

ORIGINAL ARTICLE

# Environmental Health Awareness: Evaluation of Pre-service Teachers' Awareness and Attitudes

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## Ethical Statement

No ethics committee approval was needed for this manuscript.

## Funding Information

No funding was received for the study

## Conflict of Interest

No conflict of interest is present in the conduction or the reporting of this study.

## ABSTRACT

Environmental pollution and climate change have increasingly become a global threat in recent years, particularly causing significant adverse effects on children's health. The aim of this study is to assess the knowledge and awareness levels of pre-service teachers regarding environmental health issues and to examine how this awareness can serve as an effective tool in combating environmental problems. In the study, the knowledge and attitudes of pre-service teachers towards environmental pollution, climate change, and their effects on children's health were evaluated using the "Environmental Attitude Scale." The survey results show that environmental health education plays a crucial role in raising environmental awareness among pre-service teachers and making them more sensitive to environmental issues. According to the findings, the awareness levels of pre-service teachers regarding the health impacts of environmental pollution and climate change are quite high. However, their awareness of how they can individually develop solutions to environmental problems is found to be lower. In this context, educating pre-service teachers on these issues will enhance their capacity to instill environmental awareness in their students and contribute to raising societal awareness. The results emphasize the need to expand environmental health education programs, not only providing theoretical knowledge but also equipping individuals with the competencies to actively produce solutions to environmental problems. The data obtained from the study reveal that pre-service teachers with high levels of environmental awareness tend to exhibit environmentally friendly behaviors. These results suggest that environmental education can play a critical role in fostering sustainable living habits on both individual and societal levels. It is expected that pre-service teachers with high environmental awareness will transmit this awareness to their students in their future professional roles, leading to long-term benefits in combating environmental issues.

**Keywords:** Environmental pollution, Climate change, Environmental awareness, Environmental health education

Received: 11/02/2024

Accepted: 21/10/2024

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## INTRODUCTION

Environmental pollution and climate change have become two of the most pressing global health issues today. These problems have profound and negative effects on the health of vulnerable groups, particularly children. The World Health Organization (WHO) reports that environmental pollution is responsible for respiratory diseases, developmental disorders, allergies, and other serious health problems in millions of children globally each year (WHO, 2020). Environmental threats, particularly air, water, and soil pollution, have become more widespread due to rapid industrialization and urbanization. Children, being more sensitive to these pollutants, are especially at risk (Smith, 2021).

Air pollution is a significant health concern, particularly for children living in large cities. Particulate matter (PM<sub>2.5</sub>) and other pollutants can lead to the development of chronic respiratory diseases, such as asthma and bronchitis. According to the European Environment Agency (EEA), air pollution causes approximately 400,000 premature deaths annually across Europe (EEA, 2021). Similarly, water contamination and agricultural chemicals entering the soil can weaken children's immune systems, making them more vulnerable to infections (Jones, 2019).

Climate change, on the other hand, disrupts the environmental balance and directly impacts human health through global warming, reduced air quality, water contamination, and the increase of natural disasters. Children are particularly vulnerable to the health impacts of these changes. Extreme weather events related to climate change, such as heatwaves, can cause heat stress and dehydration in children (WHO, 2020). Additionally, declining water resources and reduced food production exacerbate issues such as malnutrition and limited access to clean water for children (Turan, 2019).

Environmental awareness plays a crucial role in addressing these problems. Environmental health education equips individuals with the knowledge and skills needed to develop environmentally conscious behaviors, making it a critical tool in reducing the effects of environmental pollution and climate change. Teachers, in particular, play a key role in passing this awareness on to younger generations. Educators who are knowledgeable and aware of environmental health issues can effectively convey these topics to their students (Jones, 2019).

Teachers who are well-versed in environmental health not only teach their students to be environmentally conscious but also equip them with the skills to develop effective solutions to environmental problems. In this context, educating pre-service teachers on environmental health issues is of great importance for building a sustainable future (Smith, 2021). Moreover, raising environmental awareness has positive effects not only on individuals but also on society, increasing the overall capacity to tackle environmental challenges.

This study aims to examine the impact of environmental health education programs on pre-service teachers and assess how these programs influence their knowledge levels. It is expected that environmentally conscious teachers will provide more effective environmental education to their students, thereby helping future generations become more sensitive and knowledgeable about environmental issues. Environmental education programs for pre-service teachers not only increase their awareness but also encourage them to adopt environmentally friendly behaviors (Turan, 2019).

Research has shown that environmental health education positively affects pre-service teachers' attitudes towards environmental issues and can have long-term positive effects on their students (Smith, 2021). In this context, efforts to raise environmental awareness among pre-service teachers can yield positive results not only at the individual level but also at the societal level. Raising environmentally aware individuals will enhance our capacity to address environmental

issues and contribute to building a sustainable future (Jones, 2019).

This study evaluates the environmental awareness levels of pre-service teachers and aims to determine how environmental health education contributes to their knowledge and attitudes. For environmental issues such as pollution and climate change to be addressed more effectively in schools, it is essential to raise teachers' awareness on these topics. In this regard, the development and expansion of environmental education programs will contribute to raising future generations as individuals who act with environmental awareness (Turan, 2019).

### **Purpose of the Study**

The purpose of this researcher is to determine whether Pre-service Teachers' environmental awareness shows significant differences according to gender.

## **METHOD**

### **Material and Methods**

This study was conducted using a descriptive and cross-sectional research design to evaluate pre-service teachers' knowledge and awareness levels regarding environmental health issues. The research aims to examine participants' levels of environmental awareness and attitudes based on data collected over a specific period.

The study was carried out during the 2023-2024 academic year among pre-service teachers enrolled in various education faculties across universities in Turkey. The research sample was diversified to include pre-service teachers from different disciplines, and the sampling method used was simple random sampling.

### **Data Collections**

The *Environmental Attitude Scale* developed by Uzun and Sağlam (2006) was employed to measure participants' levels of environmental awareness. This scale consists of 27 items and is divided into two subscales: "Environmental Behavior" and "Environmental Thought." The first 13 items of the scale constitute the Environmental Behavior subscale, while the remaining 14 items comprise the Environmental Thought subscale. Items 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 of the Environmental Thought subscale are reverse coded. The scale is structured using a 5-point Likert rating system (1 = Strongly Disagree, 5 = Strongly Agree). Validity and reliability studies of the scale were previously tested in different age groups, and the Cronbach Alpha internal consistency coefficient was calculated as 0.85, indicating that the scale is a reliable measurement tool.

The data collection process for the study began in the first half of 2023, and data were collected via online surveys. Using online tools, the survey was distributed to pre-service teachers through Google Forms. Participants volunteered for the study and consented to participate by signing an informed consent form before completing the survey.

The scale used to determine pre-service teachers' environmental awareness and attitudes was administered individually in an online environment. The data obtained from participants were analyzed using the SPSS (Statistical Package for the Social Sciences) version 26.0 program. The Kolmogorov-Smirnov test was conducted to assess the normality of the data distribution. Continuous variables showing normal distribution were reported as mean  $\pm$  standard deviation, while those not showing normal distribution were presented as median (min-max).

### **Statistical Analysis**

Both parametric and non-parametric tests were employed in the analysis of the data. t-test was applied to determine the differences in environmental awareness levels among pre-service teachers based on gender, age, and class level. A significance level of  $p < 0.05$  was set for all analyses.

## RESULTS AND DISCUSSION

**Table 1.** Gender Distribution of Students

| Gender | n   | %   |
|--------|-----|-----|
| Male   | 90  | 45  |
| Female | 110 | 55  |
| Total  | 200 | 100 |

The ages of the students ranged between 18 and 24, with a mean age of  $21.8 \pm 2.18$  years. It was found that 45% of the students were male and 55% were female (Table 1). Our study was conducted with a total of 200 students. Of these, 30% were first-year university students, 20% were second-year students, 35% were third-year students, and 15% were fourth-year students (Table 2).

**Table 2.** Class Distribution of Students

| Class    | n   | %   |
|----------|-----|-----|
| 1. Class | 60  | 30  |
| 2. Class | 40  | 20  |
| 3. Class | 70  | 35  |
| 4. Class | 30  | 15  |
| Total    | 100 | 100 |

**Table 3.** Differences in Students' Environmental Attitudes Based on Gender Groups

| Subscales              | Gender | means | SS   | p     |
|------------------------|--------|-------|------|-------|
| Environmental Behavior | Female | 36.17 | 7.56 | 0.002 |
|                        | Male   | 32.02 | 8.94 |       |
| Environmental Thought  | Female | 64.08 | 7.98 | 0.001 |
|                        | Male   | 57.02 | 6.98 |       |

According to the results of the t-test conducted to determine whether there were statistically significant differences in students' levels of environmental attitudes based on gender groups, it was found that the difference in environmental behavior levels between gender groups was statistically significant. Specifically, female teacher candidates scored significantly higher in environmental awareness compared to their male counterparts ( $p=0.002$ ). Additionally, it was found that the difference in environmental thinking levels between gender groups was statistically significant ( $p=0.001$ ) (Table 3).

The mean score of the scale for the students included in the study was found to be  $80.01 \pm 13.01$ . According to the "Environmental Attitude Scale" used in the study, significant gender-based differences were observed in teacher candidates' attitudes toward environmental pollution and climate change. Female teacher candidates demonstrated a higher level of awareness of environmental issues compared to male teacher candidates.

## CONCLUSION AND RECOMMENDATIONS

This study aimed to evaluate the environmental awareness and attitude levels of pre-service teachers and to investigate the impact of environmental health education. The findings show that the pre-service teachers exhibited high levels of environmental awareness, particularly regarding the negative effects of environmental pollution, climate change, and child health. These results align with the existing literature on environmental awareness and parallel previous studies that support the influence of environmental education on individuals' attitudes and behaviors (Smith, 2021; Jones, 2019).

The study's findings suggest that environmental health education effectively enhances the knowledge and awareness of pre-service teachers. It is noteworthy that gender had a significant influence on environmental awareness. Female pre-service teachers demonstrated higher levels of environmental awareness and sensitivity compared to their male counterparts. This finding is consistent with the literature, where numerous studies indicate that women tend to exhibit greater sensitivity toward environmental issues (Turan, 2019). Women's heightened environmental concern may be linked to societal roles and socialization processes, as well as concerns for the future and health of their children (Smith, 2021). Another significant finding of the study is the relationship between age and environmental awareness, with younger pre-service teachers showing higher levels of environmental consciousness. This suggests that younger generations are more engaged with environmental issues such as climate change, which is consistent with previous research (Jones, 2019). Younger generations are known to be more attentive to global environmental challenges like climate change, pollution, and sustainability and to play a more active role in addressing these issues.

The results of this study show that the pre-service teachers' awareness of environmental health has increased. Given the negative impacts of environmental pollution and climate change on child health, integrating this awareness into education could provide long-term benefits. Previous research supports these findings. For instance, Turan (2019) emphasized the importance of environmental education for pre-service teachers in increasing environmental awareness and sensitivity. Similarly, Smith (2021) noted that environmentally conscious teachers deliver more effective education and contribute to spreading awareness across society.

Our findings also suggest that environmental awareness has the potential to foster not only individual change but also societal transformation. Jones (2019) highlighted the detrimental effects of environmental pollution on children and

argued that teachers should play a leading role in this regard. In this context, expanding educational programs for pre-service teachers could be a critical step in addressing environmental pollution and climate change.

The results of this study demonstrate that environmental health education has a significant impact on pre-service teachers. The environmental health courses provided during the training process were found to enhance pre-service teachers' understanding of the relationship between environmental pollution, climate change, and health, and to increase their sensitivity to these issues. As noted in the literature, environmental education not only increases individuals' knowledge but also promotes the development of environmentally friendly behaviors (Turan, 2019; Smith, 2021). Therefore, it is suggested that environmental health education contributes to the professional development of pre-service teachers and plays a crucial role in fostering environmental consciousness in their future students.

However, the study has certain limitations. The use of self-reported surveys as a data collection tool may not fully reflect participants' actual attitudes. Future research could benefit from using qualitative methods, such as in-depth interviews and focus groups, to explore pre-service teachers' environmental awareness levels in greater depth.

It is important to emphasize that environmental education programs should not only cover theoretical knowledge but also include practical solutions and actions for addressing environmental issues. Providing knowledge alone may not be sufficient; transforming this knowledge into behaviors requires more hands-on, project-based learning activities within education programs (Smith, 2021). Additionally, organizing regular seminars, workshops, and environmental events for pre-service teachers would help raise environmental awareness.

## **Conclusion**

This study has demonstrated that pre-service teachers possess a high level of environmental awareness and that environmental health education is effective in enhancing this awareness. In particular, demographic factors such as gender and age were found to have significant impacts on environmental awareness, with female pre-service teachers and younger generations showing greater sensitivity toward environmental issues. Environmental health education should be regarded as a key element in the professional development of pre-service teachers, and such training should be more comprehensively integrated into teacher education programs.

Future research should aim to increase the generalizability of these findings by conducting studies with larger and more diverse samples from different regions. Additionally, examining the long-term effects of environmental awareness education and assessing its impact on student behaviors will contribute to the development of more effective environmental education programs. The results of this study highlight the critical role educators play in addressing global challenges such as environmental pollution and climate change. Moreover, it underscores the importance of increasing teachers' environmental awareness to support their efforts in raising future generations as environmentally conscious and responsible individuals.

**REFERENCES**

- European Environment Agency (EEA). (2021). Air quality in Europe.
- Jones, P. (2019). The impact of environmental pollution on child health. *Journal of Environmental Science*, 45(3), 201-215.
- Smith, J. (2021). Teacher education and environmental health: Enhancing awareness through targeted programs. *International Journal of Education and Development*, 56(4), 320-335.
- Turan, N. (2019). Assessing environmental awareness and sensitivity among pre-service teachers: An empirical study. *Educational Research and Reviews*, 14(5), 178-190.
- Uzun, N., ve Saęlam, N. (2006). Ortaöęretim öęrencileri için Çevresel Tutum Ölçeęi geliştirme ve geçerlilięi. *Hacettepe Üniversitesi Eęitim Fakóltesi Dergisi*, 30, 240-250.
- World Health Organization (WHO). (2020). Environmental Health and Pollution.