposes.

Keywords: Water pH, Clean Water Availability and Personal Hygiene

1. Introduction

The skin is the largest external organ of the human body that covers all surfaces of the body. The skin has an important role as a protective barrier to assist in temperature regulation, and the body's immune defense to protect itself from germs, viruses and bacteria. The skin also varies, there are soft, thin, and thick. Each area of the skin is different in thickness, because of its close relationship with the deep layers, the depth of type is also different (Angkan, 2019).

According to the World Health Organization Environmental Health includes all factors, chemistry, physics and biology from the outside of the human body and all factors that can

influence human behavior. The condition of environmental health has the potential to affect health (Surahman, 2016).

Based on the Regulation of the Minister of Health Number 32 of 2017 for Sanitary Hygiene Needs, water of a certain quality can be used for daily needs with different qualities from drinking water. Water for sanitation hygiene purposes includes chemical, biological, and chemical parameters. In physics, there are additional parameters of water and mandatory parameters, and for the purposes of hygiene and sanitation, which is used to maintain a person's personal hygiene, as well as for other purposes (Permenkes, 2017).

Based on the Government Regulation of the Republic of Indonesia No. 88 of 2019 Article 1 which states that Occupational Health is something that is intended to protect everyone who works in the workplace so that they always live healthy and free from health problems and bad influences that occur from the work (PP RI, 2019). Based on data from the 2010 Indonesian Health Profile which states that skin and subcutaneous tissue diseases are in the third rank of the 10 most diseases in outpatients in hospitals throughout Indonesia based on the number of visits, namely 192,414 visits and 122,076 visits of which are new cases (Kepmenkes, 2011).

According to data from the Ministry of Health of the Republic of Indonesia, the prevalence of skin diseases in Indonesia in 2012 was 8.46% and then increased in 2013 by 9% (Indonesian Health Research and Development Agency, 2013). Based on data obtained from the Ministry of Health (2011), these figures indicate that in Indonesia they are more sensitive to further treatment for this dermatitis (Valda, 2020). The Batam City Health Office 2018 profile states that skin disease (dermatitis) ranks number 6 with 5,983 cases of the 10 biggest diseases in Batam City (Batam City Health Office Profile, 2018).

As revealed during initial observations by one of the fish traders at the Toss 3000 Traditional Market, he said that the fish trader suspected the complaint he was experiencing in the form of contact dermatitis on his skin, where the complaints he felt were in the skin area of the hands, feet and body. one is in the form of repeated itching on the skin, And some fish traders start working at 04.30 WIB until 13.00 WIB, but there are also some traders sell until the afternoon. With daily work processes, such as cutting fish, cleaning fish, then in addition to selling fresh fish, fish traders must still pay attention to the cold chain system, one of which is using ice on fish that have not been sold and which will be stored in boxes. storage after selling, and also keep cleaning the place of sale after finishing selling, In addition, there are also many that the fish traders do not replace dirty water and continue to use it repeatedly to wash their hands, so that without realizing it can cause complaints contact dermatitis of the skin. If seen by naked eye, the complaints experienced by fish traders are indeed common and without realizing the causative factors that play a role in skin complaints are related to the low level of personal hygiene, and lack of attention to the use of clean water.

2. Materials and Methods

This research uses an analytic survey, with a cross-sectional study design, where the cause and effect variables that occur in the object of research are measured and collected at the same time. The collection of data, either the causal variable or the independent variable as well as the effect variable or the dependent variable, was carried out together or all at once.

This study was conducted to determine the factors of contact dermatitis complaints in fish traders based on the availability of clean water by measuring the pH of the water and personal hygiene. The population in this study were all fish traders in the Toss 3000 Traditional Market, namely 62 fish traders. The sample is taken from the entire object under study and is considered to represent the entire population. The subjects in this study are all fish traders who sell at the Toss 3000 Match Traditional Market, Batam City in 2021.

The research variable is a symbol that will be given a number or value. The independent variable in this study is Availability of Clean Water which includes water quality (pH), Personal Hygiene which includes hand hygiene, skin hygiene, clothing hygiene, and foot and nail hygiene. The dependent variable in this study was Complaints of Contact Dermatitis.

The research data was collected using questionnaires, interviews, then measuring the pH of the water using a pH meter. The research was carried out on fish traders at the Toss 3000 Traditional Market. This research was carried out in May - August 2021.

3. Results and Discussion

3.1 Univariate Analysis

Table 4.1 Distribution of Frequency of Availability of Clean Water in Toss 3000 Market

Availability of Clean Water	Frequency	Percentage (%)
Available	13	21.0
Not available	49	79.0
Amount	62	100

From table 4.1 above, it can be seen that with the availability of clean water available with a total of 13 samples (21%) and 49 samples (79%).

Table 4.2 Frequency Distribution of Market Water pH Toss

3000 Water pH	Frequency	Percentage (%)
Qualify	13	21.0
Not eligible	49	79.0
Amount	62	100

From table 4.2 it can be seen that the pH of the water that meets the requirements is 13 sample (21%) and 49 samples (79%).

Table 4.3 Frequency Distribution of Respondents Hand Hygiene Toss 3000 Market

Hand Hygiene	Frequency	Percentage (%)
Well	0	0
Bad	62	100
Amount	62	100

From table 4.3 above, it can be seen that the respondent's hand hygiene is in the bad category, namely the total number of respondents is 62 respondents (100%).

Table 4.4 Frequency Distribution of Skin Hygiene of Respondents Toss 3000 Market

Skin Hygiene	Frequency	Percentage (%)
Well	4	6,5
Bad	58	93,5
Amount	62	100

From table 4.4 above, it can be seen that the skin hygiene of respondents in the good category were 4 respondents (6.5%) and those in the bad category were 58 respondents (93.5%).

Table 4.5 Frequency Distribution of Respondents' Clothing Hygiene Toss 3000 Market

Clothes Cleanliness	Frekuensi	Presentase (%)
Well	4	6,5
Bad	58	93,5
Amount	62	100

From table 4.5 above, it can be seen that the cleanliness of the respondent's clothes with a good category is 4 respondents (6.5%)

Table 4.6 Frequency Distribution of Foot and Nail Hygiene Respondents Toss 3000 Market

Foot and Nail Hygiene	Frekuensi	Presentase (%)
Well	2	3,2
Bad	60	96,8
Amount	62	100

From table 4.6 above, it can be seen that the cleanliness of the feet and nails of respondents in the good category is 2 respondents (3.2%) and 60 respondents are in the bad category (96.8%).

Table 4.7 Distribution of Frequency of Complaints of Contact Dermatitis Respondents Toss 3000 Market

Complaints of Contact Dermatitis	Frekuensi	Presentase (%)
Yes	61	98,4
No	1	1,6
Amount	62	100

From table 4.7 above, it can be seen that 61 respondents experienced contact dermatitis complaints (98.4%). And did not experience complaints of contact dermatitis as many as 1 respondent (1.6%).

3.2 Bivariate Analysis

Table 4.8 Relationship of Clean Water Availability with Complaints of Contact Dermatitis of TOSS 3000 Market Workers in 2021

		Complaints of Contact Dermatitis						P value
		No		Yes		Amount		
		N	%	N	%	N	%	
Availability of Clean Water	Well (>50%)	12	92,3	1	7,7	13	100	0,050
	Bad (\leq 50%)	49	100,0	0	0,0	49	100	
	Amount	61	98,4	1	1,6	62	100	

Based on table 4.8 above, it can be seen that the results of the research conducted that of 62 respondents with good water availability and experienced contact dermatitis complaints, namely 12 respondents or (92.3%), then with good clean water availability and did not experience complaints, namely a number of 1 respondent or (7.7%). On the other hand, 49 respondents or (100%) had complaints of contact dermatitis and did not experience contact dermatitis complaints, as many as 0 respondents or (0%). In the statistical tests carried out, the results obtained p value = 0.050 where ($p < 0.05$ which means H_0 is rejected. There is a significant relationship between Clean Water Availability and Complaints Contact Dermatitis in Fish Traders. Clean water is water that is used for daily needs and will become drinking water after being cooked first. As a limitation, clean water is water that meets the requirements for a drinking water supply system. The requirements referred to are Based on Environmental Health Quality Standards for water media for Sanitary Hygiene purposes number 32 of 2017 where the recommended clean water is 6.5-8.5. Pure water has a pH of 7.

The results of this study are in line with the research of Erna, et al (2013) which stated that there was a significant relationship between the availability of clean water and the incidence of scabies disease in Indonesia. Jambi Class IIA Correctional

Institution, Based on the results of bivariate analysis with the chi square test, it was obtained that the p value was 0.001 which was 0.05 smaller. This is in line with the opinion of Kusnopranto (1986) who said that disease transmission is closely related to the use of water in terms of water cleanliness, where water that is not clean and sufficient will cause various diseases, one of which is skin infections.

The water source in the TOSS 3000 market comes from the ATB pipe with a tub storage system, then it is distributed to each kiosk. Not all market stalls have pumped drains. Only the large kiosk has its own water pipe line, while the small kiosk in the middle of the market has 1 pipeline with several faucets. PAM water flows freely only at certain times, therefore, market traders have their own reservoirs to meet the water needs of their kiosks. The condition of the water reservoirs that are not clean, even mixed with the fish sold make traders vulnerable to contact dermatitis. Based on field observations, the condition of the water in the water reservoir in the toilet is a tub filled with fish. This of course makes the water unclean or sterile because it has been mixed with fish. Even though the water is also used to wash the toilet in the toilet when the PAM water is dead. Based on the water pH checking that the researchers did, the main water source has a pH of 6.6, which is less than 7 with acidic water. The results of the water quality test (pH) were mostly under the range of 6.5-8.5. This is not in accordance with the quality standards according to the Regulation of the Minister of Health Number 32 of 2017. Overall, poor water quality can have an impact on the occurrence of skin health complaints where water quality greatly affects the cleanliness of the environment around water sources.

According to the researcher's assumption, the availability of clean water that does not meet the requirements for fish traders is more than the availability of clean water that meets the requirements. Based on the examination of the clean water samples accommodated by each respondent, it is known that the pH of the water that meets the requirements is 13 samples or (21%) and 49 samples (79%). These results were obtained by researchers from measuring pH using a pH meter. because fish traders have limited availability of clean water where the water source which is PAM water flows rapidly at certain hours, where the identification of the potential availability of water resources in Toss 3000 Market comes from PAM. In their daily life, residents of the Tos 3000 market use PAM water that is stored in tubs or buckets at their stalls. The water produced is odorless and clear, but when it reaches the shelters at each stall, the water is stored in unclean tanks, or tanks that have been used as fish reservoirs. So that the water mixes and becomes unsterile.

Table 4.9 Relationship of Personal Hygiene with Complaints of Contact Dermatitis of TOSS 3000 Market Workers in 2021

		Complaints of Contact Dermatitis				Amount		P value
		No		Yes		N	%	
		N	%	N	%			
Personal Hygiene	Good (>75)	2	66,7	1	33,3	3	100	0,000
	Not Good ($\leq 75\%$)	59	100	0	0	59	100	
Amount		61	98,4	1	1,6	62	100	

Based on table 4.9 above, it can be seen that the results of the research conducted that of the 62 respondents with good personal hygiene and who had complaints of contact dermatitis were 2 respondents or (66.7%) and with good personal hygiene and did not experience contact dermatitis complaints, 1 respondent. or (33.3%). On the other hand, with poor personal hygiene, 59 respondents or (100%) had complaints of contact dermatitis. Then with poor personal hygiene and no complaints of contact dermatitis a number of 0 respondents or (0%). In the statistical tests carried out, the results obtained p value = 0.000 where ($p < 0.05$), which means H_0 is rejected. There is a significant relationship between Personal Hygiene and Complaints of Contact Dermatitis in Fish Traders.

Personal hygiene is very important and must be considered because cleanliness affects a person's health. The impact that often arises in personal hygiene problems is the physical impact. Many health problems suffered by a person due to not properly maintained personal hygiene such as impaired skin integrity, disorders of the oral mucous membranes, infections of the eyes and ears, and physical disorders of the nails (Sajida et al., 2012).

This study is in line with research conducted by Sarfiah (2016) who found personal hygiene was associated with irritant contact dermatitis in fishermen with a P value of 0.000. Research conducted by Ahmad (2020) also found a similar thing, personal hygiene is related to with subjective complaints of dermatitis symptoms at fish sellers in the Mandonga and Anduonohu markets with a P value of 0.000. Workers who have poor personal hygiene can get contact dermatitis due to workers' mistakes in washing their hands, for example not being clean in washing their hands and choosing the type of soap that can cause the remnants of dirt or fish scales to stick to the skin surface, and the habit of not drying their hands. after washing hands so that the hands become

moist, where this error can be one of the causes of contact dermatitis (Aisyah et al., 2012).

To maintain skin hygiene, healthy habits must always be observed such as keeping clothes clean, bathing regularly, bathing using clean water and soap, using own daily necessities, eating nutritious foods, especially lots of vegetables and fruits, and maintaining a clean environment and skin care is a basic necessity (Harahap, 1990).

4. Conclusion

According to the researchers from the results of the research conducted, it can be said that the respondents' personal hygiene was more or less good because of their poor habits in hand hygiene, skin hygiene, clothing hygiene, and foot and nail hygiene so that respondents experienced contact dermatitis complaints. Contact dermatitis occurs due to the lack of attention of workers to personal hygiene, especially maintaining the cleanliness of work clothes after returning from work. Most of these workers do not keep their clothes clean so the bacteria are still in their work clothes and sometimes the market workers are still wearing the clothes they wore before. So cleanliness Self-efficacy is strongly associated with the incidence of contact dermatitis in market workers. One of the causes of skin disorders

Acknowledgements Present the acknowledge to who helping and support include funding.

Acknowledgements

Thank you to all agencies that have contributed to the implementation of the research including the Health Office of Batam City and the management of the 3000 Tos market Batam.

Conflict of Interest

All Authors declare no conflict of interest and agree with the content of the manuscript.

References

- Ahmad, A. F., Asfian, P., & Pratiwi, A. D. (2020). *Hubungan antara Personal Hygiene , Alat Pelindung Diri , dan Lama Paparan dengan Keluhan Subjektif Gejala Dermatitis Kontak pada Pedagang Ikan di Pasar Mandonga dan Pasar Anduonohu Kota Kendari Tahun 2019*. *Jurnal Kesehatan Dan Keselamatan Kerja Universitas Halu Oleo*, 1(1), 0–4.
- Aldela Rizki Amelia. (2019). *Hubungan Personal Hygiene dengan Keluhan Kulit Pada Petani di Desa Karanggebang Kecamatan Jetis Kabupaten Ponorogo*. *Sustainability (Switzerland)*, 11(1), 1–14.
- Alini, & Sinaga, R. (2018). *Faktor-faktor yang berhubungan dengan kejadian dermatitis atopik di puskesmas bangkinangkota*. *PREPOTIF Jurnal Kesehatan Masyarakat*, 2(2), 33–42.
- Andri Risman D. (2019). *Uji Kesadahan Total Dan Kadar Klorida Pada Air Sumur Di*

Lingkungan Desa Sei Semayang Kecamatan Sunggal Kabupaten Deli
<http://repository.helvetia.ac.id/id/eprint/2478>

- Angkan. (2019). *Faktor-Faktor yang berhubungan dengan gangguan kulit pada pedagang ikan di pusat kota medan.*
- Ayunda. (2018). *Faktor-Faktor Yang Berhubungan Dengan Gejala Dermatitis Kontak Pada Pekerja Harian Lepas Di Pt.Indojaya Agrinusa Medan Unit Poultryfeed Tahun 2018.* 4–16.
- Badan Penelitian dan Pengembangan Kesehatan RI. (2013). *Badan Penelitian dan Pengembangan Kesehatan RI.* Science,127(3309), 1275–1279.
- Behroozy, A., & Keegel, T. . (2014). *Wet- work exposure: A main risk factor for occupational hand dermatitis.* *Jurnal of Safety and Health at Work*, 5(4), 175– 180.
- Dinas PMP-KUKM UKM Kota Batam. (2014). *Dinas Pemberdayaan Masyarakat, Pasar, Koperasi, dan Usaha Kecil Menengah Kota Batam.* Diakses dari <https://arsipskpd.batam.go.id/batamkota/skpd.batamkota.go.id/koperasi/data-pmp-kukm/pkl/daftar-nama-pasar-tradisional-di-kota-batam/index.html>.
- Fadilah, K. (2014). *Hubungan Penggunaan Alat Pelindung Diri Terhadap Penyakit Kulit (DermaTosis) Pada Nelayan Di Desa Bogak Kabupaten Batu Bara.* Sustainability (Switzerland),11(1), 1–14.
- Fahrudiana, I. (2017). *Faktor yang Berhubungan dengan Jumlah Coliform pada Sumber Air Bersih Puskesmas yang Menggunakan Sumber Air Tanah di Kabupaten Jember.* 1–103.
- Fattah, N., & Mallongi, A. (2018). *Hubungan Personal Hygiene dan Sanitasi Lingkungan dengan Kejadian Penyakit Kulit pada Pasien di Puskesmas Tabaringan Makassar.* Nurfachanti Fattah || Anwar Mallongi || Arman.
- Hamzah. (2012). *Factors that Corelation to The Incidence of Occupational Contact Dermatitis on the Workers of Car Washes in Sukarame Village Bandar Lampung City`.* Faculty of Medicine Lampung University, ISSN 2337-, 45– 55.
- Han, S. K. (2016). *Innovations and advances in wound healing.* *Innovations and Advances in Wound Healing*, 1–287. <https://doi.org/10.1007/978-3-662-46587-5>
- \Maharani, A. (2015). *penyakit kulit. Perawatan, Pencegahan, Pengobatan,* Yogyakarta: Pustaka Baru Press.
- Mutia, A. (2017). *Hubungan Personal Hygiene Dan Karakteristik Individu Dengan Keluhan Kesehatan Kulit Pada Pengumpul Makanan Ternak Di Tps Kenangan Kelurahan KenanganKecamatan Percut Sei Tuan Tahun 2017.*

- Nurmaningtias, A. A. (2016). Gambaran Kejadian Dermatitis Kontak Pada Nelayan Di Desa Pasar Banggi Kecamatan Rembang Kabupaten Rembang Tahun 2016.
- Peraturan Menteri Kesehatan Republik Indonesia Nomor 416/MENKES/PER/IX/ 1990.(1990).
- Permenkes. (2017). Peraturan Menteri Kesehatan Republik Indonesia Nomor 32 Tahun 2017 Tentang Standar Baku Mutu Kesehatan Lingkungan Dan Persyaratan Kesehatan Air Untuk Keperluan Higiene Sanitasi, Kolam Renang, Solus Per Aqua dan Pemandian Umum. Peraturan Menteri Kesehatan Republik Indonesia, 1–20.
- PP RI. (2014). Peraturan Pemerintah Republik Indonesia Nomor 66 Tahun 2014 tentang Kesehatan Lingkungan. 2014. “PP RI.” Hukum Online. Hukum Online. PP RI. (2019). www.hukumonline.com/pusatdata. 1–14.
- Prihastuti, R. (2018). Program studi s1 kesehatan masyarakat fakultas kesehatan masyarakat universitas sumatera utara 2018.
- Profil Dinkes Kota Batam. (2018). Profil Kesehatan Kota Batam Tahun 2018
- Ratnaningsih, M., Pejuang, U., & Indonesia, R. (2018). Kejadian Dermatitis Pada Masyarakat Nelayan (Study Analitik di Wilayah Kerja Puskesmas Lamaau Desa Aulesa Kabupaten Lembata Nusa Tenggara Timur Tahun 2018). 2(1. Profil Kesehatan Kota Batam, 54, 38–74.
- Putri. (2020). Hubungan Kualitas Air (pH) dan Personal Hygiene dengan Keluhan Penyakit Kulit di Desa Sumberrahayu Kecamatan Moyudan kabupaten Sleman Yogyakarta. Eprints.Uad.Ac.Id, 00, 1–12.
- Rahmi, R. (2013). Pemeriksaan Kadar pH, Fe dan Khlorida Air Sumur Gali Sebagai Sumber Air Bersih di Desa Gampong Ladang Kecamatan Samatiga Kabupaten Aceh Barat. Universitas Teuku Umar Meulaboh, 28–29.
- Retnoningsih, A. (2017). Analisis Faktor- faktor Kejadian Dermatitis Kontak Pada Nelayan (Studi Kasus di Kawasan Tambak Lorok Kelurahan Tnajung Mas Kecamatan Semarang Utara, Kota Semarang). Skripsi.
- Rofi, Y. (2016). Faktor-Faktor Yang Berhubungan Dengan Dermatitis Kontak Iritan Pada Pedagang Ikan Segar Di Pasar Inpres IV Pasar Raya Kota Padang. Skripsi. Universitas Andalas. Padang. Rofi, Y., 2009(75), 31–47.
- Salmi, D. (2015). Kesehatan Dan Keselamatan Lingkungan Kerja. Yogyakarta: Gadjah Mada University Press.
- Saniza Gurnia. (2013). Hubungan Antara PH Air Dan Personal Hygiene Dengan Kejadian Penyakit Kulit Dermatitis Di Kelurahan Sembulang Kecamatan Galang Kota Batam. Setiadi. (2007). Anatomi Dan Fisiologi Pada Manusia. Yogyakarta : Graha Ilmu.

Sinta Pradananingrum, Daru Lestantyo, S. J. (2018). Hubungan Personal Hygiene, Lama Kontak, Dan Masa Kerja Dengan Gejala Dermatitis Kontak Iritan Pada Pengrajin Tahu Mrican Semarang. *Jurnal Kesehatan Masyarakat (e-Journal)*, 6(4), 378–386.

Suma^omur. (2013). *Higene Perusahaan dan Keselamatan Kerja*. 1–53.

Surahman, M.Kes dan Drs. Sudibyo Supardi, PhD, A. (2016). *Hak Cipta dan Hak Penerbitan dilindungi Undang- undang Cetakan pertama, Desember 2016* Penulis : Surahman, M.Kes dan Drs. Sudibyo Supardi, PhD, Apt Pengembang Desain Intruksional: Drs. Abzeni, M.A Desain oleh Tim P2M2 : Kover &Ilustrasi : Sunarty Tata Leta.

Susanto, R., Clever, & Ari, M. (2013). *Penyakit Kulit dan Kelamin*. Yogyakarta: Nuha Medika.

Valda, J. (2020). *Determinan Keluhan Dermatitis Kontak Iritan Pada Pedagang Ikan Di Pasar Kota Palembang Tahun 2020 Pada Pedagang Ikan Di Pasar Kota Palembang Tahun 2020*.