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The Relationship between 'Environmental Attitudes and Behaviors', and 'Environmental Sensitivity and Perceived Environmental Risks'

ABSTRACT

The study aims to determine the relationship between students' environmental attitudes and behaviors, and their environmental sensitivity and perceived environmental risks. The study was conducted with 361 Health School students in the 2018-19 academic years. Data were collected by the Environmental Attitude Scale (EAS), Environmental Behavior Scale (EBS), Environmental Sensitivity Scale (ESS), and Environmental Risk Perception Scale (ERPS). According to Multivariate Linear Regression Analysis: There was a positive association between EAS and the Chemical Waste Risk subscale of the ERPS ($p < 0.01$); and also, between the ESS and subscales of the EBS ($p < 0.001$). Another positive association was found between the Recycling Efforts subscale of the EBS and Chemical Waste Risk subscale of the ERPS and between Resource Depletion subscale of the ERPS and subscales of the EBS ($p < 0.05$). Environmental sensitivity affected environmental behaviors positively but it was not a determinant of environmental attitudes. Some of the perceived environmental risks played an important role in existing environmental behaviors and environmental attitudes.

Anahtar Kelimeler: *environmental attitude, environmental behavior, environmental sensitivity, environmental risk perception*

Çevresel Tutumların ve Çevresel Davranışların, Çevresel Duyarlılık ve Algılanan Çevresel Riskler ile İlişkisi

ÖZET

Bu çalışmada öğrencilerin çevresel tutum ve davranışları ile çevresel duyarlılıkları ve algılanan çevresel riskler arasındaki ilişkinin belirlenmesi amaçlanmıştır. Araştırma, 2018-19 akademik yılında 361 Sağlık Yüksekokulu öğrencisi ile gerçekleştirilmiştir. Veriler Çevresel Tutum Ölçeği (ÇTÖ), Çevresel Davranış Ölçeği (ÇDÖ), Çevresel Duyarlılık Ölçeği (ÇDUÖ) ve Çevresel Risk Algısı Ölçeği (ÇRAÖ) ile toplanmıştır. Çok Değişkenli Doğrusal Regresyon Analizine göre: ÇTÖ ile ÇRAÖ'nün Kimyasal Atık Riski alt ölçeği arasında ($p < 0,01$) ve ÇDUÖ ve ÇDÖ alt ölçekleri arasında pozitif bir ilişki saptandı ($p < 0,001$). ÇDÖ'nün Geri Dönüşüm Çabaları alt ölçeği ile ÇRAÖ'nün Kimyasal Atık Riski alt ölçeği arasında ve ÇRAÖ'nün Kaynakların Tükenmesi alt ölçeği ve ÇDÖ alt ölçeği arasında pozitif ilişki bulundu ($p < 0,05$). Çevresel duyarlılık çevresel davranışları olumlu yönde etkilemiştir, ancak çevresel tutumların belirleyicisi değildir. Algılanan bazı çevresel riskler, çevresel davranışlar ve çevresel tutumlarda önemli bir rol oynamıştır.

Keywords: *çevresel tutum, çevresel davranış, çevresel duyarlılık, çevresel risk algısı*

INTRODUCTION

The areas in the environment from which humankind benefits have gained different dimensions in parallel with the industrialization process of the last century, which has brought about some problems. Environmental problems, the leading one of these problems, which are now difficult to cope with, have brought about some of today's important global problems which humankind has to solve. In many studies, environmental issues are stated as a problem threatening today's world (Schmitt, Akin, Axsen & Shwom, 2018; Akcay & Pekel, 2017; McIlroy & Stanton, 2016; Marquart-Pyatt, 2007) and therefore, importance attached to humans' attempts to change their environmental attitudes and behaviors for the better have increased nowadays and the number of studies conducted on this issue has increased significantly (Aznar-Díaz, Hinojo-Lucena, Cáceres-Reche, Trujillo-Torres & Romero-Rodríguez, 2019; Pavalache-Ilie & Cazan, 2018; Halkos & Matsiori, 2017; Uyanık, 2017; Bamberg & Rees, 2015; Milfont, Wilson & Diniz, 2012; Maleki & Karimzadeh, 2011).

A human is a social being who constantly develops himself, renews himself/herself and tries to adapt to the conditions he is in. This process of development and change begins in the family and goes on through a person's education life (Alaydin, Demirel, Altin & Altin, 2014; Sapci & Considine, 2014). In these process, environmental factors that individuals interact cause them acquire different attitudes (Yalmanlı & Gözüm, 2019; Eilam & Trop, 2012).

Attitude is considered as a psychological variable and as an important determinant of behavior with its cognitive, behavioral, and affective aspects (Eilam & Trop, 2012; Kaiser, Wölfling & Fuhrer, 1999; Casalo & Escario, 2018). It is known that developing attitudes can be shaped in every area and stage of human life. Therefore, variables are expected to make a difference in individuals' attitudes towards the environment (Uyanık, 2017; Sapci & Considine, 2014; Latif, Omara, Bidina & Awangb, 2013; Crumpei, Boncu & Crumpei, 2014; Doguc & Arıkan, 2018; Unver, Avcıbaşı & Ozkan, 2015). Especially with the rapid increase in environmental problems in recent years, the starting point of studies on environmental attitudes and behaviors is to determine individuals' environmental sensitivity and to raise their environmental awareness in order to achieve the sustainability of limited natural resources in our environment (Maleki, & Karimzadeh, 2011; Turkmen, Sarıkaya & Saygılı, 2013; Tastepe & Aral, 2014; Tamam, Yurekli, Basaran, Uskun, 2017; Unuvar, Kilinc, Sari Gök & Salvarcı, 2018; Azak, 2018). Because the first way to create and to sustain a more livable environment is to raise environmentally conscious individuals (Aznar-Díaz et al., 2019; Bamberg, & Rees, 2015; Alaydin et al., 2014; Byrka, Hartig & Kaiser, 2010). However, the review of the distribution of studies conducted in different fields and different levels of education has revealed that the number of studies aimed at determining healthcare profession students' knowledge, attitudes and behaviors related to the environment is rather limited (Doguc & Arıkan, 2018; Unver et al., 2015; Senyurt, Temel & Ozkahraman, 2011). However, it is very important to recognize prospective healthcare workers' awareness of environmental risks including the sub-dimensions who maintain closer personal relationships with the members of the society. Based on these considerations, we sought answers to the following questions in order to determine the relationship between environmental attitudes and environmental behaviors of students studying in health-related departments and their environmental sensitivity and environmental risk perceptions independently of

some of their sociodemographic and other characteristics:

- Do environmental attitudes displayed by people differ according to their environmental sensitivity levels?
- Is there a correlation between the levels of environmental sensitivity and environmental behaviors such as resource-conserving actions with personal financial benefit (RABF), environmentally responsible consumerism (ERC), nature-related leisure activities (NLA), recycling efforts (RE), citizenship action (CA) and environmental activism (EA)?
- How do people's environmental attitudes change when they become aware of perceived environmental risks such as ecological risks, chemical waste risks, global environmental risks and resources depletion risks?
- Do environmental behaviors (RABF, ERC, NLA, RE, CA, EA) displayed by people differ according to the levels of environmental risks such as ecological risks, chemical waste risks, global environmental risks and resources depletion risks?

The present study, unique from this aspect, is considered important with its results providing a new perspective to the literature in this field, because, the fact that sub-dimensions related to the environment have been studied in limited fields prevents accurate determination of current deficiencies. In particular, studies performed by taking certain socio-demographic criteria into consideration are no longer efficient enough to provide the data needed.

METHOD

Study Design

The descriptive study was carried out in Kirklareli University School of Health in the 2018-19 academic years. The universe of the study consisted of 361 fourth-year university students studying the Department of Nursing, Midwifery, Nutrition and Dietetics, Child Development and Health Management. In the study, no sample size was calculated and it was aimed to reach the whole universe. The study was carried out with 293 people, excluding 38 people who did not want to participate in the study, 25 people who were absent from school and 5 people who did not fully answer the questionnaires. Eighty seven of the students participating in the study in Nursing (29.7%), 83 in Child Development (28.3%), 55 in Health Management (18.8%), 36 in Nutrition and Dietetics (12.3%), 32 in Midwifery (10.9%). The participation rate in the research was determined as 81.2%.

Data Collection Tools

Personal Information Form, Environmental Attitude Scale, Environmental Behavior Scale, Environmental Sensitivity Scale, and Environmental Risk Perception Scale were used as data collection tools.

The Personal Information Form: The Personal Information Form prepared by the researchers based on the pertinent literature questions some socio-demographic and environmental characteristics of the participating students.

The Environmental Attitude Scale (EAS): EAS developed by Sama (2003) to determine university students' attitudes towards environmental problems has 21 items rated on a 5-point Likert-type scale. The higher the mean score a student obtains from the EAS is, the higher his/her environmental attitude is. The Cronbach's alpha value of the scale was found 0.825 in the present study.

The Environmental Behavior Scale (EBS): EBS developed by Goldman et al. (2006) was adapted to Turkish by Timur & Yilmaz (2013). The scale which has 20 items rated on a 5-point Likert-type scale has the following 6 subscales: Resource-conserving Actions with Personal Financial Benefit (RAPFB), Environmentally Responsible Consumerism (ERC), Nature-related Leisure Activities (NLA), Recycling Efforts (RE), Citizenship Action (CA) and Environmental Activism (EA). The increase in the score obtained from each subscale of the EBS indicates that the respondent's environmental behaviors have changed for the better. The Cronbach's alpha value of the scale was found 0.845 in the present study. The Cronbach's alpha values of the subscales vary between 0.659 and 0.733.

The Environmental Sensitivity Scale (ESS): ESS was developed by Cabuk and Karacaoglu (2003) to determine students' opinions on environmental sensitivity. The ESS consists of 24 items rated on a three-point Likert type scale. The increase in the mean score obtained by students from the scale indicates that their opinions about environmental sensitivity have changed positively. The Cronbach's alpha value of the scale was found 0.804 in the present study.

The Environmental Risk Perception Scale (ERPS): ERPS developed by Slimak and Dietz (2006) was adapted to Turkish by Altınoglu and Atav (2009). The ERPS consisting of 23 items rated on a 7-point Likert-type scale has four subscales: ecological risk, chemical waste risk, resource depletion, global environmental risk. As the score obtained from the ERPS increases so do the student's environmental risk perception and awareness. The Cronbach's alpha value of the scale was found 0.963 in the present study. The Cronbach's alpha values of the subscales vary between 0.927 and 0.804.

The Variables of the Study

While the dependent variables of the study are the levels of EA and the levels of RAPFB, ERC, NLA, RE, CA, and EA subscales of the EBS, the independent variables of the study are the levels of the environmental sensitivity and the levels of ecological risks, chemical waste risk, resource depletion, global environmental risk subscales of the ERPS. Other independent variables of the study are age, sex, department of education, the longest place of residence, perceived income level, mothers' and fathers' education levels, membership to environmental organizations, participation in activities of environmental organizations, receiving environmental education courses and environmental issues interested in most. Of these, age, sex, mother's education levels and receiving environmental education courses were used as the covariates of the research. Mothers' and fathers' education levels were used as illiterate (0), literate (1), primary school level (5), secondary school level (8), high school level (12) university and above (16) according to the year of education. Perceived income levels of the participants were classified as income was considered to

be good, moderate or bad depending on whether it is less than, equal to or more than the expense.

Application

The data were collected during the lesson hours with the permission of the relevant teacher of the lesson. Students were informed about the purpose and scope of the research, and verbal and written consent was obtained from each individual. The participants were asked to respond to by themselves the questions in the questionnaire forms distributed in the classroom which lasted approximately 30-35 minutes.

Data Analysis

In the analysis of the data, of the descriptive statistics, percentages, numbers, arithmetic mean and standard deviation (mean \pm SD) were used. The reliability analysis was performed for the reliability of the scales and the results were evaluated with the Cronbach's alpha value. Whether the data had normal distribution was tested with the Shapiro-Wilk test. While the Student's t Test was used to compare the means in two independent groups, the ANOVA test was used to compare the means in three and more independent groups. The Multivariate Linear Regression Analysis models that were created by using the Enter method were adjusted in terms of age, sex, mother's education level, receiving environmental education courses. The explanatory value of the models was evaluated with the Adjusted R-square (Adj. R²). P-values < 0.05 were considered statistically significant. The analysis was performed in the SPSS 22.0 (SPSS Inc., Chicago, Ill., USA).

Ethical Approval

The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of Kırklareli University Institute of Health Sciences (Apr 26, 2019/P0141R00). In addition, institutional permit was obtained from Kırklareli University for conducting the research (Apr 16, 2019/ E.7245).

RESULTS

Table 1, the descriptive characteristics of the study group are presented. Of the participants, 62.5% were under the age of 23 and 80.9% were female. 29.7% of students were studying in the Nursing Department and 56.3% were located in the west live in the Marmara region of Turkey. 88.7% of the participants reported moderate & good perceived income levels. 54.3% of the students' mothers and 41.0% of their fathers were primary school and lower education. 19.8% of the students had membership in environmental organizations, and 20.1% were involved in environmental activities. It was determined that 10.2% of the participants were not interested in environmental issues. The ones that have the most attention of those interested are air pollution (58.4%), water pollution (56.7%), soil and nutrient pollution (44.7%), global warming and climate change (43.3%), waste-related pollution (40.3%).

Table 1. Distribution of some of the descriptive characteristics of the study group (n=293).

Variables	n	%
Age (years)		
< 23	183	62.5
≥ 23	110	37.5
Sex		
Female	237	80.9
Male	56	19.1
Department of education		
Midwifery	32	10.9
Nursing	87	29.7
Nutrition and Dietetics	36	12.3
Child development	83	28.3
Health Management	55	18.8
The longest place of residence		
Marmara region	165	56.3
Aegean region	42	14.3
Mediterranean region	32	10.9
Other regions*	54	18.4
Perceived income levels		
Poor	33	11.3
Moderate and Good	260	88.7
Mother's education level		
Primary school and lower (≤ 5 years)	159	54.3
Junior high school and higher (> 5 years)	134	45.7
Father's education level		
Primary school and lower	120	41.0
Junior high school and higher	173	59.0
Membership to environmental organizations		
Yes	58	19.8
No	235	80.2
Participation in activities of environmental organizations		
Yes	59	20.1
No	234	79.9
Receiving environmental education courses		
Yes	90	30.7
No	203	69.3
Environmental issues interested in most**		
None	30	10.2
Air pollution	171	58.4
Water pollution	166	56.7

Soil and nutrient pollution	131	44.7
Global warming and climate change	127	43.3
Waste-related pollution	118	40.3
Conservation of natural resources	117	39.9
Noise pollution	116	39.6
Visual pollution	116	39.6
Radioactive pollution and nuclear power plants	109	37.2
Natural disasters	84	28.7

*Others: Black Sea Region, Central Anatolia Region, Eastern Anatolia Region, Southeastern Anatolia Region.

**Multiple options are marked.

Table 2, the mean scores the participants obtained from the scales are presented. The EAS score mean of the participants was 79.77 ± 11.76 (Min: 55.00, Max: 104.00). The participants' mean EBS subscale scores (except for the CA and EA subscales) were around the scale mean. The mean ESS-item score of the participants was 2.10 ± 0.26 (Min: 1.66, Max: 2.75). The mean ERPS subscale-item score of the participants was above the scale mean.

Table 2. The mean scores the participants obtained from the scales

Scales	N	Mean \pm SD	Participants		Scale	
			Min.-	Max.	Min.-	Max.
Environmental Attitude Scale (EAS)	293	79.77 \pm 11.76	55.00–	104.00	21.00–	105.00
Environmental Behavior Scale (EBS)						
RAPFB	293	12.34 \pm 2.33	4.00–	15.00	3.00–	15.00
ERC	293	10.95 \pm 2.52	3.00–	15.00	3.00–	15.00
NLA	293	12.87 \pm 3.05	4.00–	20.00	4.00–	20.00
RE	293	9.42 \pm 2.67	3.00–	15.00	3.00–	15.00
CA	293	13.67 \pm 3.93	5.00–	24.00	5.00–	25.00
EA	293	4.77 \pm 2.05	2.00–	10.00	2.00–	10.00
Environmental Sensitivity Scale (ESS)	293	2.10 \pm 0.26	1.66–	2.75	1.66–	2.75
Environmental Risk Perception Scale (ERPS)						
Ecological risk	293	5.79 \pm 1.07	1.00–	7.00	1.00–	7.00
Chemical waste risk	293	5.95 \pm 1.06	1.00–	7.00	1.00–	7.00
Resource depletion	293	5.16 \pm 1.30	1.00–	7.00	1.00–	7.00
Global environmental risk	293	5.70 \pm 1.18	1.00–	7.00	1.00–	7.00

RAPFB: Resource-conserving Actions with Personal Financial Benefit, ERC: Environmentally Responsible Consumerism, NLA:

Nature-related Leisure Activities, RE: Recycling Efforts, CA: Citizenship Action, and EA: Environmental Activism.

Table 3 shows the mean scores the participants obtained from the subscales of the EAS and EBS in terms their descriptive characteristics. A statistically significant difference was found between the EAS scores and the department of education ($p=0.000$) and environmental education status in the courses ($p=0.011$). When the EBS sub-dimensions are examined: A significant difference was found between ERC and gender ($p=0.001$), between department of education and RAPFB ($p=0.010$) and CA ($p=0.001$), between perceived income level and CA ($p=0.008$) and EA ($p=0.021$), between mother' education level and RE ($p=0.019$). NLA, RE, CA, EA scores of those who are members of environmental organizations and who participate in environmental activities were found to be statistically high ($p > 0.05$).

Table 3. Univariate analysis of the mean scores the participants obtained from the subscales of the Environmental Attitude Scale and Environmental Behavior Scale

Variables	n	Environmental Attitude Scale (EAS)	Environmental Behavior Scale (EBS)					
			RAPFB	ERC	NLA	RE	CA	EA
		Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ±SD
Age (years)								
< 23	183	79.89 ± 11.20	12.44 ± 2.19	10.96 ± 2.46	12.69 ± 3.05	9.38 ± 2.61	13.38 ± 3.91	4.69 ± 2.13
≥ 23	110	79.56 ± 12.68	12.18 ± 2.55	10.94 ± 2.62	13.17 ± 3.04	9.49 ± 2.79	14.16 ± 3.92	4.91 ± 1.93
<i>P-values</i>		<i>0.824</i>	<i>0.355</i>	<i>0.934</i>	<i>0.189</i>	<i>0.725</i>	<i>0.097</i>	<i>0.363</i>
Sex								
Male	56	78.03±11.85	12.18 ± 2.60	9.95 ± 2.77	13.30 ± 2.92	8.96 ± 2.97	13.84 ± 3.98	4.52 ± 1.98
Female	237	79.94±11.75	12.38 ± 2.27	11.19 ± 2.40	12.77 ± 3.08	9.53 ± 2.59	13.63 ± 3.92	4.83 ± 2.07
<i>P-values</i>		<i>0.605</i>	<i>0.588</i>	<i>0.001</i>	<i>0.238</i>	<i>0.157</i>	<i>0.724</i>	<i>0.305</i>
Department of education								
Midwifery	32	70.93±11.86	11.13 ± 2.24	10.44 ± 2.76	12.75 ± 3.44	9.56 ± 2.24	15.50 ± 4.37	5.50 ± 2.54
Nursing	87	78.70±11.63	12.34 ± 2.64	10.72 ± 2.69	12.84 ± 3.36	9.64 ± 2.72	13.82 ± 3.70	4.83 ± 2.00
Nutrition and Dietetics	36	78.94±10.54	12.00 ± 2.23	10.94 ± 2.64	12.97 ± 2.98	8.75 ± 1.61	12.08 ± 3.86	4.39 ± 1.79
Child development	83	81.07±11.20	12.35 ± 2.12	11.00 ± 2.26	12.63 ± 2.64	9.35 ± 2.95	13.46 ± 3.50	4.47 ± 1.93
Health Management	55	85.16±10.41	13.27 ± 1.86	11.55 ± 2.33	13.29 ± 2.99	9.53 ± 2.95	13.75 ± 4.30	4.96 ± 2.09
<i>P-values</i>		<i>0.000</i>	<i>0.001</i>	<i>0.273</i>	<i>0.798</i>	<i>0.543</i>	<i>0.010</i>	<i>0.106</i>
The longest place of residence								
Marmara region	165	79.04±12.17	12.29 ± 2.48	10.92 ± 2.64	12.87 ± 3.18	9.58 ± 2.71	13.65 ± 4.03	4.82 ± 2.13
Aegean region	42	82.83±10.41	12.45 ± 2.05	11.55 ± 2.29	12.98 ± 2.55	9.45 ± 2.89	13.43 ± 4.04	4.60 ± 2.01
Other regions*	86	79.65±11.44	12.40 ± 2.18	10.72 ± 2.35	12.83 ± 3.05	9.10 ± 2.50	13.83 ± 3.70	4.76 ± 1.95
<i>P-values</i>		<i>0.176</i>	<i>0.897</i>	<i>0.212</i>	<i>0.966</i>	<i>0.416</i>	<i>0.863</i>	<i>0.810</i>

Perceived income**levels**

Poor	33	79.24±13.21	12.27 ± 2.43	11.58 ± 2.66	13.48 ± 3.37	9.82 ± 3.28	15.36 ± 4.12	5.55 ± 2.31
Moderate & Good	260	79.83±11.59	12.35 ± 2.32	10.87 ± 2.49	12.79 ± 3.01	9.37 ± 2.59	13.46 ± 3.85	4.67 ± 2.00
<i>P-values</i>		<i>0.786</i>	<i>0.851</i>	<i>0.131</i>	<i>0.220</i>	<i>0.364</i>	<i>0.008</i>	<i>0.021</i>

Mother's education**level**

≤ 5 years	159	80.24±11.54	12.40 ± 2.28	10.70 ± 2.53	12.55 ± 3.04	9.09 ± 2.83	13.66 ± 3.99	4.72 ± 1.98
> 5 years	134	79.20±12.02	12.28 ± 2.39	11.25 ± 2.47	13.25 ± 3.03	9.81 ± 2.43	13.69 ± 3.86	4.84 ± 2.15
<i>P-values</i>		<i>0.450</i>	<i>0.681</i>	<i>0.066</i>	<i>0.053</i>	<i>0.019</i>	<i>0.955</i>	<i>0.623</i>

Father's education**level**

≤ 5 years	120	79.65±12.12	12.66 ± 2.24	11.07 ± 2.49	12.73 ± 3.03	9.33 ± 2.80	13.58 ± 3.94	4.68 ± 1.95
> 5 years	173	79.84±11.53	12.13 ± 2.37	10.87 ± 2.54	12.97 ± 3.07	9.48 ± 2.59	13.73 ± 3.93	4.84 ± 2.13
<i>P-values</i>		<i>0.887</i>	<i>0.055</i>	<i>0.517</i>	<i>0.523</i>	<i>0.646</i>	<i>0.747</i>	<i>0.505</i>

**Membership to
environmental
organizations**

No	235	79.30 ± 11.54	12.36 ± 2.33	10.81 ± 2.55	12.46 ± 2.94	9.26 ± 2.72	13.39 ± 3.93	4.46 ± 2.01
Yes	58	81.65 ± 12.54	12.29 ± 2.35	11.52 ± 2.30	14.55 ± 2.96	10.05 ± 2.40	14.81 ± 3.71	6.02 ± 1.73
<i>P-values</i>		<i>0.173</i>	<i>0.851</i>	<i>0.056</i>	<i>0.000</i>	<i>0.044</i>	<i>0.013</i>	<i>0.000</i>

**Participation
in activities of
environmental
organizations**

No	234	79.50 ± 11.56	12.37 ± 2.28	10.90 ± 2.59	12.58 ± 3.03	9.25 ± 2.64	13.32 ± 4.02	4.47 ± 2.02
Yes	59	80.79 ± 12.57	12.25 ± 2.54	11.17 ± 2.22	14.02 ± 2.89	10.10 ± 2.70	15.08 ± 3.19	5.95 ± 1.78

<i>P-values</i>		<i>0.453</i>	<i>0.756</i>	<i>0.459</i>	<i>0.001</i>	<i>0.028</i>	<i>0.000</i>	<i>0.000</i>
Receiving environmental education courses								
No	203	78.61±11.29	12.31 ± 2.42	10.98 ± 2.62	12.90 ± 3.18	9.58 ± 2.72	13.79 ± 4.22	4.84 ± 2.11
Yes	90	82.37±12.42	12.43 ± 2.13	10.90 ± 2.28	12.81 ± 2.76	9.06 ± 2.55	13.40 ± 3.17	4.61 ± 1.91
<i>P-values</i>		<i>0.011</i>	<i>0.665</i>	<i>0.813</i>	<i>0.825</i>	<i>0.121</i>	<i>0.380</i>	<i>0.375</i>

*Others: Black Sea Region, Central Anatolia Region, Eastern Anatolia Region, Southeastern Anatolia Region.

RAPFB: Resource-conserving Actions with Personal Financial Benefit, ERC: Environmentally Responsible Consumerism, NLA: Nature-related Leisure Activities, RE: Recycling Efforts, CA: Citizenship Action, and EA: Environmental Activism.

Table 4 shows the results of the multivariate linear regression analysis of the mean scores for the subscales of the EAS and EBS. The models that were created by using the Enter method were adjusted in terms of age, sex, perceived income, mother's education level, receiving environmental education courses. The explanation of the models created for the subscales of the EBS (Adjusted R square) ranged from 8.7% to 23.0%. The explanatory power of the model for the EAS was 23.3%.

The analysis of the correlations between the mean scores obtained from the scales and their subscales revealed a statistically significant positive relationship between the EAS and the chemical waste risk subscale of the ERPS ($\beta=4.765$, 95% CI: 2.160; 7.370) and no significant relationship between the EAS and ESS ($p > 0.05$) (Table 4).

Another result of the analysis was that there was a statistically significant positive relationship between the ESS and the ERC ($\beta= 2.961$, 95% CI: 1.906; 4.016), NLA ($\beta= 4.000$, 95% CI: 2.690; 5.310), RE ($\beta= 3.651$, 95% CI: 2.499; 4.802), CA ($\beta= 6.950$, 95% CI: 5.312; 8.588), EA ($\beta= 3.565$, 95% CI: 2.685; 4.444) subscales of the EBS ($p < 0.001$), but that there was no significant difference between the ESS and the RAPFB subscale of the EBS ($p > 0.05$) (Table 4).

According to the relationship between the EBS subscales and ERPS subscales, there was a statistically significant positive relationship between the RE scores and chemical waste risk subscale scores ($\beta= 0.533$, 95% CI: 0.010; 1.145) and between the resource depletion risk scores and the scores for the NLA ($\beta= 0.381$, 95% CI: 0.047; 0.715), CA ($\beta= 0.670$, 95% CI: 0.252; 1.088), and EA ($\beta= 0.240$, 95% CI: 0.015; 0.464). While the correlation between the RAPFB scores and the resource depletion-risk subscale scores was negative and significant ($\beta= -0.305$, 95% CI: -0.575; -0.035), there was no significant correlation between the scores for the subscales of the EBS and the scores for the ecological risk and global environmental risk subscales ($p > 0.05$) (Table 4).

Table 4. The results of the multivariate linear regression analysis of the mean scores for the subscales of the Environmental Attitude Scale and Environmental Behavior Scale

Scales	†Environmental Attitude Scale (EAS)	†Environmental Behavior Scale (EBS)					
	RAPFB	ERC	NLA	RE	CA	EA	
	β (95% CI)	β (95% CI)	β (95% CI)	β (95% CI)	β (95% CI)	β (95% CI)	β (95% CI)
Environmental Sensitivity Scale (ESS)	-0.525 (-5.422; 4.372)	0.334 (-0.725; 1.393)	2.961 (1.906; 4.016)	4.000 (2.690; 5.310)	3.651 (2.499; 4.802)	6.950 (5.312; 8.588)	3.565 (2.685; 4.444)
<i>p</i> -value	0.833	0.536	0.000	0.000	0.000	0.000	0.000
Ecological risk	1.953 (-0.496; 4.401)	0.233 (-0.296; 0.763)	0.426 (-0.102; 0.953)	0.320 (-0.335; 0.975)	-0.190 (-0.766; 0.386)	-0.047 (-0.866; 0.772)	0.087 (-0.353; 0.527)
<i>p</i> -value	0.118	0.387	0.113	0.337	0.517	0.911	0.697
Chemical waste risk	4.765 (2.160; 7.370)	0.479 (-0.084; 1.042)	0.116 (-0.445; 0.678)	-0.265 (-0.963; 0.432)	0.533 (0.010; 1.145)	0.093 (-0.779; 0.964)	-0.223 (-0.691; 0.245)
<i>p</i> -value	0.000	0.095	0.684	0.454	0.048	0.834	0.350
Resource depletion	-0.571 (-1.820; 0.679)	-0.305 (-0.575; -0.035)	0.063 (-0.207; 0.332)	0.381 (0.047; 0.715)	0.270 (-0.024; 0.563)	0.670 (0.252; 1.088)	0.240 (0.015; 0.464)
<i>p</i> -value	0.369	0.027	0.647	0.026	0.072	0.002	0.036
Global environmental risk	-0.790 (-2.829; 1.248)	0.205 (-0.235; 0.646)	0.021 (-0.418; 0.460)	0.023 (-0.523; 0.568)	-0.265 (-0.744; 0.214)	-0.494 (-1.176; 0.188)	-0.285 (-0.651; 0.081)
<i>p</i> -value	0.446	0.360	0.925	0.935	0.277	0.155	0.127
Adjusted R ²	0.233	0.087	0.221	0.185	0.180	0.230	0.189
F	10.877***	4.087***	10.230***	8.341***	8.101***	10.688***	8.553***

****p* < 0.001. RAPFB: Resource-conserving Actions with Personal Financial Benefit, ERC: Environmentally Responsible Consumerism, NLA: Nature-related Leisure Activities, RE: Recycling Efforts, CA: Citizenship Action, and EA: Environmental Activism.

†Adjusted for age, sex, mother’s education level and receiving environmental education courses.

DISCUSSION

In the present study, of the participants, those with high environmental sensitivity displayed behaviors of Environmentally Responsible Consumerism (ERC), Resource-conserving Actions with Personal Financial Benefit (RAPFB), Recycling Efforts (RE), Nature-related Leisure Activities (NLA), and Environmental Activism (EA) more. Pro-environmental behaviors that may be affected by psychological (such as perception, attitude, value) and structural variables (such as income, assets) require sustainable lifestyle changes (Bamberg & Rees, 2015). Environmental sensitivity, also perceived as environmental value, has been shown to act as a mediator for environmental knowledge and pro-environmental behaviors (Latif et al., 2013). It has also been reported that participating in pro-environmental behaviors more frequently increases life satisfaction and that acting pro-environmentally serves as an emotional source in times of ecological threat (Schmitt et al., 2018). Through programs aimed at improving environmental sensitivity and developing an ecological perspective, environmentally responsible behaviors can be developed (Pavalache-Ilie & Cazan, 2018). Our results related to this finding demonstrated that healthcare students were more concerned and sensitive to environmental issues (Doguc & Arıkan, 2018; Tastepe & Aral, 2014; Tamam et al., 2017) whereas students in social sciences and humanities displayed environmentally responsible behaviors more (Akçay & Pekel, 2017; Senyurt et al., 2011; Paço & Lavrador, 2017; Sadik & Sadik, 2014).

Of the students, those who were aware of “resource depletion risk”, one of the environmental risk perceptions, displayed a more careful behavior in activities regarding the resource-conserving actions with personal financial benefit subscale. Pro-environmental behaviors are more observed in the presence of environmental value and strong environmental attitudes (Schmitt et al., 2018; Sapci & Considine, 2014; Casalo & Escario, 2018; Latif et al., 2013). In a study conducted in the USA and Canada, it was reported that encouraging pro-environmental behaviors through attempts aiming to improve individual or familial well-being (such as financial savings) could provide greater benefits (Schmitt et al., 2018; Sapci & Considine, 2014). This situation, which is also observed in students’ buying behavior of green products or recyclable products, supports our results (Turkmen et al., 2013; Unuvar et al., 2018). In a study conducted with adults living in Greece, pro-environmental behaviors were determined to be related to anthropocentrism and the new ecological paradigm dealing with the balance of nature. It has been reported that the environmental attitudes of adults are able to pay for the protection of marine biodiversity when needed due to ethical reasons (Halkos & Matsiori, 2017). In a study conducted with Spanish adults, it was observed that pro-environmental behaviors are related only to strong environmental attitudes, and that people displayed pro-environmental behaviors only if they believed in the fact that the environment must be protected (Casalo & Escario, 2018), which suggests that our results might be related to these ethical reasons.

In the present study, of the students, those who were aware of the resource depletion risk more actively took part in nature-related leisure activities, citizenship actions and environmental activism. While similar results were reported in a study conducted with members of the non-governmental

organization by Hamarat, Guler, Duran, Gumus & Tufan, (2014), in other studies, environmental attitudes were shown to be positively related to energy consumption and to decreases in natural resources (Maleki & Karimzadeh, 2011; Sapci & Considine, 2014; Sadik & Sadik, 2014). In a study conducted in the UK, people who displayed eco-driving behaviors and positive environmental attitudes were reported not to display a proper eco-driving performance (McIlroy & Stanton, 2016). Awareness of ecofeminist and ecocentric ethics affects environmental attitudes positively (Yalmançı & Gözüm, 2019). In a study conducted in China, it was reported that the impact of the ecological worldview is completely mediated by personal norms whereas environmental sensitivity is mediated by both personal norms and the ecological worldview (Lingqiong, 2018). The results of the present study suggest that the natural resource depletion risk is related to not holding the ecological worldview and to being more dependent on norms in developing environmental behaviors.

In the present study, no correlation was determined between the participants' environmental attitude scores and their environmental sensitivity scores. Studies conducted with nursing and / or medical students demonstrated a positive relationship between their environmental sensitivity and environmental attitudes (Tamam et al., 2017; Karahan-Okuroglu, 2012; Celik, Basaran, Gokalp, Yesildal & Han, 2016), and in some other studies, similar findings were observed in students studying in different departments of universities (Bostancioglu, Saracoglu & Ozturk, 2017; Okur-Berberoglu & Uygun, 2012; Uyanık, 2016). Similar to our findings, in some studies including different groups of participants, environmental knowledge and environmental sensitivity levels of the participants were reported to be inadequate (Erdal, Erdal & Yucel, 2013; Guven & Aydogdu, 2012). In their study, Yalmançı & Gözüm (2019) reported that students who did not receive pre-school education lacked awareness of ecocentric ethics and thus their environmental attitudes levels were lower. Considering the fact that pre-school education in Turkey has become widespread only in recent years, the lack of a relationship between environmental attitudes and environmental sensitivities of university fourth grade students is considered to be associated with the fact that they did not receive this education at a young age.

In the present study, of the participants, environmental attitudes of those who were aware of chemical waste risk, one of the environmental risks, changed for the better. In a study conducted with nursing students, their environmental awareness levels were above average (Azak, 2018). In other studies conducted with students studying in the field of health sciences, they were most aware of the chemical waste risk (Sayan & Kaya, 2016; Tari Selcuk, Mercan, & Cevik, 2016; Yapici, Ogenler, Kurt, Koçaş & Şaşmaz, 2017). In some other studies, as the participants' awareness of environmental risks increased, so did their environmental attitude scores (Uyanık, 2017; Sayan & Kaya, 2016; Yapici et al., 2017). Byrka et al. (2010) reported that motivation in ecological behaviors was mediated by concerns about environmental issues.

Environmental risks and environmental risk perceptions are unevenly distributed among different groups in society (Zhang, He, Mol & Lu, 2013). In a study conducted with environmental health technicians, the participants considered the thinning of the ozone layer as the most important environmental risk (Ozcan, Soysal, Ek & Kilinc, 2018) whereas in a study conducted with prospective

teachers, the participants considered the excessive use of natural resources as the leading factor for environmental risks (Zayimoğlu Oztürk, Oztürk, & Sahin, 2015). In Bilgin et al.'s study (2016), water pollution was considered as a major environmental risk (Bilgin, Radziemska & Fronczyk, 2016). In fact, another point to be considered here is that participants should be questioned to find out they are fully aware of the realities of environmental risks. For example, in a study conducted with university students in China, it was reported that the participants were not aware of environmental risks, which was due to the fact that they were not given an environmental training taking into account their attitudes towards environmental risks and risk management, and that the government took a top-down approach to environmental risk management (Zhang et al., 2013). Similar problems exist in Turkey (Uyanık, 2017), environmental issues and environmental risks do not get the attention they deserve in the education system or in public awareness-raising campaigns, which explains the lack of a relationship between "ecological risk and global environmental risk" and "environmental attitudes and environmental behaviors" in the present study.

Conclusions and Recommendations

It has been identified that as environmental sensitivity levels of the participating students increase; they become environmentally responsible consumers, get involved in nature-related leisure activities, make more recycling efforts, bear more responsibility for the conservation of the environment and participate in environmental activities. It has been found that, participants who are aware of "chemical waste risk" have positive environmental attitude and recycling efforts. It has been seen that students who are aware of "resource depletion risk" make use of the resource-conserving actions with personal financial benefit more attentively, carry out nature-related leisure activities, and exhibit environmentally responsible citizenship actions and take part in environmental activities. It has been determined that in terms of environmental attitudes, environmental awareness levels of students are not significant; and also, amongst perceived environmental risks, awareness of "ecological risk" and "global environmental risk" is of no significance in terms of either environmental attitudes or environmental behaviors.

In order to ensure that individuals use the environment in which they live more optimally and that they take the sustainability of the environment into consideration, it is recommended to provide necessary initiatives, especially in educational settings. Thanks to these initiatives, it can be ensured that individuals to be employed in the health sector and in other fields become more aware of the environment. It is recommended that the number of environment-related scientific studies performed in the health sector should be increased, and that these studies should be performed, by taking the gap in the literature into account. It is also recommended that the number of measurement tools with more sub-dimensions to be used in studies in the literature should be increased by carrying out new scale development studies. Another recommendation is that within the scope of environmentalism philosophy, universities should cooperate with other institutions to raise environmental awareness. Adopting policies encouraging people to act pro-environmentally and transforming these policies into a lifestyle not only will improve the environment, but will also contribute to subjective well-being.

Limitations

Due to its cross-sectional design, the lack of sequentiality in causality was the main limitation of this study. The other limitations of the study were that the data relied on the self-report of the participants.

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