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THE RELATIONSHIP BETWEEN HANDWASHING WITH SOAP BEHAVIOR AND SKIN COMPLAINTS AMONG WASTE MANAGEMENT WORKERS AT KALIABU LANDFILL

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ABSTRACT

Waste management workers are exposed daily to waste, dirty water, dust, microorganisms, and other materials that may contribute to skin complaints. Handwashing with soap and running water is an important hygiene behavior that can reduce contaminants on the hands. This study aimed to determine the relationship between handwashing with soap (CTPS) behavior and skin complaints among waste management workers at Kaliabu Landfill, Mejayan District, Madiun Regency. This analytical observational study used a cross-sectional approach. The population consisted of 60 waste management workers and 52 respondents were selected using simple random sampling. Data were collected using questionnaires and analyzed using the Chi-Square test. The results showed that 34 workers (65.4%) had poor CTPS behavior and 18 workers (34.6%) had good CTPS behavior. Overall, 36 workers (69.2%) reported skin complaints and 16 workers (30.8%) did not. Among workers with poor CTPS behavior, 31 (59.6%) experienced skin complaints and 3 (5.8%) did not. Among workers with good CTPS behavior, 5 (9.6%) experienced skin complaints and 13 (25.0%) did not. The Chi-Square test showed p = 0.000, indicating a significant relationship between CTPS behavior and skin complaints. The odds ratio was 26.867 (95% CI: 5.584–129.274), indicating substantially higher odds of skin complaints among workers with poor CTPS behavior. Strengthening handwashing facilities, education, and routine CTPS practices after work and before eating is recommended.

Keywords: "handwashing with soap; CTPS; skin complaints; waste management workers; landfill"

INTRODUCTION

Waste management workers are exposed to various health hazards because they have direct contact with waste and the surrounding work environment. This exposure may increase the risk of health problems, including skin complaints such as itching, redness, irritation, rashes, and dry or scaly skin. Therefore, maintaining personal hygiene is an important preventive measure for protecting the health of waste management workers.

One important aspect of personal hygiene is handwashing with soap (CTPS). Handwashing with soap and running water helps remove dirt, contaminants, and microorganisms from the hands. For waste management workers, hand hygiene is particularly important because their hands may come into direct contact with waste and contaminated materials. Handwashing should be performed at important times, including after work, before and after eating, and after urination or defecation.

Poor handwashing behavior may allow contaminants to remain on the hands and potentially contribute to skin problems. Previous research has shown a relationship between personal hygiene and skin complaints among waste workers. However, information regarding the relationship between handwashing with soap behavior and skin complaints among waste management workers at Kaliabu Landfill is still limited. This provides a rationale for conducting the present study.

Therefore, this study aimed to determine the relationship between handwashing with soap behavior and skin complaints among waste management workers at Kaliabu Landfill, Mejayan District, Madiun Regency.

MATERIALS AND METHODS

This study used an analytical observational design with a cross-sectional approach. The research was conducted among waste management workers at Kaliabu Landfill, Mejayan District, Madiun Regency, in August 2026. The population consisted of 60 active waste management workers. A total of 52 workers were

selected as respondents using simple random sampling. Inclusion criteria were active workers at Kaliabu Landfill, willing to participate, and still working during data collection. Exclusion criteria included workers who refused to participate, withdrew, or were absent during data collection.

Data were collected through interviews and questionnaires. CTPS behavior was measured using four items covering washing hands with soap and running water, washing hands before and after eating, after urination or defecation, and before and after working at the landfill. CTPS behavior was categorized as poor when fewer than two categories of statements were met and good when at least two categories were met. Skin complaints were assessed using five questions regarding itching, redness/irritation/rash, bumps, dry/cracked/scaly skin, anduncomfortable sensations such as burning or pain during or after work. The questionnaire had been subjected to validity and reliability testing before use.

Data processing included editing, coding, entry, tabulation, and cleaning. Univariate analysis was used to describe CTPS behavior and skin complaints. Bivariate analysis was conducted using the Chi-Square test with a significance level of $\alpha = 0.05$. The odds ratio (OR) and 95% confidence interval (CI) were also presented to describe the strength of the association.

RESULTS AND DISCUSSION

1. Respondent Characteristics

Table 1 Respondent characteristics of waste management workers at Kaliabu Landfill

Characteristics	Category	n	%
Sex	Male	41	78.8
	Female	11	21.2
Age	18–27 years	3	5.8
	28–37 years	13	25.0
	38–47 years	4	7.7
	48–57 years	16	30.8
	58–67 years	13	25.0
	68–80 years	3	5.8
Education	No schooling	2	3.8
	Elementary/MI	17	32.7
	Junior high/MTs	13	25.0
	Senior high/vocational (SMA/SMK)	20	38.5
	Higher education	0	0.0
Work duration	<6 years	9	17.3
	>6 years	43	82.7

Source: Primary Data, 2026

The study involved 52 waste management workers at Kaliabu Landfill, Mejayan District, Madiun Regency. The respondents were predominantly male, with 41 workers (78.8%), while 11 (21.2%) were female. The largest age group was 48–57 years, consisting of 16 workers (30.8%). In terms of education, the largest proportion had completed senior high school/vocational school (SMA/SMK), with 20 workers (38.5%). Most respondents had worked for more than 6 years, namely 43 workers (82.7%).

2. CTPS Behavior and Skin Complaints

The study involved 52 waste management workers. Based on the questionnaire results, 34 workers (65.4%) had poor CTPS behavior, while 18 workers (34.6%) had good CTPS behavior. In total, 36 workers (69.2%) reported skin complaints and 16 workers (30.8%) did not report skin complaints.

Table 2 Relationship between CTPS behavior and skin complaints among waste management workers at Kaliabu Landfill

CTPS behavior	Skin complaints, n (%)	No skin complaints, n (%)	Total, n (%)
Poor	31 (59.6)	3 (5.8)	34 (65.4)
Good	5 (9.6)	13 (25.0)	18 (34.6)
Total	36 (69.2)	16 (30.8)	52 (100.0)

Source: Primary Data, 2026

The distribution shows that skin complaints were more common among workers with poor CTPS behavior. Of the 34 workers with poor CTPS behavior, 31 (59.6%) experienced skin complaints, whereas only 3 (5.8%) did not. Among the 18 workers with good CTPS behavior, 5 (9.6%) experienced skin complaints and 13 (25.0%) did not. This pattern indicates a clear difference in the proportion of skin complaints between the two CTPS groups.

3. Relationship between CTPS Behavior and Skin Complaints

The Chi-Square analysis produced $p = 0.000$, which is lower than $\alpha = 0.05$. Therefore, statistically, there was a significant relationship between CTPS behavior and skin complaints among waste management workers at Kaliabu Landfill. The odds ratio was 26.867 with a 95% CI of 5.584–129.274. Thus, workers with poor CTPS behavior had 26.867 times higher odds of experiencing skin complaints than workers with good CTPS behavior. The wide confidence interval should be considered when interpreting the magnitude of the association, but the lower limit remains above 1 and the statistical test indicates a significant relationship.

Table 3 Relationship between CTPS behavior and skin complaints among waste management workers

CTPS Behavior	Skin complaints n (%)	No skin complaints n (%)	Total n (%)	p-value	OR (95% CI)
Poor	31 (59.6)	3 (5.8)	34 (65.4)	0.000	26.867 (5.584–129.274)
Good	5 (9.6)	13 (25.0)	18 (34.6)		
Total	36 (69.2)	16 (30.8)	52 (100.0)		

Source: Primary Data, 2026

The Chi-Square test showed $p = 0.000$ ($p < 0.05$), indicating a significant relationship between CTPS behavior and skin complaints. Workers with poor CTPS behavior had 26.867 times higher odds of experiencing skin complaints than workers with good CTPS behavior (95% CI: 5.584–129.274).

This finding is consistent with the concept that hands are a frequent route for contact with dirt and contaminants. Waste management workers are exposed to waste, dust, dirty liquids, and microorganisms, so inadequate handwashing may leave contaminants on the hands for longer periods. CTPS using soap and running water can help remove dirt and contaminants and reduce the opportunity for these materials to remain on the skin.

The findings are also in line with previous literature cited in the thesis. Examined handwashing habits in relation to dermatitis among cleaning service workers, while discussed the relationship between personal hygiene and skin disease among waste collectors. Other studies among waste workers have reported associations between hygiene-related behaviors and skin complaints, supporting the importance of personal hygiene in occupational skin health.

The result can also be understood within the behavioral component of the H.L. Blum framework used in the study. CTPS is a behavior that may influence exposure to contaminants. When workers do not wash their hands adequately at important times, contaminants acquired during waste handling may remain on the hands and increase the opportunity for skin irritation or infection. Conversely, consistent CTPS may reduce the amount of contaminants remaining on the hands. However, because this study used a cross-sectional design, the observed relationship should be interpreted as an association and not as proof of a causal relationship.

The practical implication is that CTPS should not only be encouraged as a general hygiene message but should be supported by accessible facilities and routine workplace practices. Workers should wash their hands with soap and running water after completing waste-handling activities and before eating, and should maintain hand hygiene after using the toilet. Education should emphasize that itching, redness, rash, or other skin complaints should not simply be considered a normal consequence of working with waste. Early attention to symptoms may help prevent more persistent problems.

CONCLUSION

There was a significant relationship between handwashing with soap (CTPS) behavior and skin complaints among waste management workers at Kaliabu Landfill, Mejayan District, Madiun Regency. The Chi-Square test showed a p-value of 0.000 ($p < 0.05$), indicating a statistically significant relationship. Workers with poor CTPS behavior had 26.867 times higher odds of experiencing skin complaints than workers with good CTPS behavior, with a 95% confidence interval of 5.584–129.274. Therefore, improving CTPS behavior among waste management workers is important as part of efforts to reduce skin complaints.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest related to the research, authorship, or publication of this article.

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