

THE INFLUENCE OF ENVIRONMENTAL HEALTH KNOWLEDGE ON
LITTERING BEHAVIOR: A SYSTEMATIC LITERATURE REVIEW

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Abstract

Littering remains a persistent environmental health issue that negatively impacts public health and environmental sustainability. This behavior is commonly observed in residential areas, schools, and public spaces, contributing to pollution and increasing the risk of environment-related diseases. This study aims to analyze the influence of environmental health knowledge on littering behavior through a systematic literature review approach. A total of 23 national and international articles published between 2020 and 2025 were analyzed. The findings indicate that environmental health knowledge has a significant influence on individuals' waste disposal behavior. Individuals with higher levels of knowledge tend to demonstrate more responsible waste management practices. However, knowledge alone is not sufficient, as other factors such as the availability of waste disposal facilities, social norms, environmental policies, and community participation also play critical roles. The study concludes that improving environmental health education, supported by adequate infrastructure and community-based interventions, is essential to reduce littering behavior and promote sustainable environmental practices.

Keywords: Environmental Health Knowledge, Littering Behavior, Waste Management, Public Health, Community Behavior

INTRODUCTION

Environmental health problems related to waste management remain a major global concern, particularly in developing countries. One of the most prevalent issues is littering behavior, which continues to occur in various settings, including residential areas, educational institutions, and public spaces. This behavior not only affects environmental aesthetics but also poses serious health risks, such as water and air pollution, vector-borne diseases, and sanitation-related illnesses.

Previous studies have shown that littering behavior is influenced by multiple factors, including environmental awareness, social norms, and infrastructure availability. Research conducted in Tehran revealed that waste density in public areas is closely related to community awareness and the availability of waste disposal facilities. Similarly, qualitative studies in Gambia emphasized the role of social norms and collective responsibility in shaping littering behavior.

Environmental health knowledge is considered a key determinant in influencing individuals' behavior toward waste management. Individuals who possess adequate knowledge about the health and environmental impacts of improper waste disposal are more likely to engage in responsible behavior. Conversely, lack of knowledge often leads to negligence and environmentally harmful practices. However, despite increasing awareness, littering behavior remains prevalent, indicating that knowledge alone may not be sufficient to change behavior. Other contributing factors such as infrastructure, policy enforcement, and cultural norms also play significant roles.

Therefore, this study aims to systematically review existing literature to examine the extent to which environmental health knowledge influences littering behavior and identify other supporting factors that contribute to behavioral change.lighting.

RESEARCH METHODS

This study employed a Systematic Literature Review (SLR) design with a descriptive analytical approach to examine the influence of environmental health knowledge on littering behavior. The review was conducted through a structured and systematic process to ensure transparency and reliability. Literature was collected from several electronic databases, including Google Scholar, PubMed, ScienceDirect, and Garuda Portal, using keywords such as “environmental health knowledge,” “littering behavior,” “waste disposal behavior,” and “environmental awareness,” combined with Boolean operators (AND, OR) to refine the search.

The inclusion criteria consisted of articles discussing environmental health knowledge and littering behavior, using quantitative, qualitative, or mixed-method designs, published between 2020 and 2025, written in English or Indonesian, and available in full text. Meanwhile, exclusion criteria included articles that were not relevant to the research topic, non-research articles such as editorials or opinions, and studies without full-text access. The study selection process involved identification, screening of titles and abstracts, eligibility assessment through full-text review, and final inclusion of relevant studies, resulting in a total of 23 articles being analyzed. Data extraction was carried out systematically by collecting information on authors, year of publication, study design, sample characteristics, variables, and key findings. The data were then analyzed using a narrative synthesis approach, where findings were grouped into thematic categories to identify patterns and relationships between environmental health knowledge and littering behavior, as well as supporting factors such as infrastructure availability, social norms, and policy influence.

RESEARCH RESULTS

A total of 23 articles that met the inclusion criteria were analyzed in this study. The findings consistently indicate that environmental health knowledge has a significant influence on littering behavior, where individuals with higher levels of knowledge tend to demonstrate more responsible waste disposal practices. Most studies reported a positive correlation between knowledge and behavior, suggesting that increased awareness of environmental and health impacts encourages individuals to dispose of waste properly. However, several studies also revealed a gap between knowledge and actual behavior, indicating that knowledge alone is not always sufficient to change practices. This discrepancy is influenced by various external factors, including the availability of waste disposal facilities, environmental policies, and enforcement, as well as prevailing social norms within communities. In addition, the results highlight that community-based education programs, school-based interventions, and media campaigns are effective in improving both knowledge and behavior related to waste management. Furthermore, environmental conditions such as already polluted surroundings were found to normalize littering behavior, thereby weakening the impact of knowledge on behavioral change. Overall, the findings suggest that while environmental health knowledge plays a crucial role, a combination of educational, structural, and social interventions is necessary to effectively reduce littering behavior and promote sustainable environmental practices.

DISCUSSION

The results of this systematic literature review highlight that environmental health knowledge is a crucial factor influencing littering behavior across different populations and settings. Individuals who possess a higher level of understanding regarding the negative impacts of improper waste disposal—such as environmental pollution, water contamination, and the spread of vector-borne diseases—are generally more likely to engage in proper waste management practices. This finding is consistent with health behavior theories which emphasize that knowledge acts as a predisposing factor in shaping individual attitudes and actions. Increased awareness not only improves cognitive understanding but also fosters a sense of responsibility toward maintaining environmental cleanliness and public health. As a result, individuals with adequate environmental health knowledge tend to develop positive behaviors, including disposing of waste in designated areas and supporting environmental sustainability initiatives.

However, the findings also reveal that knowledge alone is not sufficient to ensure consistent behavioral change. Several studies included in this review identified a gap between knowledge and actual practice, where individuals with good environmental knowledge still engage in littering behavior. This phenomenon can be explained by the influence of external and contextual factors that either strengthen or weaken the relationship between knowledge and behavior. One of the most significant factors is the availability of waste disposal facilities. In areas where trash bins are limited or poorly managed, individuals may find it inconvenient to dispose of waste properly, leading to continued littering practices despite their awareness. This indicates that infrastructure plays a critical enabling role in translating knowledge into action. In addition to infrastructure, social norms and cultural influences are also key determinants of littering behavior. In communities where littering is commonly observed and socially accepted, individuals are more likely to follow the same behavior, regardless of their level of knowledge. This aligns with social learning theory, which suggests that individuals tend to imitate behaviors that are perceived as normal within their environment. Furthermore, environmental conditions such as visibly dirty surroundings can reinforce negative behavior by creating a perception that littering is acceptable or unavoidable. This “broken environment” effect reduces the impact of educational interventions, as individuals may feel that their actions will not make a meaningful difference.

Policy and regulatory factors also contribute to shaping behavior. Weak enforcement of environmental regulations and lack of sanctions for improper waste disposal can reduce compliance, even among individuals who are aware of the risks. Conversely, strong policies, clear regulations, and consistent enforcement can enhance behavioral change by creating external pressure and accountability. Therefore, the presence of supportive governance is essential in reinforcing positive environmental practices. The review further emphasizes the effectiveness of educational and community-based interventions in improving both knowledge and behavior. Programs such as school-based environmental education, community outreach, public campaigns, and participatory waste management activities have been shown to significantly increase awareness and encourage responsible behavior. Importantly, interventions that involve active community participation tend to produce more sustainable outcomes, as they not only improve knowledge but also reshape social norms and collective responsibility. The integration of visual media, social campaigns, and practical activities such as waste sorting and recycling programs can further enhance the effectiveness of these interventions.

Overall, the findings suggest that littering behavior is a complex issue influenced by an interaction of cognitive, social, environmental, and structural factors. While environmental

health knowledge serves as a foundational element in promoting positive behavior, it must be supported by adequate infrastructure, strong policy enforcement, and positive social norms to achieve meaningful and sustainable change. Therefore, efforts to reduce littering should adopt a comprehensive and multi-sectoral approach that combines education, environmental design, policy implementation, and community engagement. Such an integrated strategy is essential to transform knowledge into consistent pro-environmental behavior and to create cleaner, healthier, and more sustainable communities.

CONCLUSION

This systematic literature review concludes that environmental health knowledge plays a significant role in influencing littering behavior, as individuals with higher levels of knowledge are more likely to adopt responsible waste disposal practices. However, knowledge alone is not sufficient to ensure consistent behavioral change. The findings demonstrate that littering behavior is also strongly influenced by external factors such as the availability of waste disposal facilities, social norms, environmental conditions, and the effectiveness of policy implementation and enforcement. In many cases, a gap exists between knowledge and actual behavior, indicating that cognitive awareness must be supported by enabling and reinforcing factors. Therefore, efforts to reduce littering should not rely solely on educational interventions but must also include improvements in infrastructure, strengthening of environmental regulations, and promotion of positive social norms through community engagement. An integrated and comprehensive approach is essential to transform environmental health knowledge into sustainable pro-environmental behavior and to achieve long-term improvements in public health and environmental quality.

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