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Visitor behavior in littering at the tourist site of alun-alun Kidul Yogyakarta

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ABSTRACT
Waste is one of the contributing factors to environmental pollution, accompanied by a decline in the aesthetic quality of the environment. Municipal waste produced worldwide each year is not handled in an environmentally friendly manner. The amount of waste generated per person per day varies widely worldwide, averaging around 0.74 kilograms. Nationally, the issue of waste accumulation is quite high. According to the Ministry of Environment and Forestry (KLHK), Indonesia generated 30.8 million tons of waste in 2021 and 33.8 million tons of waste in 2022. The research objective is to identify the determining factors of visitors' behavior in littering at Alun-alun Kidul Jogja tourist site. The research adopts a quantitative approach with a cross-sectional design. The study population includes all visitors to Alun-alun Kidul Jogja aged over 17 years. The sample size is determined using the Cochran formula, resulting in a sample of 390 individuals. Sampling is conducted using the Accidental Sampling technique, encountering respondents at the research location. Data obtained are analyzed using descriptive statistics and bivariate analysis with the Chi-square test. The results indicate a relationship between age (P-value 0.000), knowledge (P-value 0.000), and attitude (P-value 0.000) towards littering behavior among tourists. However, there is no relationship between gender (P-value 0.132), education level (P-value 0.343), and facility adequacy (P-value 0.948) and littering behavior among tourists. There is a relationship between visitors' behavior in littering and age, knowledge about waste, and attitude towards littering. Therefore, there is a need to increase individual awareness regarding littering behavior, and individuals should be motivated to read and engage with environmental care promotions to avoid littering indiscriminately.

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INTRODUCTION

Waste is one of the factors contributing to environmental pollution, accompanied by a decline in the aesthetic quality of the environment. To date, many people are still unaware that improper waste disposal can have adverse effects on the environment. One example is

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tourist destinations, which should be beautiful and comfortable but may appear unkempt and unattractive due to scattered waste (Asamoah et al., 2022).

The World Bank (2023) estimates that 33 percent of the 2.01 billion tons of urban waste produced annually worldwide is not handled in an environmentally friendly manner. The amount of waste generated per person per day varies widely globally, averaging around 0.74 kilograms. Nationally, the issue of waste accumulation is significant. According to the Ministry of Environment and Forestry (KLHK), Indonesia generated 30.8 million tons of waste in 2021 and 33.8 million tons in 2022 (Kementerian Lingkungan Hidup dan Kehutanan, 2021, 2023).

The behavioral factors contributing to waste disposal can be traced through Lawrence Green's behavior theory, as cited by Notoatmodjo (2014). Green's factors influencing behavior include predisposing factors such as knowledge, attitude, age, beliefs, and values, regarding an individual's motivation to act. Enabling factors or supporting factors for behavior involve facilities, infrastructure, or amenities that facilitate an individual's or community's behavior. Lastly, reinforcing factors such as family, healthcare workers, and others play a role (Notoatmodjo, 2014).

One of Yogyakarta's flagship tourist destinations, Alun Alun Kidul, not only offers natural and cultural beauty but also witnesses the interaction between humans and the environment. Visitor behavior when disposing of waste at tourist destinations is a crucial aspect reflecting environmental awareness and personal social responsibility for the cleanliness and sustainability of the visited tourist destination. An individual's education can influence their waste management practices, as those with higher education levels tend to be more aware of the importance of waste management and may adopt more responsible practices (Fadhullah et al., 2022). Good knowledge helps visitors understand how to behave appropriately in the area, leading to more responsible waste disposal behavior.

Improper waste disposal by tourists can cause environmental issues such as groundwater or soil pollution. Therefore, it is crucial for destinations to have an efficient waste management system, including proper waste disposal facilities and clear signboards to encourage visitors to dispose of waste responsibly (Esfandiar et al., 2021). Research by Fanggidae & R. Bere, (2020) emphasizes the need to pay attention to waste disposal facilities to influence visitor behavior in waste disposal. One aspect of sufficient infrastructure facilities at tourist destinations is the availability of an adequate number of waste bins.

METHODS

The study was conducted using a quantitative approach with a correlational design (Sugiyono, 2018). This research employed a cross-sectional approach and aimed to identify the determinants of visitor behavior in disposing of waste at Alun-alun Kidul Jogja tourist destination. The study took place at Alun-alun Kidul Jogja from November to December 2023.

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The research population included all visitors to Alun-alun Kidul Jogja aged over 17 years. The sample size was determined using the Cochran formula, resulting in a sample of 390 individuals. The sampling technique used was Accidental Sampling, where respondents encountered at the research location were selected. This study includes four modified adoption questionnaires: knowledge, attitude, adequacy of facilities, and waste disposal behavior. All four questionnaires underwent validity assessment. The knowledge questionnaire has 24 valid statements, with a reliability score of 0.875. The attitude questionnaire contains 19 valid statements with a reliability score of 0.855. Meanwhile, the adequacy of facilities questionnaire has 15 valid claims with a reliability value of 0.847. Finally, the waste disposal behavior questionnaire has 20 valid statements and a reliability score of 0.903.

Data collection involved surveying visitors at Alun-alun Kidul Jogja using a questionnaire. The independent variables included age, gender, education level, knowledge, attitude, and adequacy of waste receptacle facilities. The dependent variable was the behavior of visitors in disposing of waste. The obtained data were analyzed using descriptive statistics and bivariate analysis with the Chi-square test.

RESULTS AND DISCUSSION

Based on the above table 1, it is evident that the majority of visitors consist of late teenagers (69.2%), with the majority being females (61.5%). Visitors with educational levels ranging from high school to college account for (93.6%), while the knowledge level reaches (57.9%) and positive attitudes amount to (51%). Additionally, the adequacy of provided facilities reaches (55.9%), and visitor behavior reaches (55.1%).

The table 2 above explains the relationship between age (P-value 0.000), knowledge (P-value 0.000), and attitude (P-value 0.000) toward littering behavior among tourists. There is no significant relationship, however, between gender (P-value 0.132), educational level (P-value 0.343), and facility adequacy (P-value 0.948) and tourists' littering behavior.

Table 1. Frequency Distribution of Visitor Behavior in Throwing Out Trash at the Alun-alun Kidul Jogja Tourist Attraction

Variables (n= 390)	Frequency (n)	Percentage (%)
Age		
Late Teenagers	270	69.2
Early Adulthood	120	30.8
Gender		
Man	150	38.5
Woman	240	61.5
Level of education		
Elementary-middle school	25	6.4
High School-College	265	93.6
Knowledge		

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Variables (n= 390)	Frequency (n)	Percentage (%)
Low	164	42.1
Tall	226	57.9
Attitude		
Negative	191	49
Positive	199	51
Adequacy of Facilities		
Not good	172	44.1
Good	218	55.9
Behavior		
Not good	175	44.9
Good	215	55.1

In this research, age exhibits a significant correlation with littering behavior, where older individuals tend to refrain from littering. This tendency may be attributed to the older age group having more personal experience in waste management and understanding its environmental impacts. They are also more cautious in disposing of waste. Conversely, teenagers are more easily influenced by their environment in terms of littering behavior (Zhang et al., 2023).

Field observations during the study revealed that many groups of teenagers gathered at Alun-alun Kidul. Some of these groups were influenced by their peers, leading to instances where one person littering prompted others to follow the same behavior. Consistent with previous research, it was found that respondents under 20 years old were more likely to litter paper and food wrappers compared to older adults (above 40 years old) (Freije et al., 2019)

Gender, in this study, does not display a significant relationship with littering behavior. Both males and females may differ in their approach to issues such as littering or recycling, but individual choices and concerns vary, and they do not necessarily depend on gender. Field research found that some visitors, both male and female, left litter while relaxing. Some littered in the field, while others disposed of it in designated bins. Additionally, there were instances of male visitors littering indiscriminately. According to Aziz's research, male visitors tended to litter more, especially in terms of cigarette butts and food packaging, due to a lack of belief in their negative environmental impact (Farage et al., 2024)

Educational level does not show a significant relationship with littering behavior in this study. Education level may influence visitors' behavior regarding littering at tourist sites. Visitors with higher education levels may be more conscious of the importance of cleanliness and the negative impact of indiscriminate littering. They might also be more educated about environmental responsibilities. The crucial element in higher education is the enhancement of students' understanding of the environment, playing a vital role in

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supporting human life (Yusuf & Fajri, 2022). This is also influenced by the education levels within the community (Debrah et al., 2021).

Table 2. Relationship between visitor behavior in throwing away rubbish at the Alun-alun Kidul Jogja tourist attraction

Independent Variable	N	Visitor behavior in throwing away rubbish				PR (CI 95%)	P-value
		Not good		Good			
		n	%	n	%		
Age							
Late Teenagers	270	101	37.4	169	62.3	0.372 (0.239-0.579)	0 . 000
Early Adulthood	120	74	61.7	46	38.3		
Gender							
Man	150	75	5 0.0	75	50.0	1,400 (0.929-2,110)	0 . 132
Woman	240	100	41.7	140	58.3		
Level of education							
Elementary-middle school	25	14	56.0	11	44.0	1,613 (0.713-3,648)	0 . 343
High School-College	365	161	44.1	204	55.1		
Knowledge							
Low	164	120	73.2	44	26.8	8,479 (5.35-13,432)	0 . 000
Stay	226	55	24.3	171	75.5		
Attitude							
Negative	191	130	68.1	61	31.9	7,293 (4,649-11,442)	0 . 000
positive	199	45	22.6	154	77.4		
Adequacy of Facilities							
Not good	172	78	45.3	94	54.7	1.035 (0.693-1.547)	0.948
Good	218	97	44.5	121	55.5		

Knowledge exhibits a significant relationship with littering behavior in this study. Knowledge about waste plays a crucial role in improving one's ability to manage waste properly. The field findings indicate that many visitors lack adequate knowledge, as some are unaware of the distinction between organic and inorganic waste or the potential for reuse. This aligns with Wati and Sudarti research (2022), emphasizing the importance of tourists' knowledge about waste to be aware of the consequences of indiscriminate littering, especially in tourist locations.

There is a significant relationship between visitors' attitudes and littering behavior at tourist sites in this study. Developing a positive attitude towards waste management among visitors is essential for maintaining cleanliness and sustainability at tourist destinations. However, field results show that many visitors, while relaxing and purchasing

food, generate plastic waste. Unfortunately, most of them lack the motivation to dispose of their waste properly, resulting in litter accumulation at Alun-alun Kidul due to insufficient environmental awareness.

Environmental concern, as an individual's assessment that drives actions to protect, manage, and utilize natural resources responsibly, guides individuals to behave wisely towards the environment (Deta Lustiyati et al., 2022). Positive attitudes play a significant role in guiding individuals to act responsibly towards the environment Krisyanti, Vos, and Priliantini (2020). Maminirina et al. (2023) argue that tourists with positive attitudes tend to have more environmentally conscious behavior. However, in the context of tourism and plastic waste, it is essential to address the impact of tourism on waste production and management. Understanding the relationship between visitor attitudes, littering behavior, and the environmental impact of tourism is crucial to developing effective strategies for maintaining cleanliness and sustainability at tourist destinations (Oliveira et al., 2023).

The adequacy of waste disposal facilities does not have a significant relationship with littering behavior in this study. Research suggests that the availability of waste disposal facilities affects littering behavior at tourist destinations. However, some studies do not find a significant relationship with the adequacy of facilities (Diaz-Farina et al., 2023). Inefficient waste management can harm the local environment and the image of the tourist destination (Koliotasi et al., 2023). Field findings suggest that the availability of waste disposal facilities at Alun-alun Kidul in Jogja is insufficient, leading many visitors to litter due to the lack of separate waste disposal bins.

CONCLUSION

In the conducted research, several factors were identified to be associated with visitors' behavior of littering at Alun-alun Kidul Jogja tourist site. The variables related to visitors' littering behavior include age, knowledge about waste, and attitudes towards littering. Variables that are not associated with visitors' littering behavior are gender, educational level, and the adequacy of waste disposal facilities in the Alun-alun Kidul Jogja area. Therefore, there is a need to enhance individual awareness regarding littering behavior, and it is crucial to receive motivation and engage in promotional activities related to environmental care, promoting proper waste disposal.

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