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THE RELATIONSHIP BETWEEN KNOWLEDGE, ATTITUDE, AND LATRINE OWNERSHIP AND OPEN DEFECATION BEHAVIOR IN KEBAGUSAN SUBDISTRICT, PASAR MINGGU

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ABSTRACT

The Relationship Between Latrine Ownership and Open Defecation Behavior in Kebagusan Subdistrict, Pasar Minggu. *According to the Weekly Epidemiological Record (2013), Indonesia ranked second in the world in terms of the number of people practicing open defecation. In 2019, approximately 20.44% of households in Indonesia did not have a septic tank for final fecal disposal. The Kebagusan subdistrict in the Pasar Minggu area reported an open defecation prevalence of 7.68%. This study applied a quantitative analytical method using a cross-sectional approach. Samples were selected through purposive sampling, involving a total of 179 respondents. The statistical analysis used the Chi-square test (X^2), and data were presented in narrative form, tables, and pie diagrams. The most represented age group among respondents was 31–45 years (41.9%). The respondents' highest levels of education were as follows: senior high school (48.6%), elementary school (17.3%), junior high school (16.8%), higher education (14.0%), and did not complete elementary school (3.4%). A total of 74.9% of respondents were in the low-income category. Most respondents had private latrines (87.7%), followed by those without latrines (10.6%), and those who shared latrines (1.7%). Open defecation behavior was reported by 43.6% of respondents. In terms of knowledge, 50.8% of respondents were categorized as having good knowledge, while 52.5% exhibited negative attitudes.Statistically significant associations were found between age, knowledge, and latrine ownership with open defecation behavior (p = 0.000; p = 0.033; p = 0.000, respectively). It can be concluded that open defecation behavior in the Pasar Minggu subdistrict community is influenced by being within the productive age group and having low education levels. Another contributing factor is the high number of latrine owners, although one-third of them did not have septic tanks.*

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INTRODUCTION

Environmental health efforts are aimed at creating a healthy environmental quality, as stated in the Health Law No. 36 of 2009. A healthy environment includes sanitation facilities, access to safe drinking water in residential areas and housing, and hygiene facilities in public places such as hotels, schools, public facilities, food processing locations, and healthcare facilities. A

healthy environment must be maintained both under normal conditions and during emergencies such as natural disasters.[1]

There are two main factors that influence a person's health: internal and external factors. Internal factors originate from within the individual, while external factors come from the surrounding environment. Hendrik Blum (1974) stated that there are four main factors and their respective contributions that affect the health of individuals, groups, and communities: (1) environmental factors (40%), (2) behavioral factors (30%), (3) health service factors (20%), and (4) genetic/hereditary factors (10%).[2] It can be seen that environmental factors make the largest contribution to health status, as the environment is the main point of interaction with humans. Examples include access to improved latrines, clean water, sanitation in public places, hazardous waste management, waste disposal, air pollution, and so on.[3]

The Ministry of Health, through the Directorate of Environmental Health, has set a target of 90% of villages/subdistricts achieving Open Defecation Free (ODF) status by 2024, up from 60% in 2022.[1]In 2022, open defecation (OD) practices still occurred in 5.86% of the population, with 19 provinces exceeding the national average. Papua reported the highest rate (25%), followed by Central Sulawesi (15.45%) and Aceh (13.41%).[1]

Efforts to address the issue have been implemented through the STOP OD program and the Community-Based Total Sanitation (STBM) initiative.[4] Indonesia ranks as the second-worst country in the world in terms of sanitation, following India, due to the high prevalence of open defecation.[5] In contrast, neighboring countries such as Singapore and Malaysia have achieved sanitation coverage rates above 90%.[5] Poor sanitation contributes to a higher risk of disease, requiring continuous efforts in public sanitation promotion and healthy behavior campaigns. As of 2015, approximately 62 million (53%) rural residents lacked access to adequate sanitation, and 34 million of them still practiced open defecation.[2] Behavioral change interventions have been carried out through the Community-Based Total Sanitation (STBM) program, which aims to transform hygiene and sanitation behavior using a triggering method. STBM consists of five pillars: Stop Open Defecation, Handwashing with Soap, Safe Drinking Water and Food Management, Solid Waste Management, and Household Wastewater Management. [2]

The "Stop Open Defecation" pillar is particularly crucial as it directly affects environmental and public health. [3] Open defecation refers to the practice of defecating in open spaces such as rivers, forests, or bushes instead of using latrines. This practice contaminates drinking water, food, and the environment because human feces contain pathogenic microbes, helminth eggs, and protozoan cysts, which can cause diseases such as diarrhea through the fecal–oral route.[3]

The success of the STBM program is measured by the number of villages implementing all five STBM pillars and achieving ODF (Open Defecation Free) status. [1] [3] [6]

According to the 2018 Basic Health Research (Riskesdas), the proportion of households in DKI Jakarta that safely managed child feces was 60.14%, while unsafe practices reached 39.86%. Safe feces disposal means using a toilet or disposing into a toilet, whereas unsafe disposal includes discarding feces anywhere or cleaning in inappropriate places, which falls under the category of open defecation. [7] In 2019, 20.44% of households in Indonesia did not have septic tanks for final fecal disposal.[8]In Pasar Minggu District, there are still no subdistricts that have been declared open defecation free. One such area, Kebagusan Subdistrict, reported the lowest percentage of ODF households in RW 3, with 92.32%, meaning 7.68% still practiced open defecation.[9]

Open defecation behavior is influenced by socio-cultural, economic, environmental, and demographic factors, as well as the availability and condition of sanitation facilities.[6] Widyanti (2018) stated that one of the main causes of open defecation is the absence of septic tanks, which are essential for preventing water and soil contamination. Latrines not connected to septic tanks are considered part of open defecation behavior. Communal septic tanks have been suggested as an effective solution to reduce this practice.[10]

Several studies support this view. Budiman et al. found that knowledge, attitudes, latrine ownership, and social interaction are associated with open defecation behavior.[11] Paladiang et al. added that economic status, attitudes, distance from home to river, and latrine ownership also play significant roles.[12] Meanwhile, Apriyanti et al. found that knowledge, attitudes, open defecation habits, and family support are related to latrine usage, although factors such as education level, income, support from health workers or community leaders, and access to clean water showed no significant association.[13]

This study aims to identify the factors contributing to open defecation behavior in the community, particularly knowledge, attitudes, and latrine ownership. Additionally, supporting data on respondent characteristics, including occupations in the Pasar Minggu District area, were also assessed.

MATERIALS AND RESEARCH METHODS

The research design employed in this study was a quantitative analysis using a cross-sectional approach. The study population consisted of residents of Kebagusan Subdistrict, Pasar Minggu District. The research was conducted from June to July 2022. Sampling was carried out using a non-probability sampling technique, specifically purposive sampling, resulting in a total of 179 respondents. The inclusion criteria included: residing in Kebagusan Subdistrict, being an adult, having a family, and willingness to participate as a respondent.

The data collection instrument used in this study was a questionnaire distributed via Google Forms. Univariate analysis was conducted descriptively to present the characteristics of the respondents and household latrine ownership. Bivariate analysis was performed to examine the relationship between independent variables and the dependent variable using the Chi-square (X^2) test. Data analysis was carried out using the Statistical Program for Social Science (SPSS) version 25. The results were presented in the form of narratives, tables, and pie charts.

RESEARCH RESULTS AND DISCUSSION

Univariate Analysis

The characteristics of the 179 respondents, including age, education, occupation, and income, are presented in Table 1 below.

Table 1. Characteristics of Respondents

Variable	N	%
Age		
18-30 years old	5	2,8%
31-45 years old	75	41,9%
46-60 years old	69	38,5%
>60 years old	30	16,8%
Occupation		100,0%
Unemployed	90	50,3%
PNS/ASN/TNI/POLRI	5	2,8%
Private Sector Employee	50	27,9%
Entrepreneur / Trader	14	7,8%
Community Health Volunteer	2	1,1%
Laborer	9	5,0%
Driver	2	1,1%
Motorcycle Taxi Driver	6	3,4%
Parking Attendant	1	0,6%

Education		
Did not complete elementary school	6	3,4%
Elementary School	31	17,3%
Junior High School	30	16,8%
Senior High School	87	48,6%
Tertiary Education	25	14,0%
Income	179	
Below the Provincial Minimum Wage (UMP) < IDR 4,600,000	134	74,9%
≥ Provincial Minimum Wage (IDR 4,600,000)	45	25,1%

Based on the data, the majority of respondents were in the productive age group (31–60 years), had an educational background of senior high school or below, and were predominantly unemployed or employed in the informal sector. This indicates a potential lack of access to information and understanding of health or sanitation issues, which may influence their behavior regarding the dependent variable, such as open defecation practices (OD). In addition, most respondents had incomes below the Provincial Minimum Wage (UMP), which may hinder their ability to provide adequate sanitation facilities. Factors such as education level, occupation, and income should be taken into consideration, as they have significant potential to influence attitudes and practices related to environmental health.

Table 2. Frequency Distribution of Latrine Ownership

Variable	N	%
Latrine Ownership		
No Latrine	19	10,6%
Private Latrine	157	87,7%
Shared Latrine	3	1,7%

Based on the frequency distribution of latrine ownership, the majority of respondents owned private latrines, totaling 157 individuals (87.7%), followed by those without latrines at 10.6%, and those using shared latrines at 1.7%.

Table 3. Frequency Distribution of Open Defecation Behavior

Variable	N	%
Open Defecation Behavior		
Does Not Practice Open Defecation	101	56,4%
Open Defecation (OD)	78	43,6%

Table 3 shows that the frequency distribution of open defecation behavior was 43.6%, while the proportion of respondents who did not practice open defecation was 56.4%.

Table 4. Frequency Distribution of Respondents' Knowledge

Variable	N	%
Knowledge of Open Defecation (OD)		
Good Knowledge	91	50,8%
Poor Knowledge	88	49,2%

Respondents' knowledge regarding open defecation was relatively balanced between the two categories. A total of 50.8% of respondents had good knowledge, while 49.2% had poor knowledge.

Table 5. Frequency Distribution of Respondents' Attitudes

Variable	N	%
Attitude Toward Open Defecation (OD)		
Negative Attitude	94	52,5%
Positive Attitude	85	47,5%

Based on respondents' attitudes toward open defecation, 52.5% exhibited a negative attitude, while 47.5% showed a positive attitude.

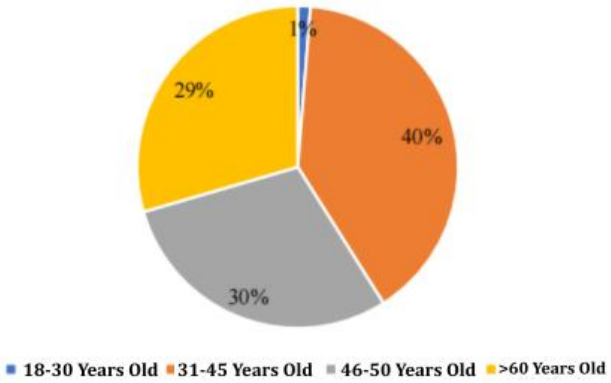

Figure 1. Percentage of Open Defecation Behavior by Age Group Variable

Figure 1 illustrates that within the 43.6% of respondents exhibiting open defecation behavior, the highest proportion was among the elderly, particularly those over 60 years old. This may reflect limited access to, or ability to use, adequate sanitation facilities, as well as potentially lower levels of knowledge or motivation to change. In contrast, younger age groups demonstrated significantly lower rates of open defecation behavior, possibly due to greater exposure to health information or better access to sanitation. Age appears to be an important factor influencing the dependent variable, particularly in relation to established habits and adaptability to healthy behaviors.

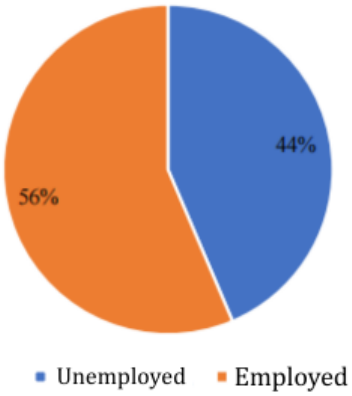

Figure 2. Percentage of 43.6% Open Defecation Behavior by Occupation Variable

The figure above shows that 43.6% of the percentage of open defecation behavior is based on the employment variable, with the largest proportion being the working group (56%) compared to the non-working group (44%).

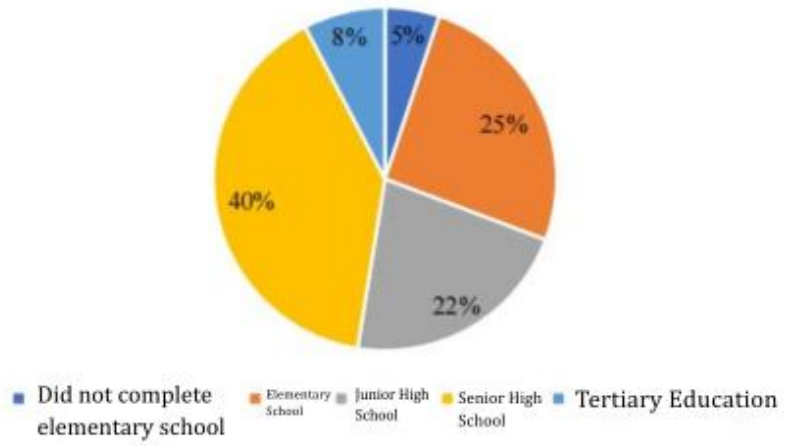

Figure 3. Percentage of 43.6% open defecation behavior based on the education variable.

Figure 3 shows that within the 43.6% percentage of open defecation behavior, the highest proportion is found in the high school education group (40%), followed by the elementary school education group (25%). The group with the lowest open defecation behavior is the higher education group (5%).

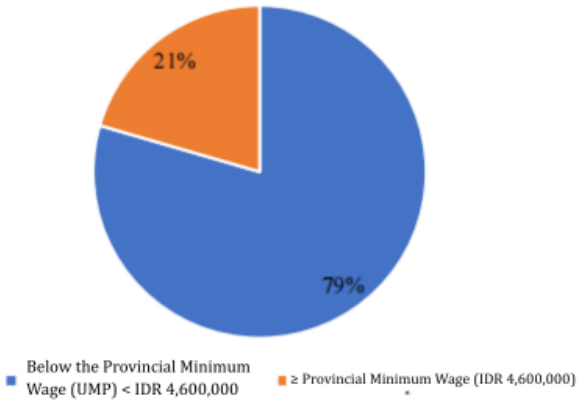

Figure 4. Percentage of 43.6% open defecation behavior based on the income variable.

The figure above shows that within the 43.6% percentage of open defecation behavior, the highest proportion is found in the income group below the regional minimum wage (UMP) at 74.9%, compared to the income group above the UMP (21%).

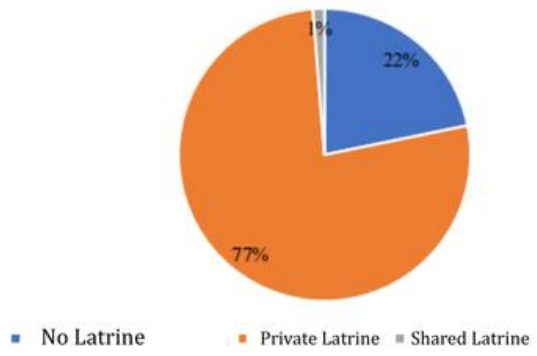

Figure 5. Percentage of 43.6% open defecation behavior based on latrine ownership.

The figure above shows that within the 43.6% percentage of open defecation behavior, the largest proportion is found in the group owning a private latrine at 77%, followed by the group without a latrine (22%). The smallest percentage comes from the group sharing a latrine (1%).

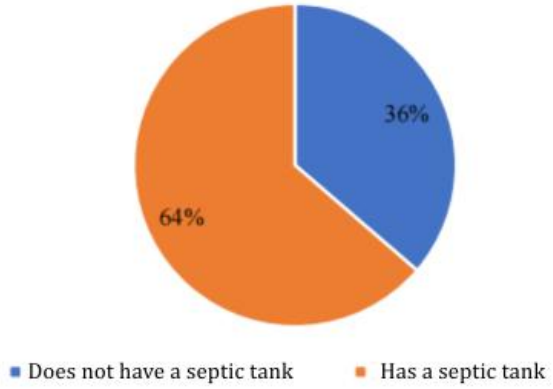

Figure 6. Percentage of 43.6% open defecation behavior based on septic tank ownership.

Figure 6 shows that within the 43.6% percentage of open defecation behavior based on septic tank ownership, among those who own a private latrine, 64% have a septic tank, while 36% of respondents do not have a septic tank.

Bivariate Analysis

Table 6. Bivariate Analysis of Characteristics with Open Defecation Behavior

Variable	Behavior				Total	p-value
	Does Not Practice Open Defecation		Open Defecation			
	n	%	n	%	N	
Age						
Non-productive.	7	3,9	23	12,8	30	**0,000***
Productive	94	52,5	55	30,7	149	
Occupation						
Unemployed	56	31,3	34	19	90	**0,116**
Employed	45	25,1	44	24,6	89	
Education						
Low	82	45,8	72	40,2	154	**0.033***
High	19	10,6	6	3,4	25	
Income						
Below the Provincial Minimum Wage (UMP) < IDR 4,600,000	72	40,2	62	34,6	134	**0,210**
≥ Provincial Minimum Wage (IDR 4,600,000)	29	16,2	16	8,9	45	

Regarding the age variable, the majority of respondents were in the productive age group and exhibited the behavior of not practicing open defecation, totaling 94 respondents (52.5%). The cross-tabulation test between age and open defecation behavior yielded a p-value of 0.000 ($p < 0.05$), indicating a significant relationship between age and open defecation behavior.
This finding contradicts the study conducted by Paladiang et al., which found no significant relationship between age and open defecation behavior.[12] Similarly, the study by Anggoro et

al. reported no association between age and open defecation behavior.[14] This difference arises because, although open defecation behavior does not discriminate by age, non-productive age groups tend to be more passive and less concerned with environmental cleanliness, often not owning a septic tank.

Table 6 also shows a significant relationship between respondents' education and open defecation behavior, with p = 0.033 (p < 0.05), where the majority of respondents with low education did not practice open defecation, totaling 82 respondents (45.8%). This result aligns with the study by Putra et al., which demonstrated a relationship between education and ownership of a healthy latrine.15 This can be understood because education is an important factor in one's ability to comprehend information, especially regarding health and the importance of a healthy latrine.

No significant relationship was found between occupation and income (economic status) with open defecation behavior, with p-values of 0.116 and 0.210, respectively (p > 0.05). The lack of association can be explained by the fact that some individuals who do not have a septic tank are not only constrained by financial factors but also by the absence of land to install a septic tank. This finding contradicts the studies by Putra et al., Giri et al., and Yulyani et al., which showed a significant relationship between economic status and ownership of a healthy latrine.[15,16,17]

The Relationship between Latrine Ownership and Open Defecation Behavior.

Table 6. Bivariate Analysis of Latrine Ownership and Open Defecation Behavior

Variabel	Behavior				Total	p-value
	Does Not Practice Open Defecation		Open Defecation			
	n	%	n	%	N	
Latrine Ownership						
No Latrine	2	1,1	17	9,5	19	**0,000***
Private or Shared Latrine	99	55,3	61	34,1	160	

The results of the study indicate that respondents' knowledge influences open defecation behavior. Respondents with good knowledge were less likely to practice open defecation compared to those with poor knowledge. Adequate knowledge enables individuals to understand the health risks of open defecation and the importance of proper sanitation.

Furthermore, attitude was also found to be associated with open defecation behavior. Respondents who exhibited a positive attitude toward clean and healthy living behavior were more likely not to engage in open defecation. A positive attitude reflects a readiness to behave in accordance with acquired knowledge, including the use of sanitation facilities.

In terms of latrine ownership, the majority of respondents who owned either a private or shared latrine did not practice open defecation, totaling 99 respondents (55.3%). The chi-square test yielded a p-value of 0.000 (p < 0.05), indicating a significant relationship between latrine ownership and open defecation behavior. This finding is consistent with studies by Paladiang et al. and Dwiana & Herawaty, which similarly demonstrated that ownership of sanitation facilities is closely related to open defecation behavior. It can be concluded that the availability of and access to sanitation facilities are key factors in preventing open defecation.

The Relationship Between Knowledge and Open Defecation Behavior

Table 7. Bivariate Analysis of Knowledge and Open Defecation Behavior

Variable	Behavior				Total	p-value
	Does Not Practice Open Defecation		Open Defecation			
	n	%	n	%	N	
Knowledge						
Poor knowledge	47	26,3	41	22,9	88	**0,424**
Good knowledge	54	30,2	37	20,7	91	

In the knowledge variable, the highest number of respondents were those with good knowledge and who did not practice open defecation, totaling 54 respondents (30.2%). The chi-square test yielded a p-value of 0.424 ($p > 0.05$), indicating that there was no significant relationship between knowledge and open defecation behavior. This finding is consistent with the study by Paladiang et al., which also reported that knowledge regarding open defecation was not associated with open defecation behavior.[12]

Conversely, this study contradicts the findings of Budiman et al. in Bandung and Apriyanti et al. in Brebes, which demonstrated a significant relationship between knowledge and open defecation behavior.[11] [13] These studies found that low knowledge regarding open defecation was associated with a higher prevalence of open defecation practices. The difference in results may be explained by the fact that in the present study, the absence of septic tanks among the population was not due to a lack of understanding about their importance or the risks of open defecation, but rather due to financial constraints or the unavailability of land for constructing septic tanks.

Research conducted by Putri and Notes in Sukasada Subdistrict, Buleleng Regency, as well as by Sukma et al. in Candisari Subdistrict, Semarang City, also revealed a significant relationship between knowledge and ODF (Open Defecation Free) status.[19] [20]

Knowledge about Open Defecation Free (ODF) practices is essential to instill in the community. One way to improve this knowledge is through health education. Therefore, the role of health workers in providing education is highly needed to ensure that information, particularly about ODF, is delivered accurately and effectively.[19] [21-27]

The Relationship Between Attitude and Open Defecation Behavior

Table 8. Bivariate Analysis of Attitude and Open Defecation Behavior

Variable	Behavior				Total	p-value
	Does Not Practice Open Defecation		Open Defecation			
	n	%	n	%	N	
Attitude						
Negative	50	27,9	44	24,6	94	**0,359**
Positifve	51	28,5	34	19	85	

In the attitude variable, the highest number of respondents were those with a positive attitude and who did not practice open defecation, totaling 51 respondents (28.5%). The chi-square test yielded a p-value of 0.359 ($p > 0.05$), indicating that there was no significant relationship between attitude and open defecation behavior.

This finding contrasts with the study by Apriyanti et al., which reported a significant relationship between attitude and latrine use behavior.[13] This is further supported by the study of Putra et al., which stated that attitude is one of the factors associated with the

ownership of a sanitary latrine.[15] Similarly, the research by Putri and Notes also revealed a significant relationship between respondents' attitudes and open defecation free (ODF) status in Ambengan Village, Sukasada Subdistrict, Buleleng Regency.[19]
The different findings in this study may be explained by the fact that the community does not lack awareness or concern about the dangers of open defecation, nor are they unwilling to build a septic tank; instead, the main obstacles are financial limitations and lack of land availability.

CONCLUSIONS AND RECOMMENDATIONS

This study shows that the prevalence of open defecation (OD) remains relatively high in the community of Kebagusan Subdistrict, Pasar Minggu District, with a prevalence rate of 43.6%. Based on the bivariate analysis, there was a statistically significant relationship between age, education level, and latrine ownership with open defecation behavior ($p < 0.05$). Respondents who were in the non-productive age group, had lower educational attainment, and did not own a latrine were at higher risk of practicing open defecation.
However, knowledge and attitude toward open defecation were not found to be significantly associated ($p > 0.05$) with open defecation behavior in this study. These findings indicate that even individuals with good knowledge and a positive attitude may not necessarily adopt appropriate practices, as environmental constraints—such as limited financial resources and land availability to build a septic tank—remain major barriers.
Employment status and income were also not significantly related to open defecation behavior, suggesting that economic factors alone are not the sole determinants of sanitation behavior within the community.

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