

The environment and children's health

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The coronavirus disease 2019 (COVID-19) pandemic has provided many people with an opportunity to reconsider the relationship between the environment, human life, and human health. This is because the emergence of new infectious diseases is related to climate change and environmental pollution. Climate change is not the only cause of new infectious diseases, but it has been pointed out as an important factor that indirectly affects the occurrence of pandemics. According to an analysis conducted by the World Health Organization (WHO), climate change has increased humans' susceptibility to infections with pathogens. We can see that the past half century, when new infectious diseases have exploded, coincides with the period when climate change has worsened [1].

1. International Convention for the Preservation of the Human Environment

As global interest in environmental issues increased and environmental pollution came to be seen as a common global problem, the United Nations Conference and Declaration on Human Environment was held in Stockholm, Sweden, in 1972. The Stockholm Declaration, which contained 26 principles, placed environmental issues at the forefront of international concerns and marked the start of a dialogue between industrialized and developing countries on the link between economic growth, pollution of the air, water, and oceans, and the well-being of people around the world. To symbolize and

commemorate this event, June 5, the date of the meeting, has been designated as World Environment Day, and the slogan "Only One Earth" was adopted [2]. After that, to make a new blueprint for international action on the environment, the United Nations Framework Convention on Climate Change was held in Rio de Janeiro, Brazil, in 1992. The Rio de Janeiro conference highlighted how different social, economic and environmental factors are interdependent and evolve together, and how success in one sector requires action in other sectors to be sustained over time [3]. However, this framework was non-coercive, so countries have made efforts to improve the global environment through their own policies and their own people's responses. Since then, various agreements have urged international efforts to reduce environmental pollution and preserve the global environment.

2. How Does the Environment Affect Children's Health?

Environmental hazards have been linked to a range of significant health risks for children. The damage caused by a polluted environment has a greater impact on children, who have to live in the future society, than on adults. This is because a harmful environment inherently has a greater long-term impact on children, who are still in the process of development. Therefore, pollution is not just a problem for child health, but more fundamentally a problem for society as a whole [4]. In addition, exposure to toxins and pollutants is more detrimental to children, who have higher metabolic uptake, than to adults. Because children's nervous and reproductive systems are still developing, exposure to these harmful substances has long-term effects on their lives [5]. In particular, climate change exacerbates inequalities in child health because it is difficult for underdeveloped countries or low socioeconomic classes to cope with climate change [6]. According to the United Nations Children's Fund (UNICEF), an estimated 26% of deaths in children under 5 years old could be prevented by addressing environmental risks [7]. The WHO estimates that three million children under the age of 5 die annually from environmentally-related diseases. Weinstangel et al. [8] emphasized the importance of the environment for child health, present-

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ing key considerations related to environmental health for each developmental stage of children.

3. The Impact of COVID-19 on Children

The impact of COVID-19 also harmed children and harmed children and adults in distinct ways. In a December 2022 report, UNICEF called the pandemic "the biggest threat to children in our 75-year history". In particular, children from socially vulnerable groups and those who lacked support systems were more severely affected. According to UNICEF, two-thirds of children and young people do not have an internet connection at home. In addition, for adolescents, the absence of in-person contact at a time when interpersonal relationships with peers are essential for the development of resilience, social roles, and identities will have far-reaching consequences. Reflecting the importance of the environment for child health, in January 2020, the United Nations Human Rights Council published a report titled "Realizing the rights of the child through a healthy environment" [9].

After the emergence of the COVID-19 pandemic, in 2020, the WHO, UNICEF, and the Lancet Commission discussed the policies and environmental conditions that would be needed for the future of children around the world. These discussions emphasized that adults and governments should pay more attention to children's and adolescents' resistance and concerns about environmental pollution and should involve children and adolescents in plans for global sustainability and a healthy future [10].

4. The Need for a New Paradigm on the Environment

Arne Naess, a Norwegian environmental philosopher who created environment-centered deep ecology, already emphasized the importance of environmental preservation in the 1970s, arguing that humans and nature have the same intrinsic and equal value and that everything is interconnected. He also diagnosed the fundamental cause of the ecosystem crisis as evaluating the value of nature from a human perspective and identifying nature as a resource or material to satisfy human desires. He argued that for nature conservation, it is necessary to recognize that protecting nature is beneficial to humans as well. Explaining Naess's ecological philosophy, Kim argued that ecological morality is not formed only through cognitive factors, and can only be formed when experiencing identification with nature through direct encounters with nature [11].

Recently, children—as the future owners of the global environment—have been directly developing eco-friendly activities to ensure their rights, leading campaigns to respond to

the climate crisis, and attempting to actively participate in policy-making. More than 1,000 children from 60 countries have participated in the "My Planet My Rights" online poll (<https://ceri-coalition.org/portfolio/my-planet-my-rights-online-poll/>) as of January 2023. Looking at the responses, children cited climate change as the most serious problem among environmental issues, followed by air pollution. In response to the question, "What actions do children and adolescents most need to solve environmental problems?", the top-priority answer was, "It is necessary to practice environmental protection and environmental education in daily life". Through this campaign, children demanded that the government, in particular, develop an integrated environmental education curriculum, strengthen environmental monitoring of business activities, and include the impact on children's rights in environmental investigations of the role of businesses. It was also emphasized that policymakers should consider children's opinions in key discussions on environmental issues (<https://www.voicesofyouth.org/climate-action>).

Early childhood education for sustainability and the environment is a hot topic. Increasingly many studies have been conducted on environmental education, principally targeting preschool children. The majority of studies have emphasized the effectiveness of play-based, nature-rich pedagogical approaches incorporating movement and social interaction [12]. Early childhood environmental education has a lifelong impact. Nature stewardship has recently been introduced, which sees children as people who have active experiences in terms of awareness and coping with the environment, rather than viewing them as passive beings, and encourages them to recognize what they can contribute to the community. In particular, the author of a recent study on nature stewardship emphasized that early childhood is the most appropriate period for nature stewardship and strongly expressed its necessity as follows:

"Early childhood is an ideal period for humans to learn to use their body, mind, and emotions to connect to the larger community of life through stewardship. By doing so, children can become embedded in a culture of nature caring and restoration instead of nature extraction, ethically and empathetically connect to and familiarize themselves with nature, understand the interdependency between humans and nature, and advance their social, cognitive, and wellbeing capacities, while contributing to the flourishing of the natural world" [13].

Looking back on my experiences of a few months I spent studying in Finland, I could see that Finns, as Naess mentioned, consider humans as part of the environment. Like other Nordic countries, the fact that Finland ranks first in the National Happiness Index may be related to their views on

education. The core of Finnish early childhood education lies not in artificial early knowledge education, but in "nurturing a healthy body and mind through healthy play while being friends with nature outdoors". Preschool children spend most of their time playing in kindergarten playgrounds or forests, and whether it rains or snows, children spend a long time outside wearing clothes suitable for the weather. Even in the cold weather in winter, all elementary school students wear padded jackets and run and play in the snow-covered playground during the 15-minute break after a 45-minute class, after which they return to the classroom. Additionally, not only in physical education class, but in biology or even math, teachers always strive to find ways to connect the material taught in the unit of the subject with experiences in nature near the school.

From an evolutionary point of view, humans emerged from natural forests to form societies, which have been present in only a small part of the long history of humankind. Edward Wilson, famous as a scholar of consilience, says in his book *Biophilia* that human beings have forests as part of their heritage from birth, and that humans have no choice but to yearn for and depend on nature, which is already imprinted in our genes [14]. In addition, Luov, in his book *The Last Child in the Woods*, argues that many of the health problems of children and adolescents in modern society are caused by reduced opportunities to come into contact with nature, and named this phenomenon "nature-deficit disorder" [15]. In fact, several studies have recently demonstrated the positive effects of activities in nature on children's health [16-19].

5. Suggestions for the Future

In conclusion, health and the environment cannot be considered separately. This topic has been frequently mentioned in recent editorials published in pediatric journals [5,20]. These editorials convey the message that understanding the health of children and adolescents and training medical professionals must be rooted in a realization of the importance of the environment based on bioecological theories, breaking away from the existing framework. Nevertheless, there is still a lack of interest and research on the relationship between the environment and children's health in the field of child health nursing. In order for children to recognize themselves as part of the natural environment and to conserve the environment, they must take part in more activities in nature and have more positive experiences from an early age. When children consider nature as their companion and spend enough time in nature, they will be able to anticipate a healthy future. It is necessary for children to be aware of the importance of the environment, practice environmental conservation voluntarily, and

express their opinions—and, furthermore, adults need to listen to them, because nature and the environment are their future. I suggest that researchers and clinicians in the field of child health nursing pay more attention to this issue and actively conduct research to generate relevant evidence in the future.

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Authors' contribution

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Data availability

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