



## Modeling the relationship between concerns and environmental attitudes among students, University of Agricultural Sciences and Natural Resources Khuzestan, Iran

Abolmohammad Bondori<sup>1</sup>✉, Masoumeh Forouzani<sup>1</sup>, and Fatemeh Ghasemzadeh<sup>1</sup>

<sup>1</sup>Department of Agricultural Extension and Education, Agricultural Sciences and Natural Resources University of Khuzestan, Mollasani, Iran

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### ABSTRACT

One of the desirable solutions to overcome environmental challenges is the education and training of academic-educated human resources holding an environmental perspective. Therefore, the aim of the present research was to model the relationship between concerns and environmental attitudes of students at the Agricultural Sciences and Natural Resources University of Khuzestan. The statistical population of this study included students enrolled and actively studying at this university during 2022-2023. The sample size of 161 was determined using the Cochran formula, and sampling was done using the proportional stratified-random manner. Findings indicated that 72% of the variance in students' environmental attitudes was predicted by environmental concerns. Moreover, environmental concern variables significantly modeled students' attitudes toward the environment. Therefore, to improve agricultural students' attitude, influential figures such as pro-environmental academic members and other well-known individuals could hold seminars at universities discussing the importance of environmental conservation. and by delivering speeches at university seminars on promoting respect and environmental conservation. This could potentially shift students' perspectives on the environment, leading to an increased positive attitude towards environmental protection.

### \*Corresponding author:

A. Bondori

✉ [bandari.a94@gmail.com](mailto:bandari.a94@gmail.com)



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## 1. Introduction

Environmental issues and challenges are among the most pressing concerns for humanity in the 21st century ([Forouzani et al., 2024](#)). The current environmental crises, alongside population growth, increasing poverty, and the spread of dangerous diseases, pose a significant threat to human society ([Karimi and Alitavakoli, 2022](#)). Issues such as biodiversity loss, changes in land use, and ocean pollution are some of the most critical challenges resulting from human interventions impacting the environment ([Shah Pasand et al., 2019](#); [Imani et al., 2023](#)). Today, the experiences of environmental challenges are not confined to developed nations but are widespread across all countries globally ([Bondori et al., 2020](#)). In this sense, Iran's environmental sustainability status is not favorable when compared to other countries worldwide ([Bondori et al., 2021](#)); Proof of this claim is that Iran ranked 67<sup>th</sup> among the countries in the world in 2020. According to

the latest Environmental Performance Index report published in 2022, Iran has experienced a significant decline, dropping to 133rd place out of 180 countries globally, marking a decrease of 66 positions from 2020. Iran's more detailed and hazardous environmental indicators are as follows: biodiversity ranked 150th, climate change ranked 159th, heavy metals ranked 164th, per capita greenhouse gas (GHG) emissions ranked 151st, greenhouse gas (GHG) intensity growth rate ranked 171st, carbon dioxide (CO<sub>2</sub>) emissions ranked 112th, and methane (CH<sub>4</sub>) emissions ranked 154th among 180 countries in the world ([Wolf et al., 2022](#)). In terms of air pollution, Iran ranked 21st among 131 countries in the world in the air quality index (35.5 micrograms), and the air quality has deteriorated compared to 2021, 6.5 times the World Health Organization's air quality ([IOAir, 2022](#)). Actors in Iran's environmental arena, including the masses of people, the academic community, economic enterprises, and the government, have been unsuccessful in protecting the

environment and preventing the spread of destruction and pollution (Bondori et al., 2019). The cause of many of these problems can be generalized to the lack of attention, ignorance, and weak importance of the environment in people's social life, as well as inappropriate policies (Nadem Souraki et al., 2023; Bondori et al., 2024). A recommended approach to overcome environmental problems is to provide education and training to individuals, especially university graduates, fostering a sustainable environmental mindset (Bondori et al., 2019). Therefore, investigating the environmental attitudes of students is of great importance, as they are the future custodians, planners, policymakers, and educators responsible for environmental matters (Darakhshan Houreh et al., 2021). In this regard, universities play an influential role in training human resources; in other words, universities educate a young generation expected to take on the responsibility of decision-making regarding many development programs and projects in general, and specifically in agricultural development in the future. Their future decisions will have a significant impact on environmental sustainability (Gholizadegan et al. 2019). In light of the above points, the main objective of this study was to analyze and modelling the relationship between environmental concerns and attitudes among agriculture and natural resources students in Khuzestan.

## 2. Materials and Methods

The present study, in terms of methodology, falls under the category of descriptive and explanative research. In the present study, a survey method was used among students of Agricultural Sciences and Natural Resources University of Khuzestan, which is located in southwestern Iran. This university is engaged in scientific activities in the form of 3 faculties. The statistical population of interest included all students enrolled and actively studying at the Agricultural Sciences and Natural Resources University of Khuzestan during 2022-2023 (N=1753). The sample size was determined as 161 people using Cochran's formula. The sampling method used in this study was a stratified random method in which the students were classified according to the educational level (bachelor, master, and doctorate). The research instrument was a researcher-made questionnaire consisting of three sections: demographic characteristics, Environmental concern with 13 items, and attitude with 14 items. The validity of the instrument was confirmed by a panel of experts. The collected data were coded and analyzed using SPSSv26 & LISRELv20/10 software. The Interval of Standard Deviation from the Mean (ISDM) method was used to determine the level of students' environmental concerns and attitudes.

## 3. Results and Discussion

Based on the results presented in Table 1, 19.9% of the students are negative towards environmental protection, 23.0% of the respondents are relatively negative, 40.4% are relatively positive and 16.8% are positive. Therefore, these percentages indicate that the majority of agricultural students at the University of Agricultural Sciences and Natural Resources of Khuzestan have a positive and relatively positive environmental attitude. These findings are consistent with the results reported in Bondori and Jamshidi (2021) and Shahi, et al. (2021).

**Table 1** Frequency distribution of environmental attitude levels among students

Level	Frequency	Percentage
Negative attitude	32	19.9
Relatively negative attitude	37	23.0
Relatively positive attitude	65	40.4
Positive attitude	27	16.8
Total	161	100.0

Based on the results provided in Table 2, 18.6% of students show weak concern regarding environmental protection, 18.0% are very weakly concerned, 53.4% express a high level of concern, followed by 9.9% of respondents demonstrating very high concern. As a result, most of the agricultural students are well aware of the importance of environmental protection and feel worry about it.

**Table 2** Frequency distribution of environmental concern levels among students

Level	Frequency	Percentage
Weak concern	30	18.6
Very weak concern	29	18.0
Good concern	86	53.4
Very good concern	16	9.9
Total	161	100.0

In order to examine the correlations among the variables under study, Pearson correlation coefficients were used, considering the type of scale of the variables being examined. According to the results of correlation analysis, a significant relationship was found between respondents' environmental concerns and students' environmental attitudes (Table 3). These findings are consistent with those reported in Mohammadsalehi et al. (2023).

**Table 3** Exploring the correlation between environmental concerns and the attitudes of students

Independent Variable	Correlation Type	Correlation Coefficient	P-Value
Environmental concern	Pearson	0.774**	0/000

\*\*Significance at the 1% level \*Significance at the 5% level

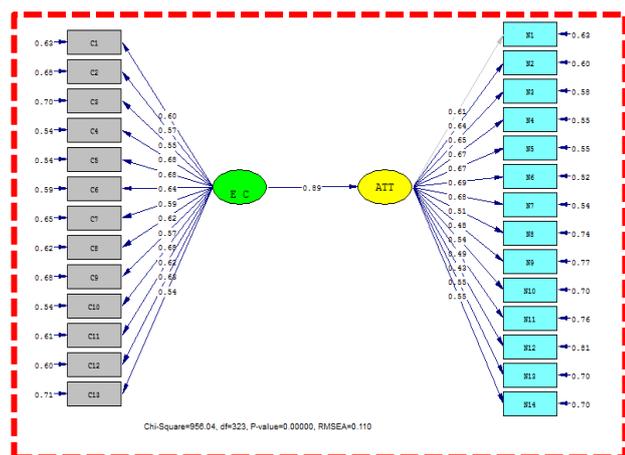
Furthermore, the findings in Table 4 indicate that, consistent with the research hypothesis, the variable of environmental concerns, represented by a path coefficient ( $\beta=0.89$ ), had a positive and significant impact on students' environmental attitudes ( $t=7.72$ ,  $P<0.00$ ). Examination of the model fitted to the study sample unveils the structural equations detailed in Table 4, highlighting that the environmental concerns variable accounts for a total of 72% of the variance in students' attitudes towards the environment. The fitted structure of the path analysis and the significant t-value modeling the relationship

between environmental concerns and attitudes of students are shown in Fig. 1.

**Table 4** Investigating the direct effects of environmental concerns on the attitudes of students

Dependent variable	Independent variable	Direct effect	T value	Indirect effect	Total effect	R <sup>2</sup>
attitude	Environmental concern	0.85	7.72*	-	0.85	0.72

\*\*Significance at the 1% level



**Fig. 1** The structural model – path analysis model (ATT: Attitude, EC: Environmental Concern)

**4. Conclusion**

This study was conducted with the aim of modeling the relationship between environmental concerns and attitudes of students at the Agricultural Sciences and Natural Resources of Khuzestan. In general, the results of the study can be summarized as follows:

- More than half of agricultural students had relatively positive and completely positive attitudes towards environmental protection.
- Most of the agricultural students expressed concerns about environmental issues of the country.
- The variable of students' environmental concern could predict 72% of the changes in their attitudes towards environmental protection.

Since the results of structural equations showed that environmental concerns have a significant impact on students' environmental attitudes, in other words, agricultural science students who are concerned about their environment have been more encouraged and urged by influential factors or reference individuals to have a positive attitude towards the environment. Therefore, to bring about a change in this attitude, one can influence students' perspectives on the environment by engaging opinion leaders such as pro-environmental academic members and other public figures, and by delivering speeches at university seminars on promoting respect and environmental conservation, this can

alter students' attitudes toward the environment, leading to an enhanced sense of responsibility for environmental protection.

**Statements and Declarations**

**Data availability**

The data used in this research are provided in the text of the article.

**Conflicts of interest**

The authors of this paper declared no conflict of interest regarding the authorship or publication of this paper.

**Author contribution**

A. Bondori: Writing Manuscript, Modeling and Results Analysis; Research Management; M. Forouzani: Data Collection, Methodology; F. Ghasemzadeh: Data Collection, Investigation.

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