



Relationship between Religious Attitudes and Water Conservation Tendency in High School Students

Ameneh Marzban¹, Abozar Ansari¹, Seyed Yahya Rafiee¹, Ali Asghar Ebrahimi^{2*}, Maryam Dolatabadi^{2,3}, Abbas Beykzavieh⁴

- ¹ Department of Human Ecology, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.
² Environmental Science and Technology Research Center, Department of Environmental Health Engineering, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.
³ Student Research Committee, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.
⁴ Physical Education, Islamic Azad University, Taft, Iran.

ARTICLE INFO

ORIGINAL ARTICLE

Article History:

Received: 04 November 2019

Accepted: 20 January 2020

*Corresponding Author:

Ali Asghar Ebrahimi

Email:

Ebrahimi20007@gmail.com

Tel:

+983531492273

Keywords:

Religious Attitude,
Water Conservation,
Students,
Zarrin Dasht City.

ABSTRACT

Introduction: Nowadays, water has turned into one of the biggest challenges of the current century, which can be the origin of numerous positive and negative changes across the world. Iran is one of the driest countries with a quarter of the average annual precipitation on a global scale. Thus, the purpose of this study was to investigate the relationship between religious attitudes and tendency towards conserving water in high school students in Zarrin Dasht city, Iran.

Materials and Methods: This descriptive cross-sectional study was conducted in 2017. To this end, 800 individuals (400 females and 400 males) were selected using random sampling method by taking into account the proportion of students in each school. To collect the data, two questionnaires of the water conservation tendency inventory containing 12 items and religious attitude questionnaire with 60 items were employed. Then, data analysis was performed using SPSS (version 24) and by running the Chi-square test, Pearson correlation coefficient, as well as descriptive statistics ($P = 0.05$).

Results: The mean scores of religious attitudes and tendency towards conserving water among the participants were equal to 36.18 and 175.83, respectively. Moreover, a significant relationship was found between the students' religious attitudes, their demographic variables of age and gender, tendency to conserve water, and number of family members ($p < 0.05$). Moreover, the correlation between religious attitudes and tendency towards saving water was also statistically significant ($p < 0.05$, $r = 0.81$).

Conclusion: Considering religious attitudes and tendency towards conserving water, religious and moral inputs should be reinforced related to water-saving in students. This can extend their attitudes towards optimal water consumption within the society.

Citation: Marzban A, Ansari A, Rafiee SY, et al. *Relationship between Religious Attitudes and Water Conservation Tendency in High School Students*. J Environ Health Sustain Dev. 2019; 4(4): 955-61.

Introduction

Water is considered as one of the most precious environmental factors that plays a great role in human's life and health status¹. Water is also

considered as one of the biggest challenges of the current century, which can cause numerous positive and negative changes in the world. Thus, lack of water can keep a tight rein on the economic

development of all countries especially those located in the arid and semi-arid areas. It is also predicted that lack of water resources in near future can be a serious problem². Location of Iran on dry belt of the earth and the tropical high-pressure zone has also brought about significant fluctuations in the precipitation levels in different regions as well as numerous challenges related to water resources in Iran. In this respect, predictions indicate that many provinces of this country such as Markazi, Tehran, Kashan, Semnan, and Qazvin will be affected by severe drought by the year 2030³.

Despite the fact that the average rainfall level in Iran is one-third of the world's average, the per capita of water consumption in household, agricultural, and industrial sectors is reported higher than the global standards. For example, per capita household water consumption in Iran is 220 liters per person a day, while the annual standard amount in the world was reported as 75 liters per person⁴. This issue also shows that the level of water consumption in Iran is a social problem and conserving water resources should become a national priority¹. Increased water consumption over time is also caused by growth of population, enhanced level of general health, advances in agricultural and industrial activities, as well as socioeconomic development, which has changed the attitudes towards demanding for water at international, regional, and national levels into an inevitable issue⁵. The success of water demand management strategies in the household sector depends on how people think about water and how they consume it. Evidence shows that when people believe that water resources are limited and should be saved, they are more likely to conserve water more efficiently in practice⁶.

One of the factors that influence human behavior is their religious attitude. Religious attitude, regardless of its quality and depth of influence, affects the belief, attitude, and behavior of individuals and societies and plays a decisive role in the formation and orientation of the social interactions and behaviors. Throughout the history, nature has had an aspect of holiness for the traditional man throughout the world with different

religions, orientations, and customs. Therefore, water, tree, mountain, and many manifestations of nature have been of great value. In the Holy Quran, about sixty verses are about water and most of them provide a relationship between rainfall and the continuity of life (hydraulic flow theory), which consequently invoke people to reflect and contemplate on these issues⁴. A brief overview of Islamic references suggests that optimal use of this divine blessing has been continuously emphasized by 12 Imams. According to Muslim jurists, there are 12 kinds of water; they explained correct use of water to the public through developing religious models based on different climatic conditions and also determined religious indicators in order to prevent the waste and the contamination of water⁷.

Acknowledging that the nature is dominated by humanity, Islam has put much more emphasis on the issue that all creatures are for human beings and to serve them. However, some inhibiting rules have been laid out in order to avoid making such a use of nature, damage it, and threaten the durability of such a divine gift for others. Accordingly, religious practices demand Muslims to adhere to environmental justice to help everyone to have the opportunity to use such environmental resources and to avoid allocating these God-given blessing to special groups⁴.

In a study by Ahmadi et al. in the city of Yasouj in Iran, a significant convergence was observed between religiosity and water conservation tendency among the individuals aged over 18 years⁴. Moreover, Chouiko et al. explored the relationship between humans and environment and found a significant convergence between religious traditions and protection of the nature and water resources⁸. It should be noted that not only in the domain of environmental education, but also in most other valuable affairs, adolescent education, as the growth and training stage in students compared to other individuals and periods, is of particular importance. This is initially because teenagers are the largest group of people constituting more than 30% of the total world population. Meanwhile, this ratio reaches to 50% or so in some developing countries. Second, these

individuals not only make up the next generations but also assume responsibilities for establishing relationships between modern-day generations and future ones. Third, adolescents are vulnerable to different types of environmental contaminations. Fourth, this age group is endowed with a high level of reception and learning so that they can acquire the contents faster⁹.

Despite the fact that Islam strongly prohibits lavishness and prodigality, a review of literature revealed that the effect of religion on water-saving trends was scarcely investigated in Iran. Zarrin Dasht is an area with low levels of rain in Fars province, which has faced repeated droughts in recent years. Therefore, this study investigated the relationship between religious attitudes and tendency towards conserving water in high school students in Zarrin Dasht City, Iran.

Materials and Methods

This cross-sectional study was conducted in 2017. The research population consisted of all high school students living in Zarrin Dasht City located in the south-east of Fars Province, at latitude of 54 degrees and 20 minutes and longitude of 28 degrees and 20 minutes. This city is 1150 meters above the sea level. It has 37 high schools with 3556 students. So, the sample size was calculated as 800 individuals based on a pilot sampling and by considering the type I error of $\alpha = 0.05$, test error of 60%, as well as the $SD = 3$, using Eq (1). In order to increase the accuracy of the comparison in both genders, 400 girls and 400 boys were recruited in this study.

$$n = \frac{(SD)^2 \times z_1^2 - \frac{\alpha}{2}}{d^2} = 800 \quad (1)$$

The random sampling method was used based on the proportion of the number of students at each high school. The inclusion criteria were the ability and willingness of students to participate. The exclusion criteria included incomplete questionnaires received from the participants. The data collection instruments were comprised of a student demographic characteristics checklist and two other questionnaires. The student demographic characteristics checklist included age, gender, socioeconomic status, number of family members,

father's job, mother's job, and housing ownership status. The validity and reliability of the water conservation tendency inventory were confirmed in a study by Ahmadi et al. In this Study, validity of the questionnaire was confirmed by experts in health education, environmental health engineering, human ecology, and geography. Its reliability was also confirmed by the Cronbach's alpha coefficient of 0.82. This questionnaire measures Cognitive (4 questions), Emotional (3 questions), and Behavioral (5 questions) dimensions. The questionnaire contains 12 items with a five-point Likert- scale containing the strongly agree (1score), agree, neutral, disagree, and strongly disagree (5 scores)⁴. As a result, the attainable scores range from 12-60. To measure the students' religious attitudes, the religious attitude questionnaire developed by Khodayarifard was used. In this questionnaire several irrelevant items were replaced with a number of items related to water-saving based on the opinions of professors in religion. Later, the questionnaire was reviewed by three religious experts and its validity was confirmed. To calculate the reliability of the questionnaire and to determine the sample size, 30 high school students completed the questionnaire in a pilot study and then the Cronbach's alpha was calculated as 0.87. The questionnaire has 60 questions and measures 4 following dimensions of religiosity: religious beliefs (15 questions), empirical or religious emotions (15 questions), religious effects (15 questions), and religious practices (15 questions).

The given questionnaire consisted of 60 items, which should be answered on a five-point Likert-scale: totally agree (1 score), agree, neutral, disagree, and totally disagree (5 scores). The attainable scores ranged from 0 to 300. Based on the methodology employed by Ahmadi et al.⁴, in terms of water conservation, scores lower than 20 showed a poor status and scores within the range of 20-40 were at a moderate status. Moreover, scores higher than 40 indicated a good status. Considering the religious attitudes, scores less than 100 indicated a poor status, scores from 100 to 200 showed a moderate status, and those higher than 200 were considered at a good status. After data

collection, they were analyzed using SPSS (version 24) by descriptive statistics (mean, standard deviation, frequency, percentage) along with running Chi-square test and Pearson correlation coefficient.

Results

The mean age of the participants in this study was 16.49 ± 1.11 years (in the age group of 15-18 years). In terms of economic status, majority of the students were at the moderate level (60.4%). In addition, 64.4% of the high school students were living in families of three members or fewer. In terms of occupation, 55% of fathers were self-employed and 54.4% of mothers were housewives. Moreover, 58.8% of the students were living in rental houses. The mean score of students' religious attitudes was equal to 36.18 ± 9.17 , the

minimum and maximum scores in this domain were 21 and 105, respectively. The mean score of student's tendency towards conserving water was 175.83 ± 15.47 ; the minimum and the maximum scores obtained in this respect were 21 and 105, respectively.

The mean score of religious attitudes and tendency towards saving water in female students was 36.25 ± 9.73 and 175.61 ± 18.83 , respectively. These values in male students were equal to 29.37 ± 8.55 and 159.61 ± 11.12 , respectively. Statistically, a significant relationship was found between the scores of religious attitudes and those of tendency towards conserving water ($p < 0.05$, $r = 0.81$). As illustrated in Table 1, a statistically significant relationship was observed between the variables of gender, age, and religious attitudes ($p < 0.05$).

Table 1: The relationship between demographic variables and religious attitudes

Variables	Religious attitudes			P-value	
	Poor (%)	Moderate (%)	Good (%)		
Gender	Women	20 (5)	180 (45)	200 (50)	0.02
	Men	66 (16.5)	175 (43.8)	159 (39.8)	
Age	15	14 (21.9)	22 (34.4)	28 (43.8)	0.04
	16	46 (17.4)	114 (43)	105 (39.6)	
	17	74 (16.8)	192 (43.6)	174 (39.5)	
Economic status	18	12 (38.7)	7 (22.6)	12 (38.7)	0.67
	Poor	31 (15.8)	87 (44.4)	78 (39.8)	
	Moderate	89 (18.4)	203 (42)	191 (39.5)	
Father's job	Good	26 (21.5)	45 (37.2)	50 (41.3)	0.17
	Employee	51 (23.4)	86 (39.4)	81 (37.2)	
	Self-Employment	24 (15.9)	64 (42.4)	63 (41.7)	
	Unemployed	35 (13.8)	109 (42.9)	110 (43.3)	
Mother's job	Retired	36 (20.3)	76 (42.9)	65 (36.7)	0.98
	Employee	76 (17.4)	183 (42)	177 (40.6)	
	Self-Employment	51 (19)	114 (42.5)	103 (38.4)	
	Housekeeper	12 (18.5)	26 (40)	27 (41.5)	
Housing ownership	Retired	7 (22.6)	12 (38.7)	12 (38.7)	0.99
	Personal	121 (27.8)	88 (20.2)	139 (31.9)	
	Rental Houses	77 (28.7)	48 (17.9)	77 (28.7)	
Number of family members	Life with Relatives	14 (21.5)	11 (16.9)	22 (33.8)	0.92
	3>	62 (16.7)	159 (42.9)	15 (42.4)	
	3-5	55 (19.6)	119 (42.3)	107 (38.1)	
	5-7	17 (19.3)	33 (37.5)	38 (43.2)	
	7<	12 (20)	24 (40)	24 (40)	

The relationship between demographic variables and tendency towards saving water is presented in Table 2. A statistically significant relationship was

observed between the variables of gender and number of family members and tendency towards conserving water ($p < 0.05$).

Table 2: The relationship between demographic variables and tendency towards saving water

Variables	Tendency towards conserving water			P-Value	
	Poor (%)	Moderate (%)	Good (%)		
Gender	Women	25 (6.3)	367 (91.8)	8 (2)	0.0001
	Men	0 (0)	399 (99.8)	1 (0.3)	
Age	15	8 (3.7)	207 (95)	3 (1.4)	0.25
	16	4 (2.6)	147 (97.4)	0 (0)	
	17	8 (3.1)	240 (94.5)	6 (2.4)	
	18	5 (2.8)	172 (97.2)	0 (0)	
Economic status	Poor	5 (2.6)	189 (96.4)	2 (1)	0.95
	Moderate	16 (3.3)	462 (95.7)	5 (1)	
	Good	4 (3.3)	115 (95)	2 (1.7)	
Father's job	Employee	13 (3)	424 (96.4)	3 (0.7)	0.64
	Self-Employment	9 (3.4)	251 (94.7)	5 (1.91)	
	Unemployed	2 (3.1)	62 (96.9)	0 (0)	
	Retired	1 (3.2)	29 (93.5)	1 (3.2)	
Mother's job	Employee	14 (3.2)	416 (95.4)	6 (1.4)	0.96
	Self-Employment	8 (3)	257 (95.9)	3 (1.1)	
	Housekeeper	2 (3.1)	63 (96.9)	0 (0)	
	Retired	1 (3.2)	30 (96.8)	0 (0)	
Housing ownership	Personal	6 (2.8)	210 (96.8)	1 (0.5)	0.81
	Rental Houses	15 (3.2)	449 (95.5)	6 (1.3)	
	Life with Relatives	4 (3.5)	107 (94.7)	2 (1.8)	
Number of family members	3>	13 (3.5)	352 (94.9)	6 (1.6)	0.03
	3-5	8 (2.8)	273 (97.2)	0 (0)	
	5-7	2 (2.3)	86 (97.7)	0 (0)	
	7<	2 (3.3)	55 (91.7)	3 (5)	

Discussion

Water is considered as one of precious environmental factors with a significant share in human's life and health status. Therefore, the present study was conducted to determine the relationship between religious attitudes and tendency towards conserving water among high school students in Zarrin Dasht City in Iran.

The findings revealed that the participants' mean age was 16.49 years and the students' religious attitudes scores and age were statistically significant, which was consistent with the results of the study by Beigi et al.¹⁰, these results are in contrast with the findings by Kashfi et al.¹¹. From the psychological point of view, children and adolescents become skeptical towards religion and religiosity as they grow older and develop intellectual growth. Consequently, they seek logical reasons for their religious questions; so,

they are subject to an ideological crisis if they are not provided with correct and convincing answers⁴. Given this, with the advent and progress of the virtual world and the means of communication, the society is moving from a traditional status to new cultures and beliefs. Therefore, it seems that adolescents' religious beliefs and attitudes had a falling trend.

Furthermore, a significant relationship was found between the variables of gender and religious attitudes, which was in line with the results of studies by Firouzi et al.¹², and Akbarian et al.¹³, while inconsistent with the findings by Kashfi et al.¹¹ and Sahraeian et al.¹⁴. The mean score of religious attitudes in girls was higher than that of boys. Compared to men, women feel more inclined towards social events considering emotional and behavioral aspects and consequently seek for more social supports. So,

participation in inspiring programs and presence in religious places can be contributing in this respect.

The scores for tendency towards saving water and the variable of gender were significantly related, which was in agreement with the results of a study by Navah et al.¹⁵, but in conflict with the findings by Ahmadi et al.⁴. The score for saving water in girls was higher than that of boys. Considering stronger religious attitudes among women in this study, they had a greater sense of responsibility in terms of optimal water consumption, which was in accordance with the environmental recommendations provided by Islam. It should be noted that women, as an important and determining part of population over history, have always had a stronger sense of responsibility in terms of conserving and protecting the environment. So, many thinkers believe that promotion of environmental culture can be mostly achieved in each society through informed, self-confident, and mighty women. The significant and determining position of women in environment management activities has also put them into the international Agenda 21 for sustainable development, in which educational planning was emphasized as one of the responsibilities assumed by governments in order to empower women and broaden their knowledge to take part in development affairs. The reason for shedding light on such education services is that the role of women in environmental education is not a personal role and if women receive education, they can apply their environmental knowledge much more than men.

The scores for tendency towards conserving water and the number of family members were also statistically significant; this was consistent with the study results revealed by Asrari et al.¹⁶, but it was in disagreement with findings of the investigation by Ahmadi et al.¹⁷. Obviously, due to the economic constraints and lack of resources, the culture for optimal consumption in extended families has a higher position.

According to the results of the present study, the correlation between the scores of tendency towards

water-saving and religious attitudes was positive and significant, which were in line with the findings by Ahmadi et al.⁴, Nabavi et al.¹⁸, and Asrari et al.¹⁶. However, the results were in conflict with the findings reported by Navah et al.¹⁵. This indicates that religious observance is an important indicator in preventing water and energy waste.

Conclusion

The results of this study indicated that the religious attitudes and tendency towards conserving water in high school students were at moderate levels; in other words, a gap exists between the achieved scores and the desirable amounts. Given the positive correlation between religious attitudes and tendency towards saving water, attempts to reinforce religious and moral inputs related to water conservation in students could extend the attitudes towards optimal water consumption in this influential group within the society. In this regard, television, mass media, families, as well as the intellectual and educational centers could also help the education systems. Moreover, using religious institutions to explain the general policies of Islam in optimal water consumption and adaptation to dehydration are among the main strategies in this approach.

Acknowledgements

The authors express their gratitude to the staff of the Education Office of Zarrin Dasht City as well as all the high school administrators, teachers, and students who collaborated in this study.

Funding

This study was funded by the authors.

Conflict of interest

The authors of this article declare no conflict of interest.

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