



Relationship of Religiosity and Commitment with Tendency to Save Water Among Women in Yazd in 2022

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Abstract

Background: Water is one of the most valuable environmental factors that play a significant role in human life and health. Domestic fresh water is a basic need for human well-being and economic activities.

Objectives: The present study investigated the relationship between religiosity and commitment to the tendency to save water among women in Yazd in 2022.

Methods: This descriptive-analytical research was carried out in 2022. The research population included all housewives and working women who visited health centers in Yazd City. Three hundred fifty people were randomly selected. The data were collected using 3 questionnaires on the tendency to save water, religiosity, and commitment, which had been used in a similar study. The data were analyzed using SPSS24 software using Pearson correlation coefficient tests, descriptive statistics, chi-square, and *t*-test.

Results: The mean age of the studied women was 33.05 ± 3.62 . The mean scores of the tendency to save water, religiosity, and commitment were 42.18 ± 5.14 , 41.67 ± 6.35 , and 35.11 ± 6.84 , respectively. There was a significant relationship between the tendency to save water score and economic status. The correlation matrix showed a significant positive correlation between the tendency to save water, religiosity, and commitment.

Conclusions: Cultural factors such as religiosity and commitment or sense of responsibility, as two different elements that form people's attitudes, affect water consumption behavior. These results are much more important for married women in Yazd City because they have an educational role and are influenced by both religious and citizenship cultures.

Keywords: Tendency to Save Water, Religiosity, Commitment, Housewives

1. Background

Water is one of the most important gifts of God. Life and its continuity depend on water. The ever-increasing population growth, the development of urbanization due to migration to cities, the industrialization of societies and their expansion, and the increased demand and consumption of water per capita are some factors that affect the amount of accessible water (1). On the other hand, the expansion of water resources contamination and the distance of water bodies from population centers have increased the operational costs of water supply and transfer. This is while achieving the global goal of

"Ensuring access to water and sanitation for all" seems more difficult and sometimes impossible. Therefore, if the fundamental revision of water supply strategies and consumption patterns do not consider, many countries will face a big crisis (2). Water is among the most valuable environmental factors that play a conspicuous role in human life and health (3).

Domestic fresh water is basic for human welfare and economic activities (4). The demand for freshwater, a vital natural resource, is increasing rapidly, and its shortage is noticeable (5). Of the total water available on the earth's surface, only 2.5% is fresh, of which about two-thirds (68.9%) has been locked in glaciers. Only one-third

is usable, which has been distributed in scattered and unbalanced ways. According to the available estimates, at least 50 countries will encounter a shortage of fresh water by 2050, and Iran is among these countries (6). People in every society have a different attitude towards the environment and water consumption according to their specific social, cultural, and personality conditions and requirements (7). Per-capita water consumption in Iran in 2021 was 200 liters, which is more than the world average of 150 liters. The total per capita consumption in Yazd is 214 liters per day, and this amount increases on hot days of the year (8).

All over the world, married women spend more time at home, and because of more sensitivity to the management of family affairs and inclination to the environment, they have a higher ability to save energy (9). There are many factors in a positive attitude towards water consumption, including factors such as environmental awareness, information, the presence of a woman at home, drought, and the understanding of economic efficiency (4). Research in southwest Australia showed that most people had a sense of responsibility toward water consumption. However, this attitude was not reflected in their daily water consumption (8).

Estern and Dietz, in their studies, concluded that women have stronger beliefs about harmful environmental outcomes for others and the ecosystem and have stronger beliefs that predict more pro-environmental behaviors (3). Theorists such as Bakak (1381) believe that religions have influenced the manifestation of unconscious desires in previous eras, and there are indications that religions can continue to exert this unconscious influence. In recent years, with the expansion of urbanization and industrial growth, and with the help of communication media and the wave of advertising, Iranian society has faced a new phenomenon of consumerism which has caused the wasteful use of water and the destruction of the environment and natural resources. Nevertheless, on the other hand, our religious teachings have strongly prohibited extravagance (mentioned in 6).

Nouri-Khajebelagh et al. found that the average literacy of households has a negative effect on water consumption; in other words, by increasing the level of awareness and literacy of households through training, we can hope to save water (10). Having the roles of wife and mother, women can be the agents of transferring environmental knowledge and awareness to their husbands and children. Considering their managerial role at home, women can be the agent of reforming the consumption pattern and save energy in many cases with careful and principled planning (11).

2. Objectives

The present study investigated the relationship between religiosity and commitment to the tendency to save water among housewives in Yazd City.

3. Methods

This descriptive-analytical research was carried out in 2022. The research population included all housewives and working women who were referred to health centers in Yazd city for pregnancy, mother and child care, or other health care services and had health records in the health center of their residence.

Based on the methodology of a similar study (12), 5 centers were randomly selected among the 24 urban-rural health centers in Yazd that housewives and working women visited. A sample size of 350 people was determined using a similar study and the following formula, considering the confidence level of 95% and $Z = 1.96$.

$$n = \frac{z^2 p (1 - p)}{d^2}$$

These 350 people were divided according to the population covered by each center. The sample was selected through a lottery of the health document numbers of the individuals after obtaining their consent and providing the necessary explanations.

The inclusion criteria included Muslim and married women responsible for managing household affairs. The exclusion criteria were an unwillingness to participate in the study or an incomplete questionnaire. The demographic information included age, education, economic status, number of family members, and housing status. The research tools included a tendency to save water consumption questionnaire and the religiosity questionnaire examined in Ahmadi and Zareei's study on the citizens of Yasuj aged 18 or over, with confirmed validity and reliability (6). The value of Cronbach's alpha of the tendency to save water questionnaire was 0.77, and Cronbach's alpha of the religiosity questionnaire was 0.81.

The questionnaire on the tendency to save water includes 13 questions on a 5-point Likert scale scored from 1 to 5. The range of total scores was 13 - 65. The religiosity questionnaire consists of 10 questions on a 5-point Likert scale, and each question is scored from 1 to 5, so the total score range is 10 - 50. The research tool for measuring commitment was a scale used in Ahmadi and Zareei's study on Yasuj students, with confirmed validity and reliability (6). The commitment questionnaire includes 12 questions on a 5-option Likert scale, scored from 1 to 5, and each person scored 12 - 60.

The collected data were entered into SPSS24 software and analyzed with Pearson's correlation coefficient tests, descriptive statistics, chi-square, and *t*-test.

The Ethics Committee of the Shahid Sadoughi University of Medical Sciences, Iran, approved the study protocol (IR.SSU.REC.1400.101). Participation in the study was voluntary, and the respondents were informed of the research objectives, voluntary participation, anonymous responses, and confidentiality terms regarding their information.

4. Results

The average age of the studied women was 33.05 ± 3.62 . Among the 350 investigated women, the majority (124 people) were in the age range of 31 - 45 years, and the education level of 100 people was a diploma. Also, the economic status of 202 people was average, 177 people had a family size of 3 - 5 people, and the housing status of 197 people was personal (Table 1).

The mean scores of the tendency to save water, religiosity, and commitment were 42.18 ± 5.14 , 41.67 ± 6.35 , and 35.11 ± 6.84 , respectively (Table 2).

There was a significant relationship between the scores of the tendency to save water and the economic status; with the improvement of the economic status, the water-saving tendency decreased ($P < 0.05$) (Table 3).

The correlation matrix showed a significant positive correlation between the tendency to save water, religiosity, and commitment. Also, there was a significant positive correlation between religiosity and commitment (Table 4).

5. Discussion

Water consumption is an ecological behavior that includes people's environmental attitude, which is influenced by environmental, social, and cultural factors. Therefore, the present study investigated the relationship between religiosity and commitment with the tendency to save water among women in Yazd in 2022.

The average score of the tendency to save water was 42.18 ± 5.14 out of the score range of 13 - 65, which indicates the average status of the studied people in the tendency to save water. In Marzban et al.'s study, among the housewives of Zarin Dasht, the mean score of the tendency to save water was 36.00 ± 4.93 (13). In Ahmadi and Zareei's study (6), conducted among the citizens of Yasuj, the average score of the tendency to save water was 50.4 on a scale of 12 - 60. In Bazdar et al.'s study, which was reported by the subscribers, the average water consumption per capita among Khorramabad households was 253.7 ± 60.78

(4). In Marzban et al.'s study, conducted among students of Zarin Dasht, the average score of the tendency to save water was 175.61 ± 18.83 (14). In the Zare Shahabadi et al.'s study, the energy consumption pattern in the households of Yazd City was appropriate (15). In Torabi et al.'s study, the attitude and performance of households regarding water consumption were reported as favorable (2) The country's water consumption has increased in recent years due to several reasons, such as rapid population growth, urbanization development, increased living standards and welfare, unrealistic tariffs, climate changes, and industrial and commercial development. The cheap price of water has caused households to pay less attention to reducing water consumption, so our country's energy intensity index is not in good condition. Consumption of water resources is an important part of the effective and environmental management of urban water resources. It has been predicted that climate change will reduce water resources due to decreased rainfall and increased precipitation changes. Comparing the results of this research with other studies, the differences can be attributed to various factors such as the study groups, different cultural and social contexts, and the methodology used for investigating water-saving.

In the current study, a statistically significant difference was observed between the mean score of the tendency to save water and economic status, so people with a good economic level had a lower tendency to save water consumption. Soleymani and Ghaffarzadeh's study in Yazd showed that households with incomes above 9 million Tomans per month consumed significantly more energy than those with incomes between 1 and 3 million Tomans per month. Additionally, it was found that people living in the suburbs and deprived areas consumed less energy (8). Also, the results of Zare Shahabadi et al.'s study are consistent with the present study's findings (15). Although saving water consumption is a personal matter, it is largely influenced by the prosperity and economic conditions of households. People not concerned about the cost of their household water bills are less careless than people with poor economic conditions.

The average religiosity score was 41.67 ± 6.35 out of the range of 10 - 50, indicating the average religious tendencies level in the studied population. The results of the Pearson correlation test showed a significant positive relationship between the tendency to save water and religiosity. In the study of Ahmadi and Zareei, which investigated the effect of religiosity on the tendency to save water among the citizens of Yasuj City, the average religiosity score was 34 on a scale of 10 - 50. The average religiosity score significantly affects the tendency to save water and predicts changes in the tendency to save water (6). In

Table 1. Frequency Distribution of Demographic Variables in the Studied Women

Variable	No. (%)
Age	
30 -15	95 (27.14)
45 -31	124 (35.42)
60 -46	87 (24.85)
> 60	44 (12.57)
Education	
Elementary	39 (11.14)
Middle	74 (21.14)
High school	91 (26)
Diploma	100 (28.57)
University	46 (13.14)
Economic situation	
High	69 (19.71)
Middle	202 (57.71)
Low	79 (22.57)
Number of family members	
< 3	95 (27.14)
5-3	177 (50.57)
7-5	55 (15.71)
> 7	23 (6.57)
Housing situation	
Personal	197 (56.28)
Rental	153 (43.71)

Table 2. Mean and Standard Deviation of Tendency to Save Water, Religiosity, and Commitment

Variable	Range	Mean \pm SD
Tendency to save water	65 -13	42.18 \pm 5.14
Religiosity	50 -10	41.67 \pm 6.35
Commitment	60 -12	35.11 \pm 6.84

Marzban et al.'s study, students' average religious attitude score was 36.25 ± 9.73 . Also, the statistical relationship between religious attitude and the tendency to conserve water was significant (14). In Mokhtari and Rezaee's study, religiosity with a correlation coefficient of 0.009 had a very low impact on water consumption behavior (16). In Zare Shahabadi et al.'s study, weak religious beliefs had a negative effect on the energy consumption pattern (15). The reason for the variation in results among different studies lies in the socio-cultural domains of the populations under investigation. A glance review of Islamic sources shows that the Imams of Masoomin have emphasized the optimal use of water as a divine gift.

Muslim religious jurisprudence, by selecting 12 types of water, has also tried to show the Muslims the right way to use water depending on the different climatic conditions, on the one hand, by posing a religious model, and on the other hand, by determining religious indicators in order to prevent wastage and pollution of water (12). Today, the country is facing a serious water shortage crisis. It is necessary to explore how religions can contribute to properly implementing and institutionalizing a culture of saving in society. In the teachings of Islam, extravagance is prohibited and forbidden. This prohibition extends to all aspects of human life. It means that everyone should adhere to the principle of non-wastefulness in

Table 3. Mean Scores of Tendency to Save Water, Religiosity, and Commitment According to Demographic Variables

Variables	Mean \pm SD		
	Tendency to Save Water	Religiosity	Commitment
Age			
30 -15	40.54 \pm 5.08	41.67 \pm 6.35	35.11 \pm 6.84
45 -31	41.95 \pm 5.22	41.29 \pm 6.07	35.63 \pm 6.67
60 -46	41.06 \pm 5.94	40.77 \pm 6.37	35.07 \pm 6.93
> 60	40.98 \pm 5.24	41.39 \pm 6.54	35.66 \pm 6.56
P	0.24	0.19	0.25
Education			
Elementary	41.02 \pm 5.15	41.19 \pm 6.29	35.74 \pm 6.52
Middle	41.37 \pm 5.28	41.57 \pm 6.06	35.02 \pm 6.01
High school	40.67 \pm 5.33	41.63 \pm 6.41	35.61 \pm 6.22
Diploma	40.11 \pm 5.54	41.09 \pm 6.50	35.19 \pm 6.69
University	40.06 \pm 5.33	41.33 \pm 6.22	35.07 \pm 6.34
P	0.18	0.32	0.21
Economic situation			
High	31.18 \pm 5.34	41.18 \pm 6.37	35.67 \pm 6.30
Middle	37.61 \pm 5.17	41.55 \pm 6.56	35.11 \pm 6.57
Low	43.51 \pm 5.09	41.39 \pm 6.16	35.29 \pm 6.18
P	0.01	0.19	0.26
Family size			
< 3	42.16 \pm 5.11	41.42 \pm 6.33	35.33 \pm 6.05
5 -3	42.22 \pm 5.55	41.66 \pm 6.94	35.62 \pm 6.31
7 -5	42.19 \pm 5.76	41.57 \pm 6.49	35.91 \pm 6.05
> 7	42.32 \pm 5.34	41.35 \pm 6.35	35.33 \pm 6.66
P	0.24	0.32	0.37
Housing situation			
Personal	41.98 \pm 5.19	41.33 \pm 6.17	35.67 \pm 6.45
Rental	41.67 \pm 5.07	41.47 \pm 6.34	35.66 \pm 6.90
P	0.31	0.25	0.32

every aspect of life, regardless of the time or location. God's blessings are entrusted to humans for their growth and advancement. Therefore, using these blessings must align with God's commands and lead to eternal happiness for humankind. Emphasizing the importance of spiritual investment in Iranian religious society can effectively improve people's performance in reducing energy and water consumption.

The average commitment score was 35.11 ± 6.84 out of 12-60. Also, the correlation matrix showed a significant positive correlation between the tendency to save water and the sense of commitment. In a study, Ahmadi et al. investigated the relationship between commitment and

responsibility and the tendency to conserve water among citizens over 18 years old in Yasuj City. The research showed that people's average commitment and responsibility score was 39.5. In addition, the results showed that responsibility significantly affects the tendency to save water. According to the results, with increasing responsibility among citizens, the tendency to save water increases (17). In Zare Shahabadi et al.'s study, low acceptability negatively affected the energy consumption pattern (15). The results of the study by Gomez-Llanos et al. in Spain showed that the model of norm activation or accountability plays a role in improving water consumption (18). The sense of obligation and social

Table 4. Correlation Between Tendency to Save Water, Religiosity, and Commitment

Variable	Tendency to Save Water		Commitment		Religiosity	
	P	R	P	R	P	R
Tendency to save water	-	-	0.003	0.69	0.04	0.53
Commitment	0.003	0.69	-	-	0.04	0.54
Religiosity	0.04	0.53	0.04	0.54	-	-

responsibility is a moral framework and scope in which various tasks benefit society and are assigned to specific individuals, organizations, or institutions. More precisely, this concept refers to the execution of specific tasks by each member of society, intending to achieve a harmonious balance between the ecosystem and the economy.

5.1. Conclusions

According to the results, cultural factors such as religiosity and commitment or sense of responsibility as two different elements of people's attitudes affect water consumption behavior. These results are much more important for married women in Yazd City because they have an educational role and are influenced by religious and citizenship cultures.

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Footnotes

Authors' Contribution: Study concept and design: Ameneh Marzban; Acquisition of data: Payam Emami; Analysis and interpretation of data: Nooshin Yoshany; Drafting of the manuscript: Mohsen Dowlati; Critical revision of the manuscript for important intellectual content: Mahdiye Khaleghi Moori; Statistical analysis: Ameneh Marzban; Administrative, technical, and material support: Payam Emami; Study supervision: Mohsen Dowlati.

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Informed Consent: The sample was selected through a lottery of the health document number of the people and after obtaining consent and providing the necessary explanations.

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