The Relationship Between Personal Hygiene and Skin Disease Symptoms in Scavenger Pickers at The Putri Cempo Landfill Surakarta

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Abstract.
The environmental conditions of the Landfill (TPA) of unhygienic waste are at high risk to the skin health of workers, especially scavengers who interact directly with waste every day. This study aims to analyze the relationship between personal hygiene and symptoms of skin diseases in scavengers at TPA Putri Cempo Surakarta. This research is an analytical observational research design through a cross sectional approach that has been carried out in February 2026 at the Putri Cempo Surakarta Landfill located in Mojosongo Village, Surakarta. Sampling involved 162 respondents obtained from a population of 287 people at the Putri Cempo Landfill through the calculation of the Lemeshow formula and purposive sampling techniques. Primary data was collected through filling out questionnaires and direct observation. The results showed that 78 (80.4%) scavengers with poor personal hygiene had experienced skin diseases in the last six months. The results showed that there was a significant relationship between the incidence of skin diseases and personal hygiene supported by the chi-square test with a p value of 0.028 ($p < 0.05$). So it can be concluded that poor personal hygiene has an impact on the appearance of skin disease symptoms in scavengers at landfills. Good preventive measures and personal hygiene are the key to increasing the safety and productivity of scavengers.
Keywords: *Personal hygiene; symptoms of skin diseases and scavengers.*

I. INTRODUCTION

Skin diseases are still a public health problem with a fairly high prevalence in various countries. According to the World Health Organization (WHO), skin diseases affect about 1.8 billion people in the world, making it one of the significant global health problems. This shows that skin diseases are still a health problem that requires special attention, especially in high-risk groups. Skin diseases are still a public health problem with a fairly high prevalence. The World Health Organization reports that the prevalence of skin diseases globally in the period 2022–2024 ranges from 0.3%–46%. In Indonesia, the prevalence of skin diseases in 2022 was recorded at 22.46%, then ranged from 4.60–12.95% in 2023, and 6.78% in 2024. These data show that skin diseases are still a health problem that requires special attention, especially in high-risk groups [1]. The prevalence of skin diseases in the world, among others, is 10% of work-related skin diseases where the symptoms are caused such as fever, sudden rash accompanied by intense itching and heat and the body feels weak [2].

According to data from the International Labour Organization (ILO), 160 million (37.2%) cases of occupational diseases and caused the death of 2.87 million workers every his year [3]. The high rate of work-related diseases also has the potential to occur in informal sector workers, such as scavengers, who have a high risk of being exposed to a dirty and unhygienic work environment, thus increasing the likelihood of skin diseases. Research in Nigeria shows that scavengers are a group with a high risk of developing skin diseases due to unhygienic working conditions. A study in Port Harcourt found that waste pickers are exposed to harmful waste and microorganisms that can cause a variety of health problems, including skin diseases [4]. A worker in the informal sector who is specifically associated with waste management activities at the Putri Cempo Landfill. There was identification of problems regarding behavioral risk factors and exposure. In addition, their limited access to health facilities underscores the vulnerability of these workers' positions in the field. The impact of the incidence of skin diseases on informal workers at the Putri Cempo landfill not only manifests in a decrease in the degree of individual health, but also triggers significant socio-economic implications. Skin symptoms such as redness, itching, rashes, and skin irritation directly reduce the physical capacity and work productivity of scavengers which in advanced stages has the potential to reduce their daily

income level. Furthermore, clinical manifestations that are not immediately treated medically are at high risk of triggering horizontal transmission in the work environment. Given the nature of the transmission of several pathogenic agents such as bacteria, fungi or parasites in a poor sanitation environment, this skin disease can spread rapidly among fellow scavengers and even has the potential to spread to become a public health threat to the general public community outside the landfill area through secondary contact.

Based on According to data from the Central Statistics Agency (BPS) of Surakarta City, the volume of waste in Surakarta City continues to increase to reach 109,297 tons per year, of which around 84.94% of the total generation is allocated to the Putri Cempo Landfill. The condition of the landfill, which receives an average daily waste shipment of 300 tons, creates a working environment with high health risks for scavengers at the site the [5]. Waste landfill (TPA) is a place where waste reaches the final stage in its management process, which is from the beginning of the origin of waste, collection, transfer, transportation and disposal [6]. Based on Surakarta City Regional Regulation Number 4 of 2022 concerning Waste Management, the Putri Cempo Landfill is a public facility whose management and supervision are under the authority of the Regional Government. Consequently, local governments hold regulatory responsibilities as regional facilitators. In the context of preventing work-related diseases such as dermatitis or skin infections, the government through related agencies has an obligation to ensure the implementation of safety standards, one of which is through the provision of standardized Personal Protective Equipment (PPE) such as boots and protective gloves for the scavenger community active in the area. This intervention step is crucial to reduce the prevalence of skin complaints while breaking the chain of disease transmission to the wider community.

Vulnerable groups exposed to the dangers posed by waste include scavengers and especially those who are unorganized, municipal and private waste collectors/workers, small waste traders, and potentially also residents in the generally[7]. Scavengers are often marginalized individuals who are involved in picking and sorting waste for sale, but do so under high risk exposure to occupational and environmental hazards [8]. Scavengers are also a group of informal workers who have a high risk of skin health disorders due to exposure to a dirty and polluted work environment. One of the aspects of personal hygiene that plays a role in maintaining healthy skin is hair hygiene. Unkempt hair and scalp can be a breeding ground for microorganisms such as bacteria and fungi that have the potential to cause scalp disorders, such as itching and dandruff [9]. Scavengers also have an important role in sorting waste with economic value. This activity is generally carried out in a less clean environment with high levels of exposure to dirt, waste, and microorganisms. This condition causes scavengers to have a high risk of various health problems, especially skin diseases. With a large number of scavengers, health problems due to lack of personal hygiene are issues that need attention. Work as a scavenger is often carried out without the use of adequate personal protective equipment and with poor personal hygiene habits, such as rarely washing hands, taking a shower after work, and using unclean clothes. If this condition persists, it can increase the risk of developing symptoms of skin diseases. The problem of skin diseases in scavengers was strengthened through the results of interviews with several scavengers who stated that they often experienced complaints such as itching, rashes, and skin irritation. The complaint is allegedly caused by direct exposure to waste and the lack of application of personal hygiene in daily life.

Personal hygiene is an individual's effort to maintain cleanliness and health of the body which includes skin hygiene, hand, foot and nail hygiene, hair hygiene, clothing hygiene, and the use of personal protective equipment. The application of good personal hygiene plays an important role in preventing the entry of microorganisms through the skin which is the body's first line of defense against infection. However, in the scavenger group, the implementation of personal hygiene is often not optimal due to limited clean water, sanitation facilities, and knowledge and work habits [10]. Personal hygiene is also an effort to prevent disease by maintaining personal and environmental hygiene [11]. Inadequate personal hygiene can result in fungal infections, bacterial infections, parasitic viruses, skin disorders, and other complaints. If the environmental conditions are dirty and humid, it will result in fungal infections, bacterial infections, and parasitic viruses more easily developing [12].

In daily life, personal hygiene is very important and must be taken seriously because it affects a person's health, comfort, safety and welfare. Poor personal hygiene is the main factor that makes it easier for infections to enter the body, including other parts of the body such as the scalp and hair [13]. Thus, this study is very important to find out the relationship between personal hygiene and the symptoms of skin diseases in scavengers.

II. METHODS

This type of research is a quantitative research, using an analytical research design and a cross sectional approach that aims to determine the relationship between personal hygiene and symptoms of skin diseases in scavengers. This research was conducted in February 2026 at the Putri Cempo Landfill in Surakarta. The population in this study is all scavengers at the Putri Cempo Landfill in Surakarta. The criteria for the samples taken are; The inclusion criteria are willing to be research respondents and are scavengers at the Putri Cempo Landfill in Surakarta. As for the exclusion criteria, namely scavengers at the Putri Cempo Surakarta Landfill who are not willing to be research respondents. The determination of the size of the research sample was used the lemeshow formula namely $n = \frac{N \,.\, Z^2_{1-\frac{\alpha}{2}}.p.q}{d^2.(N-1)+Z^2_{1-\frac{\alpha}{2}}.p.q}$ so that 162 scavengers were obtained as a sample from a total population of 287 scavengers at the Putri Cempo Landfill in Surakarta.

Data collection was carried out by giving questionnaires to respondents to assess personal hygiene and symptoms of skin diseases experienced in the last six months. Personal hygiene is positioned as an independent variable and is measured using an ordinal scale based on personal hygiene indicators, such as bathing habits, hand washing, use of clean clothes, and use of personal protective equipment. Meanwhile, skin disease symptoms as a dependent variable were measured using an ordinal scale based on the complaints experienced by respondents, such as itching, redness, rash, and skin irritation. The number of questions in this study was 20 questions and questionnaires used from previous research. The questionnaire has been tested for validity and reliability at the Winong Boyolali Landfill. Based on the validity and reliability test of 50 questions, as many as 20 questions were declared valid and reliable. The calculated R value of 0.640 has exceeded the minimum limit of R in the table, which is 0.361. Data collection was carried out with a frequency of field visits 4-5 times a week, with the number of respondents obtained around 6-8 people every day.

Primary data were collected through questionnaire filling, as well as direct observations made after respondents expressed consent to participate in the study, and supported by secondary data from the relevant literature. Data processing is carried out using Microsoft Excel and SPSS. Data analysis included univariate analysis to describe respondent characteristics and variable distribution, as well as bivariate analysis using the Chi-Square test with a significance level of < 0.05 to determine the relationship between personal hygiene and skin disease symptoms in scavengers.

III. RESULT AND DISCUSSION

Research Results

This research was conducted on scavengers working at the Putri Cempo Surakarta Landfill which is administratively located in Jatirejo Village, Mojosongo Village, Jebres District, Surakarta City, Central Java. This area is the center of a fairly high garbage dump, so it is the main work location for scavengers in finding and collecting used goods that still have economic value. Geographically, this area is located in the northern part of the city of Solo, bordering Karanganyar Regency on the Plesungan side. This location is also easily accessible to the surrounding community, so scavenger activities take place every day. In addition, work as a scavenger is generally carried out in unsanitary environmental conditions and is at high risk of exposure to various sources of disease. Waste pickers often come into direct contact with waste, both organic and inorganic, without the use of adequate personal protective equipment. Work activities such as sorting garbage, lifting, and collecting used items are carried out repeatedly for a long time. This condition can

increase the risk of health problems, especially skin diseases. The lack of implementation of personal hygiene, such as the habit of washing hands, bathing after work, and the use of clean work clothes, can increase the likelihood of skin disease symptoms in scavengers. Therefore, the chosen research location is considered relevant to examine the relationship between personal hygiene and symptoms of skin diseases in scavengers.

Respondent Characteristics

Table 1. Frequency Distribution of Respondents by Characteristics

Respondent Characteristics	Number	Percentage (%)
A.Gender		
Man	89	55
Woman	73	45
B. Age		
Adult (18-59)	155	96
Senior (>60)	7	4
C. years of service		
1-10	140	86
>10	22	14
D. length of working		
1-5	20	12
>5	142	88
E. Level of education		
no school	16	10
elementary school	63	39
junior high school	63	39
high school/equivalent	20	12
F. Use of gloves		
yes	39	24
no	123	76
F. Personal Hygiene		
Bad	97	60
Good	65	40
G. Symptoms of skin disease		
There is	114	70
There isn't any	48	30
amount	**162**	**100**

Source: Data Processing Results

Based on table 1 above, the distribution of respondents is male (55%), with an age group of 18-59 years (96%), working period of 1-10 years (86%), length of employment >5 years (88%), elementary and junior high school education levels (39% each). who do not wear gloves (76%). Of the total 162 respondents, as many as 60% of respondents had poor personal hygiene and around 70% of respondents had symptoms of skin diseases.

Research Variables

Table 2. Analysis of the Relationship Between Personal Hygiene and Symptoms of Skin Diseases in Scavengers.

Personal Hygiene	Symptoms of skin disease				p
	There is		There isn't any		
	f	%	f	%	
Good	52	80,0	13	20,0	0,028
Bad	62	63,9	35	36,1	
Amount	114	100	48	100	

Source: Data Processing Results

Based on the data in Table 2, from 162 respondents at TPA Putri Cempo Surakarta, it is known that in the group with good personal hygiene, there were 52 people (80.0%) who experienced symptoms of skin diseases and 13 people (20.0%) who did not experience symptoms of skin diseases. Meanwhile, in the group with poor personal hygiene, there were 62 people (63.9%) who experienced symptoms of skin diseases and 35 people (36.1%) who did not experience symptoms of skin diseases. The results of the analysis using the

Chi-Square technique showed that there was a strong relationship between personal hygiene and symptoms of skin diseases (p value = 0.028).

IV. DISCUSSION

Scavengers are a group of people who have a high risk of various health problems, especially skin diseases. Scavenging activities carried out in the Final Disposal Site (TPA) environment cause scavengers to be often exposed to dirt, wet waste, household waste, chemicals, and pathogenic microorganisms such as bacteria and fungi. The unhealthy working environment conditions, if not balanced with good personal hygiene behavior, especially skin hygiene, can increase the risk of skin disease symptoms. Skin hygiene is one of the important aspects of personal hygiene that functions to maintain the integrity of the skin as the main protector of the body from exposure to harmful substances and infectious agents [14]. The work environment of scavengers has a high danger to health and safety, both from physical, ergonomic and biological environmental factors [15]. Scavengers are also at risk of skin disorders, mainly due to inadequate personal hygiene. This problem arises from unhygienic working conditions and lack of proper facilities, which leads many scavengers to neglect personal hygiene. In addition, many scavengers rarely use gloves while working [16]. The research conducted at the Putri Cempo Landfill in Surakarta involved 162 respondents, where waste sorting activities at the research site tended to be more carried out by women in the age range of 18–59 years. Low levels of education with the dominance of primary and junior high school graduates and the presence of respondents who do not attend school further strengthen their tendency to be involved in informal sector work.

The results of the study showed that there was a relationship between personal hygiene and the incidence of skin disease symptoms in scavengers at the Putri Cempo Landfill in Surakarta. From the results of the study, it is known that as many as 114 (70%) scavengers at the Putri Cempo Surakarta Landfill experience symptoms of skin diseases. Scavengers who have poor personal hygiene are 97 respondents, most of whom experience symptoms of skin diseases, namely as many as 78 (80.4%) respondents while 19 (19.6%) other people do not experience these symptoms. This shows that poor personal hygiene has contributed to the appearance of skin disease symptoms in scavengers. Based on the results of the interviews, the scavengers revealed that the most often felt itching complaints are located on the palms, backs of the hands, and between the fingers. These findings are in line with researchers in 2021 who showed that skin diseases of natural workers are felt on the palms of the hands, the backs of the hands, and between the fingers [17]. These areas are the main contact points that are most vulnerable to exposure to irritants and microorganism accumulation due to suboptimal individual hygiene**.**

Continuous exposure to garbage containing bacteria, fungi, and irritants without being followed by good skin hygiene can damage the skin's protective layer. As a result, the skin becomes more susceptible to irritation and infection. This condition explains why most of the scavengers with poor skin hygiene in this study experienced symptoms of skin diseases. However, the results of the study also show that there are scavengers with poor skin hygiene but do not experience symptoms of skin diseases. This indicates that the appearance of skin disease symptoms is not only influenced by skin hygiene alone, but also by other factors such as individual immunity, length of work exposure, and differences in skin sensitivity. In addition, the use of simple personal protective equipment and the habit of cleansing the body even though it is not optimal can help reduce the risk of skin disorders [18]. Complaints of common skin disorders are suffered in scavengers considering that the activities and work of scavengers do require direct contact with waste. However, the education and health facilities available are not facilitated for scavengers. This is of particular concern because risky work is not balanced with adequate services and education can lead to an increase in the potential for health problems in scavengers [19].

Among respondents who had good personal hygiene, namely 65 respondents, 36 (55.4%) respondents experienced few symptoms of skin diseases while 29 (44.6%) other respondents did not experience symptoms of skin diseases. This condition shows that good skin hygiene tends to provide protection against the appearance of symptoms of skin diseases. Scavengers who maintain skin hygiene through regular bathing and cleansing after work have a lower risk of developing skin disorders. However, the discovery of scavengers with good skin hygiene but still experiencing symptoms of skin diseases shows that skin hygiene

alone is not completely able to prevent skin diseases. Factors in the highly polluted working environment at landfills as well as long-term exposure to pathogenic chemicals and microorganisms remain significant risks.

The results of statistical analysis using the Chi-Square test showed a p-value of 0.028 which was smaller than the significance value of <0.05. These results show that there is a significant relationship between personal hygiene and the appearance of skin disease symptoms in scavengers at the Putri Cempo Landfill in Surakarta. Thus, it can be concluded that the implementation of poor personal hygiene has a real impact on the increased risk of skin health problems for scavengers. The results of this study are in line with the environmental health theory that personal hygiene, especially skin hygiene, is the main prevention factor for skin diseases in people who work in high-risk environments. This finding is also supported by research by Afza (2021) which reported a significant relationship between personal hygiene and skin symptoms in scavengers at the final disposal site in Medan Marelan District (p = 0.0001) [20].

Based on results Observations in field found that most of the scavengers at the Putri Cempo Surakarta Landfill do not pay attention to personal hygiene, such as rarely washing their hands using soap, not cutting their nails once a week, using toiletries such as soap and towels together, and often using work clothes that are not changed every day. A similar thing was also reported in 2020, that poor personal hygiene can be caused by a lack of attention in maintaining personal hygiene, such as changing work clothes every day, taking a shower immediately after work, washing hands and feet with soap after work, and clean gloves while working [21].

Basically, personal hygiene that is considered includes various aspects, one of which is skin hygiene. Skin hygiene is the main factor that can cause skin diseases. Poor personal hygiene can have psychological and physical impacts on a person. The physical impact that can be experienced by a person is disorders or complaints in the form of symptoms of skin diseases such as itching, reddish-looking skin, heat, and others [22]. Hygiene is the process of cleaning the environment from all pathogens that can cause Diseases [23]. Hygiene is also one of the disease prevention that focuses on individual health businesses and the environment. Poor personal hygiene can lead to diseases such as infectious diseases [24]. In addition to personal hygiene, working time and working time per day can affect the onset of skin disease symptoms in the sludge at the Putri Cempo Landfill in Surakarta. Working period and working time per day can be an indicator of how long a person is exposed, so it can cause symptoms related to skin diseases. The respondents with the most working hours in scavengers were 1-5 years (12%) and >5 hours per day (88%). Other research also reports that working long hours can be detrimental to health and prone to different types of health complaints [25].

V. CONCLUSION

Research Research conducted at the Putri Cempo Landfill in Surakarta showed that out of a total of 162 respondents, it was found that as many as 114 scavengers (70%) experienced symptoms of skin diseases such as itching, rashes, and irritation. This high number is closely related to poor personal hygiene conditions, where 80.4% of the group with poor hygiene suffers from skin disorders compared to only 55.4% in the group with good hygiene. The results of statistical analysis using the Chi-Square test showed a significant relationship between personal hygiene and symptoms of skin diseases in scavengers (p value = 0.028 < 0.05). Along with the poor implementation of personal hygiene, the risk of skin disease symptoms also tends to increase. However, this study has limitations because it uses a cross-sectional design and a limited number of samples (162 people) so it is not able to describe the long-term health impact comprehensively. Therefore, improvements are recommended through good prevention and personal hygiene education measures and the provision of occupational health support facilities. Researchers are further expected to involve a larger sample and longitudinal approach to see more definite cause-and-effect relationships and get a more comprehensive picture of disease risk in informal sector workers.

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