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THE ROLE OF ENVIRONMENTAL HEALTH EDUCATION IN FORMING PRO-ENVIRONMENTAL BEHAVIOR IN URBAN AND RURAL COMMUNITIES

Peran Edukasi Kesehatan Lingkungan Dalam Membentuk Perilaku Pro-Lingkungan Pada Masyarakat Urban Dan Rural

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ABSTRACT

The increasingly complex global environmental problems caused by urbanization, industrialization, increased consumption, climate change, and environmental pollution have driven the importance of fostering pro-environmental behavior in society. Environmental health education is one strategy considered effective in increasing public awareness, knowledge, and behavior towards the environment. This study aims to analyze the role of environmental health education in fostering pro-environmental behavior in urban and rural communities through a Systematic Literature Review (SLR) approach. The research method was carried out by reviewing 20 national and international scientific articles published in the 2020–2025 period. The literature was obtained from the Scopus, ScienceDirect, SpringerLink, Google Scholar, Frontiers, and SINTA-indexed journal databases. The analysis was carried out through a process of identification, selection, article quality evaluation, data extraction, and narrative synthesis. The results of the study indicate that environmental health education has a significant effect on increasing environmental literacy, ecological awareness, waste management behavior, healthy sanitation practices, natural resource conservation, and community participation in environmental conservation activities. In urban communities, digital technology and social media-based education are more effective in increasing pro-environmental behavior, while in rural communities, community-based approaches and local wisdom are more dominant in shaping environmentally adaptive behavior. This study concludes that environmental health education is a crucial instrument in developing sustainable pro-environmental behavior. Therefore, contextual educational strategies tailored to the community's sociocultural characteristics are needed to increase the effectiveness of environmental health programs.

ABSTRAK

Permasalahan lingkungan global yang semakin kompleks akibat urbanisasi, industrialisasi, peningkatan konsumsi masyarakat, perubahan iklim, dan pencemaran lingkungan telah mendorong pentingnya pembentukan perilaku pro-lingkungan dalam masyarakat. Edukasi kesehatan lingkungan merupakan salah satu strategi yang dinilai efektif dalam meningkatkan kesadaran, pengetahuan, dan perilaku masyarakat terhadap lingkungan. Penelitian ini bertujuan untuk menganalisis peran edukasi kesehatan lingkungan dalam membentuk perilaku pro-lingkungan pada masyarakat urban dan rural melalui pendekatan Systematic Literature Review (SLR). Metode penelitian dilakukan dengan menelaah 20 artikel ilmiah nasional dan internasional yang diterbitkan pada periode 2020–2025. Literatur diperoleh dari basis data Scopus, ScienceDirect, SpringerLink, Google Scholar, Frontiers, dan jurnal terindeks SINTA. Analisis dilakukan melalui proses identifikasi, seleksi, evaluasi kualitas artikel, ekstraksi data, dan sintesis naratif. Hasil penelitian menunjukkan bahwa edukasi kesehatan lingkungan berpengaruh signifikan terhadap peningkatan literasi lingkungan, kesadaran ekologis, perilaku pengelolaan sampah, praktik sanitasi sehat, konservasi sumber daya alam, dan partisipasi masyarakat dalam kegiatan pelestarian lingkungan. Pada masyarakat urban, edukasi berbasis teknologi digital dan media sosial lebih efektif dalam meningkatkan perilaku pro-lingkungan, sedangkan pada masyarakat rural pendekatan berbasis komunitas dan kearifan lokal lebih dominan dalam membentuk perilaku adaptif terhadap lingkungan. Penelitian ini menyimpulkan bahwa edukasi kesehatan lingkungan merupakan instrumen penting dalam membangun perilaku pro-lingkungan yang berkelanjutan. Oleh karena itu, diperlukan strategi edukasi yang kontekstual dan sesuai dengan karakteristik sosial budaya masyarakat untuk meningkatkan efektivitas program kesehatan lingkungan.

INTRODUCTION

Global environmental change has become a major challenge to sustainable development. Issues such as environmental pollution, ecosystem degradation, climate change, increasing domestic waste volumes, and declining natural resource quality have significant impacts on public health and environmental sustainability [1]. Increasing urbanization has led to changes in consumption patterns, contributing to increased waste production and environmental pressure [2]. Addressing these environmental challenges requires not only technological and policy interventions but also changes in individual and community behavior. Environmental health education plays a crucial role in fostering environmental awareness, encouraging sustainable practices, and promoting responsible waste management, making it a key strategy for achieving long-term environmental sustainability.

These conditions demand changes in societal behavior toward more environmentally responsible behavior. One concept widely developed in environmental studies is pro-environmental behavior. Pro-environmental behavior refers to individual or group actions aimed at minimizing negative impacts on the environment and supporting the sustainability of natural resources [3]. This behavior includes waste management, energy conservation, the use of environmentally friendly products,

reducing the use of single-use plastics, and participation in environmental conservation activities [4].

Pro-environmental behavior does not emerge spontaneously, but is influenced by various factors such as environmental knowledge, attitudes, social norms, ecological values, and education levels [5]. Among these factors, environmental health education is one of the most effective approaches in shaping community behavior that cares about the environment [6]. Environmental health education functions to increase public understanding of the relationship between environmental conditions and human health, thereby encouraging more adaptive behavioral changes to the environment [7].

Various studies have shown that communities with high levels of environmental literacy tend to have better pro-environmental behavior than communities with low levels of knowledge [8]. Environmental knowledge enables individuals to understand the impact of human activities on the environment and encourages them to take more responsible actions [9]. In addition, environmental health education also plays a role in increasing public awareness of the health risks posed by environmental pollution [10].

Urban and rural communities have different characteristics in receiving and implementing environmental health education. Urban communities generally have better access to formal education, information technology, and environmental campaigns. However, high levels of consumption and modern lifestyles cause urban communities to produce greater amounts of waste [11]. Conversely, rural communities have a closer relationship with natural resources but often face limited access to environmental information and education facilities [12].

These differences in characteristics indicate that environmental health education strategies need to be adapted to the social and cultural conditions of the community. Effective education programs must consider local needs, cultural values, and community literacy levels to produce sustainable behavioral change [13]. For example, in urban areas, environmental health education programs have successfully utilized school-based campaigns, social media platforms, and community recycling initiatives to increase public awareness and encourage waste reduction practices. In rural settings, participatory approaches such as community meetings, farmer field schools, and village-based environmental education programs have proven effective in promoting proper sanitation, waste management, and natural resource conservation. These examples demonstrate that context-specific educational strategies can enhance community engagement and support long-term environmental health improvements [13]..

Although various studies have explored the relationship between environmental education and pro-environmental behavior, studies specifically comparing the effectiveness of environmental health education in urban and rural communities are relatively limited. Therefore, a systematic review is needed that can synthesize various research findings related to the role of environmental health education in shaping pro-environmental behavior in both groups.

This study aims to comprehensively analyze the influence of environmental health education on the formation of pro-environmental behavior, based on various national and international research findings. The results are expected to provide a scientific basis for developing more effective and sustainable environmental health education policies

METHODS

This study uses the Systematic Literature Review (SLR) method to identify, evaluate, and synthesize research results related to environmental health education and pro-environmental behavior.

Article searches were conducted on the Scopus, ScienceDirect, SpringerLink, Frontiers, MDPI, and Google Scholar databases using the keywords: Environmental Health Education , Environmental Literacy , Environmental Awareness , Pro-Environmental Behavior , Urban Community , Rural Community , and Sustainable Behavior . The research inclusion criteria include:

1. Articles published 2020–2025.
2. Discussing environmental health education.
3. Examining pro-environmental behavior.
4. Focus on urban or rural communities.

5. Articles indexed by Scopus or SINTA.
6. Available in full text.

A total of 96 articles were found in the initial stage. After a screening process based on the relevance of the title, abstract, and article quality, 20 articles met the criteria for analysis.

Data analysis was conducted using narrative synthesis techniques by grouping research results based on main themes such as environmental literacy, behavioral change, environmental sanitation, waste management, community participation, and environmental sustainability.

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RESULTS AND DISCUSSION

Table 1. Results of the Systematic Literature Review

No	Writer	Year	Focus of Study	Key Findings
1	Monroe et al.	2021	Environmental literacy	Increasing pro-environmental behavior
2	Leal Filho et al.	2021	Environmental education	Increasing environmental awareness
3	Ardoin et al.	2020	Sustainability education	Shaping sustainable behavior
4	Otto & Pensini	2021	Nature-based education	Increasing environmental awareness
5	UNESCO	2022	ESD	Supporting sustainability
6	Nguyen et al.	2022	Environmental education	Improving community sanitation
7	Sharma et al.	2022	Environmental awareness	Influence on green behavior
8	Ahmed et al.	2023	Rural community	Improving environmental conservation
9	Wang et al.	2023	Urban literacy	Digital literacy improves behavior
10	Rahman et al.	2023	Climate literacy	Increasing community participation
11	Brown et al.	2022	Community resilience	Education strengthens social resilience
12	Islam et al.	2023	Environmental sanitation	Knowledge improves healthy behavior
13	Hossain et al.	2023	Rural adaptation	Locally based education is more effective
14	Thomas et al.	2024	Urban sustainability	Supporting a green lifestyle
15	Li et al.	2024	Environmental education	Improving environmental behavior
16	Setyowati et al.	2024	Community participation	Education increases participation
17	Prasetyo et al.	2024	Environmental awareness	Environmental awareness is increasing
18	Kumar et al.	2023	Behavioral change	Knowledge influences action
19	Yulianti et al.	2025	Environmental literacy	Supporting sustainability
20	Arifin et al.	2025	Health education	Increasing pro-environmental behavior

A review of 20 scientific articles found that environmental health education consistently correlates with the development of pro-environmental behavior. Most studies indicate that increasing environmental knowledge can raise public awareness of the importance of maintaining environmental quality. Furthermore, environmental health education contributes to improved waste management behavior, natural resource conservation, healthy sanitation practices, and community participation in environmental activities.

The study also shows differences in educational approaches between urban and rural communities. In urban communities, the use of digital media, social media, and online learning platforms is more effective in

improving environmental literacy. Conversely, rural communities are more responsive to community-based educational approaches, community leaders, and local wisdom.

DISCUSSION

1. Environmental Health Education as an Instrument for Behavior Change

Environmental health education is an important tool in shaping more environmentally conscious public behavior. Education not only increases public knowledge but also fosters ecological awareness, which forms the basis for behavioral change. Individuals who understand the impact of environmental damage on health tend to be more active in maintaining environmental cleanliness and adopting environmentally friendly behaviors [1], [2].

2. Environmental Knowledge and Ecological Awareness

Environmental knowledge has a strong relationship with people's ecological awareness. The higher a person's level of knowledge about environmental issues, the greater their tendency to exhibit pro-environmental behavior. Nevertheless, this relationship is often mediated by several psychological and social factors rather than occurring directly. Environmental knowledge can enhance individuals' environmental attitudes, increase their concern for environmental problems, and strengthen perceptions of social responsibility and normative expectations. These factors subsequently contribute to the development of ecological awareness and encourage participation in conservation and environmental protection activities [3], [4]. Thus, ecological awareness can be viewed as an important intermediary mechanism through which environmental knowledge translates into sustainable environmental behavior.

3. Environmental Literacy as a Basis for Pro-Environmental Behavior

Environmental literacy includes the ability to understand, evaluate, and use environmental information in decision-making. Studies show that environmental literacy contributes to improved waste management behavior, reduced plastic use, and energy conservation [5], [6].

4. The Role of Formal Education in Increasing Environmental Awareness

Formal education plays a significant role in improving environmental literacy in the community. Integrating environmental health materials into the educational curriculum can improve students' understanding of the importance of protecting the environment from an early age [7], [8]. However, formal education alone may not be sufficient to promote widespread environmental awareness and behavioral change across all segments of society. Non-formal educational approaches, such as workshops, training programs, and public awareness campaigns, provide opportunities for lifelong learning and can effectively reach individuals outside the formal school system. Meanwhile, community-based educational approaches often demonstrate strong effectiveness in fostering environmental awareness because they encourage active participation, local problem-solving, and collective action. Compared with formal education, community-based programs may have a more direct influence on environmental practices by linking knowledge to real-life environmental issues and community experiences. Therefore, a combination of formal, non-formal, and community-based educational approaches is likely to be the most effective strategy for enhancing environmental awareness and promoting sustainable environmental behavior [7], [8].

5. Environmental Education in Urban Communities

In urban communities, environmental education is more often conducted through digital media, public campaigns, and educational institutions. High access to technology allows for rapid and widespread dissemination of environmental information. However, a consumerist lifestyle presents a challenge in developing pro-environmental behavior [9], [10].

6. Environmental Education in Rural Communities

In rural communities, community-based approaches are more effective in increasing

pro-environmental behavior. Education that involves community leaders and local wisdom tends to be more easily accepted because it is in line with local culture [11], [12].

7. The Influence of Education on Waste Management Behavior

Waste management is one of the main indicators of pro-environmental behavior. Environmental health education has been shown to increase waste sorting, recycling, and reduce the use of single-use plastics [13].

8. Environmental Sanitation Education and Practice

Knowledge gained through environmental education also improves community sanitation practices. Individuals who understand the relationship between sanitation and health are more likely to maintain environmental cleanliness and prevent pollution [14].

9. The Role of Digital Media in Environmental Education

The development of information technology provides a great opportunity for disseminating environmental health education. Social media is an effective tool for increasing environmental awareness, especially among young people [15].

10. Local Wisdom as a Supporter of Environmental Behavior

Local wisdom has important value in supporting the success of environmental health education. Traditional knowledge regarding environmental conservation can be integrated with modern scientific approaches to increase the effectiveness of educational programs [16].

11. Community Participation in Environmental Conservation

Environmental education increases community participation in various environmental programs such as reforestation, waste management, and natural resource conservation [17].

12. Education and Sustainable Lifestyle Change

Environmental health education contributes to changes in people's lifestyles towards more sustainable lifestyles by reducing excessive consumption and using environmentally friendly products [18].

13. Challenges in Implementing Environmental Education

There are still various obstacles in implementing environmental education, such as low public literacy, limited access to education, and lack of policy support [19].

14. Implications for Environmental Health

Pro-environmental behavior formed through environmental health education contributes to improving sanitation quality, reducing pollution, and preventing environmentally based diseases [20].

15. Contribution to Sustainable Development

Environmental health education supports the achievement of the Sustainable Development Goals (SDGs), particularly in the areas of health, education, sanitation, and environmental sustainability. Therefore, strengthening environmental education programs needs to be a priority in sustainable development [5], [7].

CONCLUSION

Environmental health education plays a significant role in shaping pro-environmental behavior in both urban and rural communities. Increased environmental knowledge and literacy contribute to attitudinal changes, ecological awareness, healthy sanitation practices, improved waste management, and community participation in environmental conservation.

Suggestion

1. Integrating environmental health education into all levels of education.
2. Developing community-based education programs for rural communities.
3. Utilizing digital media as a means of environmental education in urban communities.
4. Integrating local wisdom into environmental education programs.

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