

## Hubungan Lama Kontak dan Jenis Deterjen dengan Kejadian Dermatitis Kontak pada Ibu Rumah Tangga

### *The Relationship Between Contact Duration and Detergent Type with Incidence of Contact Dermatitis in Housewives*

Moh. Rivai Nakoe<sup>1</sup>, Laksmyrn Kadir<sup>2</sup>

<sup>1,2</sup> Department of Public Health, Faculty of Health dan Sport, Universitas Negeri Gorontalo

✉ Corresponding author: [rivai@ung.ac.id](mailto:rivai@ung.ac.id)

#### Article info

##### Article history:

Received: 25 Agustus 2025

Revised: 1 September 2025

Accepted: 29 September 2025

Online: 29 September 2025

##### \*Corresponding author

Moh. Rivai Nakoe, Departement of Public Health, Faculty of Health dan Sport, Universitas Negeri Gorontalo  
E-Mail: [rivai@ung.ac.id](mailto:rivai@ung.ac.id)

#### Abstrak

Penyakit kulit adalah kondisi ketika lapisan terluar tubuh mengalami masalah seperti iritasi dan peradangan. Dermatitis merupakan reaksi peradangan polimorfik yang melibatkan epidermis dan dermis, di mana respons kulit bergantung pada jenis bahan kimia yang bersentuhan dengan kulit, lama kontak, frekuensi penggunaan, serta jenis deterjen yang digunakan oleh masing-masing individu. Tujuan penelitian ini adalah untuk menganalisis hubungan antara lama kontak dan jenis deterjen dengan keluhan dermatitis kontak pada ibu rumah tangga di wilayah kerja Puskesmas Paguyaman. Jenis penelitian ini adalah kuantitatif dengan desain analitik menggunakan pendekatan *cross-sectional*. Sampel penelitian berjumlah 70 ibu rumah tangga yang dipilih dengan teknik consecutive sampling. Instrumen yang digunakan adalah kuesioner NOSQ-2002/SHORT untuk menganalisis hubungan antara lama kontak dan jenis deterjen dengan keluhan dermatitis kontak. Berdasarkan hasil penelitian diketahui bahwa dari 70 ibu rumah tangga, terdapat hubungan antara lama kontak dengan deterjen dan keluhan dermatitis kontak, dengan nilai  $p = 0.033 < \alpha (0.05)$ . Selain itu, terdapat hubungan antara jenis deterjen yang digunakan dengan keluhan dermatitis kontak, dengan nilai  $p = 0.014 < \alpha (0.05)$ . Diharapkan para ibu rumah tangga dapat lebih berhati-hati dalam menggunakan deterjen, misalnya dengan menggunakan sarung tangan saat mencuci pakaian untuk meminimalkan kontak langsung dengan deterjen, serta menghindari penggunaan deterjen dalam jumlah berlebihan.

**Kata Kunci:** *Dermatitis Kontak Durasi Kontak dan Jenis Deterjen.*

#### Abstract

Disease skin is condition Where moment layer outside body experience problem Good irritation and inflamed . Dermatitis is reaction inflammation polymorphic involving the epidermis and dermis, response skin depending on the type material chemicals in contact with skin , duration of contact , frequency usage , and types detergent used by each individual . Research objectives This For analyze relationship between length of contact and type detergent with complaints of contact dermatitis in mothers House stairs in the work area Community Health Center Paguyaman .Types of research This is Quantitative with Design research of a nature analytic with approach *Cross Sectional* . Research sample totaling 70 mothers House selected stairs use technique *consecutive sampling* . Instruments in the study This is questionnaire *NOSQ-2002/SHORT* For analyze relationship between length of contact and type detergent with contact dermatitis complaints .Based on results study known that from 70 mothers House stairs , there are long-term contact relationship detergent with complaints of contact dermatitis in mothers House ladder obtained p value =  $0.033 < \alpha (0.05)$ . There is connection type detergent used with complaints of contact dermatitis in mothers House ladder obtained p value =  $0.014 < \alpha (0.05)$ . For mothers House ladder expected more be careful in use detergent , with method use sarong hand moment wash clothes For minimize contact direct with detergent , avoid use detergent in excessive amounts so that the residue No left behind , and reduce frequency use detergent every the day.

**Keywords:** *Contact Dermatitis Contact Duration and Types of Detergent.*

## BACKGROUND

Disease skin is conditions that occur when layer outside body experience disturbance, good in the form of irritation and inflammation. Causes disease skin diverse, including factor cleanliness personal, exposure substance dangerous in the environment, infections, to problem system immune like allergies (MZ et al., 2020). Disease skin is frequent conditions found in society. Some example disease skin covering leprosy, tinea, scabies, tinea versicolor, dermatitis, and so on. Complaints common skin found including skin dry, texture rough, scaly areas on the hands, feet, or face, acne, rash, contact dermatitis or inflammation skin, as well as abrasion or disappearance epidermis layer (Gita et al., 2024).

Dermatitis a is reaction inflammation that varies and involves the epidermis and dermis layers of the skin. Acute dermatitis marked with symptom like itching, redness, and the appearance of vesicles. While that is, chronic dermatitis show symptom itchy skin dry (xerosis), thickening skin (lichenification), and thickening layer horn (hyperkeratosis) which can accompanied by or No with cracks (fissures). Contact dermatitis shared into two types, namely contact dermatitis irritant (IUD) and contact dermatitis allergy (DKA). DKI is reaction inflammation of the skin that occurs consequence exposure materials that can cause irritation in most people. Response skin to material chemistry the depending on the type substances in contact, duration contact, frequency usage, as well as type detergents used by individuals. Chemicals contact dermatitis triggers Lots found in jewelry, products maintenance body, plants, medicine topical, as well as material chemicals in contact direct with skin ( Chairunisa & Thaha, 2020).

Dermatitis is one of the from ten the most common disease found, so that important For give attention special to disease this. Some types of dermatitis can cause complications If No handled with true, which has the potential make things worse condition skin (Agustina et al., 2022). In cases of dermatitis, the condition worsens worsening can cause wounds that fester and spread to the skin area others. Therefore that , handling proper management of dermatitis is very necessary (Diana et al., 2021).

Factors that cause contact dermatitis shared into two groups, namely reason directly which includes characteristic substance, solubility, form substances (gas, liquid, solid ), concentration, and duration contact, and causes No direct like age, type gender, race, hygiene personal, use tool protector self (PPE), and level knowledge (Sari et al., 2021).

Through data from *World Health Organization* (WHO) in the United States, 90% of claims health consequence abnormalities skin caused by dermatitis. Some do Consultation to doctor skin 4-7 % of cases are caused by contact dermatitis. Hand dermatitis about 2% of population and 20% of women will caught at least very lifetime his life. Children with dermatitis as much as 30% will positive patch test results. In the study epidemiology in Indonesia shows that 97% of the 389 cases is contact dermatitis, of which 66.3% is contact dermatitis irritant and 33.7% was contact dermatitis allergies (Utami & Supriyatni, 2021) .

Based on Basic Health Research by the Ministry of Health 2018, the prevalence of national dermatitis is 6.8% (based on complaint respondents). A total of 13 provinces have prevalence of dermatitis above prevalence national namely, Gorontalo, Central Sulawesi, North Sulawesi, South Kalimantan, Central Kalimantan, East Nusa Tenggara, DI Yogyakarta, Central Java, West Java, Jakarta, Bangka Belitung, Nanggro Aceh Darussalam, and including West Sumatra (Reynaldi et al., 2020) .

According to Tjatur Selfish et al (2021) in his research explain that The longer the contact with agent/material irritant (detergent) then irritation skin more Possible happened and caused skin disorders. Skin disorders Because material irritant happen Because damage cell in a way chemical or fission. Irritant material damage layer horn, keratin denaturation, removing the fat layer horns and change skin binding capacity to water. The damage that occurs result in inflammation classic in place occurrence contact with abnormalities in the form of erythema, edema, heat, pain (Ngurah, I Gusti; et al, 2021) .

According to Nofiyanti (2017) many factor reason dermatitis disease in the community, including direct causes (factors directly), such as material chemical and *indirect causes* (factor No directly) such as history disease previous, age, environment, and personal hygiene. In addition, factors related to with incident dermatitis diseases such as habit wash lack of hands clean and not use soap, level education that causes lack of awareness in guard cleanliness and history risky jobs (Nofiyanti et al., 2020) .

Detergent generally consists of from material raw materials (surfactants), materials supporting and additives. Raw materials surfactant occupy portion 20-30% and ingredients support around 70-80%. In addition to the ingredients used moment work, there are also other influencing factors the emergence of contact dermatitis. One of the factor the is the duration of contact , frequency contact and length of work that can be cause the onset of contact dermatitis . Duration of contact have role important in Allergic Contact Dermatitis (ACD) occurs. The longer the contact with agent reason can cause damage cell skin part outside , so that the longer the time used For do contact will result the more bad damage cell skin that occurs (I Gusti et al., 2021) .

## METHOD

Study This carried out in the Work Area Community Health Center Association Subdistrict Paguyaman and held in the month June - July 2025. Election location This based on discovery relevant phenomena with topic study. Types of research This is quantitative with design research of a nature analytic with approach *cross sectional*. The data used namely primary data from results interviews and questionnaires. Population Research This is all over amount patients visiting the Community Health Center Association experiencing Contact Dermatitis based on results inspection doctors

in January -June 2025, namely as many as 86 patients Woman age adults. Research Sample This is Mother House stairs that experience contact dermatitis, using detergent and fulfill Criteria. Withdrawal technique sample in research This that is technique *consecutive sampling*, where sample chosen in a way sequentially from population that meets criteria with taking minimum sample count use Slovin's formula and obtained 70 samples.

**RESEARCH AND RESULT**

**Table 1.** Connection exposure detergent based on length of contact detergent with complaints of contact dermatitis in mothers House stairs in the work area Community Health Center Association

Detergent Contact Time	Complaint Contact Dermatitis						Amount		P value
	Light		Currently		Heavy		n	%	
	n	%	n	%	N	%			
20-30 minutes	2	18.2	3	27.3	6	54.5	11	100.0	0.033
30-40 minutes	1	3.2	16	51.6	14	45.2	31	100.0	
50-60 minutes	0	0.0	8	28.6	20	71.4	28	100.0	
<b>Total</b>	<b>3</b>	<b>4.3</b>	<b>27</b>	<b>38.6</b>	<b>40</b>	<b>57.1</b>	<b>70</b>	<b>100.0</b>	

Source : Primary data processing , 2025

Based on table 3.1 can seen that results show Of the 70 respondents , it was found that respondents with contact dermatitis complaints the most weight there is a contact time of 50-60 minutes with 20 (71.4%) respondents whereas respondents with complaint least weight there is a contact time of 20-30 minutes with 6 (54.5%) respondents , those who have contact dermatitis complaints currently the most there is a contact time of 30-40 minutes with 16 (51.6%) respondents , while the complaint of contact dermatitis at least there is a contact time of 20-30 minutes with 3 (27.3%) respondents . Then those who have contact dermatitis complaints the lightest most be in contact for 20-30 minutes with 2 (18.2%) respondents , while those who have contact dermatitis complaints lightest at least namely at a contact time of 50-60 minutes Where No anyone has contact dermatitis complaints light at contact time of 50-60 minutes .

Statistical test results obtained p value = 0.033 < α (0.05) then can concluded that there is connection between contact times detergent with contact dermatitis complaints .

**Table 2.** Analysis results connection exposure detergent based on type detergent with complaints of contact dermatitis in mothers House stairs in the work area Community Health Center Association

Type of Detergent used	Complaint Contact Dermatitis						Amount		P value
	Light		Currently		Heavy		n	%	
	n	%	n	%	N	%			
Powder	1	2.5	9	22.5	30	75.0	40	100.0	0.014
Liquid	1	5.3	12	63.2	6	31.6	19	100.0	
Combination ( powder & liquid )	1	9.1	6	54.5	4	36.4	11	100.0	
<b>Total</b>	<b>3</b>	<b>4.3</b>	<b>27</b>	<b>38.6</b>	<b>40</b>	<b>57.1</b>	<b>70</b>	<b>100.0</b>	

Source : primary data processing , 2025

Based on table 3.2 can seen that results show Of the 70 respondents , it was found that respondents who have contact dermatitis complaints the most weight there are respondents who use it type detergent powder with 30 (75.0%) respondents , while respondents with contact dermatitis complaints least weight there are respondents who use it type detergent combination ( powder & liquid ) with 4 (36.4%) respondents . As for the respondents who have contact dermatitis complaints while the most there are respondents who use it type detergent liquid with 12 (63.2%) respondents , while respondents with contact dermatitis complaints at least there are respondents who use it type detergent combination ( powder & liquid ) with 6 (54.5%) respondents . Then the respondents with mild dermatitis complaints all The same Lots namely each type detergent there is 1 respondent .

Statistical test results obtained p value = 0.014 < α (0.05) then can concluded that there is connection between type detergent used with contact dermatitis complaints .

**DISCUSSION**

**1. Long-term contact relationship detergent with complaints of contact dermatitis in mothers House stairs in the work area Community Health Center Association**

Research result This show that there is long-term contact relationship with complaints of contact dermatitis in respondents , where from aspect practical working individuals in sector House ladder frequently exposed detergent in term long time without adequate protection like sarong hand will the more tall possibility occurrence contact dermatitis complaints .

Based on study respondents with contact dermatitis complaints heavy contact direct with material irritant long enough with 50-60 minutes in very contact directly , where will more big will affected by contact dermatitis If always

contact direct with material irritant . Found severe dermatitis complaints although with duration short exposure namely 20-30 minutes , indicating possibility existence response hypersensitivity type fast or exposure to agent irritant strong . Condition This indicates that in individuals certain threshold tolerance skin to substance it is very low so that reaction inflammation skin can happen although time minimal contact . Findings This become indicator existence potential risk significant health even in exposure term short .

In theory dose-response the more tall or the longer the exposure to something material irritant so the more the risk is also big occurrence effect adverse effects , such as contact dermatitis . Exposure material irritants that cause inflammation and damage to the lining skin especially on the layers outermost Because the longer the skin exposed with material irritant so will the more critical complaints of dermatitis experienced and can spread to layer more skin in (Tan et al., 2021) .

According to research by Ngurah et al. , abnormalities skin Because material irritant happen Because damage cell in a way chemical or physical , material irritant damage layer horns , damage that occurs result in inflammation classic in place occurrence contact with abnormalities in the form of erythema , edema, heat and pain (Ngurah, et al., 2021) .

Study This in line with research conducted Novianti et al. , 2020 showed long-term contact relationship detergent with the incidence of contact dermatitis in mothers House ladder analyzed with the Spearman correlation test obtained calculated r value of 0.0453 and p of 0.012; p value <0.05 so that stated there is significant relationship between contact times detergent with the incidence of contact dermatitis in mothers House stairs . The r value of 0.453 indicates that long-term contact relationship detergent with contact dermatitis is positive , the longer the contact the more tall possibility experiencing contact dermatitis (Nofiyanti et al., 2020) .

## **2. Relationship type detergent with complaints of contact dermatitis in mothers House stairs in the work area Community Health Center Association**

Research result show that more respondents often use detergent powder experience contact dermatitis complaints compared to with those who use detergent liquid , this is show that type detergent used play a role in level irritation caused to the skin . Powder detergents are also often No late in water so that leave residue that can stick to the skin Then trigger the occurrence of dermatitis especially If used repeating .

Type of detergent used respondents so that experience contact dermatitis complaints are very influential Because based on content product detergent react with skin . Researchers conclude type detergent powder that respondents use contain anionic surfactants or hard and cationic cause irritation skin especially If skin exposed in term long time and with sensitive individual . Content surfactant This act For reduce voltage surface , making it easier disappearance dirt , but can damage protective lipid layer skin . Too alkaline strong can increase skin pH cause drying excessive and reducing ability skin For maintain humidity (Sinta Murlistyarini, Suci Prawitasari, 2020) .

Findings This in line with theory *irritant contact dermatitis* , which explains that irritation skin happen consequence damage directly by the material chemistry without involvement of the immune system . Detergent powder Work as agent irritant with damage natural lipid layer the skin then cause symptoms of dermatitis. In theory dose-response , the more tall concentration in potential irritant material chemistry so the more There is also a big reaction that appears on the skin , then in aspect biochemistry skin man has a natural pH around 5.5 which is sour with existence exposure detergent that is language can bother pH balance as well damage microbiome skin and improve vulnerability to irritation (Kajal Patel, 2022) .

Study This in line with research conducted by Lestari et al (2022), where chi-square test results detergent with contact dermatitis complaints obtained p- value = 0.032 which means There is meaningful relationships between type detergent with contact dermatitis complaints . Research This aim For see type which detergent is better influential to the occurrence of contact dermatitis , the influence that type detergent that has material chemistry more surfactants tall the will the more risky experience contact dermatitis complaints , and results study This support opinion that type detergent more powder often make material irritants that enter to skin and cause reaction allergies (Lestari Putri, 2022)

## **CONCLUSION**

1. There is long-term contact relationship detergent with complaints of contact dermatitis in mothers House ladder with statistical test results obtained p value = 0.033 <  $\alpha$  (0.05) then can concluded that there is significant relationship between contact times detergent with contact dermatitis complaints .
2. There is detergent used with complaints of contact dermatitis in mothers House ladder with statistical test results obtained p value = 0.014 <  $\alpha$  (0.05) then can concluded that there is connection between type detergent used with contact dermatitis complaints .

## **RECOMMENDATIONS**

1. For mothers House ladder expected more be careful in use detergent , with method use sarong hand moment wash clothes For minimize contact direct with detergent , avoid use detergent in excessive amounts so that the residue No left behind , and reduce frequency use detergent every the day .
2. For Health Workers/ Community Health Centers need done regular education to Mother House ladder about risk health skin consequence material chemistry House ladder including method prevention of contact dermatitis .
3. For researchers furthermore can done study about connection exposure detergent with complaints of dermatitis at other health centers or in other areas or with larger population wide as comparator research and additional information .

**ACKNOWLEDGEMENTS**

The author would like to thank the Department of Public Health, Head of the Faculty of Sports and Health, Gorontalo State University, and the Head of the Paguyaman Community Health Center, Boalemo Regency.

**REFERENCES**

- Agustina, F., Zakaria, R., & Santi, TD (2022). The Relationship between Personal Hygiene and Skin Disease Complaints in the Tuwi Kayee Village Community, Panga District, Aceh Jaya Regency in 2022. *Journal of Health and Medical Science* , 1 (4), 142–149.
- Chairunisa, T., & Thaha, A. (2020). *Incidence of Allergic Contact Dermatitis in the Dermatology and Venereology Polyclinic of Dr. Mohammad Hoesin General Hospital, Palembang, 2009-2012* . 4 , 282–288.
- Diana, CP, Marniati, Husna, A., & Khairunnas. (2021). Factors Associated with the Incidence of Dermatitis in the Work Area of the Alue Rambot Community Health Center, Darul Makmur District, Nagan Raya Regency. *Jurnal Jurnakemas* , 1 (November), 119–137.
- Gita, A., Angraeni, S., Waspodo, NN, Arifin, AF, Abdi, DA, & Yuniati, L. (2024). Characteristics of Contact Dermatitis Patients (Irritant and Allergic) at the Tarawang Community Health Center, Jeneponto Regency, South Sulawesi Province, 2022-2023 . 24 (3), 2037–2048. <https://doi.org/10.33087/jjubj.v24i3.5551>
- Kajal Patel, R.N. (2022). Irritant Contact Dermatitis- a Review. *Current Dermatology Reports* , 11 , 41–51.
- Lestari Putri, FE (2022). The relationship between contact duration and detergent type with the incidence of contact dermatitis in Binjai City. *Health Journal* , 6 , 177–186.
- MZ, AR, Wijaya, IGPS, & Bimantoro, F. (2020). Expert System for Diagnosing Human Skin Diseases Using the Dempster Shafer Method. *Journal of Computer Science and Informatics Engineering (J-Cosine)* , 4 (2), 129–138. <https://doi.org/10.29303/jcosine.v4i2.285>
- Ngurah, I Gusti; Sumadewi, Komang Trisna; Sudarjana, M. (2021). *Detergent Contact Duration and Contact Dermatitis Incidence in Housewife Tjatur Sembodo* . 12 (4), 326–328.
- Nofiyanti, AL, Anggraini, DI, Miftah, A., Kedokteran, F., & Lampung, U. (2020). *Chronic Irritant Contact Dermatitis in Laundry Employees* . 7 , 5–9.
- Sari, JP, Fauziah, M., & Lusida, N. (2021). *The Relationship between Personal Hygiene and the Incidence of Dermatitis in the Poris Gaga Lama Community Health Center Work Area in 2021* .
- Sinta Murlistyarini, Suci Prawitasari, LS (2020). *The Essence of Skin and Venereology* . UB Press.
- Tan, ST, Pratiwi, YI, Chandra, CC, & Elizabeth, J. (2021). Educational Book of Dermatology and Venereology. *Faculty of Medicine, Tarumanegara University* , pp. 181-185.
- Utami, SR, & Supriyatni, N. (2021). *Analysis of Factors Influencing the Occurrence of Dermatitis in the Work Area of the Hiri District Health Center in Tahun* .
- Widya, S., & Husada, D. (2022). *The Relationship Between Personal Hygiene, Duration of Contact, and Frequency of Contact with Contact Dermatitis Complaints in Car Wash Workers in Bojongsari District* . 6 , 1757–1762.
- Yarmaliza; Farisni, Teungku; Fitriani; Syahputri, Veni; Zakiyuddin, Zakiyuddin; Reynaldi, F. (2020). Epidemiology of Dermatitis in Farmers. *Periodical Journal of Epidemiology* , 8. 50 - 56 .