



Analysis Of The Relationship Of Personal Hygiene With The Incidence Of Dermatitis In Farmers, Indonesia

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Article details:

Published: 31th June 2023



Abstract

Various kinds of skin diseases are still a public health problem in the world, including Indonesia. Contact dermatitis is an acute or chronic inflammatory reaction in the form of erythema, papular edema, vesicles, squares and itching caused by irritants or substances that attach on the skin. Dermatitis disease occurs in informal workers who generally pay less attention to

sanitation and protection for their health, such as farmers. One of the jobs that is vulnerable to skin disorders is farmers. So that research is needed to see patterns of personal hygiene in farmers. The purpose of this study was to determine the relationship between patterns of personal hygiene with the occurrence of skin disorders in rice farmers. Sources of data used in this study are secondary data sources, where the data obtained through pubmed and other journal sites. The journals that are obtained are selected based on the title made by the author. The author found 20 journals that have been summarized into journal representing all journals with the same opinion. The results obtained are that there is a dominant influence between age, gender, personal hygiene, personal protective equipment.

Key words : Dermatitis, Farmers, Personal Hygiene, Personal Protective Equipment.

To cite this article :

Dewi Wulandari, Fitria Saftarina, S. M. (2023). Analysis Of The Relationship Of Personal Hygiene With The Incidence Of Dermatitis In Farmers, Indonesia. *International Journal of Health, Education and Social (IJHES)*, 6(6), 22–40.



Introduction

Health is a physical, mental, spiritual, and social condition that allows a person to live a productive, social, and economic life. Personal hygiene refers to one's attempts to preserve cleanliness and health in order to achieve physical and psychological well-being. 2022 (Ernyasih) Indonesia is classified as an agrarian country, as evidenced by the fact that the majority of Indonesians make their living in the agricultural sector. In 2015, the amount of agricultural labor in Indonesia was 39.68 million individuals, accounting for around 31.86% of the entire Indonesian population. Agriculture, specifically tobacco, is one of the many different areas that is highly promising from an economic standpoint.. This can be seen from the high consumption of cigarettes by the Indonesian people (Fera Meliyanti, Eko Heryanto, 2020)

A skin condition known as occupational skin disease is brought on by one's line of work. Usually, industrial, agricultural, and plantation settings are where occupational diseases are found. Dermatitis, a term used to refer to skin conditions brought on by objects, substances, and procedures used at work, typically induce skin inflammation.

According to epidemiological data, 389 cases of skin diseases in Indonesia total 97% of the cases, of which 66.3% are caused by irritants and 33.7% by allergies. ((Haslinda Pratiwi, Melda yenni, Eko Misriyanto, 2022)

The prevalence of contact dermatitis can be affected by personal cleanliness. Personal hygiene is the practice of taking a bath, washing your hands and feet with soap and running water after work, and washing your clothes for work when you get home from work. Farmers ought to



practice routine personal hygiene since it can limit exposure to chemicals after performing labor that involves chemicals and can stop the spread of bacteria or germs. After working with chemicals, maintaining good hygiene might shorten the amount of time you are exposed. (Haslinda Pratiwi, Melda yenni, Eko Misriyanto, 2022)

Personal hygiene is a vital topic that needs to be implemented appropriately because it has a significant impact on one's health. Skin hygiene, hair hygiene, dental hygiene, eye hygiene, ear hygiene, and hand, foot, and nail hygiene are all instances of personal hygiene.

According to data gathered from the Health and Safety Executive in Lestari, 80% of workers in England suffered from contact dermatitis in 2002. 7 According to a 2014 epidemiology survey, 97% of 389 cases of skin diseases in Indonesia were contact dermatitis. 8 According to data received from the Hiperkes Center of the Ministry of Manpower RI in 2005, contact dermatitis accounted for 80% of occupational skin illnesses. (Fera Meliyanti, Eko Heryanto, 2020)

There are two types of contact dermatitis: irritant contact dermatitis, which is more common, and allergic contact dermatitis. A worker may develop both irritant and allergic dermatitis, simultaneously or at different times or locations on the body. The majority of irritants are chemicals, including cleaning agents, metalworking fluids and organic solvents that damage the epidermal barrier after cumulative exposure to the agent. (Sharara Shakik, Victoria et al, 2019) Allergens, such as metals (nickel, chromium and cobalt), rubber additives in gloves, preservatives, epoxies, resins and acrylates can cause allergic contact dermatitis. Workplace-based studies have found a risk of excess dermatitis among certain workers including farmers, beauticians, chemical



workers, cleaners, construction workers, cooks and caterers, electronics workers, hairdressers, health and social care workers, machine operators, mechanics, craftspeople. metal and vehicle assembly. Wet work was considered a major risk factor for irritant dermatitis among these groups, although many were also exposed to irritants and allergens. (Sharara Shakik, Victoria et al, 2019). Based on the aforementioned, the authors want to conduct an extensive study with the title "Analysis of the

THEORETICAL STUDY

Dermatitis is a skin disease characterized by skin inflammation that can occur repeatedly as a result of the influence of exogenous and/or endogenous factors, resulting in a variety of clinical abnormalities such as erythema, edema, papules, vesicles, lichenification, scaling, and itching. itchy. Irritant contact dermatitis can develop as a result of cell damage caused by chemical, physical, or biological irritants encountered at work. These irritants adhere to or come into contact with the skin, damaging the horny layer, denature the keratin, removing the horny fat layer, and altering the water holding capacity. Repeated exposure to irritants or toxins might disrupt the keratinocyte lipid membrane, and some can enter the cell membrane and damage lysosomes, mitochondria, or other organelles core components. The stages of this incident cause classic inflammatory skin signs such as erythema, edema, heat, and discomfort. (Norma Dewi Suryani, Martini, Henry Setyawan, 2017)

Contact dermatitis can be divided into two, namely Irritant Contact Dermatitis (DKI) and Allergic Contact Dermatitis (DKA). Irritants are the most common etiology of contact dermatitis,



although the clinical signs of the two are similar to each other. DKA is an example of a type IV hypersensitivity reaction. (Melina Tombeng, IGK Darmada, IGN Darmaputra)

ETIOLOGY

Agriculture workers perform a variety of jobs that expose them to chemical, biological, and other dangerous chemicals. They fertilize the fields, harvest them, and maintain and repair any farm equipment. Agricultural workers, particularly farmers, are exposed to chemicals often used in agriculture, as well as environmental conditions such as humidity, temperature, and frequency of hand washing, all of these could impact the ease developing occupational contact dermatitis. (Melina Tombeng, IGK Darmada, IGN Darmaputra) Soaps and detergents, pesticides, dust, dirt, sweat, disinfectants, petroleum, artificial fertilizers, and plants, among other things, are a few examples of irritants that can cause occupational contact dermatitis in farmers. Meanwhile, rubber (gloves, boots), potassium dichromate (agricultural tools), preservatives (in artificial fertilizers), pesticides, antimicrobials, cow dander, wheat powder, wheat flour, and storage mite, forms are allergen materials that can cause contact dermatitis in farmers (Melina Tombeng, IGK Darmada, IGN Darmaputra)

According to Udiyono & Adi (2017) Dermatitis is caused by a variety of factors in society, including direct causes (such as chemicals) and indirect causes (such as previous medical history, age, environment, and personal hygiene). In addition, parameters associated with a diagnosis of dermatitis are the habit of washing dirty hands without soap, a lack of education which contributes to a lack of cleanliness awareness, and a history of risky work. (Ernyasih, 2022)



Endogenous and external factors both contribute to the emergence of occupational contact dermatitis. Individual factors such as genetics, gender, age, ethnicity, skin type, and atopy history are examples of endogenous factors. Chemical irritating qualities such as physical state, concentration, amount, polarization, ionization, carrier, and solubility are exogenous components that cause occupational contact dermatitis (Achisna Rahmatika, Fitria Saftarina, Dwi Indria Anggraini, Diana Mayasari, 2020). Pesticide-derived chemicals are one of the causes of occupational skin diseases. Pesticides contain more than 2 billion pounds of active substances according to Californians for Pesticide Reform (2015). Pesticides are frequently used by farmers to increase crop yields. Farmers are exposed to pesticides from the time they mix pesticides till they harvest crops. (Puspitasari, 2019)

Besides from pesticide exposure, fertilizers are frequently associated with Dermatitis and Dermatitis due to work in both industry and agriculture. A farmer reported an abrupt reaction to calcium ammonium nitrate, which is an ingredient of urea fertilizer. Based on epidemiological data, paddy farmers use more fertilizer than vegetable farmers, with a proportion of 67.7% in paddy fields and 36.8-42.3% of vegetable farmers.

A research on rice farmers in South India discovered that they developed dermatitis after being exposed to irritants such as fertilizers. A total of 314 farmers were found to have dermatitis, with 73% of them experiencing irritation after work. According to the 2012 Indonesia Health Profile data, the distribution of outpatients in hospitals in Indonesia in 2012 with the category of skin and subcutaneous tissue disease causes was 115,100 visits with 64,557 new cases according



to the International Classification of Diseases-X (ICD-X). Two years later, in 2014, skin and subcutaneous tissue diseases ranked third among the ten most common diseases in outpatients in Indonesian hospitals. There were 192,414 visits, and there were 48,576 new cases. This demonstrates that skin diseases are on the rise. There were 192,414 visits, and there were 48,576 new cases. This shows that skin diseases are increasing and remains widespread throughout Indonesia. There were 192,414 visits, and there were 48,576 new cases. This shows that skin diseases are growing and remains common in Indonesia. (Fera Meliyanti, Eko Heryanto, 2020)

PATHOPHYSIOLOGY

This skin disorder is caused by inflammation elicited by sufficient irritants arising from the release of proinflammatory cytokines from keratinocytes, usually in response to chemical stimuli. This primarily causes disruption of the skin barrier, changes in epidermal cells, and release of cytokines (Litchman G, Pragya AN, Amber RA, Beenish SA, 2022)). This skin condition is distinguished by inflammation caused by irritants or the release of proinflammatory cytokines from keratinocytes, that typically develops in response to chemical stimuli. This mostly causes disruption of the skin barrier, epidermal cell alterations, and the release of cytokines.

Irritants can also trigger nociceptors, creating acute pain and neurogenic inflammation by release vasoactive peptides such substance P. This release causes vasodilation and the infiltration of various types of leukocytes (neutrophils, eosinophils, basophils, and/or inflammatory monocytes) from the blood into the skin, causing the reaction. (Calhoun KN, Luckett LR, Frempah B, Gallucci RM, 2019)



Irritation induces epidermal breakdown with spongiosis (intracellular edema), microvesicle manufacture and/or necrosis (which can be seen histologically), and clinical manifestations such as erythema, induration (hardened skin), and edema. It might be associated with painful and burning skin. Skin repair processes reduce inflammatory reactions by removing the causal factor and removing and repairing injured or dead cells. (Scheinman, P. L., Vocanson, M., Thyssen, J. P., Johansen, J. D., Nixon, R. L., Dear, K., Botto, N. C., Morot, J., & Goldminz, A. M, 2021)

Irritant contact dermatitis can be caused by an irritant's direct toxic action on epidermal keratinocytes, which disrupts the skin barrier and stimulates the innate immune system. An irritant, such as sodium lauryl sulfate, common in detergents, can be directly harmful to epidermal keratinocytes. Acetone (an organic solvent), on the other hand, causes epithelial barrier breakdown and lipid loss. This eliminates the epithelial barrier, allowing irritants and allergens to get through easier. Chronic epithelial damage, typically caused by repeated contact to minor irritants, elicits an innate immune response with the release of many proinflammatory cytokines from keratinocytes, including IL-1, IL-1, TNF-, GM-CSF, IL-6, and IL-8. (Bains, SN, Nash P, Fonacier L, 2019).

PREDILECTION

The most common localization of DKAK in farmers is hands (about 80-90%). 1,5 This is due to the fact that farmers' work is related to hands. Other DKAK locations for farmers include the legs and body. Female farmers are more susceptible to DKAK than males. Many cases of DKAK start with erythema and scaly on the metacarpophalangeal joints and the area around the



back of the fingers, and between the fingers (Melina Tombeng, IGK Darmada, IGN Darmaputra) The arms, if not covered, and the face and neck when exposed to dust or pollutants are the other locations. Dermatitis can be caused by a rubber allergy. Some workers go through an adaptation phases to allergens and irritants. DKAK can occur at any time, however it occurs after an extended time of work.

Itching is a common complaint among DKA patients. Skin disorders vary depending on the severity of the dermatitis and where it occurs. The acute type begins with erythematous patches with distinct borders, followed by edema and papulovesicles. Vesicles can rupture, resulting in erosion and moist exudation. The boundaries among chronic dry skin, scaly skin, papules, lichenification, and potentially fissures are not apparent. It is difficult to distinguish this illness from chronic DKI (Melina Tombeng, IGK Darmada, IGN Darmaputra).

MANAGEMENT

The identification and elimination of the causal agent is the definitive therapy for DKA, and all patients with suspected or confirmed DKA should be educated on this. When DKA affects less than 20% of the body, topical steroids were recommended as first-line treatment, while oral corticosteroids are used when DKA affects more than 20% of the body. Topical calcineurin inhibitors or PDE4 inhibitors may be helpful if DKA affects sensitive areas such as skin folds or eyelids. To avoid relapse after identifying the allergen, diligent avoidance is necessary (Lie L, 2018).



Oral antihistamines, topical hydrocortisone, and cold water immersion are all used for managing symptoms. Vesicles must not burst while infection is possible. It is additionally recommended to use a moisturizer (Lie L, 2018).

Topical immunomodulators, such as tacrolimus, may be useful in severe cases. Phototherapy using UV A and psoralen could help some individuals. In serious cases, an immunosuppressive medication such as mycophenolate may be needed. (Choi FD, Juhasz MLW, Mesinkovska NA, 2019).

Use a patch test to identify the causal agent in cases of chronic or persistent DKA. An excellent patch test includes multiple components, including the selection of the right chemical, a positive patch test for the relevant allergen, and counseling the patient on the patch test results. In addition, the Contact Allergen Management Program (PMAK) of the American Contact Dermatitis Society can be used to establish a "safe list" of products that do not contain a patient's allergen. Systemic therapy may be required if the allergen cannot be avoided. (Chastain LR, Gipson JR, Gillaspay AF, Gallucci RM, 2018).

PREVENTION

a. Remove the Cause of The allergens and Irritants

When planting or growing crops, farmers could be exposed to a variety of allergic reactions and irritations. If the type of allergic or irritant that causes DKAK in a patient is determined through patch testing, then the allergen or irritant must be avoided.

b. Personal Safety



DKAK can be avoided with gloves. There are several of special variables in the glove manufacturing procedure that could safeguard workers towards DKAK. Protective creams, like gloves, form a barrier between the skin and allergens/irritants. However, 98% of participants felt that protective creams are no more effective than emollients in avoiding hand dermatitis. Emollients, which form a protective barrier on the skin, are used to prevent DKI. which work in forming a protective layer on the skin (Melina Tombeng, IGK Darmada, IGN Darmaputra).

Methods

The literature review approach was utilized in this study to collect, identify, and assess the link between hygiene and the incidence of dermatitis in farmers. This study's data source is a secondary data source, using data acquired from Pubmed and other journal sources applied to discover relevant papers. The journals acquired were chosen based on the titles chosen by the authors. Before proceeding, the author summarizes in the form of a table the name, method, and research data.



Tabel 1. Summarized Of Authors and Results

No	Authors Name	Methods	Result
1	Septina Riyanti	Analysis	There is a correlation between rice farmers' personal hygiene habits and the development of skin diseases.
2	Erniyasih	Analysis	The level of education on skin hygiene (and clothing hygiene) has a relationship with the incidence of dermatitis.
3	Fera Meliyanti		The usage of personal protective equipment, personal hygiene, and working hours all have significant correlations with the incidence of dermatitis.



4	Ike Puspitasari	Analysis	A strong personal hygiene relationship with the incidence of contact dermatitis of 0.627 is included in the strong category; for a strong relationship between the use of PPE and the incidence of contact dermatitis, the results obtained are 0.276, which is included in the strong category of moderate relationship.
5	Norma Dewi Suryani	Analysis,kuantitatif	There is an association between the occurrence of irritating contact dermatitis and a history of skin disease.
6	Haslinda Pratiwi	Analysis	There is a correlation between



			PPE use (p-value = 0.000), personal hygiene (p-value = 0.000), and contact dermatitis symptoms in farmers.
7	Achisna	Analysis	Personal protective equipment (p-value = 0.000), duration of contact (p-value = 0.000), personal hygiene (p-value = 0.000), number of pesticide types (p-value = 0.000), and amount of fertilizer (p-value = 0.000) everything have a significant statistical relationship with contact dermatitis.
8	Melina Tombeng	-	-

Results And Discussion

According to the summary of the journals collected, there are publications that obtain the results that there is a relationship between the use of PPE and the occurrence of dermatitis.



According to by (Achisna, 2020), Based on the findings and discussions, it is possible to conclude that there is a statistically significant relationship between the use of PPE, length of contact with farmers, personal hygiene, types of pesticides, and types of fertilizers and the incidence of Contact Dermatitis in farmers in Lampung Province. There was no statistically significant association between work and atopy history and the incidence of contact dermatitis among farmers in Lampung Province.

It is required to conduct additional study on the prevalence of atopic dermatitis by describing the questionnaire employed. This is consistent with the findings of the investigation. (Haslinda Pratiwi, Melda yenni, Eko Misriyanto, 2022)

According to the findings of the study, the factors related with symptoms of contact dermatitis in farmers in the working area of the Paal Merah II Health Center are the usage of PPE ($p=0.000$) and personal hygiene ($p=0.000$). According to the journals evaluated, the risk factors for dermatitis in farmers are primarily due to poor personal hygiene and the failure to use PPE. However, only one journal was acquired (Ernyasih, 2022).

In this study, the variables linked with the incidence of dermatitis were education level, skin hygiene, and garment cleanliness.

(Fera Meliyanti, Eko Heryanto, 2020) According to research the results, 56.1% of farmers are not using PPE completely. Farmers only use head protection (capil hats) and do not wear farmer-appropriate protective clothes when working in the fields. They also do not wear the rubber or



thick gloves that farmers are supposed to wear when working in the fields. Farmers also do not wear rubber boots. area of the feet and hands.

(Fera Meliyanti, Eko Heryanto, 2020)

Furthermore, the statistical test with Chi-Square indicated a p value of 0.000. This suggests that there is a link between personal hygiene and the prevalence of Dermatitis. This is consistent with the premise that Personal Hygiene is a form of self-care used by humans to maintain their physical and psychological health. Cleanliness is very important in everyday life and must be regarded because it impacts the mental and physical health of an individual.

Personal hygiene is derived from the Greek words personal, which means individual, and hygiene, which means healthy. Personal hygiene is a method of human self-care for maintaining health. Personal cleanliness is really important. Personal hygiene is essential for individual comfort, safety, and health. Personal hygiene is one of the variables that contribute to dermatitis. The main cause of concern is the issue of hand washing. This hand washing routine should lessen the possibility of dermatitis caused by chemicals attached after work, however the possibility of getting dermatitis still exists. One of the causes could be incorrect hand washing.

Keeping a healthy body may be accomplished in a variety of ways, one of which is by keeping hands, feet, and nails clean. Clean hands, feet, and nails significantly reduce the incidence of irritating contact dermatitis. Hands, feet, and nails must be kept clean and inseparable from the cleanliness of the surrounding environment; if someone is not good at hand, foot, and nail hygiene, it is likely to effect the occurrence of skin conditions such as irritating contact dermatitis. cleaning



hands with soap and running water, cleaning feet with soap and running water, and clipping long and unclean fingernails are all ways to keep your hands, feet, and nails clean.

Contact dermatitis disease in farmers can have serious consequences, including a deterioration in quality of life. In addition to the symptoms of contact dermatitis, the negative impact on quality of life can be measured by psychological, functional, and socioeconomic issues, particularly contact dermatitis. Contact dermatitis symptoms are more likely to be functional issues (Kurt OK, Basaran N, 2020).

Patients with contact dermatitis who have functional impairments frequently complain of nighttime itching, which disrupts their sleep quality (Raffi J, Allen IE, Botto N, 2020). This can disturb daily activities due to difficulties concentrating or focusing, persistent worries about skin disorders, affects on sleep, and consequences on social life. Embarrassment may also result from lesions that seriously impair appearance, such as cracks and peeling skin. (Botto N, Raffi J, Trivedi M, Ramirez F, Allen IE, Chren MM, 2019).

Conclusion

The most common cause of dermatitis among farmers, particularly those who work with pesticides, is a lack of hygienic practices and the use of non-standard personal protection equipment. Farmers should pay more attention to personal cleanliness, according to the findings of this study. Aside from that, the usage of PPE is crucial for farmers because the job process provides a risk of skin disorders. One way to raise awareness of the use of PPE is to provide farmers with health education about the health dangers to which they are exposed.



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