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Investigating pro-Environmental Behaviors and Related Factors among University Students in Ilam City

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A B S T R A C T

Background and Objective: pro-Environmental Behaviors (PEB) are voluntary actions by an individual or group that directly or indirectly affects environmental changes or brings benefits to the environment. The aim of this study was to determine the pro-Environmental Behaviors and related factors of students at universities in Ilam City.

Materials & Methods: The present study is a descriptive analytical study conducted to investigate PEB among 448 students from universities in Ilam City. Data were analyzed using SPSS version 16, employing linear and multiple regression analyses at a significance level of 0.05.

Results: The findings showed a significant positive relationship between self connection with nature (b: 1.88; $p < 0.001$) and physical experience of nature (b: 3.02; $p < 0.001$) with PEB, while worldview toward nature had no relationship (b: 0.20; $p = 0.301$). In the multiple regression model, the observed relationships persisted: self connection with nature (b: 1.32; $p < 0.001$) and physical experience of nature (b: 2.23; $p < 0.001$) maintained a significant positive relationship with PEB, whereas worldview (b: 0.06; $p = 0.755$) did not.

Conclusion: The results of this study indicate that self connection with nature and physical experience of nature can play an important and influential role in PEB.

Keywords: pro-Environmental Behaviors, environment, connectedness with nature, worldview toward nature, self connection with nature, physical experience of nature

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Introduction

Human behavior is one of the most important factors in creating environmental challenges, including climate change, global warming, environmental pollution, and destruction of nature. Studying human behavior in relation to nature can provide a deeper understanding of how these problems arise and help predict the future state of the environment for later generations (1). Pro-Environmental Behaviors (PEB) are voluntary actions by an individual or group that directly or indirectly affects environmental changes or brings benefits to the environment. Each person, based on cultural, social, and personality characteristics, behaves differently toward the environment – which may be completely positive and responsible or, conversely, completely negative and anti environmental (2, 3). Previous evidence has shown that PEB have a significant impact on environmental conservation and sustainability. For this reason, researchers and scientists have investigated the roots of these behaviors – such as values, perceptions, norms, and attitudes related to PEB – in order to propose preventive measures and educational interventional strategies that facilitate responsible environmental behaviors among people in different societies (4). Previous studies have also examined other factors related to PEB. For example, Chwialkowska et al. reported that culture, by influencing people's beliefs and attitudes, plays an important role in nature conservation(5). Similarly, Sorour et al. found that environmental self efficacy and knowledge of climate change are strong predictors of PEB (6). Another concept addressed in this context is the feeling of connectedness with nature. According to philosophers and psychologists, people who feel a stronger connection with nature and see themselves as part of nature exhibit more positive behaviors. Thus, connectedness with nature is considered a special affinity that promotes greater well being for both humans and nature (7, 8) . Another factor confirmed to be associated with PEB is emotional connectedness with nature, which expresses an individual's emotional experience in relation to nature and is a strong predictor of ecological behavior, environmental identity, and environmental worldviews(9) . Moreover, existing evidence has pointed to the concept of physical connection with nature as a positive element for human health, such that strengthening human nature interaction can enhance both nature's sustainability and human health (10) . Given the above, PEB are influenced by worldview, experiences and feelings related to nature, the way one interacts with nature, and cultural backgrounds. Given environmental challenges, societies need to participate in mitigating them. Students, as the youth of a society, are among the most important stakeholders who will be affected by these challenges now and in the future (11). Therefore, this study was conducted to investigate PEB and its related factors among students in Ilam City.

Materials and methods

The present study is a descriptive analytical study conducted to investigate PEB among students in Ilam City, Ilam Province, western Iran, in 2025. Ilam City has five universities: Ilam University, University of Medical Sciences, Islamic Azad University, Payam Noor University, and Farhangian University. The sample size was estimated using the Cochran formula, considering a 5% error, giving 455 individuals (12). A stratified random sampling method was used. First, the number of students in each target university was calculated separately. Then the contribution of each university to the estimated sample size was calculated. Afterwards, students from each university were randomly recruited based on availability and inclusion criteria and completed the questionnaire. Inclusion criteria were studying at one of the universities in Ilam City and willingness to participate in the study. A questionnaire was used for data collection. One part covered demographic characteristics: age, gender, father's education, mother's education, student's level of study, and monthly family income. To measure environmental behaviors, the PEB Questionnaire by Kamal et al. was used (13). This

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questionnaire includes 32 items scored on a five point Likert scale (always, most of the time, sometimes, rarely, never). To measure connectedness with nature, the questionnaire by Hassani Darmian et al. was used (12). This questionnaire has three dimensions: self connection with nature (6 items), worldview toward nature (5 items), and physical experience of nature (4 items). The items of this questionnaire are also scored on a five point Likert scale. A higher score in each dimension indicates a better status. The questionnaires were completed as self reports. The time required to answer the questionnaire questions was approximately 15 minutes. In total, 455 questionnaires were distributed and 448 participants completed the study questionnaire. After collection, data were entered into SPSS version 16. All variables were described using frequency distribution tables. Simple and multiple regression were used to analyze the relationship between independent and dependent variables. Data were analyzed with a 95% confidence interval and a significance level of 0.05.

Results

The mean age of the participating students was 24 ± 5.79 years. The gender distribution showed that 247 were female and 201 were male. Further information on the distribution of demographic variables is presented in Table 1.

Table 1. Distribution of demographic variables among students participating in the study

		Frequency	Percent
Gender	Female	247	55
	Male	201	44.8
Educational level	Associate degree	30	6.7
	Bachelor's	332	73.9
	Master's	48	10.7
	Professional doctorate	39	8.7
Father's education	Elementary	86	19.2
	Middle school	75	16.7
	High school diploma	121	26.9
	University	166	37
Mother's education	Elementary	114	25.04
	Middle school	67	14.9
	High school diploma	144	32.1
	University	123	27.4

Table 2 shows the mean and standard deviation of self connection with nature, worldview toward nature, and environmental behaviors of the participating students. The results indicate that the mean worldview toward nature was at a desirable level, but the means of the other variables were moderate to low.

Table 2. Mean and standard deviation of self connection with nature, worldview toward nature, and Pro-environmental behaviors among students participating in the study.

	Mean	SD	Minimum	Maximum
Self-esteem in relation to nature	13.64	4.55	6	30
Worldview toward nature	17.51	5.79	5	25
Physical experience of nature	9.95	3.09	4	18

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Pro-environmental behaviors	71.30	20.87	32	135

The relationship between different dimensions of environmental behavior and PEB is shown using simple and multiple linear regression analyses. As shown in Table 3, in the simple model, a significant positive relationship was observed between self connection with nature (b: 1.88; $p < 0.001$) and physical experience of nature (b: 3.02; $p < 0.001$) with PEB, while worldview toward nature had no relationship with behavior. In the multiple model, the observed relationships persisted, with self connection with nature (b: 1.32; $p < 0.001$) and physical experience of nature (b: 2.23; $p < 0.001$) showing a significant positive relationship with PEB.

Table 3. correlation of self connection with nature and worldview toward nature with responsible environmental behaviors in students based on linear and multiple regression.

	Model 1 b (95% CI)	p-value	Model 2 b (95% CI)	p-value	Model 3 b (95% CI)	p-value
Self-esteem in relation to nature	1.27 (0.81–1.74)	<0.001	1.27 (0.83–1.76)	<0.001	1.23 (0.75–1.71)	<0.001
Worldview toward nature	-0.10 (-0.46–0.26)	0.575	-0.13 (-0.49–0.23)	0.481	-0.11 (-0.48–0.26)	0.561
Physical experience of nature	2.21 (1.48–2.93)	<0.001	2.17 (1.44–2.90)	<0.001	2.13 (1.39–2.87)	<0.001

Table 4 shows the correlation between different dimensions of environmental behavior and PEB based on multiple linear regression models after controlling for various confounders. In Model 1, after controlling for age and gender, there remained a significant positive relationship between self connection with nature (b: 1.27; $p < 0.001$) and physical experience of nature (b: 2.21; $p < 0.001$) with PEB. These relationships persisted after controlling for additional variables including age, gender, student's level of education, mother's education, and father's education, with self connection with nature (b: 1.29; $p < 0.001$) and physical experience of nature (b: 2.17; $p < 0.001$) showing a significant positive relationship with PEB (Model 2). Model 3 further showed that even after controlling for additional variables including income, a significant positive relationship still existed between self connection with nature (b: 1.23; $p < 0.001$) and physical experience of nature (b: 2.13; $p < 0.001$) with PEB.

Table 4. Adjusted multiple regression models for the association of self connection with nature and worldview toward nature with PEB in students.

	Model 1 b (95% CI)	p-value	Model 2 b (95% CI)	p-value	Model 3 b (95% CI)	p-value
Self-esteem in relation to nature	1.27 (0.81–1.74)	<0.001	1.27 (0.83–1.76)	<0.001	1.23 (0.75–1.71)	<0.001
Worldview toward nature	-0.10 (-0.46–0.26)	0.575	-0.13 (-0.49–0.23)	0.481	-0.11 (-0.48–0.26)	0.561
Physical experience of nature	2.21 (1.48–2.93)	<0.001	2.17 (1.44–2.90)	<0.001	2.13 (1.39–2.87)	<0.001

Model 1: Adjusted for age and gender
Model 2: Adjusted for age, gender, student's education, father's education, mother's education
Model 3: Adjusted for age, gender, student's education, father's education, mother's education, and monthly family income

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Discussion

The environment is an extremely complex set of different factors that has emerged through the gradual growth and evolution of living organisms. Environmental issues are mostly a consequence of human social behavior. Today, responsible environmental behaviors have gained attention as a human factor in preventing environmental crises. Connectedness with nature has received less attention as a factor influencing responsible environmental behaviors. The aim of this study was to investigate PEB among students at universities in Ilam City. According to the instrument measuring PEB, the mean score of these behaviors was moderate to low, indicating that environmental issues and the need to protect nature have received less attention in universities. Less attention to culture building through education and encouraging the younger generation to protect the environment is another influencing factor on students' environmental behaviors. Based on the findings of this study, the mean worldview toward nature was at a desirable level (17.51), but the mean of self connection with nature (13.64), physical experience of nature (9.95), and PEB (71.30) were moderate to low. The study findings showed a significant positive relationship between self connection with nature and physical experience of nature with PEB, which is consistent with previous studies (14, 15). Martin et al. found that self connection with nature positively influences PEB (15). Alcock et al. reported that people with greater interest in nature and those who spend more leisure time in nature are more likely to participate in PEB (14).

PEB can develop through experiences in nature. People who spend more time in nature and are members of an environment friendly organization perform more PEB (16). In our study, an inverse relationship was observed between education level and students' PEB, which aligns with previous studies. Neurohr et al. found that as students' education level increased, their PEB decreased; the trend of environmental attitudes declines from early elementary grades to high school (17). It has also been shown that nature experience, organizing nature camps, and greater interaction with nature are much more effective than formal education (18). Therefore, it is necessary to facilitate students' interaction with nature and provide them with learning opportunities in nature and nature based experiences.

In the present study, there was no significant relationship between worldview toward nature and PEB. This finding has also been confirmed in previous studies. For example, Abbaszadeh et al. reported that appropriate views about nature do not necessarily lead to appropriate actions and behaviors, which is consistent with the results of the present study (19). However, some studies are inconsistent. Some studies have argued that people's worldview toward nature and ecological worldview are influential elements in individuals' protection of the environment (20). People who see nature as a resource for life that supplies most of their needs, and who feel a stronger connection with nature, participate more in its protection. These behaviors are in line with a positive view toward nature conservation and an individual's environmental worldview (17, 21, 22).

Conclusion

MEnvironmental issues are largely influenced by human behaviors, and environmental responsibility plays an important role in reducing ecological crises. This study showed that students' PEB are influenced by various factors, including direct experience with nature, the feeling of connectedness with the environment, and the level of awareness about the importance of protecting it. The findings indicate that the stronger an individual's connection with nature, the more likely they are to participate in pro-environmental activities.

One important result of this research was the inverse relationship between education level and PEB. This finding suggests that formal educational methods alone are insufficient and that practical experience in nature may have a greater impact on increasing

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environmental commitment. It was also found that a positive attitude toward nature does not necessarily lead to sustainable behaviors unless accompanied by practical engagement. In light of these results, strengthening practical experiences in nature, designing applied educational programs, and promoting an environmental culture in universities can have a significant impact on improving PEB among students.

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Conflict of interest

The authors have no conflicts of interest to declare for this study.

Authors' contributions

Conceptualization, Methodology and Study Design, Data Collection and Interpretation, Writing and Editing Of Manuscript, Project Administration: MJ, BP, ZG, HN.

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References

1. Lange F, Dewitte S. Measuring pro-environmental behavior: Review and recommendations. Journal of Environmental Psychology. 2019;63:92-100.
2. Damghanian Z, Aminbeidokhti A, Jafari S. Predicting Responsible Environmental Behavior and Participation in Environmental Protection Based on Environmental Beliefs of the Students by Mediating Environmental Attitudes. Journal of Environmental Science Studies. 2020;5(2):2651-60.
3. Farahmand M, Shokohifar K, Sayarkhalaj H. A study of social factor affecting environmental behavior of residents of the city of Yazd. Urban studies. 2014;4(10):109-41.
4. Truelove HB, Gillis AJ. Perception of pro-environmental behavior. Global Environmental Change. 2018;49:175-85.
5. Chwialkowska A, Bhatti WA, Glowik M. The influence of cultural values on pro-environmental behavior. Journal of Cleaner Production. 2020;268:122305.
6. Sorour DM, Atta MH, Mohamed AA, Alfayomy NA, Othman AA, Eweida RS. Unveiling the interplay between knowledge, self-efficacy, and pro-environmental behavior about climate change in a sample of rural community-dwelling older adults: A national correlational study. Geriatric Nursing. 2025;62:72-80.
7. Cervinka R, Röderer K, Hefler E. Are nature lovers happy? On various indicators of well-being and connectedness with nature. Journal of Health Psychology. 2012;17(3):379-88.
8. Lengieza ML, Swim JK. The Paths to Connectedness: A Review of the Antecedents of Connectedness to Nature. Frontiers in Psychology. 2021;12.
9. Perrin JL, Benassi VA. The connectedness to nature scale: A measure of emotional connection to nature? Journal of Environmental Psychology. 2009;29(4):434-40.
10. Stott D, Forde D, Sharma C, Deutsch JM, Bruneau M, Jr., Nasser JA, et al. Interactions with Nature, Good for the Mind and Body: A Narrative Review. Int J Environ Res Public Health. 2024;21(3).
11. Shafiei A, Maleksaeidi H. Pro-environmental behavior of university students: Application of protection motivation theory. Global Ecology and Conservation. 2020;22:e00908.
12. Hassani Darmian GH.R, SAYARKHALAJ H, Fatemi Khesal M. investigating responsibly environmental behaviors with emphasis on connectedness with nature (case study: high school students in Tehran). sustainable development of geographical environment. 2020;1(4):1-17.
13. Kamal F, Fouladi Fard R, Sabahi Hoveida A, Gharlipour Z, Rezaie Rahimi N. Designing and evaluating the validity and reliability of environmental behavior tools. Iranian Journal of Health and Environment. 2021;14(2):285-98.
14. Alcock I, White MP, Pahl S, Duarte-Davidson R, Fleming LE. Associations between pro-environmental behaviour and neighbourhood nature, nature visit frequency and nature appreciation: Evidence from a nationally representative survey in England. Environment International. 2020;136:105441.
15. Martin L, White MP, Hunt A, Richardson M, Pahl S, Burt J. Nature contact, nature connectedness and associations with health, wellbeing and pro-environmental behaviours. Journal of Environmental Psychology. 2020;68:101389.
16. Michaelson V, King N, Janssen I, Lawal S, Pickett W. Electronic screen technology use and connection to nature in Canadian adolescents: a mixed methods study. Can J Public Health. 2020;111(4):502-14.
17. Neurohr A-L, Pasch N, Bergmann-Gering A, Möller A. Linking students' interest in nature to their self-reported pro-environmental behavior and nature activities – A cross-sectional study in grade 5 to 9. The Journal of Environmental Education. 2024;55(6):460-79.
18. Takshe AA, Hennawi M, Jebril Se, Alawi S, AlZaidan S, Okasha A. Investigating determinants of pro-environmental behaviors amongst UAE university students through Q-methodology. Discover Sustainability. 2023;4(1):38.
19. abbaszadeh m. Study of Intervening Effect of Environmental Responsible Attitude on the Relationship of between Place Attachment and Environmental Responsible Behavior. Journal of Applied Sociology. 2016;27(2):61-80.
20. Donmez-Turan A, Kiliclar IE. The analysis of pro-environmental behaviour based on ecological worldviews, environmental training/ knowledge and goal frames. Journal of Cleaner Production. 2021;279:123518.
21. Barragan-Jason G, Loreau M, de Mazancourt C, Singer MC, Parmesan C. Psychological and physical connections with nature improve both human well-being and nature conservation: A systematic review of meta-analyses. Biological Conservation. 2023;277:109842.
22. Meloni A, Fornara F, Carrus G. Predicting pro-environmental behaviors in the urban context: The direct or moderated effect of urban stress, city identity, and worldviews. Cities. 2019;88:83-90.

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