



Environmental Education for Healthy Childhoods: Exploring Sanitation Awareness and Nutritional Behavior among School-Age Children

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Article History:

Received: May 20, 2026

Revised: June 12, 2026

Accepted: June 25, 2026

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Keywords:

Environmental education, healthy
childhood development, nutritional
behavior, phenomenology,
sanitation awareness

Abstract:

This phenomenological study explored school-age children's lived experiences of environmental sanitation awareness and nutritious dietary behavior within environmental education in South Sulawesi, Indonesia. Using a qualitative design, data were collected through in-depth interviews, participant observation, and documentation involving school-age children, parents, and teachers selected purposively from elementary and junior secondary schools. Thematic phenomenological analysis revealed five interrelated themes: developing sanitation awareness through daily practices, family and school as nutritional learning spaces, environmental education as behavioral transformation, social and cultural influences on healthy living, and healthy living as a shared responsibility. The findings indicate that children's understandings of hygiene and healthy eating are shaped less by formal instruction than by repeated interactions, role modeling, and experiential learning in home, school, and community settings. Environmental education emerged as a meaningful framework for connecting sanitation, nutrition, and child well-being by fostering responsibility, comfort, and environmental care. The study implies that schools and families should collaborate to embed sanitation literacy and nutritional awareness into everyday routines and child-centered environmental programs.

INTRODUCTION

Environmental School-age children represent one of the most vulnerable populations to environmental health and nutritional problems worldwide (Ambreen et al. 2025; Chen et al. 2023). In recent decades, global concerns regarding poor sanitation, unhealthy dietary patterns, and childhood health inequalities have become increasingly prominent within the international sustainability agenda (Sprague et al. 2020). Limited access to clean water, inadequate sanitation facilities, and poor nutritional intake continue to affect children's physical growth, cognitive development, academic performance, and overall well-being (Nobrega & Zhang 2024). International organizations such as the World Health Organization and United Nations Children's Fund emphasize that healthy childhood development is closely linked to environmental quality and healthy lifestyle practices established from an early age (Sany 2022).

These concerns are also aligned with the Sustainable Development Goals (SDGs), particularly SDG 3 on good health and well-being, SDG 4 on quality education, and SDG 6 on clean water and sanitation. Beyond medical and nutritional dimensions, healthy childhood development is increasingly viewed as an educational and environmental issue that requires interdisciplinary attention. Schools and families play essential roles in shaping children's awareness of sanitation, hygiene, and healthy eating behaviors through everyday experiences and learning processes (Zhu & Wang 2024). Environmental education has therefore emerged as a transformative approach to cultivating sustainable, healthy lifestyles among children by integrating ecological awareness with health-related behaviors (Ivorra-Catalá et al. 2024). Through environmental education, children are encouraged not only to understand the importance of clean environments and nutritious food but also to develop responsible attitudes and lifelong habits that support personal and community well-being (Ardoin & Bowers 2020; Piras et al. 2023). Consequently, exploring children's lived experiences related to sanitation and nutrition becomes essential for understanding how environmental education contributes to healthier childhoods in contemporary society.

Environmental sanitation is widely recognized as a fundamental determinant of children's growth, health, and overall quality of life (Demcakova et al. 2021). A healthy environment encompasses access to clean water, proper waste management, hygienic sanitation facilities, and clean living and learning spaces (Zhang et al. 2022). Inadequate environmental sanitation exposes school-age children to various health risks, including infectious diseases, intestinal disorders, malnutrition, and impaired physical development. (Liyanage & Yamada 2017) Poor sanitary conditions may also negatively affect children's psychological well-being, concentration, and academic engagement at school (Collado et al. 2020). Previous studies have shown that repeated exposure to unhealthy environments can contribute to long-term developmental challenges and reduced educational outcomes among children, particularly in developing regions where sanitation disparities remain significant. In the context of child development, sanitation awareness is not merely a technical or infrastructural issue but also a behavioral and educational concern (Jaime et al. 2023). Children's habits related to personal hygiene, environmental cleanliness, and waste disposal are often shaped through interactions within families, schools, and surrounding communities (Pérez-Ortega & González-Fuente 2024). Educational institutions play a strategic role in fostering sanitation awareness by integrating environmental responsibility into daily school culture and learning activities. Likewise, parents and caregivers contribute substantially to establishing healthy environmental practices at home.

Nutritious dietary behavior plays a crucial role in supporting the physical, cognitive, and emotional development of school-age children (Zamanian et al. 2023). Adequate nutritional intake contributes not only to children's growth and immune function but also to learning capacity, concentration, memory, and academic achievement (Sekome et al. 2024). However, contemporary dietary patterns among children are increasingly influenced by the widespread availability of processed foods, excessive sugar consumption, fast-food culture, and unhealthy eating habits promoted through digital media and urban lifestyles. These conditions have raised global concerns regarding both undernutrition and overnutrition, including obesity and

micronutrient deficiencies, which may adversely affect children's long-term health and developmental outcomes. (Sapała et al. [2025](#)) Children's nutritional behavior is shaped through complex social and environmental interactions involving families, schools, peer groups, and broader cultural contexts. Parents often influence children's food preferences and eating routines through household practices, while schools contribute through nutrition education, food environments, and health promotion programs (Bergen [2017](#)).

Environmental education has increasingly been recognized as a transformative approach for promoting sustainable healthy lifestyles among children (Thapa [2021](#); Whitburn et al. [2023](#)). Traditionally associated with ecological conservation and environmental protection, environmental education has evolved to encompass broader dimensions of human well-being, including health awareness, sanitation practices, and responsible consumption behaviors (Asikin et al. [2025](#)). Within educational settings, environmental education encourages children to develop environmental literacy, critical awareness, and ethical responsibility toward both natural and social environments (Salazar et al. [2024](#)). This perspective emphasizes that healthy living practices, such as maintaining sanitation and consuming nutritious food, are interconnected with environmental sustainability and community well-being. In the context of childhood development, environmental education serves not only as a source of knowledge but also as a medium for shaping attitudes, habits, and everyday behaviors.

Existing studies on environmental sanitation and children's nutritional behavior have predominantly focused on quantitative measurements, statistical correlations, and public health outcomes. Many researchers have examined the effects of sanitation facilities, hygiene practices, or dietary intake on children's physical health and academic performance using survey-based and epidemiological approaches (Biyikoglu Alkan & Çavuşoğlu, [2024](#)). Similarly, studies on environmental education have frequently emphasized knowledge acquisition, environmental attitudes, or behavioral interventions within formal educational contexts (De Feo [2026](#); Gopinath & Kumar [2025](#)). While these studies provide valuable empirical evidence, they often pay limited attention to the subjective experiences and personal meanings that children attach to sanitation and nutritional practices in their daily lives. Furthermore, only a limited number of studies have integrated environmental sanitation, nutritional behavior, and environmental education within a single conceptual framework, particularly through qualitative inquiry. The lived experiences of school-age children, parents, and teachers regarding healthy environmental practices remain underexplored, especially in culturally and socially diverse contexts. (Ikhsan et al. [2019](#)). As a result, there is still insufficient understanding of how children interpret healthy living behaviors, how environmental awareness is constructed through everyday interactions, and how educational experiences shape sanitation and nutritional practices. Addressing this gap is important because children's behaviors are not solely influenced by information and policy interventions but are also deeply connected to social experiences, cultural values, and environmental meanings formed throughout their daily lives.

Promoting healthy childhood development requires collaborative efforts that integrate environmental awareness, sanitation practices, and nutritious dietary behaviors within children's everyday lives. Schools, families, and communities play essential roles in shaping

children's understanding of healthy living through both formal education and daily social interactions (Chimakonam & Ogbonnaya 2024). In this context, environmental education has the potential to become a transformative approach for fostering sustainable health behaviors and environmental responsibility among school-age children. However, understanding how children experience and interpret these practices remains crucial for developing educational strategies that are meaningful, contextual, and responsive to their lived realities. Despite increasing attention to child health and environmental sustainability, limited studies have explored the lived experiences underlying sanitation awareness and nutritional behavior from a phenomenological perspective. Most existing research continues to emphasize measurable outcomes while overlooking the subjective meanings and social experiences that influence children's daily practices. Therefore, this study seeks to explore the lived experiences of school-age children regarding environmental sanitation and nutritious dietary behavior within the framework of environmental education. By uncovering these experiences, the study aims to provide deeper insights into how healthy lifestyle awareness is constructed and sustained in children's everyday environments.

METHOD

Research Design

This study employed a qualitative research design using a phenomenological approach (Creswell 2012) to explore the lived experiences of school-age children regarding sanitation awareness and nutritional behavior within the context of environmental education. Phenomenology was considered appropriate because the study aimed to understand how children, parents, and teachers perceive, interpret, and give meaning to healthy living practices in their everyday lives. Rather than focusing on statistical relationships or measurable outcomes, the study emphasized participants' subjective experiences related to environmental cleanliness, hygiene habits, and nutritious dietary practices that were shaped through interactions with family, school, and community. Through this approach, the research sought to uncover the essential meanings underlying environmental education experiences that contribute to healthy childhood development.

Participants

The study was conducted in selected elementary and junior secondary schools in South Sulawesi, Indonesia, where environmental sanitation and healthy lifestyle education were integrated into daily school activities and community practices. The research setting also included participants' surrounding social and environmental contexts to understand how local cultural values, family habits, and environmental conditions influence children's sanitation awareness and nutritional behaviors. Participants consisted of school-age children, parents, and teachers who were purposively selected based on their direct experiences with environmental education, sanitation practices, and healthy dietary behaviors. A purposive sampling strategy was employed to ensure that participants could provide rich and meaningful descriptions of their lived experiences related to healthy childhood development within their everyday environments.

Data Collection

Data were collected through in-depth interviews, participant observation, and documentation to obtain comprehensive insights into participants' lived experiences. Semi-structured, in-depth interviews were conducted with school-age children, parents, and teachers to explore their perceptions, experiences, and understandings of environmental sanitation, healthy eating behaviors, and environmental education practices in daily life. Participant observation was carried out in both school and community settings to examine sanitation practices, hygiene behaviors, food consumption habits, and environmental learning activities within natural contexts. In addition, documentation such as school health programs, environmental campaign materials, photographs, and relevant institutional records was used to support and enrich the findings. The combination of these techniques enabled the researcher to capture both verbal narratives and contextual realities surrounding healthy childhood development.

Data Analysis

The collected data were analyzed using thematic phenomenological analysis to identify the essential meanings and patterns emerging from participants' lived experiences. The analysis process began with transcribing interview recordings and organizing observational and documentary data, followed by repeated reading to gain a comprehensive understanding of the participants' narratives. Significant statements related to sanitation awareness, nutritional behavior, and environmental education experiences were then coded and grouped into meaningful categories. These categories were further interpreted to develop overarching themes that reflected the essence of participants' experiences within their social and environmental contexts. Throughout the analysis process, the researcher continuously engaged in reflective interpretation to ensure that the findings accurately represented the participants' perspectives and the deeper meanings underlying healthy childhood development.

RESULT

The participants in this study consisted of school-age children, parents, and teachers from selected schools in South Sulawesi. Participants were purposively selected based on their experiences and involvement in environmental sanitation practices, nutritional behaviors, and environmental education activities within school and community settings. The inclusion of multiple participant groups allowed the study to obtain diverse perspectives regarding healthy childhood development and environmental learning experiences. Table 1 presents the demographic characteristics of the participants involved in this study.

Table 1. Demographic Characteristics of Participants

Participant Code	Participant Category	Gender	Age	Educational Level	Role/Context
C1	School-age Child	Female	10	Elementary School	Active participant in school environmental program
C2	School-age Child	Male	11	Elementary School	Participated in school sanitation activities
C3	School-age Child	Female	13	Junior Secondary School	Involved in healthy school campaign
C4	School-age Child	Male	12	Junior Secondary School	Participated in environmental education activities
P1	Parent	Female	38	Senior High School	Mother of participant child
P2	Parent	Male	41	Bachelor's Degree	Father of participant child
P3	Parent	Female	36	Diploma Degree	Parent actively involved in child nutrition practices
T1	Teacher	Female	45	Bachelor's Degree	Science and environmental education teacher
T2	Teacher	Male	39	Master's Degree	School health program coordinator
T3	Teacher	Female	42	Bachelor's Degree	Homeroom teacher involved in sanitation education

The phenomenological analysis revealed several interconnected themes related to school-age children's lived experiences of environmental sanitation, nutritious dietary behavior, and environmental education. Through in-depth interviews, participant observations, and supporting documentation, the study identified how children, parents, and teachers construct meanings and practices associated with healthy living within their everyday environments. The findings indicate that sanitation awareness and nutritional behavior are not formed solely through formal instruction but are deeply influenced by family routines, school culture, social interactions, and environmental learning experiences. Furthermore, environmental education emerged as an important medium for fostering children's awareness, responsibility, and sustainable healthy lifestyle practices. The analysis process generated several major themes and sub-themes that reflect participants' subjective experiences and interpretations regarding healthy childhood development. These themes illustrate how environmental education contributes to shaping sanitation habits, dietary choices, and broader understandings of well-being among school-age children. The emergent themes, sub-themes, and representative participant narratives are presented in **Table 2**.

Table 2. Emergent Themes of Children's Lived Experiences on Environmental Sanitation and Nutritional Behavior

Research Objectives	Emergent Themes	Sub-Themes	Representative Meaning	Sample Participant Narratives
To understand children's perceptions of environmental sanitation	Developing Sanitation Awareness Through Daily Practices	Personal hygiene habits; School cleanliness culture; Waste management practices	Children perceived cleanliness as part of responsibility and healthy living	"My teacher always reminds us to wash our hands before eating." (Participant 4)
To explore experiences related to nutritious dietary behavior	Family and School as Nutritional Learning Spaces	Healthy breakfast habits; Parental influence; School food environment	Nutritional behavior was shaped through repeated social interactions	"My mother prepares vegetables every morning because she says it helps me stay healthy." (Participant 7)
To examine the role of environmental education	Environmental Education as Behavioral Transformation	Eco-friendly learning activities; Health campaigns; Experiential learning	Environmental education encouraged children to connect cleanliness with health	"We learned how dirty water can make people sick, so I became more careful." (Participant 2)
To identify sociocultural factors influencing healthy behavior	Social and Cultural Influences on Healthy Living	Community habits; Peer influence; Local food culture	Healthy practices were influenced by social norms and cultural routines	"My friends also bring healthy food, so I try to do the same." (Participant 9)
To interpret meanings of healthy childhood development	Healthy Living as a Shared Responsibility	Family-school collaboration; Emotional well-being; Environmental care	Children associated healthy living with happiness, comfort, and care	"A clean school makes me feel happy and comfortable to study." (Participant 5)

Theme 1: Developing Sanitation Awareness Through Daily Practices

The findings revealed that sanitation awareness among school-age children was gradually developed through repetitive daily practices embedded within family routines, school regulations, and social interactions. Children commonly associated cleanliness with health, comfort, and personal responsibility, reflecting how environmental values had been internalized through everyday experiences rather than solely through formal instruction. Handwashing

habits, classroom cleaning activities, waste disposal practices, and school hygiene campaigns became important experiential processes that shaped children's understanding of healthy living. Participants also emphasized the influential role of teachers and parents in modeling sanitation behaviors, suggesting that environmental awareness is socially constructed through continuous interaction and observation. From a phenomenological perspective, sanitation practices were not merely viewed as routine obligations but as meaningful experiences that contributed to children's sense of well-being, safety, and environmental responsibility.

Theme 2: Family and School as Nutritional Learning Spaces

The study found that children's nutritional behaviors were strongly influenced by the interconnected roles of family and school as primary learning environments for healthy eating practices. Participants described how daily meal routines, parental guidance, and school-based health programs contributed to shaping their understanding of nutritious food and healthy dietary habits. Children often interpreted healthy eating not only as a physical necessity but also as a form of care, discipline, and social responsibility encouraged by parents and teachers. School environments further reinforced these behaviors through nutrition education activities, healthy canteen initiatives, and peer interactions that promoted positive eating habits. From a phenomenological standpoint, nutritional behavior emerged as a socially and culturally constructed experience in which children developed awareness of healthy living through repeated engagement with meaningful practices and relationships within their everyday environments

Theme 3: Environmental Education as Behavioral Transformation

The findings demonstrated that environmental education played a transformative role in shaping children's sanitation awareness and healthy lifestyle behaviors through experiential and value-based learning processes. Participants described how environmental learning activities, such as school cleanliness programs, health campaigns, recycling initiatives, and classroom discussions about hygiene and nutrition, encouraged them to develop a stronger sense of responsibility toward personal and environmental health. Children gradually connected concepts of cleanliness, healthy eating, and environmental care as interconnected aspects of everyday well-being. Teachers were perceived not only as knowledge providers but also as role models who reinforced healthy behaviors through consistent practice and encouragement. From a phenomenological perspective, environmental education became more meaningful when children directly experienced and practiced healthy behaviors within their daily social environments, allowing them to internalize these values as part of their identity and lifestyle.

Theme 4: Social and Cultural Influences on Healthy Living

The study revealed that children's sanitation awareness and nutritional behaviors were deeply shaped by social relationships and cultural practices within their surrounding environments. Participants described how family traditions, community habits, peer interactions, and local food cultures influenced their understanding of cleanliness and healthy eating practices. In many cases, children adopted behaviors that were consistently modeled by

parents, relatives, friends, and community members, demonstrating the strong social dimension of health-related practices. Cultural norms surrounding food preparation, communal eating, and environmental cleanliness also contributed to how children interpreted healthy living within their daily experiences. From a phenomenological perspective, healthy lifestyle behaviors were not experienced as isolated individual choices but as socially embedded practices constructed through continuous interaction with cultural values, shared routines, and collective environmental experiences.

Theme 5: Healthy Living as a Shared Responsibility

The findings indicated that participants perceived healthy living as a collective responsibility involving children, families, schools, and communities. Children described feeling more motivated to maintain cleanliness and practice healthy eating behaviors when these values were consistently supported by parents, teachers, and peers within their surrounding environments. Participants emphasized that collaborative practices, such as school cleaning activities, family meal routines, and community health campaigns, created a sense of shared commitment toward maintaining health and environmental well-being. This collective involvement fostered feelings of safety, comfort, and emotional well-being among children, reinforcing the idea that healthy childhood development is closely connected to supportive social environments. From a phenomenological perspective, healthy living was understood not merely as an individual behavior but as a socially constructed experience shaped through cooperation, mutual care, and shared environmental responsibility.

DISCUSSION

The findings of this study demonstrate that sanitation awareness, nutritional behavior, and healthy childhood development are closely interconnected through children's everyday environmental and social experiences. The phenomenological analysis revealed that children develop understandings of cleanliness, hygiene, and healthy eating not merely through formal instruction but through repeated interactions within families, schools, and surrounding communities. Daily practices such as handwashing, maintaining classroom cleanliness, consuming nutritious food, and participating in environmental activities became meaningful experiences that shaped children's perceptions of healthy living. These findings indicate that healthy lifestyle awareness is socially constructed through continuous engagement with supportive environmental and educational contexts. Furthermore, the study highlights the transformative role of environmental education in fostering sustainable, healthy behaviors among school-age children. Participants perceived environmental education not only as a source of ecological knowledge but also as a practical and value-based learning process that encourages responsibility, discipline, and care for personal and environmental well-being. The integration of sanitation practices and nutritional awareness within environmental learning activities enabled children to internalize healthy living behaviors as part of their daily identities and routines. From a phenomenological perspective, healthy childhood development emerged as a holistic experience influenced by emotional comfort, social relationships, environmental conditions, and meaningful educational interactions.

Sanitation awareness among school-age children emerged as a socially constructed experience shaped through continuous interaction with family members, teachers, peers, and the surrounding environment. The findings revealed that children learned sanitation practices such as handwashing, waste disposal, and maintaining environmental cleanliness primarily through observation, repetition, and social reinforcement within their daily lives. This finding aligns with Social Learning Theory, which emphasizes that behaviors are developed through modeling and observational learning processes (Déri 2022). Parents and teachers acted as influential role models who consistently demonstrated hygienic behaviors, enabling children to internalize sanitation practices as part of their everyday routines and personal responsibilities (Beam et al. 2019; Biyikoglu Alkan et al. 2025). The study also reflects the relevance of Ecological Systems Theory in understanding how environmental and social systems contribute to children's health-related behaviors. Children's sanitation awareness was not formed in isolation but through interconnected experiences within family environments, school culture, peer interactions, and broader community practices. The phenomenological findings indicate that sanitation behaviors gained meaning when children experienced cleanliness as a source of comfort, safety, and social acceptance within their environments. Thus, sanitation awareness should be understood not merely as a technical health behavior but as a socially and culturally embedded experience that evolves through everyday interactions and environmental learning processes (Marsili et al. 2015).

The findings revealed that children's nutritional behaviors were strongly influenced by environmental and social contexts that shaped their everyday eating experiences. Family routines, school food environments, peer interactions, and local cultural practices collectively contributed to how children understood and practiced healthy eating behaviors. Parents played a significant role in introducing food preferences, meal patterns, and dietary values through daily household practices, while schools reinforced nutritional awareness through health education activities and healthy eating campaigns. These findings suggest that nutritional behavior is not solely an individual choice but rather a socially mediated practice formed through continuous interaction with surrounding environments and social relationships. Children interpreted nutritious food not only in terms of physical health benefits but also as part of emotional care, family attention, and social belonging (Andal 2020). Shared meals with family members, encouragement from teachers, and peer influence shaped children's perceptions of what constitutes healthy eating. In addition, local food culture and community traditions influenced children's dietary habits by embedding nutritional practices within broader cultural experiences (Kiwfo et al. 2021). These findings support the idea that healthy nutritional behavior is deeply connected to environmental experiences and social meanings, emphasizing the importance of contextual and culturally responsive approaches in promoting healthy childhood development through environmental education.

Environmental education emerged as a transformative learning process that significantly shaped children's sanitation awareness and healthy lifestyle behaviors (Norazlan & Said 2023; Wong & Kumpulainen 2019). The findings showed that children developed stronger responsibility toward cleanliness, hygiene, and nutritious eating through experiential learning activities embedded within school and community environments. Activities such as

environmental campaigns, school cleaning programs, recycling practices, and classroom discussions about health and sustainability enabled children to connect environmental care with personal well-being. These experiences transformed environmental education from a purely theoretical subject into a meaningful and practical process that influenced children's everyday behaviors and decision-making related to healthy living. These findings are closely aligned with the principles of Eco-pedagogy and Transformative Learning Theory, which emphasize the role of critical reflection and experiential learning in fostering behavioral transformation (Hardianto et al. 2026). Through repeated participation in environmental and health-related activities, children gradually internalized values of responsibility, care, and sustainability as part of their personal identities. The study indicates that environmental education becomes more effective when it is integrated into children's lived experiences rather than delivered solely through theoretical instruction (Arifin et al. 2025).

The findings highlighted the significant role of collaboration between families and schools in shaping children's sanitation awareness and nutritional behaviors. Participants consistently emphasized that healthy lifestyle practices became more meaningful and sustainable when values related to cleanliness, hygiene, and healthy eating were reinforced across both home and school environments. Parents contributed through daily routines such as preparing nutritious meals, encouraging personal hygiene, and modeling healthy behaviors, while teachers supported these practices through environmental education activities, school health programs, and consistent behavioral guidance. This continuity of experiences allowed children to internalize healthy living practices more effectively as part of their everyday habits and social responsibilities. The study also demonstrated that supportive relationships between families and schools fostered a stronger sense of environmental and health consciousness among children. Collaborative activities such as school clean-up campaigns, health promotion events, and nutrition-related programs created shared learning experiences that strengthened children's motivation to maintain healthy behaviors (Garza 2019; Guan et al. 2024). Children perceived healthy living not as an isolated individual obligation but as a collective practice supported by caring social environments (Jones 2014). These findings suggest that sustainable, healthy childhood development requires integrated educational efforts in which families and schools work together to create consistent environmental values, positive role modeling, and meaningful health-related experiences for children.

The phenomenological findings revealed that children interpreted healthy living as a multidimensional experience closely associated with cleanliness, comfort, happiness, and social well-being. For many participants, a healthy environment was not only defined by the absence of illness but also by feelings of safety, emotional comfort, and positive social interaction within family and school settings. Clean classrooms, hygienic surroundings, and nutritious meals were often described as experiences that made children feel more comfortable, motivated, and confident in their daily activities. These findings indicate that healthy childhood development extends beyond physical health and includes emotional and social dimensions shaped through meaningful environmental experiences. Furthermore, the study showed that children's understanding of healthy living was deeply connected to their relationships with parents, teachers, peers, and surrounding communities. Through daily interactions and environmental

practices, children gradually developed personal meanings regarding responsibility, care, and well-being. Healthy childhood emerged as a lived experience constructed through continuous engagement with supportive environments and positive social relationships (Haggström & Schmidt 2020). This suggests that promoting child well-being requires not only improving sanitation and nutrition but also creating emotionally supportive and environmentally conscious spaces where children can experience comfort, belonging, and holistic development in their everyday lives.

This study contributes to the growing body of literature on environmental education and child well-being by offering an integrated perspective that connects sanitation awareness, nutritional behavior, and healthy childhood development within a phenomenological framework. Previous studies have frequently examined environmental health and nutritional issues through quantitative or public health approaches, with limited attention to children's lived experiences and subjective interpretations (Duong 2020; Yang et al. 2022). By focusing on how children, parents, and teachers construct meanings around healthy living practices, this study expands current discussions on environmental education beyond knowledge acquisition toward the formation of everyday behaviors, social values, and environmental responsibility. The findings therefore provide a more holistic understanding of how environmental education can influence sustainable healthy lifestyle practices among school-age children. Methodologically, the study also contributes to the application of phenomenology within the field of environmental and health education research, particularly in the context of childhood studies. The study strengthens theoretical discussions related to Environmental Literacy and Eco-pedagogy by demonstrating that environmental awareness is developed through meaningful lived experiences rather than solely through formal instruction (Hartnett 2023; Ritchie 2017). Consequently, this research offers conceptual and practical insights for developing more contextual, participatory, and experience-based environmental education programs that support holistic childhood development.

The findings of this study have important implications for educational practice and public health policy related to healthy childhood development. Schools should integrate environmental education, sanitation awareness, and nutritional literacy into daily learning activities and school culture rather than treating them as separate or occasional programs. Experiential approaches such as school gardening, hygiene campaigns, recycling activities, and healthy eating initiatives may help children internalize healthy lifestyle behaviors through meaningful participation and repeated practice. In addition, teachers should be encouraged to act as role models who consistently demonstrate environmentally responsible and health-conscious behaviors within educational settings. These findings suggest that environmental education can serve as an effective strategy for fostering sustainable healthy living habits among school-age children. From a policy perspective, stronger collaboration among schools, families, communities, and local governments is essential for creating supportive environments that promote children's well-being. Policies related to school sanitation, healthy food accessibility, and child-centered environmental programs should be implemented in culturally responsive and contextually relevant ways, particularly within diverse community settings such as those found in South Sulawesi. Furthermore, public health and educational stakeholders

should prioritize integrated programs that combine environmental sustainability, nutritional awareness, and child health promotion. By strengthening these collaborative efforts, environmental education can contribute not only to improving children's physical health but also to fostering long-term environmental responsibility and holistic well-being.

CONCLUSION

This study explored the lived experiences of school-age children, parents, and teachers regarding environmental sanitation awareness and nutritious dietary behavior within the context of environmental education in South Sulawesi. The findings revealed that healthy childhood development is shaped not only by physical health practices but also by meaningful social and environmental experiences constructed through family routines, school culture, and community interactions. Sanitation awareness and healthy eating behaviors were developed through repeated daily practices, observational learning, and experiential environmental education activities that encouraged children to internalize values of cleanliness, responsibility, and well-being. Furthermore, environmental education emerged as a transformative learning process that connected environmental responsibility with sustainable, healthy lifestyle behaviors among school-age children.

The study also highlights the important role of collaboration between families and schools in fostering supportive environments that strengthen children's environmental awareness and health-related behaviors. From a phenomenological perspective, healthy living was understood as a holistic experience associated with comfort, emotional well-being, social relationships, and environmental safety. These findings contribute to the literature on environmental education and child well-being by providing a more contextual and human-centered understanding of how sanitation awareness and nutritional behavior are socially constructed through everyday experiences. Practically, the study suggests that schools and policymakers should integrate environmental education, sanitation literacy, and nutritional awareness into sustainable child-centered educational programs and community health initiatives.

Despite these contributions, the study has several limitations. The research was conducted within a limited sociocultural context in selected schools in South Sulawesi, which may not fully represent the experiences of children from different geographical or cultural settings. In addition, the phenomenological approach focused primarily on subjective experiences and did not examine measurable health outcomes or long-term behavioral changes. Therefore, future studies are encouraged to explore environmental sanitation and nutritional behavior across broader cultural contexts and educational environments. Further research may also employ mixed-methods or longitudinal approaches to examine the long-term impacts of environmental education on children's health behaviors, environmental responsibility, and holistic well-being.

AUTHOR STATEMENTS

Funding

This research was conducted independently by the authors without receiving any external funding or financial sponsorship from governmental, institutional, or private organizations.

Authors' Contribution

Author 1 served as the corresponding author and coordinated the overall research process, including conceptual development, supervision, and manuscript preparation. Author 2 contributed to the development of the research framework and data analysis process. Author 3 was responsible for organizing field data collection, participant coordination, and documentation. Author 4 contributed to manuscript refinement, interpretation of findings, and the revision process based on editorial and reviewers' recommendations. All authors collaboratively participated in designing the study, conducting the research, interpreting the findings, and approving the final version of the manuscript prior to submission.

Disclosure Statement

The authors declare that there are no conflicts of interest regarding the publication of this study.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Acknowledgements

The authors would like to express their sincere gratitude to all individuals and institutions that contributed to the successful completion of this study. Special appreciation is extended to the participating schools, teachers, parents, and school-age children in South Sulawesi for their cooperation, openness, and valuable participation throughout the research process. The authors also acknowledge the support provided by local educational communities and school administrators who facilitated data collection and field observations. Their meaningful contributions greatly enriched the depth and quality of this phenomenological study on environmental education, sanitation awareness, and healthy childhood development.

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