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Evaluating the Level of Environmental Behaviors among Students at Jahrom University of Medical Sciences, 2016-2017

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ABSTRACT

Introduction: Environmental behavior helps to minimize environmental damage and increase the environmental benefits and advantages. The present study aimed to determine the environmental behaviors of students in Jahrom University of Medical Sciences.

Materials and Methods: This cross-sectional study was conducted on 285 students in the academic year 2016-2017 by the stratified sampling method. The data collection tool was a standard questionnaire. The data were analyzed by SPSS 16 software and using descriptive statistics, independent t-test, one way ANOVA, and Pearson correlation coefficient at significant level of $\alpha = 0.05$.

Results: The study participants included 66.3% female and 33.3% male with an average age of 21.41 ± 20.40 years. Among the students, 36.14% had a weak environmental knowledge, 53.34% intermediate knowledge and 10.52% high level of environmental knowledge respectively. The largest source of environmental information was television, internet, and social networks. The students' knowledge, attitude, and behavior was at a moderately upward level and there was a significant difference between girls and boys regarding environmental behaviors ($p < 0.05$). There was a weak significant correlation between environmental attitudes and environmental behaviors ($r = 0.39$) ($p < 0.001$). However, there was no significant correlation between environmental knowledge and environmental behavior ($r = 0.69$, $p = 0.25$).

Conclusion: The environmental behavior of students in Jahrom University of Medical Sciences was relatively good, among which energy consumption behavior was the highest and waste recycling behavior was the lowest. Therefore, it can be concluded that having environmental knowledge cannot be a guarantee of environmental behavior.

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Introduction

Undoubtedly, environmental problems are among the most challenging issues of interest for scientific and international communities in the present era. These issues have technical, ethical, political, socio-cultural, and health importance and most of them are significantly related to the level of environment value in people's social life. This is mainly due to the fact that the actual representation of this level of importance can be observed in environmental knowledge, cooperation, activities, attitude, and behaviors of social agents [1].

According to the World Health Organization (WHO), one-eighth of the total mortality rate is related to air pollution (one of the aspects of the

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environment), and there is a strong relationship between these pollutions and cardiovascular and respiratory diseases and cancer. Therefore, evaluation and control of environmental factors can potentially affect health. In other words, the environmental health of any society guarantees its full health. In fact, these two complete each other and neglect of one of them results in the destruction of the other [2, 3].

The United Nations named 2005-2014 the decade of sustainable development education, which must highlight the importance of some issues, such as natural resources, water, energy, agriculture, and biodiversity, and teach people about life cycle dependency on the ecosystem [4, 5]. Working on sustainable development is essentially about protecting the environment. In addition, one of the main conditions for creating a balanced and harmonious society is this type of development, which can be realized by protecting the environment and resources for the next generations [6]. Environmental issues are important in the topic of sustainable development due to the quality of environment which has been degraded in the past few years. Furthermore, dealing with environmental degradation and reduced natural resources will only be achieved through long-term environmental policies, which are significantly important in preparation of environmental policy for participation and awareness toward environmental issues [7]. In other words, ethical and behavioral solutions are more important than technical and technological solutions for environmental problems [8].

Today and after four decades of scientific activities in the area of environmental sociology, the current state of the environment in Iran is not favorable [1]. According to the global environmental performance index, from the 132 countries of the world, Iran dropped 36 spots compared to 2010 and is not ranked as the 114th in the world. Meanwhile, Article 50 of the constitution of the Islamic Republic of Iran regards the protection of the environment as a public duty (Islamic Republic Law, 2011). In addition, clauses 60 and 64 of the fourth economic development program of the government of the Islamic Republic of Iran address the environmental issue. Specifically, the Article A of clause 64 emphasizes the improvement of public awareness toward achieving sustainable environmental development [9, 10]. Nevertheless, Iran has been faced with several environmental issues in the past decades, including water pollution and depression, air pollution and issue of dunes (especially in Tehran and Khuzestan), soil erosion, excessive energy consumption, blockage of sewage networks, accumulation of garbage along the roads, and streams full of dirty wastes and their cycling issue. However, the indifference of people of Iran toward this issue, as well as their inadequate knowledge and weak environmental significance are the main causes of these issues [11].

Environmental literature in the field of environmental sociology has recognized various factors, such as characteristics of respondents; environmental awareness and concern; individual accountability; individual and social norms; subjective norms; control of perceived behavior; attitude; tendency toward correct behaviors; knowledge, and environmental values, as social components affecting environmental behaviors. Studies by Kaiser et al., Laudenslager et al., Fielding et al., Nigbur et al., Gadenne et al., Ramayah et al., cloackner et al., Botetzagias et al., Hejazi and Eshaghi and Hemayatkhah et al., have specifically explained the factors affecting environmental behaviors [11-18.] What emerges from these studies is that environmental knowledge is a prerequisite for the environmental perspective, and these two variables are powerful predictors of environmental behaviors. However, environmental knowledge is not considered adequate for environmental behaviors in some studies, believing that environmental knowledge is necessary for environmental behavior but not sufficient [19, 20].Therefore, although knowledge does not always have a direct impact on behavior, it reinforces other tools (e.g., attitudes) that facilitate behavior change [21].

Today, education of various sections of society about the environment is addressed as a key issue for environmental issues. By environmental

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education the sensitivity of individuals toward physical, biological, social, political changes, and events toward the environment can be increased and the environmental issues and problems can be recognized, described, and solved [22]. In this regard, the fundamental and influential role of universities and educational centers in addressing the social issues can be pointed out; since higher education trains responsible and competent people with adequate knowledge, skills, and values to improve the world. Without a doubt, these organizations can play an essential role in directing the society toward sustainability [23].

Nowadays, the level of knowledge, attitude, and behavior of students is recognized as one of the indicators of national civilization that reflects several aspects of the environmental situation (such as personal considerations and behavior, general ability and attitude of local citizens towards sustainable society) [24]. Therefore, the concept of environmental education and its relation to the attitude and behavior toward the environment have attracted many researchers from different fields in recent years. Results of these studies provided numerous theories in this field, each of which has considered socioeconomic behaviors from different angles as a threat to the environment[22].

Evaluation of the relationship between environmental issues and universities in Iran shows that the academic centers also struggle with many environmental problems, such as the high volume of waste generation and the neglect of their recycling, as well as excessive consumption of energy and plastic bags. Therefore, if the environmental behaviors of the academic population are accepted by families and other citizens of the community as a desirable behavior pattern, it could be stated that they can lead to the institutionalization of anti-environmental behaviors. Furthermore, the environmental behavior can be considered as a behavior that minimizes damages to the environment and increases environmental benefits and advantages. In other words, a social activist's environmental behavior causes no environmental damage even if it does not support the environment[25].

Therefore, it seems necessary to conduct research studies on environmental behaviors of these academic activities; since the way these behaviors are performed will have direct or indirect environmental outcomes. Given the higher expertise of the medical universities students in the area of environment and relevant diseases, compared to students in other academic centers, and the greater possibility of responsibilities toward health and environment maintenance for them in the future, this study aimed to evaluate the level of attitude, knowledge, and environmental behaviors of students at Jahrom University of Medical Sciences, Iran.

Materials and Methods

Study Design and Sampling Method

This cross-sectional study was conducted in 2016-2017 on 285 students at Jahrom University of Medical Sciences, who were selected using Morgan table and relative stratified sampling. At first, students were classified based on their field of study (medicine, nursing, anesthesiology, operating room, laboratory sciences, public health, and medical emergencies) and the sample size was estimated based on the proportion of each category to the total population.

Inclusion and Exclusion Criterion

The inclusion criterion was studying at Jahrom University of Medical Sciences in 2016-2017; whereas, the exclusion criterion was studying at Jahrom University for less than a semester as a guest student.

Variables

In this study, the evaluated variables included environmental behaviors (a set of actions of community members towards the environment that embraces a wide range of sentiments, tendencies, and specific preparedness for behavior toward the environment), environmental knowledge (having sufficient knowledge about environmental issues and being familiarized with the necessary skills to deal with them), biological attitude (a set of feelings and beliefs that are related to environmental issues and topics), age, gender, place of residence of the family, marital status, parental occupational status, and source of information (a source that is used to

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receive environmental information, such as TV, radio, and newspaper).

The research study by Moghadas [26] was applied for classification of the paternal occupational status variable. In this regard, 97 occupations were classified into seven categories. Therefore, the respondents were distributed in these seven categories based on the occupational status of parents and scores were allocated according to the dignity of jobs.

Data Sources/ Measurement

Data collection tool was the valid questionnaire of Kaiser et al. [27], which was previously localized by Hemayatkhah et al. [11], and its reliability coefficient was above 0.75. In this questionnaire, environmental behaviors are assessed from seven aspects of energy consumption, transportation, recycling, preventing waste production, water use, green consumption, and substitution behavior. This questionnaire had a total of 29 items scored on a five-point Likert scale (always = 5, often = 4, sometimes = 3, rarely = 2, never = 1). In addition, the score range was 29-145, where the higher score was indicative of more favorable environmental behavior. Moreover, the survey designed by Hey et al. [28] with a confidence level of above 0.65 was applied to assess the variable of environmental knowledge. The survey was previously used by Salehi et al. and its reliability and validity were confirmed [22]. This questionnaire contained nine items with four choices and only one correct answer.

Furthermore, the standard scale of the new environmental paradigm developed by Dunlap et al. [29] with reliability coefficient above 0.70 was used to evaluate the environmental attitude. This questionnaire comprised of 15 items in five dimensions (balance of nature, ecocrisis, antiexemprionalism, limits to growth and anti-anthropocentrism). The questionnaire was scored on a five-point Likert scale (from completely agree to completely disagree) within the score range of 15-75, where the higher score was indicative of a more favorable environmental attitude.

Ethical Issues

The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of Jahrom University of Medical Sciences (Project identification code IR.JUMS.REC.1395.073).

Statistical Methods

Data analysis was performed in SPSS version 16 using Kolmogorov-Smirnov test to assess the normal distribution of the data, descriptive statistics, independent t-test, one-way analysis of variance, and Pearson's correlation confident.

Results

From the 285 participants, 190 (66.3%) were female and 95 (33.3%) were male with mean age of 21.41 ± 20.40 years. In terms of level of education of parents, 93 (33%) and 80 (28%) had high school diploma and academic education, respectively and only 12 (4%) individuals were illiterate. On the other hand, 70 fathers (24.6%) had BSc, 101 (35.41%) had academic education and only four percent of the fathers were illiterate. In total, about 35% of the parents had below diploma education, 27% had diploma and 38% had academic education. These results demonstrated the improvement in the level of education of modern parents.

In terms of parental occupational status, 76% of mothers were housewives and about 20% of them had jobs such as a teacher or government employee. On the other hand, most of the parents were teachers or employees (approximately 58%). In total, about 70% of the participants' fathers had high-dignity jobs (from the fourth classification upward). Meanwhile, 30% of parental jobs were not specified. While a small number of students answered the question about the level of family income (90 individuals, about 31.57% of the participants), the results showed that the income level of 5.6% of the families were below the minimum livelihood (900000 Tomans). In addition, the level of income of 37% of the respondents was within the range of one million and a half. In total, the mean income level of the families of the subjects was estimated at about 2,600,000 tomans, and most of families had an income of one million tomans. (Table 1).

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Table 1: Demographic characteristics of participants

Variable	Frequency	%	Variable	Frequency	%
Age			Field of study		
18-21	165	57.9	Medicine	108	37.9
22-25	103	36.1	Nursing	48	16.8
26-29	16	5.6	Anesthesiology	33	11.6
>30	1	0.4	Operating room	30	10.5
Gender					
Female	190	66.7	Laboratory sciences	27	9.5
Male	95	33.3	Health	24	8.4
Marital status			Medical emergencies	15	5.3
Single	213	74.7			
			Place of residence (family)		
Married	69	24.2	City	266	93.3
Others	3	1.1	Village	19	6.7
Maternal occupation based on job classification *			Paternal occupation based on job classification *		
Category 1	149	75.6	Category 1	6	3.1
Category 2	-	-	Category 2	8	4.1
Category 3	-	-	Category 3	47	24.2
Category 4	39	19.8	Category 4	112	57.7
Category 5	5	2.5	Category 5	7	3.6
Category 6	-	-	Category 6	11	5.7
Category 7	4	2	Category 7	3	1.5

*The category 1: involves low-level occupations, such as dealer, building worker, waste collector, waiter/waitress, housewife (for women) and hawker.
The category 2: are mine worker, butcher, taxi driver, typist, secretary, salesperson and barber.
The category 3: involves the occupations of welder and carpenter,
The category 4: has jobs including accountant, government employee, teacher, contractor, middle-class military officer, and farmer with lands.
The category 5: contains the occupations of school manager, nurse and head of bank,
The category 6: contains the jobs of lawyer, judge, engineer, socialist, and army colonel. Finally,
The category 7: comprises of jobs with highest dignity, such as physician, university professor, and parliament member.

The variable of environmental knowledge is one of the most noticeable variables in the studies of environmental sociology. The range of the scores of this variable, which was assessed with nine items, was 0-9, where the highest and lowest percentages of accurate responses (88.5% and 8%) were related to the questions of "what does the ozone layer do?" and "what is the main benefit of slumps?", respectively. Distribution of the environmental knowledge score of students is shown in Table 2 in the form of five groups of significantly low, low, high, and significantly high. According to the data presented in this table, from a total of 285 respondents, 25 (11.6%) individuals had significantly low environmental knowledge scores, whereas 152 (53.3%) and 1 (0.4%) had moderate and significantly high environmental knowledge scores, respectively. In general, the environmental knowledge of the subjects was at a moderate-to-low level. In this respect, the minimum and maximum scores obtained by students were 1 and 9, respectively. In addition, mean environmental knowledge score was 4 ± 1.41, and the highest frequency was the score of 4. In sum, the mean score showed the moderate-to-low knowledge level of the students in this field.

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Table 2: The level of environmental knowledge scores in respondents

Levels of scores	Frequency	Percentage
Significantly low (0 - 1)	25	8.47
Low (2 - 3)	78	26.44
Moderate (4 - 5)	152	51.53
High (6 - 7)	39	13.22
Significantly high (8 - 9)	1	0.34
Total	295	100

The contribution of each of the information sources to environmental information shows whether the environmental knowledge of the students is effective in each source of information. The results presented in Table 3 demonstrated that the largest source of environmental information for students is TV and the modern communication media includes internet and social media. More than 80% subjects reported that the mentioned resources are used to acquire information, and the lowest level of information is obtained through radio.

Table 3: Frequency distribution of respondents according to the share of each information resource in acquiring their environmental information

Information resources	Frequency	Percent
TV	239	83.85
Internet and social media (Facebook and WhatsApp)	233	81.75
Family	214	75.08
Friends and companions	200	70.17
City billboards and boards	182	63.85
Newspaper, journals and books	171	60
Satellite	152	53.3
Environmental experts	137	48.07
Radio	132	46.3

The variable of environmental attitude is one of the most important variables in environmental studies, impact of which on environmental behaviors is often assessed. Each dimension of this variable was evaluated with three items (in total 15 items). According to Table 4, the mean environmental attitude score of the students (51.86) was at a moderate level. In addition, the antiexemprionalism (11.97) and anti-anthropocentrism 9 had the highest and lowest scores, respectively. This means that the intelligence and creativity of humans were not regarded as important factors for prevention of the environmental destruction. On the other hand, the subjects believed that human beings can control and dominate the nature.

Table 4: Variables related to environmental attitudes

Dimensions	Ecocrisis	Antiexemprionalism	Balance of nature	Anti-anthropocentrism	Limits to growth	Total mean score of attitude
Mean score of dimensions of attitude	9.9	11.97	9.5	9	11.43	51.8

The variable of environmental behavior was assessed with 29 items through self-report in seven dimensions (energy consumption, transportation, prevention of waste generation, recycling, green consumption, water use and substitute behaviors). According to Table 5, the respondents somehow performed all of the environmental behaviors. In this regard, the highest and lowest scores were allocated to energy consumption and recycling behaviors, respectively. Therefore, the results were

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indicative of the moderate-to-low level of adherence of environmental behaviors by students (mean score of 100.71 from the total score of 145), which was interpreted as a relatively favorable level. Meanwhile, the minimum and maximum scores were 67 and 140, respectively in this regard.

Table 5: Relative distribution of respondents according to environmental behaviors

Dimensions of environmental behaviors	Percentage of respondents	Mean score
Energy consumption	79.64	3.98
Transportation	70	3.5
Prevention of waste generation	72.4	3.62
Water use	71.65	3.58
Substitute behaviors	65.05	3.25
Recycling	60	3
Green consumption	68.25	3.41

After the evaluation of the relationship between demographic characteristics and environmental behavior, the only significant association between the variables of age (Pearson's correlation coefficient), gender, place of residence, marital status (independent t-test), field of study (one-way analysis of variance) was found between gender and environmental behavior ($p < 0.001$). In this regard, the mean environmental behavior score was 104.44 ± 11.92 and 98.45 ± 12.29 in female and male students, respectively. Therefore, there was a higher level of adherence to environmental behaviors in females, compared to males. In terms of the fields of education, the mean score of environmental knowledge was 4.1 ± 2.4 and 4.1 ± 1.2 in the medical and health students, respectively, which was higher compared to other fields. However, the difference in mean score of various fields was not statistically significant ($p > 0.05$). In addition, there was a weak and significant correlation between environmental attitude and environmental behaviors ($r = 0.39$, $p < 0.001$). Nevertheless, no significant association was found between environmental knowledge and environmental behaviors ($r = 0.069$, $p = 0.25$).

Discussion

Nowadays, human impact on the environment has attracted the attention of researchers due to the increasing rate of environmental issues, such as energy crisis, climate change, waste and destruction of natural resources, as well as increase of waste from urban and industrial development. The majority of these problems are directly or indirectly caused by human behaviors. In this regard, one of the important variables is individual knowledge about environmental concerns. Knowledge is a mean to overcome ignorance or misinformation and is one of the predictors of environmental concern and behavior of individuals [29, 30].

From the point of view of environmental policy, various institutions play a role in the creation and promotion of environmental knowledge and behavior, such as higher education institutions. In particular, medical universities play a significant role in this regard; since compared to other universities and other higher education institutions, they provide more specialized courses on environment and relevant diseases for students. In addition, medical universities may hold their students accountable in protecting the environment and its health. Since limited number of studies have been conducted on students' level of environmental knowledge in medical universities of the country, students of Jahrom University of Medical Sciences were assessed in the present study.

According to the results of the present study, the environmental knowledge of students in Jahrom University of Medical Sciences was at a moderate level and this knowledge was higher among students of medicine and public health field, compared to other disciplines. In a previous study, Pazouki and Salehi evaluated the environmental knowledge of students at Mazandaran universities [22], marking that students in the fields of natural resources, engineering and medicine had the highest level of environmental knowledge, which

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was assumed to be related to passing related courses in these disciplines. Akomulaf in Nigeria [31], as well as Tiksuz et al. [32] and Garz et al. in Turkey [33] concluded that the environmental knowledge level was low or moderate in students.

In the current research, the most important and best sources of environmental information for students were TV, family, and modern communication media, such as internet and social networks, which are in line with the results obtained by Budak et al. in Turkey [34]. According to these scholars, TV and family were the most important environmental sources of information for students, which showed the significant role of the family in the transfer of environmental values to children. In all cultures, the family is the first socializing institution, where the child becomes an informed person and acquires behavioral skills. In fact, family teaches children responsible and irresponsible environmental behaviors that will never be forgotten.

According to the results of the present study, environmental attitude of the students was at a moderate-to-high level. Among the five environmental dimensions, the antiexemprionalism dimension with questions of: "some believe that reliance on intelligence and human genius can prevent the destruction of the environment, while humans have many abilities, they need the nature and environment and is subject to the laws of nature, and man finally acquires enough knowledge about nature and takes control of it" received the highest mean score. On the other hand, anti-anthropocentrism with questions of: "human beings have the rights however they want to change the natural environment in line with their requirements, plants and animals have the right to live as much as humans, and the goal of humans must control nature" was allocated the lowest mean score.

This means that the evaluated students did not believe in the intelligence and creativity of humans to prevent environmental degradation, and thought that humans can control nature. Attitude is not behavior but prepares the individual to take actions. The more the person is prepared, the more it is likely to observe the behavior from the individual. In the present study, a correlation was found between environmental attitude and behaviors of students. This result is consistent with the findings of other studies [11, 16, 18, 28, 35, 36]. Therefore, it can be argued that a favorable environmental attitude can act as an effective factor for activists to engage in environmental behaviors.

In the evaluation of the environmental knowledge and attitude of Iranian students in Universities of Malaysia, Aminrad et al. reported the environmental knowledge and attitude of students at moderate and high levels, respectively. In the mentioned study while no significant difference was observed between male and female students in terms of attitude and knowledge, a significant relationship was found between the environmental knowledge and attitude of the participants. In addition, media had positive effects on the level of environmental knowledge and attitude of the students [24].

In the present study, adhering to environmental behaviors was at a moderate-to-high level in students, which was favorable. In this respect, energy consumption behavior (e.g., turning off the unnecessary lights and using energy-efficient products) was allocated the highest mean score while the recycling behavior (e.g., reusing papers, newspapers or magazines and waste sorting) received the lowest mean score. Moreover, no significant relationship was observed between environmental behaviors of students and variables of age, place of residence, marital status, and field of study. Nevertheless, a significant association was found between gender and environmental behavior, where female students obtained higher environmental behavior scores, compared to male individuals. The results of a number of studies have shown that female students were more diligent in protecting the environment than boys, and this relationship was significant [11, 24, 34, 37]. Therefore, given the high role of women and girls in the management of home affairs, and in particular the socialization of children, it is definitely more and better than men to be

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actively involved in institutionalizing responsible environmental behaviors.

Mahdavi [2] reported that female students were more eager in protection of the environment, compared to male subjects, which showed a significant relationship in this regard. Moreover, married individuals paid more attention to environment protection, compared to single individuals. This may be due to the fact that after marriage, people are closely involved with the realities of life and are directly engaged with life affairs, including income and expenditure, production and consumption, which increases the importance of the environment for them.

Conclusion

According to the results of the current study, the environmental behaviors of students at Jahrom University of Medical Sciences were at a relatively favorable level. In this regard, the highest and lowest scores were allocated to energy consumption and recycling behaviors, respectively, which highlighted the importance of involving efficient environmental education in the area of recycling and relevant issues in higher education courses. Therefore, it is recommended that a more highlighted role be played by universities in empowering future environmental decision makers based on environmental protection and increasing a sense of responsibility for the environment by adding relevant courses to the environment and increasing the level of environmental knowledge of students. Use of visual media and education of families can help to facilitate education in this area. Moreover, having a favorable environmental attitude and high environmental knowledge cannot independently lead to performing environmental behaviors and requires constructive and facilitating social conditions and structure to motivate environmental behaviors in society members.

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Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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References

1. Hemayatkhah M. Sociological explanation of environmental behaviors [dissertation]. Tehran: Payam Noor Tehran University; 2016.
2. Mahdavi M, Vaziry R. Social factors-cultural influence on environmental attitude of students of science and research in 2009. Soc Res. 2009; 3(7): 19-45.
3. WHO. 7 million premature deaths annually linked to air pollution 2014. [Internet]. Available from: http://www.who.int/mediacentre/news/releases/2014/air-pollution/en/. [Cited May 27, 2018]
4. Abd El-Salam MM, El-Naggar HM, Hussein RA. Environmental education and its effect on the knowledge and attitudes of preparatory school students. J Egypt Public Health Assoc.2009; 84(3-4): 345-69.
5. UNESCO. Intergovernmental Confrence on Enviromental Education. final report. paris: 1978.
6. Lozano R, Lukman R, Lozano FJ, et al. Declarations for sustainability in higher education: becoming better leaders, through addressing the university system. J Clean Prod. 2013; 48: 10-9.
7. Townsend AR, Howarth RW, Bazzaz FA, et al. Human health effects of a changing global nitrogen cycle. Front Ecol Environ. 2003; 1(5): 240-6.
8. Yildiz ND, Yilmaz H, Demir M, et al. Effects of personal characteristics on environmental awareness; a questionnaire survey with university campus people in a developing country, Turkey. Sci Res E. 2011; 6(2): 332-40.
9. Shekooh F. Collection Law Program Fourth

[Downloaded from jehsd.ssu.ac.ir on 2026-11-21]

[DOR: 20.1001.1.24766267.2018.3.3.4.9]

Development. In: Muntasir Asadi F, editor. Office Print And Publication ed. Tehran: Research Assistant Codification And refine them Rules and Provisions; 2004. p. 100-5.
10. Environmental Performance Index in 2012 . [Internet].Available from: http:// vision1404.ir/fa/ News65.aspx. [Cited June 2, 2018]
11. Hemayatkhah M. Analysis of environmental actions based on the model of planned behavior. J Iran Soci Asso. 2015; 2(1): 45-53.
12. Kaiser FG. Environmental Attitude and Ecological Behavior. 1996.
13. Laudenslager MS, Lofgren ST, Holt DT. Understanding air force members' intentions to participate in pro-environmental behaviors: an application of the theory of planned behavior. Perceptual and motor skills. 2004; 98(3 Pt 2): 1162-70.
14. Fielding KS, Terry DJ, Masser BM, et al. Explaining landholders' decisions about riparian zone management: The role of behavioural, normative, and control beliefs. J Environ Manag. 2005; 77(1): 12-21.
15. Nigbur D, Lyons E, Uzzell D. Attitudes, norms, identity and environmental behaviour: using an expanded theory of planned behaviour to predict participation in a kerbside recycling programme. Br. J Soc Psychol. 2010; 49(Pt 2): 259-84.
16. Gadenne D, Sharma B, Kerr D, et al. The influence of consumers' environmental beliefs and attitudes on energy saving behaviours. Energy Policy. 2011; 39(12): 7684-94.
17. Botetzagias I, Dima AF, Malesios C. Extending the theory of planned behavior in the context of recycling: The role. Hum Ecol Rev. 2015; 18(1): 30.
18. Hejazi E. Explaining the environmental behavior of villagers in western provinces of Iran based on planned behavioral model. Iran J Agric Econ Dev Res. 2014; 45(2): 257-67.
19. Kollmuss A, Agyeman J. Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior? Environ educ res. 2002; 8(3): 239-60.
20. Kaiser FG, Gutscher H. The proposition of a general version of the theory of planned behavior: Predicting ecological behavior 1. J appl soc psycho. 2003; 33(3): 586-603.
21. George JF. The theory of planned behavior and Internet purchasing. Internet res. 2004; 14(3): 198-212.
22. Salehi S, Pazooki Z, Emamgholi L. Education and training and the environment (attitudes, behavior and environmental awareness for students). J Educ. 2014; 6(2): 171-90.
23. Corcoran PB, Wals AEJ. (Eds.) Higher education and the challenge of sustainability Netherlands. 2004. p. 3-6.
24. Muda A, Abd Wahab M, Harun R, et al. Environmental awareness and attitude among Iranian students in Malaysian universities. Environ Asia. 2010; 3(1):1-10.
25. Fazeli M, Jafari S. Gap attitude and environmental behavior of tourists. Journal of Tourism Management Studies. 2013; 8(22): 137-61.
26. Moghadas A. The dignity of occupations in the urban community of Iran. journal of social sciences and humanities of shiraz university. 1995; 20(10): 65-94.
27. Kaiser FG, Oerke B, Bogner FX. Behavior-based environmental attitude: Development of an instrument for adolescents. J Environ Psychol. 2007; 27(3): 242-51.
28. He X, Hong T, Liu L, et al. A comparative study of environmental knowledge, attitudes and behaviors among university students in China. Int Res in Geogr and Environ Educ. 2011; 20(2): 91-104.
29. Dunlap R, Liere K, Mertig A, et al. Measuring endorsement of the new ecological paradigm: A revised NEP scale. J Soci Issues. 2000; 56(3): 425-42.
30. Ferdousi S. MS RN. The relation between bio-environmental knowledge and pro-environmental behavior. J Hum Sci .2007; 53(5): 253-66.
31. Akomolafe CO. Impact of personal factors on environmental education in tertiary institutions in ekiti state, Nigeria. Int J Cross-Disciplinary Subj in Educ. 2011; 1(1): 559-64.
32. Gaye Teksoz ES, Ertepinar H. A new vision for chemistry education students: Environmental

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education. International J Environ & Sci Educ. 2010; 5(2): 131-49.
33. Kose S, Savran Gencer A, Gezer K, et al. Investigation of undergraduate students' environmental attitudes. Int Elec J Environ Educ. 2011; 1(2): 85-96.
34. Bostan Budak D, Budak F, Zaimo Lu Z, et al. Behaviour and attitudes of students towards environmental issues at faculty of agriculture, Turkey. J Appl sci. 2005; 5: 1224-7.
35. Vicente-Molina MA, Fernandez-Sáinz A, Izagirre-Olaizola J. Environmental knowledge and other variables affecting pro-environmental behaviour: comparison of university students from emerging and advanced countries. J Clean Prod. 2013; 61: 130-8.
36. Imran S, Alam K, Beaumont N. Environmental orientations and environmental behaviour: Perceptions of protected area tourism stakeholders. Tour Manag. 2014; 40: 290-9.
37. Han H. Travelers' pro-environmental behavior in a green lodging context: Converging value-belief-norm theory and the theory of planned behavior. Tour Manag. 2015; 47: 164-77.

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