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Evaluating the Relationship between Nursing Students' Environmental Awareness and Sensitivity and Their Environment Literacy

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Abstract

Background: When the effects of climate problems on social life started to be seen, one reaction was an increase in awareness of environmental protection and environment sensitivity.

Aim: The aim of this study was to determine the relationship between the environmental awareness and sensitivity of nursing students and their environmental literacy.

Methods: The study was conducted as a descriptive and correlational study. The research sample consisted of 316 students studying in a degree program in Nursing at a foundation university in Northern Cyprus in the spring semester of the academic year 2020–2021. An Environmental Literacy Scale and an Environmental Awareness and Sensitivity Scale were used in the study to collect data. The Mann–Whitney U-test and the Kruskal–Wallis H test and Spearman test were used for data analysis.

Results: It was found that 65.5% of the students were female, and 45.9% were in the 20-21-year age group, 27.8% smoked cigarettes, 74.4% had heard of the concept of the environment, and 22.8% took part in environment activities. It revealed that the students' total scores on the Environment Literacy Scale were 76.81 ± 11.59. The overall mean obtained on the Environment Awareness and Environmental Sensitivity Scale was 139.74 ± 19.32.

Conclusion: The students' environmental literacy and their environmental awareness and sensitivity were found to be at a good level. It was seen that as students' environment literacy levels rise, their environmental awareness and sensitivity also rise. Lessons and seminars should be added to the curriculum of nursing schools to develop environmental literacy levels.

Keywords: Environment literacy, environmental awareness, environmental sensitivity, nursing students

Introduction

Ever since people have existed in the world, they have had a constant effect on the environment.[1] The environment is the natural space in which living things carry on their relationships throughout their lives and with which they interact physically, biologically, socioeconomically, and culturally.[2] Environment literacy is the capacity of individuals to show their knowledge about the environment as behavior. Environment literacy allows the formation of environment awareness and sensitivity in an individual, and serves as a guide to learning the laws of nature and in this way to be in contact with nature.[3] The fast-moving development of technology has opened the way to rapid depletion of the environment. An increase in standards of living with technology, unthinking consumption, and insensitive behavior toward the environment have caused a rapid increase in environmental problems.[4] Problems in the environment cause significant damage to the natural structure in which both people and other living things carry on their lives.[5]

When the effects of environmental problems on social life started to be seen, one result was that awareness of environment protection and sensitivity to the environment spread.[6] Because health problems arising from the environment are connected to the formation of people's attitudes and behaviors, this must be based on education.[7] The aim of environment education is to produce individuals who are environmentally literate and responsible toward the environment.[8] Environment education is important in bringing about positive and sensitive attitude changes in society, in having a store of knowledge, in restoring a damaged environment and protecting the natural

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environment, and in gaining a correct attitude to topics relating to the environment.[9] The environment has an important place in nursing education to strike a balance between human activities and the environment.

Nursing training is a professional education and provides for valid policy decisions to be taken to answer environment problems and for consciousness-raising on the global environment and for nursing practice, for educating and informing other nursing students, and creating a body of knowledge.[10] Throughout the history of nursing, nurses have been aware that the environment has an important place in patient care. Nursing working together with the environment and being in communication and interaction has formed the basis of nursing care, and the environment has become one of the most important components of the nursing profession.[11] Environmental protection is of vital importance, and an important responsibility falls to education institutions which take on the duty of quality individual education on the topic of developing environment sensitivity and developing levels of environment literacy. In order not to face problems relating to nature and the environment both in the present and which may occur in the future, it is important that people should be educated with awareness of responsibility to the environment and to show pro-environmental behavior. Environment education must be maintained at all stages of education, and a healthy, livable environment must be handed down to future generations.[12]

By developing people's environment awareness, increasing environmental sensitivity will make a positive contribution to a livable environment.[13] The environment, environmental health, and counseling are an important part of protective health services. In this regard, it is of the utmost importance to evaluate the levels of environment literacy and awareness of and sensitivity to the environment of nursing students as normal citizens. The aim of this study was to guide nursing literature and educational curriculums by determining environmental awareness and sensitivity and levels of environmental literacy. In addition, determining the relationship between student nurses' environmental awareness and sensitivity and their environment literacy will show the importance of these concepts and guide future studies.[14] The aim of this study was to determine the relationship between nursing students' environmental awareness and sensitivity and their environment literacy.

Research Questions

1. What is the level of nursing students' environment literacy?
2. What is the level of nursing students' environmental awareness and sensitivity?
3. Is there a relationship between nursing students' environmental awareness and sensitivity and their environment literacy?

Methods

This research was performed according to a descriptive and correlational study with the aim of determining the relationship between nursing students' environmental awareness and sensitivity and their environment literacy.

Settings and Participants

The study was conducted in the Nursing Department of the Health Sciences Faculty of a foundation university in Northern Cyprus. In the curriculum of the 4-year nursing degree course, there are no classes on the environment or environment literacy, but the concept of the environment is covered in the Basics of Nursing and Public Health Nursing classes. In the faculty where the students were studying, there were no environment club or environment activities. On the university campus, there was one environment club. This club was set up to find new solutions to protecting the environment and putting them into practice with the aim of passing on a livable world to future generations. The rate of participation in the research is 91.5%.

The population of the study consisted of 345 students who were studying in the nursing degree program in the spring semester of the academic year 2020-2021. No sample selection was performed, and the 316 students who met the inclusion criteria by being over 18 years old and studying in the Turkish nursing department of Eastern Mediterranean University, and who voluntarily agreed to take part in the research, formed the research sample. Four of the students did not agree to participate in the study, and five who filled in the questionnaire forms incompletely were not taken into the evaluation. Another 20 students were absent from class the day the data collection took place and so were not included in the study. Thus, a total of 29 students were not included in the research sample.

Data Collection Tools

A Descriptive Information Form, an Environment Literacy Scale (ELS), and an Environmental Awareness and Sensitivity Scale (EASS) were used as data collection instruments in the study.

Descriptive Information Form

This form was created by the researchers by scanning the relevant literature.[4,5] It consisted of 12 questions on gender, age, year of study, parents' education level, parents' employment status, place of residence, interest in the environment, participation in environment activities, conversations in the family about the environment, and reacting to environment polluters.

Environment Literacy Scale

This scale was developed by Atabek-Yiğit et al. (2014).[15] It consists of 20 items in three sub-dimensions. The sub-dimension of Environmental Consciousness has six items, items 1–6. The sub-dimension of Environmental Concern also has six items. These are items 7–12. The sub-dimension of Environmental Awareness has eight items. These are items 13–20. The scale is of five-way Likert type, scored I completely disagree (1), I disagree (2), I am undecided (3), I agree (4), and I completely agree (5). The lowest score that can be obtained from the scale is 20, and the highest score is 100. High scores on the scale indicate that individuals' environmental literacy levels are high and low scores indicate that individuals' environmental literacy levels are low. The Cronbach alpha value of the scale is 0.88. The Cronbach alpha value was 0.81 in our study.

Environmental Awareness and Sensitivity Scale

This scale was developed in 2013 by Yesilyurt et al.[16] to determine environmental awareness and sensitivity. It is of five-way Likert type and consists of 37 items. The Environmental Awareness sub-dimension consists of 15 items (1–15) and the Environmental Sensitivity sub-dimension consists of 22 items (16–37). The scale was prepared as a five-way Likert type scale, and each item is scored from 1 to 5: I completely disagree (1), I disagree (2), I am undecided (3), I agree (4), and I completely agree (5). Item No 10 on the scale contains a negative statement and is scored in reverse that the total score ranges

between 46 and 181. The Cronbach alpha value of the scale is 0.92. The Cronbach alpha value was 0.94 in our study.

Data Collection

Data collection was performed during the students' class hours. Before collecting data, the researcher determined the students' class hours and obtained permission from the relevant teacher to collect data before the class. The researcher collected data at the beginning of the spring semester in the classroom environment. Students were informed about the research. After that, a Voluntary Informed Consent Form was distributed to students who agreed to participate in the research, and their written consent was obtained. Then, the questionnaire forms were distributed to the students who agreed to participate in the study, and re-collected after 15–20 min, after they had been completed.

Data Analysis

Statistical analysis was performed using eS version 25.0 software (SPSS Inc., Chicago, IL, USA). The results of frequency analysis of the descriptive characteristics of the students included in the study and the defining statistics relating to their scores on the ELS and the EASS were found. Conformity to normal distribution of the students' scores on the ELS and the EASS was examined with the Kolmogorov–Smirnov test, and it was found that it did not show normal distribution. Therefore, non-parametric tests – the Mann–Whitney U-test and the Kruskal–Wallis H test – were used, and the correlations between the scale scores were determined with the Spearman test. Statistical significance was defined as a p-value of < 0.05.

Ethical Considerations

Ethics committee approval was obtained from Eastern Mediterranean University where the study was conducted (Approval Number: ETK00-2021-0178, Date: 30.06. 2021). Institutional permission to carry out the study was obtained from the office of the Head of the Nursing Department. Furthermore, written approval was obtained from the students taking part in the research with an Informed Voluntary Approval Form prepared according to the Declaration of Helsinki. Permission to use the scales used in data collection were obtained from the authors by Email.

Results

The students obtained a mean score of 76.81 ± 11.59 puan (min: 27, max: 100) on the ELS. It was seen that the students included in the study obtained a mean score of 139.74 ± 19.32 (min: 56, max: 185) from the Environment Awareness and Environmental Sensitivity Scale (Table 1).

It was found that 65.5% of the students participating in the research were female, and 45.9% were in the 20-21-year age group; 48.1% lived in a dormitory; and 27.8% smoked cigarettes. It was determined that 74.4% of the students had heard of the concept of the environment, 22.8% took part in environment activities, the environment was talked about in the families of 21.2%, the environment was sometimes mentioned in the families of 74.7%, and 41.1% always reacted and 49.4% sometimes reacted to those polluting the environment (Table 2).

The students obtained a mean score of 76.81 ± 11.59 puan (min: 27, max: 100) on the ELS. No statistically significant difference was found between the students' ELS scores according to their age group ($P > 0.05$) (Table 1). A significant difference was found between the students' ELS scores and the variable of gender. The ELS scores of female students were found to be higher than those of males ($P < 0.05$). With regard to place of residence, the ELS scores of students living in a dormitory were found to be higher than those of other students ($P < 0.05$). No significant difference was seen between the students' mean ELS scores and whether they smoked cigarettes ($P > 0.05$) (Table 2).

A statistically significant difference was found between the students ELS scores and whether they had heard about the topic of the environment ($P < 0.05$). The ELS scores of the students who had heard about the environment were higher. The scores of students in whose families the environment were talked about and who at the same time took part in environment activities were found to be higher than the scores of other students ($P < 0.05$) (Table 2).

No significant difference was found between the students' mean scale scores and their ages ($P > 0.05$), but a significant difference was fond between their EASS scores and the variable of gender. The EASS scores of female students were found to be higher than those of males ($P < 0.05$). When the students' place of residence was examined, it was found that the mean EASS scores of those who lived in a dormitory were higher ($P < 0.05$) (Table 2).

The EASS scores of students who smoked cigarettes were found to be higher than those of student who did not smoke ($P < 0.05$). The environmental awareness and sensitivity of students who took an interest in the environment, those who took part in environmental activities, and those in whose families the topic of environment were discussed were found to be higher ($P < 0.05$) (Table 2).

The EASS scores of students who stated that they always reacted to those who polluted the environment were higher than those of others, and the scores of students who stated that they sometimes reacted to environment polluters were higher than the scores of those who reacted seldom or not at all ($P < 0.05$) (Table 2).

Table 3 shows the correlations between the students' scores on the ELS and the Environment Awareness and Environmental Sensitivity Scale. It was found that there was a statistically significant positive correlation between them.

Discussion

No studies were found which were conducted in Türkiye examining the correlation between nursing students' environmental awareness and sensitivity and their environment literacy. Therefore, the aim of this study was to draw attention to the importance of environment literacy and environmental awareness and sensitivity in protecting the environment by examining the correlation between the environmental awareness and sensitivity of student nurses and their environment literacy.

Table 1. Students' environment literacy scale and environmental awareness and sensitivity scale scores

	n	$\bar{x}$ ±SD	Min	Max
Environment Literacy Scale	316	76.81±11.59	27.00	100.00
Environmental Awareness and Sensitivity Scale	316	139.74±19.32	56.00	185.00

$\bar{x}$: Mean, SD: Standard deviation.

Table 2. Comparison of students' introductory characteristics and ELS and EASS Scores

				ELS	EASS
Characteristics		n	%	$\bar{x}$ ±SD	$\bar{x}$ ±SD
Age**	18–19	92	29.1	76.08±10.40	137.51±18.90
	20–21	145	45.9	76.67±12.21	140.03±19.42
	22 and over	79	25.0	77.94±11.79	141.81±19.60
				P=0.266	*P*=0.239
Gender***	Female	207	65.5	77.69±11.44	141.90±18.42
	Male	109	34.5	75.16±11.75	135.64±20.38
	P=0.014*				*P*=0.004*
Place of Residence**	With family	125	39.6	74.14±12.57	136.63±20.63
	With friends	39	12.3	75.51±14.67	137.59±18.95
	In a dormitory	152	48.1	79.34±9.14	142.85±17.89
				P=0.003*	*P*=0.021*
Smoking Habits***	Yes	88	27.8	75.50±12.01	133.94±20.09
	No	228	72.2	77.32±11.41	141.98±18.58
P= 0.281					*P*=0.003*
Take an interest in the environment***	Yes	235	74.4	78.08±11.03	142.83±18.60
	No	81	25.6	73.14±12.43	130.78±18.67
				P<0.001*	*P*<0.001*
Participating in environmental activities ***	Yes	72	22.8	80.00±9.49	145.86±18.34
	No	244	77.2	75.87±12.00	137.93±19.37
	P=0.004*				*P*=0.003*
Talking about the environment in the family**	Yes	67	21.2	79.81±10.89	146.49±18.76
	Sometimes	236	74.7	76.09±11.85	138.24±19.03
	No	13	4.1	74.46±7.74	132.15±20.21
	P=0.003*				***P*=0.002***
Responding to polluters**	Always	130	41.1	79.78±9.96	145.55±19.55
	Sometimes	156	49.4	74.72±12.11	136.90±17.38
	Rarely/Never	30	9.5	74.83±12.90	129.37±20.83
			P<0.001*		*P*<0.001*

ELS: Environment literacy scale, EASS: Environmental awareness and sensitivity scale, **P*<0.05, ** Kruskal–Wallis H Test, *** Mann–Whitney U-Test.

Table 3. The relationship between students' environment literacy scale and environmental awareness and sensitivity scale scores

		Environment Literacy Scale
Environmental Awareness and Sensitivity Scale	Rho**	0.677
	P	<0.001*
	n	316

**P*<0.05, ****Spearman correlation test.

The research shows that environmental literacy levels are high. It can be said that the students' environment literacy was high. This is a welcome finding, because the United Nations Educational, Scientific and Cultural Organization, and the North American Association for Environmental Education have noted that to combat environmental problems and to protect the environment, environment literacy must be increased.[18,19] Examining the literature, it is seen that a large number of studies support our research findings. Demirtaş et al.,[20] in a study with university students using the adult health literacy scale, found that the students' environment literacy levels were high. Results of studies which did not support our findings were also found

in the literature. In a study in Iran with 1068 students, Veisi et al.[21] found that the students' environment literacy was at a medium level. In a study in Israel by Goldman et al.[22] to determine the environment literacy and environmental knowledge, attitudes, and behaviors of students embarking on a teaching program, it was reported that the students' environment literacy levels were low. It was reported in a study by Meilinda et al.[23] that students' environment literacy was low. It may be thought that this difference among research results in the literature arises from a difference in such factors as culture or education in the places where the research was performed.

In the research, it was found that students' environmental awareness and sensitivity were high. This finding is supported by the results of studies in the literature conducted in different societies on students' environmental knowledge and awareness.[24-27] In a study by Vicente-Molina et al.[25] examining university students' environmental awareness and behaviors, it was reported that the students' environment awareness was high. In a study to determine the environment awareness of university students, Liu et al.[26] reported that the students' environment consciousness and awareness was high, but that they were taking no action to protect the environment. In a study with university students in Pakistan, Arshad et al.[27] found that the students' environmental awareness, attitude, and behaviors were high. Yucedag et al.[28] found that the environment awareness and sensitivity of student teachers were at a medium level. In a study with nursing students, Gök and Fırat Kılıç[29] found that the nurses' environment awareness and sensitivity were at a medium level. In another study, it was reported that students' environmental awareness was low, even though they had had education on the environment.[30] Education on the environment may affect a person's environmental knowledge or attitudes and support their environmental competence. The environment is an important component of nursing covered in nursing degree education and must be explained to students from their 1st year. Therefore, the finding of our study that environment awareness and environmental sensitivity were high in student nurses may be thought of in the light of this knowledge.

Environment literacy and environment awareness and sensitivity can be affected by many different factors. Environmental awareness, sensitivity and literacy of female students were found to be higher. It is seen that in many studies in the literature, the environment literacy and environment awareness and sensitivity of females are higher than that of males.[29,31] In a study by Gök and Fırat Kılıç,[29] students' environment awareness and sensitivity varied according to their gender, and the environment awareness and sensitivity of females was higher than that of males. In a study by Özyürek et al.[31] with 259 student teachers, it was reported that the attitudes of female student teachers to the environment were more positive than that of males. Different from the results of our study, it was reported in a study by Acungil[32] that male students had a more positive environmental attitude and sensitivity than female students. Other studies in the literature found no difference between the genders.[33,34]

It was found that less than half of the participants lived in a dormitory. During university life, students adapt to a new arrangement of social relationships, and those who live in a dormitory learn to live together. Students living in a dormitory learn to conform to the rules of that place and are able to develop their awareness of their surroundings. The environmental awareness and sensitivity of students whose environment literacy is increasing may also increase outside the dormitory environment. It was found in our study that the scores of students living in a dormitory on the ELS and the Environment. Similarly, it was reported in studies by Gök and Fırat Kılıç[29] and Ulas Kadıoglu and Uncu[35] that the environmental awareness and sensitivity of students living in a dormitory was high. Different from the findings of our research, Çelik et al.[24] reported in a study with nursing and medical students that there was no difference between the environmental awareness and sensitivity of students living in a dormitory.

In our study, the scores on the ELS and the Environment Awareness and Environmental Sensitivity Scale of students who took an interest in the environment, who took part in environment activities, whose families talked about the environment, and who always reacted to environment polluters were found to be higher than those of other students. In a study with final year nursing department students, Çınar et al.[36] found that nurses' sensitivity to the environment was significantly higher than what was stated to be necessary. In a similar study with student teachers studying in different programs by Aksoy and Karatekin,[37] it was stated that as interest in the environment increased, the tendency to sensitivity to the environment of the student teachers also showed a positive increase. In a similar study with health services vocational high school students by Yurtseven et al.,[38] it was found that the environmental sensitivity of those who stated that they talked about the environment in their families was significantly higher than that of those who did not. Tamam et al.,[39] in a study with medical students, reported that the environmental attitudes of students who talked about the environment in their families were better. Considering these results, it can be said that taking an interest in the environment and talking about the environment in their family increases students' environment literacy, and thus, they will show a more positive attitude to the environment.

It was found in our study that the scores on the Environment Awareness and Environmental Sensitivity Scale of students who did not smoke were higher than those of other students. Tamam et al.,[39] in a study with medical students, reported that both the awareness of environmental problems and the environmental attitudes of students who did not smoke were better. In a study examining nursing students' awareness and sensitivity, it was reported that among nursing students, the environmental awareness, and sensitivity of those who did not smoke was high.[29] Throughout their training and in all departments relating to nursing, nursing students are taught about the damage done by cigarettes, they teach people about this damage, and while performing hospital practice, they care for individuals with diseases caused by smoking. Therefore, it is a predictable result that environmental awareness and sensitivity would be higher in nursing students who do not smoke, after they have seen the damage done by cigarettes in all its aspects.

In the research, it was determined that as students' environmental literacy increased, their environmental awareness and sensitivity also increased. Examining the literature, it is seen that environment literacy affects environmental knowledge, attitude, and responsibility.[22,26,40-43] This finding, which is one of the important and striking findings of our research, emphasizes the importance of environment education. No studies were found in the literature which examined the correlation between environment literacy and environmental awareness and sensitivity in students, but in many studies on the environment, emphasis is laid on the relationship between these two variables. It is clear that the addition of lessons on the environment

in school curriculums from primary school onward will increase environment literacy, and students will be more aware of the environment. An increase in environment literacy and sensitivity to the environment will result in action to improve environmental conditions. Thus, improvement of the environment will give future generations the chance to live in a healthier environment and will contribute to improving health.

Study Limitation

This research is limited to Eastern Mediterranean University, Faculty of Health Sciences, Department of Nursing. Therefore, the results can only be generalized to this group of students. Qualitative studies can be conducted to collect more detailed data.

Conclusion

It was found that the students' environment literacy and environmental awareness and sensitivity were at a good level. The levels of environment literacy and environmental awareness and sensitivity of female students and those living in a dormitory were found to be high. The levels of environmental awareness and sensitivity of students who did not smoke were higher. It was seen that the levels of environment literacy and environmental awareness and sensitivity of students who took an interest in the environment and who talked about the environment with their families were high. Revisions should be made to the curriculums of nursing schools by adding classes and seminars to improve the levels of students' environment literacy. In universities, awareness and sensitivity should be increased by increasing the number of activities and clubs relating to the environment. Furthermore, topics relating to the environment should be dealt with on social media and in families, and in this way, children will gain their first awareness of the environment within the family.

In future research, qualitative research methods can be used in studies focusing on an examination of the factors affecting nursing students' levels of environment literacy and environmental awareness and sensitivity. In this way, this will allow nursing students, who are the health professionals of the future, to graduate with high environment literacy so that they will be effective in protecting the environment and improving environmental health.

Ethics Committee Approval: Ethics committee approval was obtained from Eastern Mediterranean University where the study was conducted (Approval Number: ETK00-2021-0178, Date: 30.06. 2021).

Informed Consent: Written approval was obtained from the students taking part in the research.

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