The Relationship between Knowledge and Personal Hygiene Behavior of Scavengers at the Putri Cempo Landfill Surakarta

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Abstract.
The high generation of waste in Indonesia, especially in the city of Surakarta, as well as suboptimal management has the potential to cause environmental pollution and increase the risk of health problems, especially in vulnerable groups such as scavengers at the Putri Cempo Landfill. This study aims to determine the relationship between knowledge and personal hygiene behavior in scavengers at Putri Cempo Landfill Surakarta with an observational design and this cross sectional approach has been carried out in February 2026. The research population was 287 scavengers, with a sample of 162 respondents taken using the purposive sampling technique. The results were obtained through primary data collected using a questionnaire that has been tested for validity and reliability and equipped with observational data. Data analysis was carried out univariate and bivariate using the Chi-Square test with a significance level of $p < 0.05$. The results showed that in the group of scavengers with low knowledge, most (56.2%) had poor personal hygiene behavior, while in the group with high knowledge, the majority (66.3%) had good personal hygiene behavior. The results of the Chi-Square test found that there was a significant relationship between knowledge and personal hygiene behavior in scavengers at the Putri Cempo Landfill Surakarta ($p = 0.007$). The conclusion of the research is the need to educate the scavenger community to increase personal hygiene knowledge and maximize the provision of sanitation facilities around the landfill.

Keywords: *Knowledge, Behavior, Personal Hygiene and Scavengers.*

I. INTRODUCTION

Waste that is not managed properly will have a direct impact on health and environmental problems such as air pollution, soil and polluting the surrounding water sources [1]. The country of Indonesia with waste production reaching around 108,489 tons/day faces serious challenges in managing waste efficiently and sustainably [2]. Nationally, Central Java Province is one of the regions with the most waste generation in Indonesia [3]. Based on reports that the total waste generation in this province reaches more than 3.4 million tons per year, the city of Surakarta itself is recorded as a contributor to waste with a volume of around 143,696-tons in 2024 which is dominated by household waste [4]. According to [5], The Landfill is a waste management location designed to dispose of waste in a regular manner, by controlling the emission of gases, leachate and other solid materials so that it does not cause pollution to the surrounding environment. Local governments have an obligation to manage waste properly and correctly in each administrative area with the aim of improving environmental quality and public health [6].

Surakata City has the Putri Cempo Landfill located in Mojosongo Village, Jebres District, and has been operating since 1986 [7], with a waste receiving capacity of around 300-tons from the city of Surakarta and its surroundings. The existence of this landfill is also used by the surrounding community as a source of livelihood, such as scavengers and collectors of used goods [8]. However, these activities have a high risk to health, because scavengers are faced with daily sharing types of waste that have the potential to cause health problems, such as hives, coughs, and shortness of breath [9]. According to [10], personal hygiene is related to individual hygiene practices that play an important role in disease prevention. Personal hygiene which includes the cleanliness of the skin, hair, teeth, eyes, ears, as well as hands, feet, and nails is an important factor in maintaining health [11]. Research from [12] It shows that the level of knowledge of sanitation workers, including understanding of occupational health risks, has a significant relationship with occupational health practices or personal hygiene, where better knowledge contributes to better hygiene behavior.

Based on a preliminary study conducted on the head of the association and several scavengers at the Putri Cempo Landfill in Surakarta, information was obtained that education on the practice of maintaining personal hygiene had been delivered by health workers. However, some scavengers have not implemented good personal hygiene practices, as shown by not wearing personal protective equipment such as glovers and masks while working, not washing their hands before and after eating, not regularly cutting their nails, and not doing regular dental health checks. In addition, the limited sanitation facilities are also an obstacle, where facilities such as sinks and bathrooms are only available in the entrance and exit areas of the landfill. Therefore, the author is interested in analyzing the relationship between knowledge and personal hygiene behavior in scavengers at the Putri Cempo Landfill in Surakarta.

II. METHODS

This research is a type of quantitative research with an analytical observational research design through a cross sectional approach. The research has been conducted in February 2026 with a population of 287 scavengers at the Putri Cempo Landfill and a sample of 162 respondents taken using the purposive sampling technique. The results were obtained through primary data collected using a questionnaire after being tested for validity and reliability and supplemented with observational data. The research instrument is in the form of a questionnaire that has been tested for validity and reliability so that it is suitable for use. Data analysis was carried out univariate to describe the characteristics of respondents and bivariate using the Chi-Square test to determine the relationship between the level of knowledge and *personal hygiene behavior* with a significance level of $p < 0.05$.

III. RESULT AND DISCUSSION

Research Results

The Putri Cempo Surakarta Landfill is considered a suitable location for the implementation of research because it is the main waste management center that involves direct scavenger activities. Before conducting the research, the researcher first applied for permits to the Surakarta City Health Office, the Surakarta City Environmental Office, and the manager of the Putri Cempo Landfill as a form of compliance with administrative procedures. The frequency of field visits is 4–5 times a week, with the number of respondents obtained around 6–8 people every day. Data collection activities were carried out from morning to noon to adjust the work activities of scavengers at the research site. Respondents who are willing to participate voluntarily without any coercion are asked to fill out an informed consent, then continue by filling out a questionnaire.

Table 1. Frequency Distribution of Respondent Characteristics

Characteristics of Respondents	Quantity (n)	Percentage (%)
Gender		
Male	73	45.1
Women	89	54.9
Age		
Adult (18-59)	155	95.7
Senior (> 60)	7	4.3
Education Level		
No school	16	9.9
Elementary School/equivalent	63	38.9
Junior High School/Equivalent	63	38.9
High School/Equivalent	20	12.3
Tenure		
1-10	140	86.4
>10	22	13.6
Working Hours		
1-5	20	12.3
>5	142	87.7
Total	162	100,0

Source: Primary Data, 2026

This demographic characteristic illustrates that the research sample of 162 respondents, the majority of whom are women, as many as 89 people (54.9%) who are in the age group of 18-19 years, namely 155 people (95.6%) with the education level of elementary and junior high school graduates of 63 people (38.9 each), accompanied by the dominance of 1-10 years of service period of 1-10 years as many as 140 people (86.4%) who show relatively short work experience and have a high work intensity due to the respondents The majority worked more than 5 hours/day, namely 142 people (87.7%).

Table 2. Distribution of Respondent Frequencies Based on Personal Hygiene Knowledge and Behavior

Characteristic	Quantity (n)	Percentage (%)
Knowledge		
Low	73	45.1
Height	89	54.9
Personal Hygiene Behavior		
Bad	71	43.8
Good	91	56.2

Based on a total of 162 respondents, most of them had knowledge in the high category as many as 89 people (54.9%), and the majority showed good personal hygiene behavior as many as 91 people (56.2%). However, the results of the item-by-item analysis on the knowledge questionnaire showed that questions number 6 and number 8 had the highest error rates, with 128 and 124 respondents answering incorrectly, respectively, where respondents still did not understand well the frequency of brushing their teeth properly as well as actions that were not recommended such as rubbing their eyes when itching. Meanwhile, in the personal hygiene behavior questionnaire, statement number 4 showed that as many as 56 respondents never had a routine dental check-up every six months at the nearest health service facility, and in statement number 5 there were 47 respondents who did not clean their eyes using clean water when exposed to dust or foreign objects.

Table 3. The Relationship between Knowledge and Personal Hygiene Behavior in Scavengers

Knowledge	Personal Hygiene Behavior				Total		P Value
	Bad		Good				
	n	%	n	%	N	%	
Low	41	56.2	32	43.8	73	100	0.007
Height	30	33.7	59	66.3	89	100	

The results of the bivariate analysis of the relationship between knowledge and personal hygiene behavior from 73 respondents, the majority of 41 respondents (56.2%) with low category knowledge had poor personal hygiene behavior. Meanwhile, of the 89 respondents, the majority of 59 respondents (66.3%) with high category knowledge had good personal hygiene behavior. The results of the statistical test with *the chi-square test* obtained a p-value of 0.007 (< 0.05) where H0 is rejected, meaning that there is a relationship between knowledge and personal hygiene behavior in scavengers.

IV. DISCUSSION

The research was conducted at the Putri Cempo Landfill in Surakarta with a total of 162 respondents, where waste sorting activities at the research site tended to be more carried out by women with an age range of 18–59 years. The relatively low level of education of the respondents, indicated by the dominance of primary and junior high school graduates, as well as the presence of respondents who did not attend school, further strengthened their tendency to be involved in informal sector work. This is in line with the characteristics of informal sector jobs that do not require special skills and have flexibility in working hours, making them more accessible to the group [13]. In addition, the respondents' working period was mostly in the range of 1-10 years and the majority of respondents' working period was more than 5 hours/day, indicating a high intensity of exposure to the work environment which is at risk of being vulnerable to health problems if not followed by the proper implementation of personal hygiene. In line with research by [14] the working period is related to complaints of skin diseases in scavengers at the Bangkonol Pandeglang Landfill.

The knowledge in this study is interpreted as the ability possessed by scavengers in understanding personal hygiene such as the goals, benefits of personal hygiene as well as the application of personal hygiene in daily life. Based on the results of the analysis of 162 respondents at the Putri Cempo Landfill in Surakarta, the majority have high knowledge, namely 89 respondents (54.9%) were supported by the results of the answers to the reponden's questions where scavengers have understood the importance of personal hygiene, the importance of changing clothes regularly and maintaining skin and eye hygiene. However, there are still many questions with quite a lot of errors, such as the minimum frequency of brushing your teeth in a day and the habit of rubbing your eyes when itching. The frequency of brushing your teeth should ideally be done three times a day [15], while the habit of rubbing the eyes when itching is not recommended because it can cause damage to the cornea of the eye [16].

The majority of scavengers' personal hygiene behavior was in the good category, namely 91 people (56.2%) which was strengthened by the respondents' statement answers where scavengers had practiced personal hygiene behaviors such as: immediately take a shower after work, immediately wash clothes after work, immediately wash hands and feet after work and routinely cut nails (hands and feet). Observations in the field also show that most of the scavengers use Personal Protective Equipment (PPE) including masks, gloves, boots and hats/head protectors. However, there are practices that have not been fully carried out by scavengers, namely checking their teeth regularly (once every 6 months) at the nearest health facility and cleaning their eyes with clean water if exposed to dust. Scavengers still consider that checking teeth is not very important and is only done when there are dental health disorders/problems, besides that the limited clean water at the work site is also the reason why scavengers do not clean their eyes when exposed to dust. [17] Explains that regular visits to the dentist have a relationship with individual behavior in maintaining oral and dental health. In addition, cleaning the eyes with clean water has been shown to be effective in removing foreign particles and reducing irritation and pain in the eyes [18].

The results of the analysis of the relationship between knowledge and personal hygiene behavior in scavengers showed that the group with low knowledge tended to have poor personal hygiene behavior (56.2%) and in the group with high knowledge, the majority of respondents had good personal hygiene behavior (66.3%). A statistical test with Chi Square showed a p value of 0.007 (<0.05) indicating a significant relationship between knowledge and personal hygiene behavior in scavengers at the Putri Cempo Landfill in Surakarta. Lawrence Green's theory says that knowledge is categorized as a predisposing factor that plays a major role in the formation of a behavior [19]. This is because knowledge is the rational basis for an individual to understand the action that needs to be done, the right time to do it, and the important reason behind the action. These findings are in line with research [20] who reported a correlation between the knowledge score and personal hygiene practice ($p<0.001$), knowledge was related to practice even though there was a gap between the declared knowledge and direct observation. Similar research on the food handling group also reinforced the importance of knowledge and attitudes as predisposing factors in shaping personal hygiene behaviors. [21] stating that there is a relationship between knowledge and personal hygiene behavior of food handlers in the household industry of shredded products (p value 0.020). These findings confirm that knowledge is consistently related to personal hygiene behaviors in the worker group.

Knowledge of personal hygiene plays an important role as a predisposing factor that shapes personal hygiene practices among scavengers. The results of field research show that there is a meaningful relationship between the level of knowledge and personal hygiene practices, where scavengers with better knowledge tend to show more optimal hygiene behavior, thereby reducing the risk of exposure to pathogens and skin diseases in a highly contaminated landfill environment [22]. However, the limitation of possible factors, such as sanitation facilities and access to clean water, is often an obstacle to the optimal implementation of these practices [23]. Therefore, landfill managers need to provide supporting facilities such as the addition of sanitation facilities to encourage behavior change while protecting the health of scavengers as a vulnerable group of informal workers. Community-based interventions through health education/counseling on personal hygiene also need to be carried out to increase the knowledge of scavengers [24], [25] In his research, it was stated that there was an increase in knowledge in cadres group after being given counseling.

V. CONCLUSION

The results obtained from this study show that there is a relationship between knowledge and personal hygiene behavior in scavengers at the Putri Cempo Landfill in Surakarta. Respondents with high knowledge tended to show better personal hygiene behavior compared to respondents with low knowledge. Observations in the field also show that the availability of sanitation facilities such as bathrooms and sinks is still limited. Therefore, efforts to increase knowledge through education related to personal hygiene and the provision of sanitation facilities in the landfill environment are needed to support the implementation of clean and healthy living behaviors optimally.

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