Ecological Footprint and Climate Change: Awareness and Emotional Responses of University Students

Ekolojik Ayak İzi ve İklim Değişikliği: Üniversite Öğrencilerinin Farkındalığı ve Duygusal Tepkileri

Araştırma
Research

Onur Er[1], Erman Kavlu[2], Selma Metintaş[3], Muhammed Fatih Önsüz[4]

DOI: 10.17942/sted.1844724

Geliş/Received: 18.12.2025
Kabul/Accepted: 11.08.2026

Abstract

Objective: University students' level of understanding of environmental impacts, their concerns about climate change, and their hopes for preventing these changes are of great importance for the sustainability of the future. This study aims to assess university students' awareness of their ecological footprint, their level of worry about climate change, and their level of hope regarding the prevention of climate change.

Materials and methods: The study was conducted on university students. A total of 1,095 university students who accepted to participate in the study formed the study group. The first section of the questionnaire form included participants' sociodemographic characteristics and ecological footprint awareness, The second section included the Climate Change Worry Scale, the third section included the Climate Change Hope Scale, and the final section of the questionnaire included the Awareness Scale for Reducing Ecological Footprint.

Results: A moderate level positive correlation was found between the scores obtained from the Climate Change Hope Scale and the Awareness Scale for Reducing Ecological Footprint. In Further analysis revealed that women and whose family income was minimum wage or higher had a higher awareness of reducing their ecological footprint.

Conclusion: It is important to work with public and private sector organizations and civil society organizations under the leadership of universities to increase consumers' awareness of reducing their ecological footprint. Using the power of the internet and social media to increase interaction can enable reaching more people.

Keywords: climate change; ecological footprint; environmental awareness; university students; climate change worry

Özet

Amaç: Üniversite öğrencilerinin çevresel etkileri anlama düzeyleri, iklim değişikliğine dair endişeleri ve bu değişiklikleri önleme konusundaki umutları, geleceğin sürdürülebilirliği açısından büyük önem taşımaktadır. Bu çalışma, üniversite öğrencilerinin ekolojik ayak izi farkındalığını, iklim değişikliği ile ilgili endişe düzeylerini ve iklim değişikliğinin önlenmesi ile ilgili umut düzeyini değerlendirmeyi amaçlamaktadır.

Gereç ve yöntem: Çalışma üniversite öğrencileri üzerinde yürütülmüştür. Çalışmaya katılmayı kabul eden toplam 1.095 üniversite öğrencisi çalışma grubunu oluşturmuştur. Anket formunun ilk bölümünde katılımcıların sosyodemografik özellikleri ve ekolojik ayak izi farkındalıkları, ikinci bölümde İklim Değişikliği Endişe Ölçeği, üçüncü bölümde İklim Değişikliği Umut Ölçeği ve anketin son bölümünde Ekolojik Ayak İzini Azaltılmasına Yönelik Farkındalık Ölçeği yer almaktadır.

Bulgular: İklim Değişikliğinin Önlenmesine Yönelik Umut Ölçeği ile Ekolojik Ayak İzini Azaltma Farkındalık Ölçeği'nden alınan puanlar arasında orta düzeyde pozitif korelasyon bulunmuştur. İleri analizde, aile geliri asgari ücret ve üzeri olanların ve kadınların ekolojik ayak izlerini azaltma konusunda daha yüksek farkındalığa sahip olduğu ortaya koyulmuştur.

Sonuç: Tüketicilerin ekolojik ayak izlerini azaltma konusunda farkındalıklarını artırmak için üniversitelerin öncülüğünde kamu, özel sektör ve sivil toplum kuruluşlarıyla iş birliği yapmak önemlidir. İnternetin ve sosyal medyanın gücünü kullanarak etkileşimi artırmak, daha fazla insana ulaşmayı sağlayabilir.

Anahtar Sözcükler: iklim değişikliği; ekolojik ayak izi; çevre bilinci; üniversite öğrencileri; iklim değişikliği endişesi

[1] *Dr. Arş. Gör., Department of Public Health, Faculty of Medicine, Eskisehir Osmangazi University (Orcid no: 0009-0006-2185-1105)*
[2] *Dr. Arş. Gör., Department of Public Health, Faculty of Medicine, Eskisehir Osmangazi University (Orcid no: 0009-0006-8542-150X)*
[3] *Prof. Dr., Department of Public Health, Faculty of Medicine, Eskisehir Osmangazi University (Orcid no: 0000-0002-5002-5041)*
[4] *Prof. Dr., Department of Public Health, Faculty of Medicine, Eskisehir Osmangazi University (Orcid no: 0000-0001-7234-3385)*

Introduction

Ecological footprint is a concept that refers to the fertile land and water area used to reproduce the natural resources consumed by a person, community or activity and to eliminate the produced wastes (1). In this context, it has been explained that the ecological footprint increased due to the impact of human activities on nature. Globally, the ecological footprint per person is approximately 2.6 global hectares, which significantly exceeds the world biocapacity of 1.5 global hectares per person. However, in Türkiye, although the global hectare biocapacity per person is 1.5, the ecological footprint per person is 3.5 (2).

The UN Framework Convention on Climate Change definition is "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods" (3). Since the 1960s, the world has witnessed rapid industrialization, technological developments and urbanization, which have increased the amount of ecological footprint, and as a result, the increase in climate change and environmental problems that threaten natural life and human health (4,5). Adverse conditions that threaten ecological balance, including deforestation, biodiversity loss, freshwater pollution, soil degradation, and global warming, have been steadily increasing on a global scale (6,7).

The efforts of governments and policy makers to implement green practices are essential in controlling environmental problems. However, the efforts of individuals, the current state of the environment, and the lack of control or weakness over this situation can trigger emotional changes. These negative emotions can cause regret, guilt, or anxiety (8). The failure to take effective steps in combating climate change can increase anxiety among youth due to adverse scenarios such as potential water scarcity, ecosystem degradation, and extreme weather events (9). Conversely growing social awareness foster hope among young people for a more sustainable world in the future (10).

To increase the awareness mentioned and lead to behavioral changes, it is very important to be able to measure the direct and indirect effects of people on nature. In an international study, approximately 75% of the participants stated that they perceived climate change as a major threat to future generations (11). In a study conducted in Türkiye, 49.3% of the participants stated that climate change was a major threat to the future of the country and that they were concerned (12). However, developments in science and technology, the widespread use of renewable energy sources, and increased social awareness give hope to young people for a more sustainable world in the future (9). Since university students will be the future professionals, their level of understanding of environmental impacts, their concerns about climate change, and their hopes for preventing these changes are of great importance for the future sustainability.

By increasing awareness of the ecological footprint in schools, government channels and social media, the damage that individuals cause to nature can be reduced. Individuals who realize the effects on their own lives and on future generations can take responsibility for these damages (13). This study aims to evaluate the awareness of university students' about ecological footprint, their level of concern about climate change, and their level of hope for preventing climate change.

Materials and Methods

Study design and study participants

The study was conducted in Eskişehir, a province in the western Türkiye, in the 2024 academic year, where 6.9% of the population consists of university students. This cross-sectional study targeted students at Eskişehir Osmangazi University (ESOGU) beginning their internship period (4th and 5th year students of the Faculty of Medicine, and 3rd and 4th year students of the Faculties of Agriculture, Theology, Education, and Engineering). The total study population consisted of 4,581 students enrolled in these faculties and years. Using Epi Info v5.5.18, a minimum sample size of 1,038 was calculated based on a 50% expected frequency, 3% margin of error, 95% confidence level, and a design effect of 1.2, accounting for the increased variance from the stratified sampling structure. The minimum number of participants

required per faculty was determined as 510 (Engineering), 233 (Education), 117 (Medicine), 105 (Agriculture), and 73 (Theology). A total of 1,095 university students who agreed to participate constituted the study group.

Measurement tools

A questionnaire was prepared in accordance with the purpose of the study, in the light of the literature (8,12,14). The questionnaire consisted of 4 sections. The first section included the sociodemographic characteristics of the participants (age, gender, marital status, faculty, class, family income status) and variables related to ecological footprint or climate change (faculties including it in their programs, having information about greenhouse gases). The second section included the "Awareness Scale for Reducing the Ecological Footprint" (ASREF), the third section included the "Climate Change Worry Scale" (CCWS), and the fourth section included the "Climate Change Hope Scale" (CCHS).

The Awareness Scale for Reducing the Ecological Footprint was developed by Tekindal et al. in 2021 and its validity and reliability were performed. The scale is a 5-point Likert-type scale and is scored as Strongly Disagree=1, Disagree=2, Undecided=3, Agree=4 and Strongly Agree=5. A minimum of 30 and a maximum of 150 points can be obtained from the scale. As the total score increases, it is determined that ecological footprint awareness is increased (15). The Cronbach's Alpha value of the ASREF in the study group was calculated as 0.93.

The Climate Change Worry Scale was developed by Stewart in 2021 (16). The Turkish validity and reliability study was conducted by Gezer and İlhan in 2021 (17). The scale has 10 items with a five-point Likert-type rating. Each item is scored as "1- never", "2- rarely", "3- sometimes", "4- often", "5- always". Increasing scores indicate that the individual's anxiety due to climate change increases. The Cronbach's Alpha value of the CCWS was calculated as 0.92 in the study group.

The Climate Change Hope Scale was developed by Li and Monroe in 2018 (18). The Turkish validity and reliability study was conducted by Gezer and İlhan in 2020. The scale consists of 11 items and a five-point Likert-type rating is required for each item. The scale is scored between 1-5 as "1- Does not describe me at all" and "5- Describes me completely". Items 9, 10 and 11 in the scale are reverse scored when calculating the total scale score. As the total score increases, hope for climate change increases (19). The Cronbach's Alpha value of the CCHS was calculated as 0.79 in the study.

Data analysis

The analysis of the collected data was performed in the SPSS (version 29.0) statistical package program. Number, percentage, mean, median and standard deviation values were calculated for the descriptive data. The conformity of the measurable data to normal distribution was evaluated with the Kolmogorov-Smirnov Test. Mann Whitney-U test, Kruskal Wallis test and Spearman Correlation analysis were used for statistical analyses. In order to reveal the factors affecting the ecological footprint, multiple logistic regression analysis was performed by taking the dependent variable ecological footprint awareness score with the variables with statistical significance in univariate analyses. Those who received at least 120 (≥80%) out of the maximum possible value of 150 points were categorized as having high awareness, while those with a total score of <120 (<80%) were classified as having low awareness. The binary categorization of the total scores obtained was adapted from Bloom's cut-off criteria and a similar study (20,21). The statistical significance value was accepted as $p<0.05$.

Ethics approval

Ethical approval was obtained from the ESOGU Non-Interventional Clinical Research Ethics Committee (dated 19/03/2024 and numbered 54).

Results

The study group consisted of 1,095 university students, 590 (53.9%) male and 505 (46.1%) female. The median age was 22 (19–53) years. According to the answers given in ASREF, the most agreed three choices were, "Effective use of solar energy in urban structuring is beneficial for the environment.", "I am careful not to leave electrical devices on for long periods of time.", and "I think that industrial organizations should take measures to protect environmental health

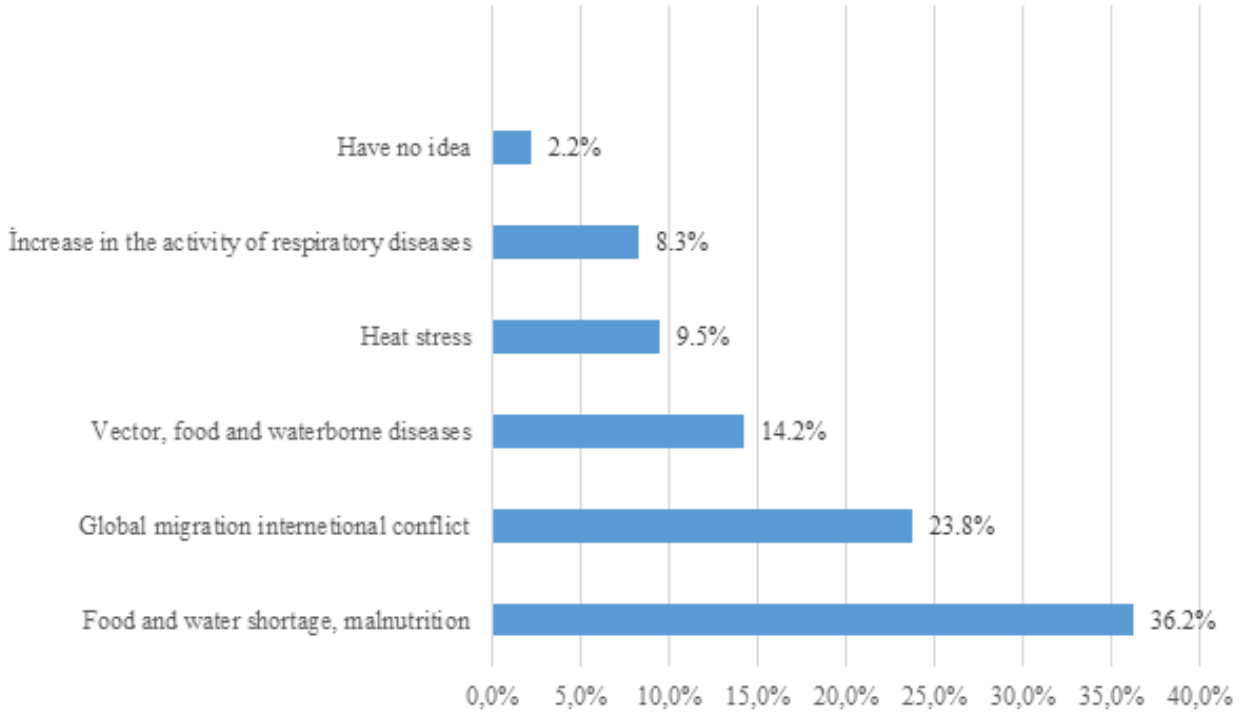
and prevent pollution of natural resources within the scope of legal obligations." The statement they agreed with the least was, "In the content of cleaning materials, prefer cosmetic products that do not harm the environment."

The scores obtained from the ASREF ranged from 30 to 150, with a median of 114. The distribution of the scores obtained by the study group from the ASREF according to sociodemographic characteristics is given in Table 1.

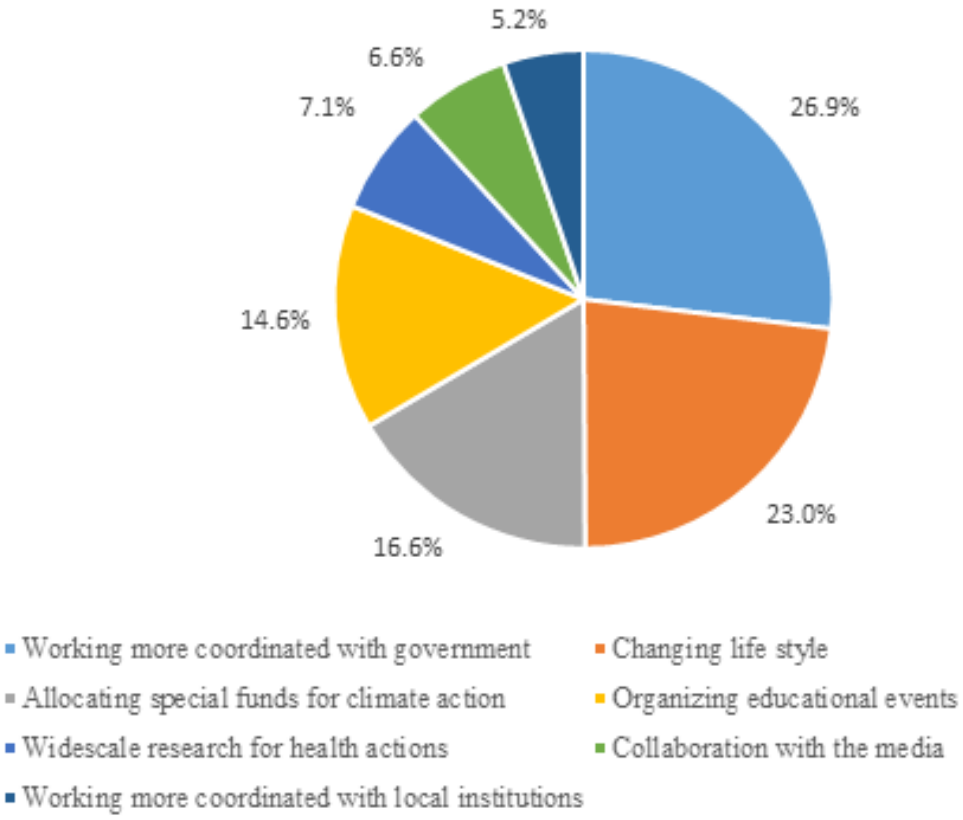
Table 1. Comparison of the scores obtained from the Awareness Scale for Reducing the Ecological Footprint according to sociodemographic characteristics and related factors

Variables	n (%)	ASREF Scores	Statistical Analysis
		Median (Min-Max)	p
Gender			
Female	505 (46.1)	117 (46–150)	**<0.001**
Male	590 (53.9)	110 (36–150)	
Faculty			
Medicine	138 (12.6)	112 (46–150)	**<0.001**
Education[a]	254 (23.2)	118 (30–150)	
Agriculture	115 (10.5)	114 (71–150)	
Theology	78 (7.1)	117 (46–150)	
Engineering[b]	510 (46.6)	111 (44–150)	
Class			
Before the internship	558 (51.0)	114 (30–150)	0.997
Internship	537 (49.0)	113 (44–150)	
Family Income			
Less than minimum wage[a]	48 (4.4)	98 (46–150)	**<0.001**
Minimum wage[b]	226 (20.6)	114 (30–150)	
More than minimum wage[b]	821 (75.0)	114 (43–150)	
Including climate change and environmental health issues in the faculties' programs			
Yes[a]	199 (18.2)	116 (30–150)	**0.048**
No[b]	513 (46.8)	114 (32–150)	
No idea[b]	83 (35.0)	112 (44–150)	
Awareness of the increase in greenhouse gases in the atmosphere			
Has knowledge	889 (81.2)	114 (30–150)	**0.017**
No knowledge	206 (18.8)	108 (32–150)	
Perceptions Regarding the Causes of Climate Change			
Belief that it is human-induced	902 (82.4)	115 (30–150)	**<0.001**
Belief that it occurs naturally	97 (8.9)	100 (44–150)	
No opinion	96 (8.7)	104 (32–150)	
Engagement in Actions to Mitigate Climate Change			
Yes	296 (27.0)	115 (46–150)	**0.045**
No	799 (73.0)	113 (30–150)	
Total	1095 (100.0)	114 (30–150)	-

The group that made the difference is indicated by the letters a. b.



Graph 1. Distribution of responses to the question "What is the most important health impact that will be encountered as a result of climate change?"



Graph 2. Distribution of responses to the question "What is the most important action that can be taken to prevent climate change?"

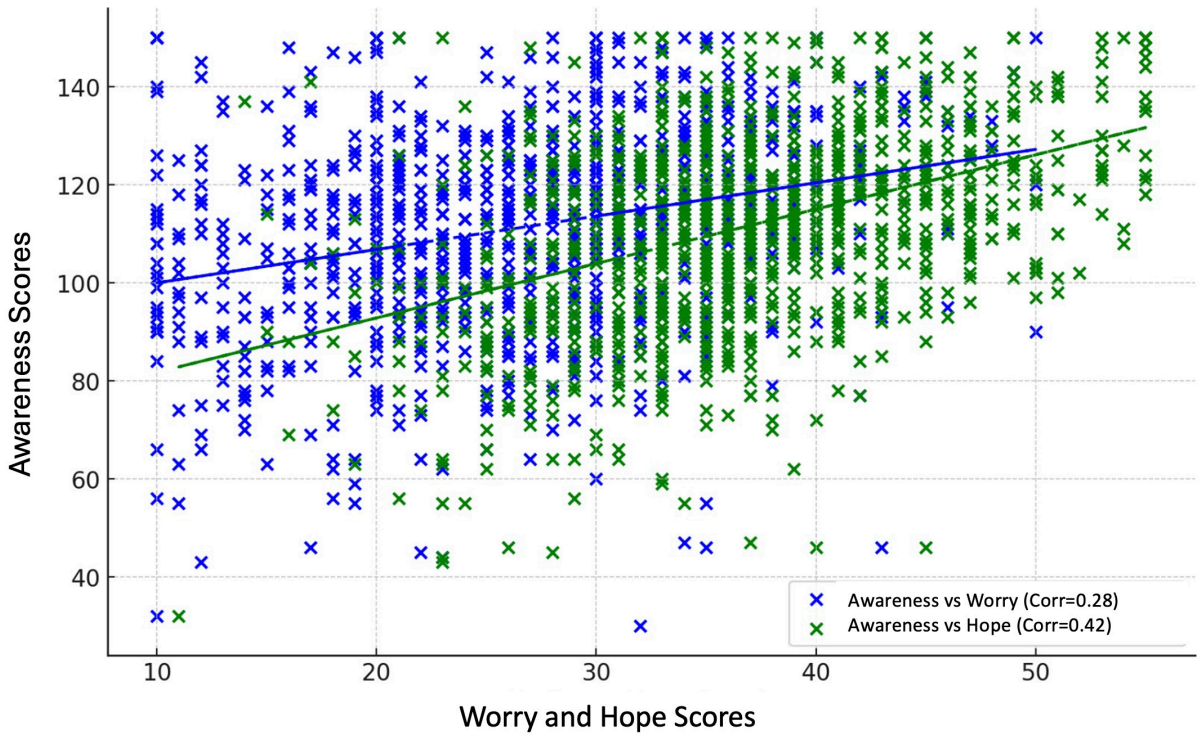
In the study group, 513 (46.8%) reported that their faculties did not have education programs on climate change and environmental health. Of the participants, 889 (81.2%) stated that they were aware of the increase in greenhouse gases in the atmosphere, while 902 (82.4%) thought that climate change was caused by humans. Also, 799 (73.0%) of the students reported that they did not do anything to reduce climate change.

In the study, 905 (82.7%) of the students reported that the most of the source of their knowledge on climate change was the internet/ social media. Besides, 397 (36.2%) participants reported that as a result of climate change, the most importantly encountered health impacts would be food and water shortages and malnutrition. The distribution of the facts considered to be the most important health impacts that will be encountered as a result of climate change according to the participants is given in Graph 1.

By 294 (26.9%) of the students in the study group, it was reported that the most important action that can be taken to prevent climate change is to work more coordinated with government institutions. The distribution of the thoughts of the participants about the most important actions that could be taken to prevent climate change is given in Graph 2.

A low level positive correlation was found between the scores obtained from the Climate Change Worry Scale and the ASREF ($r= 0.28$; $p<0.001$). A moderate level positive correlation was found between the scores obtained from the Climate Change Hope Scale and the ASREF ($r= 0.42$; $p<0.001$). The distribution of the scores of participants from the ASREF, the CCHS and the CCWS is given in Graph 3.

According to the multiple logistic regression analysis, the determined predictors of ecological footprint awareness were male gender, having a family income less than minimum wage, and those who received low scores on the CCWS and the CCHS. The results of the multiple logistic regression analysis created with the variables found to be related to the students' ecological footprint awareness scores are given in Table 2.



Graph 3. Scatter diagram showing the relationship between the scores of the Climate Change Worry Scale and the Climate Change Hope Scale and the Awareness Scale for Reducing the Ecological Footprint

Table 2. Results of the multiple logistic regression analysis created with the variables found to be related to the ecological footprint			
Parameters	**OR**	**95% CI***	**p**
Gender (reference:male)	1.830	1.428-2.346	<0.001
Family Income Status (reference:less than minimum wage)	1.360	1.072-1.725	0.010
Total score of the climate change worry scale	1.070	1.052-1.087	<0.001
Total score of the climate change hope scale	1.089	1.069-1.109	<0.001
*Confidence Interval			

Discussion

Climate change is becoming one of the important problems the world is facing. Triggered climate change due to the increase in the global warming, resulting in difficulty in living conditions causes a necessity for finding a solution to this situation. Furthermore, the impacts of climate change on human health are of paramount importance from a public health perspective (14).

The fact that women being more sensitive and being the primary caregivers can positively affect their awareness. Therefore, women's awareness of reducing their ecological footprint is expected to be higher than men's (22,23). In the study, as expected, women's awareness of reducing their ecological footprint was found to be higher than men's. Similarly, in the study conducted by Medina et al., it was reported that women were more aware of reducing the ecological footprint and environmental health compared to men (24). In the study conducted by Zhao et al. on gender and green consumption, it was shown that women were more aware of environmental issues and exhibited more environmentally protective attitudes compared to men (25). In another study conducted by Patrick et al., no significant difference was found between women and men in terms of awareness of reducing the ecological footprint (26). The reason for the different results reported in the studies may be that the sociocultural structures in the study groups were different and gender equality was more applicable.

Lower economic status may be associated with limited access to educational resources which can influence environmental knowledge and awareness. Therefore, awareness of environmental approaches is limited in individuals with low family income, and awareness of reducing the ecological footprint is expected to be low (27). In the study group, in those with a family income less than minimum wage, awareness levels regarding reducing the ecological footprint were found to be lower than others. In the study by Alam et al., it was reported that higher income status was associated with higher ecological footprint awareness (28). Similarly, Philippssen et al., also reported that higher income status was associated with higher ecological footprint awareness (29). However, Ogunbode et al., reported that there was no difference in awareness of reducing the ecological footprint among those with higher family incomes compared to those with lower family incomes (30). The distribution of different income levels in the study groups may have been the reason for the differences in the results of the studies.

An increase in individuals' hope levels for preventing climate change can increase their awareness of reducing their ecological footprint. Individuals and societies are more likely to take action on issues when they have a hope for a solution (31). A positive moderate correlation was found between the scores of the participants in the study from the CCHS and the scores they received from the ASREF. Helm et al., reported that awareness of increasing individual ecological footprints increased in individuals with high levels of hope for preventing climate change (32). Boluda et al., reported that individuals with high awareness for reducing their ecological footprint had lower hopes for preventing climate change (33). The different results reported in the studies may be due to different measurement tools.

In the study, food and water shortage, malnutrition were identified as the most significant health impact that will be encountered as a result of climate change. Biçer et al., reported cancer as the primary health consequence of climate change (34). Climate change is a phenomenon that exacerbates drought, thereby depleting water resources and adversely affecting natural ecosystems. Consequently, the primary repercussions manifest as the disruption of agricultural lands and the agricultural sector, leading to a prominent decline in food resources (35). The impacts of the climate crisis unfold through abrupt and unprecedented shifts; furthermore, the convergence of population growth and environmental stressors engenders larger, more complex challenges in food supply (36).

Limitations

It can be said that the research has some limitations. The fact that the study being a single center study, that was conducted only one university, that the responses were based on statements are limitations in terms of generalizability. The fact that the research was conducted on a voluntary basis may lead to selection bias.

Conclusion

As a result, it was determined that women and those whose family income was equal to or more than the minimum wage had higher awareness of reducing the ecological footprint. Higher levels of climate change worry and hope were associated with greater ecological footprint awareness. Providing education to university students on climate change and its health effects, organizing social activities or symposiums can increase their awareness. It is important to work with public and private sector organizations and civil society organizations under the leadership of universities to increase consumers' awareness of reducing their ecological footprint.

Funding

The authors declare that they have not received financial support from any institution or organization during the conduct of this study.

Authors contributions: Data Collection: OE, EK. Concept: OE, EK, SM, MFÖ. Design: OE, EK, SM, MFÖ. Data Processing: OE, EK. Analysis or Interpretation: OE, EK. Literature Search: OE, EK. Writing: OE, EK, SM, MFÖ.

Contact: Onur Er
E-Mail: onurer0607@gmail.com

References

1. Wackernagel M, Rees W. Our ecological footprint: Reducing human impact on the Earth. Philadelphia: New Society Publishers; 1998. p. 7–85
2. Global Footprint Network. Global footprint data (Internet). 2024 (cited 2025 Dec 18). Available from: https://data.footprintnetwork.org
3. United Nations. United Nations Framework Convention On Climate Change. Available from: https://www.un.org/en/conferences/environment/rio1992
4. Zulfiqar K, Sabir AA, Nawaz AR, Farasat F. Urbanization in a globalized world: Reviewing environmental sustainability in developing countries. Popul Econ. 2024;8(3):70–85.
5. Li M, Bai Q, Du W. The world is different because of you: global warming, technological progress and economic development. Struct Change Econ Dyn. 2025;74:202–11.
6. IPCC. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, 2023 pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.001
7. United Nations. UN Environment Programme. Making peace with nature: A scientific blueprint to tackle the climate, biodiversity and pollution emergencies. Nairobi, 2021. https://www.unep.org/resources/making-peace-nature
8. Ágoston C, Urbán R, Nagy B, Csaba B, Kőváry Z, Kovács K, et al. The psychological consequences of the ecological crisis: Three new questionnaires to assess eco-anxiety, eco-guilt, and ecological grief. Clim Risk Manag. 2022;37:100441.

9. Albayrak AN, Atasayan Ö. Yerel düzeyde iklim değişikliği farkındalığı analizi / Gebze örneği. Tübav Bilim Dergisi, 2017;10(4):1-10.
10. Çıplak E. The mediating role of the future time perspective in the relationship between global climate change awareness and hope for the prevention of climate change. South African Journal Of Psychology, 2022;52(4), 498-509.
11. Hickman C, Marks E, Pihkala P, et al. Climate anxiety in children and young people and their beliefs about government responses to climate change: A global survey. Lancet Planet Health. 2021;5(12):E863–73.
12. Korkmaz M, Şahin H. İklim değişikliği endişesini etkileyen faktörler: Mersin iline yönelik bir araştırma. Turk J For Sci. 2023;7(2):210–22.
13. Gurbuz IB, Nesirov E, Ozkan G. Investigating environmental awareness of citizens of Azerbaijan: A survey on ecological footprint. Environ Dev Sustain. 2021;23:10378–96.
14. Er O, Demirsoy NP, Yıldız P, Arslangiray Ö, Kırımlıoğlu N, Akbay F, et al. Impacts of climate change on health: A current assessment. Asian J Environ Ecol. 2024;23(12):134–48.
15. Tekindal MA, Zabzun G, Özel Z, Demirsöz M, Tekindal M. Awareness scale for reducing ecological footprint: A validity and reliability study. Eur J Sci Technol. 2021;27:439–5.
16. Stewart AE. Psychometric properties of the climate change worry scale. Int J Environ Res Public Health. 2021;18(2):494.
17. Gezer M, İlhan M. İklim değişikliği endişesi ölçeği: Türkçeye uyarlama çalışması. Ege Coğrafya Derg. 2021;30(1):195–204.
18. Li C, Monroe MC. Development and validation of the climate change hope scale for high school students. Environ Behav. 2018;50(4):454–79.
19. Gezer M, İlhan M. İklim değişikliğinin önlenmesine yönelik umut ölçeği: Türkçeye uyarlama çalışması. Akdeniz Eğit Araştırmaları Derg. 2020;14(34):337-56.
20. Bloom BS. Learning for mastery. Eval Comment. 1968;1:1-12.
21. Akın S, Kara A. Factors affecting the ecological footprints of academicians: a case study from Dicle University, Türkiye. Appl Ecol Environ Res. 2025;23(2):1815-30.
22. Çelik A, Küçük A. Toplumsal cinsiyet açısından çevre duyarlılığı: Şanlıurfa örneği. Dicle Univ İİBF Derg. 2022;12(24):387–406.
23. Strapko N, Hempel L, MacIlroy K, Smith K. Gender differences in environmental concern: Reevaluating gender socialization. Soc Nat Resour. 2016;29(9):1015–31.
24. Medina MAP, Toledo-Bruno AG. Ecological footprint of university students: Does gender matter? Glob J Environ Sci Manag. 2016;2(4):339–44.
25. Zhao Z, Gong Y, Li Y, Zhang L, Sun Y. Gender-related beliefs, norms, and the link with green consumption. Front Psychol. 2021;12:710239.
26. Patrick R, Snell T, Gunasiri H, Garad R, Meadows G, Enticott J. Prevalence and determinants of mental health related to climate change in Australia. Aust N Z J Psychiatry. 2023;57(5):710–24.
27. Shen J, Saijo T. Reexamining the relations between socio-demographic characteristics and individual environmental concern: Evidence from Shanghai data. J Environ Psychol. 2008;28(1):42-50.
28. Alam MM, Zakaria AFM. A probit estimation of urban bases of environmental awareness: evidence from Sylhet City, Bangladesh. Development Compilation. 2013;9(1).
29. Strieder Philippssen J, Soares Angeoletto FH, Santana RG. Education level and income are important for good environmental awareness: a case study from South Brazil. Ecol Austral. 2017;27(1):39–44.
30. Ogunbode CA, Arnold K. A study of environmental awareness and attitudes in Ibadan, Nigeria. Hum Ecol Risk Assess. 2012;18(3):669–84.
31. Fiala A. Nero's fiddle: On hope, despair, and the ecological crisis. Ethics Environ. 2010;15(1):51–68. doi:10.2979/ete.2010.15.1.51.
32. Helm S, Kemper JA, White SK. No future, no kids–no kids, no future? An exploration of motivations to remain childfree in times of climate change. Popul Environ. 2021;43:108–29.
33. Boluda-Verdu I, Senent-Valero M, Casas-Escolano M, Matijasevich A, Pastor-Valero M. Fear for the future: Eco-anxiety and health implications, a systematic review. J Environ Psychol. 2022;84:101904.
34. Biçer BK, Vaizoğlu SA. Hemşirelik bölümü öğrencilerinin küresel ısınma/iklim değişikliği

hakkındaki bilgi ve farkındalıklarının belirlenmesi. Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi, 2015:2(2):30-43.
35. Mbow C, Rosenzweig C, Barioni LG, Benton TG, Herrero M, Krishnapillai M, et al. Food security. In: Climate change and land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. Intergovernmental Panel on Climate Change; 2019. p. 437–550.
36. Partigöç NS, Soğancı S. Küresel iklim değişikliğinin kaçınılmaz sonucu: Kuraklık. Resilience, 2019;3(2):287-99.