



Environmental Responsibility in Rural Areas (Case Study: Rural Areas of Mazandaran Province)

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Abstract

Purpose- Social responsibility for environmental protection at all levels and strata of society is an issue that is explicitly emphasized in paragraph 14 of the General Environmental Policy of the Islamic Republic of Iran and the villagers as the main users of environmental resources are expected to take environmental responsibility without exception. The purpose of this study was to investigate and identify level of responsibility of environmental behaviors of villagers and determine social factors affecting it.

Design/methodology/approach- In this research, the framework of social psychology was used and the research method was survey and cross-sectional. The unit of analysis is the rural individuals. The statistical population of the study is all residents of rural areas of Mazandaran province in 1398/2019. The sampling method of multi-stage cluster sampling was used. The number of study villages surveyed was 30 villages and the sample size was 536 people. The data required for the research were collected through a researcher-made questionnaire.

Finding- The results showed that the level of responsible environmental behavior of villagers is at a moderate level. In addition, the results of multivariate analyzes indicate that there is a significant relationship between social psychological factors (religious beliefs, environmental values and environmental knowledge) and responsible behaviors towards the environment. In the final evaluation, it can be said that the modified model of social psychological factors seems a suitable model for studying factors affecting environmental behaviors in rural communities and can be useful as a model for conducting similar research in other rural areas of the country.

Keywords- Social psychology factors, Environmentally responsible behavior, Villagers, Mazandaran Province.

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1. Introduction

The world today faces a plethora of environmental problems such as global warming, air pollution and water scarcity. As expected, the health and security of the planet Earth is at risk. The environmental situation in Iran, like many other countries in the world, is at critical situation. According to the Environmental Performance Index (EPI), Iran is ranked 83rd among 173 countries in the world, which indicates the unfavorable status of measures taken to maintain and improve the environment. Hence, the way man interacts with the environment in today's world has gained new dimensions, extending from mere technical relationships to social spheres (Dunlap, 2016). Erratic and even destructive behaviors and attitudes of human beings towards the environment have aggravated environmental situation in Iran. These adverse environmental behaviors can be observed in various domains such as waste production, water pollution, excessive energy consumption, deforestation, etc. Developed countries have taken actions to address environmental problems caused by development plans, seeking to mitigate consequences of technical problems in this field by cultivating environmentally responsible behaviors in the community. Studies show that people are not adequately aware of the current status of responsible environmental behaviors and associated factors. With regard to macro-policies, the issue of environmentally responsible behavior is so important that it was addressed at The First Regional Conference on Environmental Rights in 1972, which came to be known as Stockholm Conference, and also at Rio International Declaration in 1992. Moreover, in the general environmental policies of the Islamic Republic of Iran, this has been explicitly stipulated in paragraph 14 of the general environmental policy of the Islamic Republic of Iran. Despite the strategic emphasis and macro-policies of the country on responsible behaviors towards the environment, in reality, we are witnessing a proliferation of neglectful behavior by individuals regarding the country's environment. In fact, the issue of the environment has gained prominence as a national, public and social issue, and we struggle with environmental problems across the country. Hence, the environmental protection and

responsible behavior constitute a main concern in different parts of the country, such as the northern provinces, especially Mazandaran. Rural areas also account for a large part of the social and demographic system of the country where a great share of productive labor forces reside. In the villages, there are a wide array of valuable factors and resources including humans and natural and economic resources as strategic reserves of the country, which play a pivotal role in the development of society. Given that village is symbol of the connection between nature and human culture and the interaction of these two is manifested in rural nature, environmental protection has been recognized not only as an integral part of sustainable rural development but also as a fundamental value demanded by today's generation. Therefore, fostering environmentally responsible behaviors in villagers and underlining the importance of the environment in maintaining the natural balance and the future of human life are key issues in the sustainable development. In this regard, various theories have been proposed in environmental sociology to explain responsible environmental behavior. The New Ecological Paradigm (Dunlap, 2016), the theory of planned behavior (Ajzen & Fishbein, 1980), the model of environmentally responsible behavior (Hines et Al., 1987), the norm activation model (Schwartz, 1977), the value-belief-norm theory (Stern et Al., 1999) and the protection motivation theory (Rogers, 1975) are among the theories that seek to explain the underlying conditions that bolster responsible environment behavior in individuals. In this research, we have adopted theories that can be helpful in providing educational and policy solutions to environmental protection. In light of this, it can be acknowledged that a fundamental way to alleviate environmental damage and destruction is to modify the attitude of the agents responsible for such harms. Among the factors associated with the environmental behavior, psychological concepts such as knowledge, attitudes and perceptions of individuals have drawn increasing attention of experts (Onel & Mukherjee, 2015). One of the important variables that predict people's responsible behavior is their attitude towards the environment. It is generally believed that in order to trigger behavioral changes in the environment, one must first change people's attitudes toward the environment. In other words, people who hold a positive environmental attitude

are more likely to exhibit environmentally friendly behaviors (Halpenny, 2010). One way modifying the attitude and behavior of people in the community is inclusive and effective education. In addition to raising awareness, education can modify attitudes. Therefore, as noted above, by surveying the public attitudes in the society, it is possible to foresee a society's behavior to some extent, and when there is a radical change in people's attitudes, new behaviors and developments consistent with those changes can be expected in the society. Finally, the main questions presented in this research are: What is the attitude of people towards the environment? and What are the responsible environmental behaviors in the eye of the villagers? This calls for recognizing the status quo of environmental behaviors among people to develop appropriate policies and strategies for responsible environmental behaviors among people by scientifically and socially identifying the determinants of this type of behavior.

2. Research Theoretical Literature

Pro-environmental behavior, also known as environmentally behavior, and environmentally responsible behavior, is a behavior that seeks to minimize the negative impact of one's actions on the natural world and even contribute to the environment (Steg & Vlek, 2009). In other words, this type of behavior represents an attempt by individuals to mitigate and limit destructive actions that can harm the built and natural environment (Albayrak et al., 2011). In order to inspire people to engage in environmentally friendly behaviors such as reducing the use of resource and energy, utilizing non-toxic substances, decreasing waste production and educating people about this issue, we must first identify the factors that have a bearing on this type of behavior. This has received growing attention of scholars in various scientific disciplines such as economics, sociology, ecology and psychology. Over the past four decades, a host of studies have sought to answer a fundamental question: Why do people engage in pro-environmental behaviors, and what are the main barriers to adopting pro-environmental behaviors? (Kollmuss & Agyeman, 2002). To answer this question, an array of theories such as value-belief-norm theory (VBN) (Stern et al., 1999) and norm activation theory (NAT) (Schwartz, 1973 & 1977) have been proposed. However, another

sociopsychological theory adopted in most studies to explain pro-environmental behavior is the theory of reasoned action (TRA) (Ajzen & Fishbein, 1980) or its modified version known as the theory of planned behavior (TPB) (Ajzen, 1991). In general, these models presume that one's knowledge of a subject is a precondition to cultivating an attitude (Flamm, 2009; Kaiser et al., 1999). Moreover, behavior is a function of intention, which in turn is a variable of attitudes and mental norms. In the original model, researchers primarily seek to predict behavioral intentions rather than behavior itself. Some researchers (e.g., Davies et al., 2002) have suggested that the relationship between intention and behavior may not be as strong as claimed in the model. Thus, the reasonable approach is to integrate real self-reported behavior into the model because at the end of the day what matters is the actual behavior not the intention to do so (Rokka & Uusitalo, 2008). Hines et al., (1987) did a meta-analyzes of 128 studies on responsible environmental behavior, concluding that the variables of environmental knowledge, knowledge of action strategies, locus of control, attitude, relationship commitment, and individual perception of responsibility are linked to environmentally responsible behaviors. In the ecological model, the environmentally friendly behavior was proposed by Fietkau and Kessel. Kollmuss & Agyeman (2002) argue that in this model, sociological factors are used together with psychological factors to explain the responsible environment behavior or its absence for that matter. This model consists of five variables that directly and indirectly affect the responsible behavior of the environment. These variables, though independent of each other, can affect one another and undergo changes. These variables include attitudes and values, facilities to engage in environmentally responsible behavior, behavioral incentives, and perceived outcomes of responsible environmental behavior and knowledge (Kollmuss & Agyeman, 2002). The protection motivation theory is a theoretical model that seeks to explain the factors influencing the decision-making processes of individuals who adopt/avoid certain behaviors to for protection against potential hazards. In this model, attitudinal change is not simply the result of an emotional state induced by fear, but rather the degree of protection motivation resulting from the cognitive assessment process.

Contrary to the general assumption that the use of protective measures is directly controlled by fear of a threat, protection motivation theory addresses a more complex model of reasoned and psychological decision-making in the adoption of such measures (Clubb, 2012). This theory has three main components: threat assessment, the cognitive mediation process, and attitude change. Threat assessment contains three types of information about potential threats: 1. the potential impacts of the threat, 2. the possibility of the threat affecting an individual, and 3. the effectiveness of a recommended response in protecting an individual against a potential threat. The cognitive mediation proposed by Rogers (1993) involves two assessment processes utilized by an individual to exploit information resources in order to determine whether or not to engage in a protective behavior: threat assessment and coping assessment. Gardner and Stern (2005) argue that protection motivation theory has a broader application, including natural and technological hazards and environmental threats. It can explain the reasons people fail to take environmental actions or how they encourage or facilitate environmental protection behaviors. On this subject, divergent theories have been proposed that try to explain various environmental behaviors. As Stern et al., (1999) points out, despite scientific advances and the development of scientific theories, and with escalated theoretical complexity of the models, their experimental applicability diminishes. Therefore, these highly complex and rational models, as theoretical models of responsible environmental behavior, provides a relatively clear picture of the factors that shape and limit the choice of responsible behavior for policymakers. They also point to some key areas that need to be further explored to promote environmentally friendly behavioral changes. Accordingly, behavioral models have gradually grown more complex and multilevel to address variables at diverse levels. One of the problems associated with these behavioral models is that the abstract nature of the models hampers their testability. In general, as the overview of theories affecting environmental behavior suggests, these theories began with an emphasis on individual and psychological factors and eventually shifted to social and institutional factors. In fact, newer models run the gamut from cognitive levels, attitudes, personal characteristics and abilities to social, contextual, structural and institutional

dimensions. Thus, by drawing on theories and results of previous research and merging diverse factors at different levels, this study aims to develop a theoretical model to explain responsible environmental behavior at the community level.

Marzban et al. (2017) conducted a study to assess the level of awareness and environmental behaviors of people in Yazd province, Iran. They reported that the mean score of environmental awareness and attitude was at the medium level and the mean score of environmental behavior was weak. There was a significant difference between environmental awareness and behavior of men and women, so that women displayed a higher level of environmental awareness. Shaterian et al. (2019) modeled the role of knowledge, attitude and environmental values of tourists in environmentally friendly behaviors of Iranian and foreign tourists in Qom. The results of their study revealed that there was no significant relationship between the tourists' length of stay and their environmental behavior. Moreover, the variables of environmental knowledge, attitude and value affected the adoption of environmental behaviors of tourists. Naimi et al. (2015) analyzed environmental structures affecting the environmental protection behavior of villagers in Baghmalek County, Khuzestan Province. They found that among the six variables studied, three variables (ethics, value and attitude towards the environment) were at a medium level and other three variables (concern, intention and environmental behaviors) were at a high level. Moreover, the variables of ethics, value, attitude, concern and environmental behavioral intention explained approximately 76% of the variance in environmental protection behavior of villagers. Naderi (2015) employed the protection motivation theory to explore environmental pollution in Tehran. The results also indicated that the protective behaviors can influence the validity of the source. That is, people are more likely to believe in information and messages received from reputable channels and sources, and therefore engage in protective behaviors to safeguard the environment and reduce air pollution. Sojasi Gheidari & Arab Teymouri (2018) conducted a study to analyze the social responsibility of villagers towards environmental sustainability. The findings suggest the weak responsibility of rural households for environmental, moral and social components, the moderate responsibility for

the economic component and a high responsibility for legal dimension. [Sojasi Gheidari & Fa'al Jalali \(2018\)](#) conducted a study to explore environmental knowledge and awareness of the villagers in Zanglanlu district. According to them, the mean value of most indices except for three indices of knowledge of the benefits of clean energy, the dangers of pesticides and product packaging, was higher than average (based on a 5-point Likert scale). The analysis of the correlation between research variables (level of education and level of involvement in environmental education courses) also manifested a positive and significant relationship. In addition, the results of their analysis demonstrated a significant relationship between these two variables. [Rosa & Collado \(2019\)](#) studied experiences in nature and environmental behaviors and attitudes, concluding that there was a significant relationship between direct experiences of contact with nature and the attitudes of respondents. A positive and significant association was also reported between the experience in nature and the type of environmental behavior. This finding prompted researchers to foster the support and protection of the environment in individuals through the experience of nature and frequent environmental contacts - especially from childhood. [Chen \(2017\)](#) conducted a study on environmentally friendly behaviors in rural China driven by economic achievements and environmental considerations. The results suggested that major environmental behaviors are widely practiced in rural areas. However, these behaviors are largely influenced by economic gains rather than environmental considerations. [Choudi et al. \(2016\)](#) in a study on citizen's perception of corporate responsibility in rural areas examined

this issue in Al-Wusta, Oman. The results of the survey illustrated that citizens are aware of the potential impact of projects implemented by various companies in those areas. Citizens also called for companies to be more concerned about managing and monitoring local resources such as biodiversity, fisheries, livestock and air quality and, in general, regional environmental challenges. [Janmaimool & Denpaiboon \(2016\)](#) evaluated the factors affecting the adoption of environmental behaviors by rural residents with an emphasis on ecological conservation and waste management behavior. Their integrated exploratory model indicated the association of ecological conservation behavior and waste management with variables such as PBT, value-belief-norm theory, environmental education and psychological characteristics. Possible predictors also cover a raft of variables such as social norm, environmental knowledge, sense of commitment and self-efficacy, life satisfaction, spatial stickiness, environmental perspective, and psychological characteristics. [Piapong & Denpaiboon \(2016\)](#) explored factors affecting the engagement of villagers in environmental protection and waste management based on the conceptual framework of environmental protection behavior. They looked into the factors that determine the behavior of villagers in relation to the environment in Thailand. The results of regression analysis revealed that environmentally responsible behaviors can be predicted by a diversity of factors. These predictors were self-efficacy, environmental identity, and perceived environmental values. According to the theoretical foundations and research background, the conceptual model of the research can be plotted as follows.

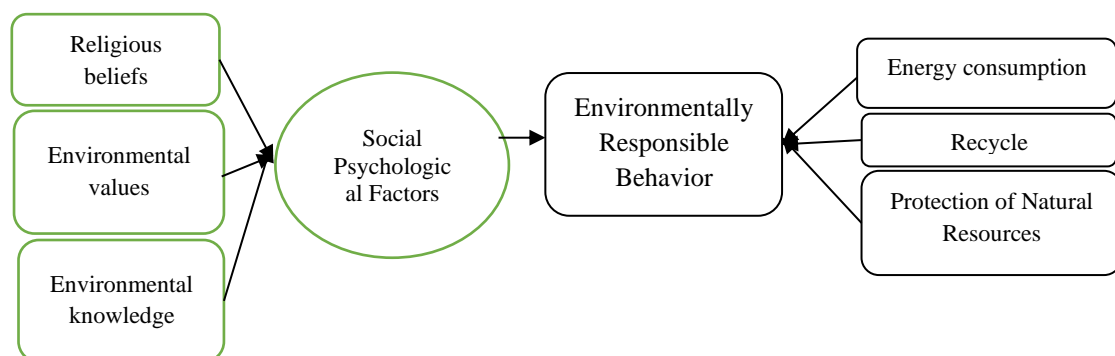


Figure 1. Conceptual Model of Research

3. Research Methodology

The present study is a descriptive-correlational research. Data collection was performed using a survey method through a researcher-made questionnaire. The statistical population of the present study consisted of the residents of rural areas in Mazandaran province in 2019. Using multi-stage cluster sampling method, the province was divided into three clusters: eastern, central and western. Three cities were selected from each cluster, two districts from each city and one sample from each district. The multi-stage cluster sampling method was performed as follows. In the first stage, the cities of Mazandaran province were classified into three groups based on socio-cultural and spatial characteristics, which served as a cluster: A. Eastern Cluster (including the cities of Sari, Neka, Behshahr, Galugah and Miandorod); B. Central cluster (including the cities of Mahmudabad, Fereydukenar, Amol, Babol, Simorgh, Savadkuh Shomali, Ghaemshahr, Savadkuh, Babolsar and Joybar); C. Western cluster (including the cities of Tonekabon, Ramsar, Noor, Nowshahr, Abbasabad, Chalus and Kelardasht). In the second stage, due to the similarity of the cluster samples, three cities were randomly selected from each cluster. The cities of Noor and Chalus were selected from the western cluster, the cities of Amol and Ghaemshahr from the central cluster and the cities of Sari and Galugah from the eastern cluster. In the third stage, from each city, two districts were randomly selected, which comprised Chamestan district in Noor city, Marzanabad district in Chalous city, Dabudasht district in Amol city and Nokandeh Ka district in Ghaemshahr city, Chahardangeh district in Sari, and Kolbad district in Galugah; In the fourth stage, one rural county from each district (selected in the third stage) was randomly selected, which included Lavij in Chamestan district (Noor) and Birun Bashm in Marzanabad district (Chalus), Dabu Miyani in Dabudasht district (Amol) and Nokandeh Ka in central district (Ghaemshahr), Poshtkuh in Chahardangeh district (Sari), and Kolbad Gharbi in Kalbad district (Galugah). In the fifth stage, five villages were chosen from each rural county. Thus, the sample consisted of 30 villages. The sixth step involved selecting households from the selected villages. To determine the sample size, Cochran sampling formula was used. Since the first cluster (Eastern,

Central, Western regions) was considered in our study, and each cluster comprises more than 100,000 people, a sample size of $n=384$ was determined by the Cochran's formula. According to Cochran's formula, a confidence interval (CI) of 0.95 was considered for this study. Therefore, the probability level (d) was estimated at 0.05 and the variable size under normal distribution or CI (t) was estimated at 1.96. However, to improve reliability and account for possible incomplete questionnaires, the sample size was increased to $n=500$. Given that there were three clusters in this study, the samples were divided between three clusters. Subjects were also selected using simple random sampling.

Environmentally Responsible Behavior: Conceptually, environmental responsibility is the recognition and performance of behaviors that directly or indirectly exert a positive or negative impact on the environment. In this research, environmentally responsible behavior was proposed in three dimensions (energy consumption, recycling and protection of natural resources). This concept was defined and implemented with a total of 16 items in the form of 5-point Likert scale (from strongly disagree (1) to strongly agree (5)).

Sociopsychology Factors: These factors reflect the general belief of people about the environment. The concern about the growing environmental crisis will have important implications not only for the natural world, but also for human society (Dunlap & Van Liere, 1978). In this research, attitude factors were presented in three categories of religious beliefs, environmental values and environmental knowledge. Religious beliefs describe beliefs that are based on value judgments and religious behaviors embrace external manifestations of religion. This concept was defined and implemented by 4 items in the form of a 5-point Likert scale (from strongly disagree (1) to strongly agree (5)). Environmental values encompass a person's basic attitude towards the environment and reflects one's worldview of the natural world (Barr, 2003). This concept was defined and implemented with 6 items in the form of a 5-point Likert scale (from strongly disagree (1) to strongly agree (5)). Environmental knowledge is the practical information that people have about the environment, the ecology of the planet Earth, and the impact of human actions on the environment/ecosystem (Arcury, 1990). This concept was defined and implemented with 5 items in the form of a 5-point Likert scale (from strongly

disagree (1) to strongly agree (5)). Also in this research, face and structural validity were evaluated. For this purpose, the measurement tool (questionnaire) was assessed by 5 professors and experts in the fields of sociology, environment (University of Mazandaran) and natural resources (Faculty of Agricultural Sciences and Natural Resources of Sari), and after ironing out the problems, the final questionnaire was prepared. The Cronbach's alpha coefficient was used to measure the reliability of the questionnaire to ensure that the respondents' perceptions of the questions were identical. Thus, Cronbach's alpha values of social psychology factors were obtained with 15 items ($\alpha=0.79$) and environmentally responsible behaviors with 16 items ($\alpha=0.78$). Data were collected and analyzed in SPSS software using both descriptive and inferential statistics. The former consisted of mean, standard deviation, frequency and percentage and the latter include parametric correlation tests such as mean comparison, Pearson.

4. Research Findings

The results of the research are presented in two sections called descriptive findings and analytical findings.

4.1. Descriptive Findings

The mean age of the respondents was 29.43 years. Of a total of 536 subjects, 245 (45.7%) were men and 271 (50.6%) were female. Most respondents (35%) came from a family of four. We surveyed 119 (30%) people from among respondents in the age spectrum of 11 and 20 years in the study villages. As for marital status, 27 (56%) of the respondents were married and 158 (32%) were single. In terms of income status, 189 (40.4%) had a monthly income of one to two million Tomans and 113 (24.1%) had a monthly income of two to three million Tomans. As for employment, 147 (31.2%) were self-employed, 87 (18.5%) were farmers and 65 (12.1%) did not specify their type of job.

Table 1. Relative distribution of research variables

Variables	Mean	Standard deviation
Environmentally Responsible Behaviors	3.98	1.17
Religious Beliefs	3.73	1.22
Environmental Values	3.68	1.11
Environmental Knowledge	1.81	0.38

As shown in the table above, the mean value of environmentally responsible behavior (central tendency index) was in the medium level (3.98 out of 5) and the standard deviation (dispersion) was 1.17. The mean of sociopsychology factors such as religious beliefs was 3.73 (out of 5), which indicates the role of

religious beliefs in environmental protection. The mean value of this component was in a relatively desirable level. The mean of environmental values (3.68) was in the medium level. The environmental knowledge of the respondents (1.81 out of 2) was also in a desirable level.

Table 2. Pearson correlation coefficient test to measure research variables

Independent variable	The dependent variable	Test value	Sig level
Age	Energy Consumption	0.075	0.10
	Recycle	-0.04	0.93
	Protection of Natural Resources	0.44	0.000
Number of Family Members	Energy Consumption	-0.11	0.01
	Recycle	0.31	0.52
	Protection of Natural Resources	0.034	0.47
Duration of Stay in the Village	Energy Consumption	0.052	0.30
	Recycle	-0.023	0.65
	Protection of natural resources	0.10	0.05
Income	Energy consumption	-0.031	0.51
	Recycle	-0.021	0.000
	Protection of Natural Resources	-0.14	0.000

5.2. Analytical Findings

As depicted in the [table 2](#), there is a positive and moderate correlation between natural resource protection and age - the test value of 0.44 and the significance level of 0.000. Based on this, it can be asserted that the significant relationship between age and environmental protection is confirmed at 95% CI with 5% probability of error. This means that as people grow older, they develop a propensity for an environmentally responsible behavior for the protection of natural resources. There is also a negative but weak relationship between energy consumption and the number of family members at 99% CI and 1% probability of error. In other words, the consumption

rate per person decreases. Also, considering the significant association between the length of stay in the village and the protection of natural resources – a weak and positive correlation at 99% CI with a probability of error of 1% - it can be concluded that with prolonged stay in the village, the tendency to protect natural resources also amplifies. It stresses the importance of the sense of spatial belonging. In addition, there is a significant negative correlation between the income and recycling and protection of natural resources at 95% CI and 5% probability of error. This means that as income levels elevates, so does the recycling and conservation behavior of individuals from natural resources.

Table 3. Comparison of the difference of the dependent variable in terms of the independent variable

Environmentally responsible behaviors	Gender	Number	Mean	T Value	Sig Level
energy consumption	Male	237	14.49	-0.190	0.91
	Female	358	14.55		
Recycle	Male	236	6.33	-0.122	0.98
	Female	258	6.54		
Protection of natural resources	Male	225	10.26	-0.903	0.91
	Female	248	10.45		

T-test was used to evaluate the relationship between gender variables. Given the difference between the means and significance listed in the [table 3](#), it can be contended that the environmentally responsible behavior of the respondents and the dimensions of energy consumption, recycling and protection of

natural resources are not significantly different in terms of gender. Comparison of the mean of the two groups also suggests lack of a difference in the level of environmentally responsible behavior of men and women.

Table 4. Comparison of the difference of the dependent variable in terms of the independent variable

Environmentally responsible behaviors	marital status	Number	Mean	F Value	Sig Level
Energy consumption	Single	145	14.65	1.45	0.23
	Married	267	14.70		
	No spouse	60	13.85		
Recycle	Single	150	6.46	0.091	0.91
	Married	265	6.45		
	No spouse due	56	6.57		
Protection of natural resources	Single	143	10.42	0.692	0.50
	Married	252	10.52		
	No spouse due	55	10.12		

One-way analysis of variance (ANOVA) was used to assess the relationship between the independent variable of marital status and responsible environmental behavior and its three dimensions. Informed by the test results and the significance presented in the [table 4](#), it can be asserted that the environmentally responsible behavior of the

respondents was not significantly different in any of dimensions. The comparison of the mean in the two groups also indicates no difference with respect to environmentally responsible behavior.

Table 5. Comparison of the difference of the dependent variable in terms of the independent variable

Environmentally responsible behaviors	Employment status	Number	Mean	F Value	Sig Level
Energy consumption	Private sector	37	14.97	1.06	0.38
	Governmental	78	14.58		
	Free	141	14.89		
	Farmer	83	14.84		
	Livestock	24	13.20		
	housewife	40	14.67		
Recycle	Private sector	36	6.58	2.90	0.000
	Governmental	74	6.36		
	Free	143	6.12		
	Farmer	86	6.37		
	Livestock	22	6.13		
	housewife	40	7.42		
Protection of natural resources	Private sector	34	10.11	2.10	0.01
	Governmental	74	10.37		
	Free	143	10.12		
	Farmer	74	10.33		
	Livestock	19	10.10		
	housewife	39	11.48		

The findings of [table 5](#) indicate a difference between the components of environmentally responsible behavior and employment status, which is and significant at 99% CI and 1%

probability of error. According to the results, in terms of recycling and protection of natural resources, housewives and housekeepers gained the highest average.

Table 6. Pearson correlation coefficient test to measure research variables

independent variable	The dependent variable	T Value	Sig Level
religious beliefs	energy consumption	0.04	0.38
	Recycle	0.06	0.15
	Protection of natural resources	0.12	0.005
Environmental values	energy consumption	0.08	0.06
	Recycle	-0.02	0.66
	Protection of natural resources	0.10	0.02
Environmental knowledge	energy consumption	0.16	0.000
	Recycle	-0.006	0.94
	Protection of natural resources	0.12	0.000

As can be seen in the [table](#) above, there is a positive and weak correlation between natural resource protection and religious beliefs - a test value of 0.12 and a significance level of 0.005. Accordingly, the significant relationship between religious beliefs and environmental protection is confirmed at 95% CI and 5% margin of error. This shows that religious beliefs contribute to environmentally responsible behaviors in relation to the protection of natural resources. There is also a relationship between the protection of natural resources and environmental values at 99% CI and a 1% margin of error. Hence, given the significance of

the relationship between environmental knowledge and protection of natural resources, which was obtained at 95% CI and 5% margin of error, it can be concluded that by promoting environmental knowledge in individuals, they may adopt a more responsible attitude towards the environment and its protection. Finally, partial regression analysis was used to identify the variables that affect environmentally responsible behaviors. [table 7](#) shows the most important variables.

Table 7. Simple regression coefficients of environmentally responsible behaviors

Variables	R	R Square	β	Constant	Sig Level	Durbin Watson
religious beliefs	0.11	0.01	0.11	28.52	0.01	1.49
Environmental values	0.14	0.01	0.14	27.35	0.003	1.46
Environmental knowledge	0.14	0.019	0.14	24.61	0.002	1.39
Age	0.080	0.004	0.080	30.36	0.09	1.42
Number of family members	0.11	0.010	-0.11	34.04	0.022	1.55
Duration of stay in the village	0.076	0.003	0.076	31.28	0.14	1.41
Income	0.067	0.002	-0.067	32.79	0.16	1.46

Based on the results of the [table 7](#), four independent variables were able to predict changes in environmentally responsible behaviors. Environmental values and knowledge, religious beliefs and the number of family members are the main variables explaining variations in responsible

environmental behaviors. Now, by removing variables with a slight effect, the stepwise regression analysis was used to find the most accurate explanatory variable. [Table 8](#) shows the stepwise model regression analysis.

Table 8. Stepwise regression model of independent variables to explain responsible behaviors

Model	R	R Square	F Value	Sig Level	Constant
Step by step	0.13	0.015	5.80	0.000	1.48

The correlation coefficient of the stepwise regression model of independent variables for explaining responsible environmental behaviors was 0.13. According to the coefficient of determination, 0.015% of changes in environmentally responsible behaviors can be justified by environmental values. According to F

ratio, the regression model is able to explain the dependent variable. If the effects of independent variables are controlled, the basic value of natural resource protection will be 1.48. [Table 9](#) shows the impact coefficients of the final regression model that explain independent variables of responsible behaviors.

Table 9. Impact coefficients of the final regression model of independent variables explaining environmentally responsible behaviors

Variables	β	T Value	Sig Level	Tolerance	VIF
Constant	-	18.79	0.000	-	
Environmental values	0.13	2.41	0.016	1	1

As [table 9](#) shows, environmental values have the greatest impact on environmentally responsible behaviors. T-test values are also greater than 2, indicating the fitness of the model for testing. Tolerance and VIF values also corroborate the minimum co-linearity between these variables.

5. Discussion and Conclusion

Today, with the aggravation of environmental issues such as energy crisis, climate change, destruction of natural resources and increased waste production caused by urban development, the environmental challenges facing humans have drawn the attention of scholarly circles. The present study aimed to identify socio-psychological factors affecting the behavior of respondents. In this context, an environmentally

responsible behavior is the type of behavior that consciously seeks to minimize the negative effects of individual actions on the natural world. Such behavior is influenced by motivation, empowerment, and evaluation of the impact of individual actions. The main question that arises is whether sociopsychological factors studied here including religious beliefs, environmental value and environmental knowledge have a bearing on the environmentally responsible behavior of the respondents. In this paper, the conceptual model of sociopsychology was adopted as a theoretical framework to explain the research subject. Based on the research findings, the environmentally responsible behavior of the respondents was calculated to be in the medium level (mean = 3.98 out of 5). Moreover, the results of the hypothesis

testing indicated a significant and positive relationship between attitudes and responsible environmental behaviors. Responsible behavior was also positively correlated with age - a test value of 0.44 and a significance level of 0.000. The consumption rate per person. A weak and positive association was found between the length of stay in rural areas and the protection of natural resources. In addition, there was a significant negative correlation between income, recycling and protection of natural resources. Moreover, a statistically significant difference was observed between the mean value of responsible environmental behavior and employment status. These differences were evident in the dimensions of recycling and conservation of natural resources. The correlation coefficient of the stepwise regression model of independent variables that justify responsible environmental behaviors is 0.13. According to the coefficient of determination, 0.015% of changes in environmentally responsible behaviors could be explained by the variable of environmental values. The results of the present study are in line with the findings reported in previous reaserches including Marzban et al. (2019), Naimi et al. (2018), Naderi (2018), Sojasi

Gheidari & Arab Teymouri (2018), Jalali (2018), Rosa & Collado (2019), Chen (2017), Choudri et al. (2016), Janmaimool & Denpaiboon (2016) and Piapong & Denpaiboon (2016). In short, the results suggested that the conceptual sociopsychology model is well suited for examining the responsible behavior of individuals and determinants of environmental behaviors at rural communities. According to the present research model, the conceptual model of social psychology was modified by adding other factors presented in previous research. In any case, the results manifested that the modified model of sociopsychology could explain an environmental problem at an acceptable level. Thus, this model can be adopted in similar research carried out in other rural areas of the country.

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مسئولیت محیط زیستی در مناطق روستایی (مورد مطالعه: مناطق روستایی استان مازندران)

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چکیده مبسوط

۱. مقدمه

جهان امروز با مشکلات زیست محیطی متعددی مانند گرمایش زمین، آلودگی هوا و کمبود آب رو برو است. آنچنان که پیش‌بینی می‌شود، رفاه و امنیت سیاره زمین در خطر است. متأسفانه وضعیت محیط زیست در کشور، مانند بسیاری از کشورهای جهان بحرانی است. محققان بر این باورند که برای دستیابی به تغییرات رفتاری در ارتباط با محیط زیست، نخست باید در نگرش افراد نسبت به محیط زیست تغییر ایجاد کرد. به عبارتی افرادی که نگرش مثبت زیست‌محیطی بیشتری دارند، احتمالاً رفتارهای زیست‌محیط‌گرایانه بیشتری از خود نشان می‌دهند. یکی از ابزارهایی که باعث تغییر در نگرش و رفتار افراد در سطح جامعه می‌شود، آموزش فراگیر و مؤثر است. آموزش علاوه بر آگاهی، باعث تغییر در نگرش خواهد شد. بنابراین با استنباط از مباحث پیشین می‌توان گفت که با بررسی نگرش‌های موجود در جامعه و شناخت آن تا حدودی می‌توان سمت و سوی رفتار یک جامعه را پیش‌بینی نمود و چنانچه تغییر اساسی در نگرش‌های افراد مشاهده شود باید منتظر وقوع رفتارها و تحولات جدید متناسب با آن تغییرات در جامعه بود. در نهایت سؤال اساسی که در این تحقیق مطرح می‌شود این است که نوع نگرش مردم نسبت به محیط زیست به چه صورت است؟ و رفتارهای مسؤولانه محیط زیستی در بین روستاییان چگونه است؟ این امر، نیازمند شناخت وضعیت موجود رفتارهای محیطی زیستی در بین مردم است تا با شناخت علمی و نیز شناسایی عوامل اجتماعی مؤثر بر این نوع رفتارها، سیاست‌های علمی مناسب و راهکارهای لازم برای توسعه رفتارهای مسؤولانه محیط زیستی در بین مردم را ارائه داد.

۲. روش تحقیق

روش تحقیق پژوهش حاضر از نوع توصیفی-همبستگی بوده و برای جمع‌آوری داده‌ها از روش پیمایش با استفاده از ابزار پرسشنامه محقق ساخته بسته پاسخ استفاده شده است. واحد تحلیل در این پژوهش، فرد ساکن روستایی است. جامعه آماری پژوهش حاضر ساکنان مناطق روستایی استان مازندران در سال ۱۳۹۸ هستند. با استفاده از روش نمونه‌گیری خوشه‌ای چند مرحله‌ای، استان به سه خوشه شرق، مرکزی و غرب تقسیم شد. از هر خوشه سه شهرستان انتخاب شد. که با توجه به این که خوشه بندی اول (سه منطقه شرق، مرکزی، غرب) ملاک قرار گرفته است و در هر خوشه بیش از یکصد هزار نفر سکونت دارند، با جای‌گذاری اعداد در فرمول کوکران، حجم نمونه به تعداد ۳۸۴ تعیین شدند.

مع الوصف، برای اطمینان بیشتر و رفع نواقص احتمالی در تکمیل پرسشنامه‌ها، تعداد نمونه به ۵۳۶ مورد افزایش یافت. با توجه به این که در این تحقیق، سه خوشه وجود دارد، این تعداد نمونه، بین سه خوشه تقسیم شد.

افراد نمونه نیز به صورت تصادفی ساده انتخاب شدند. از نظر مفهومی، مسؤولیت‌پذیری محیط زیستی، پذیرش و انجام رفتارهایی است که به طور مستقیم یا غیر مستقیم بر روی محیط زیست اثر مثبت یا منفی می‌گذارند. در این تحقیق رفتار مسؤولانه محیط زیستی در قالب سه بعد (مصرف انرژی، بازیافت و حفاظت از منابع طبیعی) مطرح شده است. این مفهوم در مجموع با ۱۶ گویه در قالب طیف لیکرت از کاملاً مخالف با امتیاز (۱) تا کاملاً موافق با امتیاز (۵) تعریف و عملیاتی سازی شده است. برای سنجش میزان پایایی پرسشنامه از ضریب آلفا کرونباخ استفاده شد تا از میزان یکسان بودن برداشت پاسخگویان از سؤالات اطمینان حاصل شود.

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شهرنشینی، اثر انسان بر محیط از چالشی‌ترین مسائل مورد توجه مجامع علمی است. پژوهش حاضر با هدف شناخت عوامل روانشناسی و اجتماعی مؤثر بر رفتار پاسخگویان تهیه و تدوین شده است. در این میان، رفتار مسئولانه محیط زیستی رفتاری است که آگاهانه درصدد به حداقل رساندن تأثیرات منفی کنش‌های فردی بر جهان طبیعی می‌باشد. چنین رفتاری از انگیزش، توانمندی، ارزیابی اثر عمل فردی تأثیر می‌پذیرد. سؤال اساسی که مطرح می‌شود این است که آیا عوامل روانشناسی اجتماعی که در این تحقیق شامل باورهای دینی، ارزش محیط زیستی و دانش محیط زیستی می‌باشد، بر رفتار مسئولانه محیط زیستی پاسخگویان تأثیرگذار است؟ در این پژوهش، از مدل مفهومی روانشناسی اجتماعی به عنوان چارچوب نظری برای تبیین موضوع تحقیق استفاده شده است. براساس یافته‌های تحقیق، میزان رفتار مسئولانه محیط زیستی پاسخگویان در حد متوسط با مقدار (میانگین = ۳/۹۸ از ۵) محاسبه شده است. علاوه بر این نتایج حاصل از آزمون فرضیات نشان داد که بین نگرش و رفتارهای محیط زیستی مسئولانه رابطه معنی دار و مثبت وجود دارد. ضریب همبستگی مدل گام به گام رگرسیون متغیرهای مستقل برای تبیین رفتارهای محیط زیستی مسئولانه با ۰/۱۳ برابر است. مطابق با ضریب تعیین، ۰/۱۵ درصد تغییرات رفتارهای مسئولانه محیط زیستی با متغیر ارزش‌های محیط زیستی قابل تبیین است. در ارزیابی نهایی می‌توان گفت تحقیق حاضر نشان داد که مدل مفهومی روانشناسی اجتماعی، نظریه مناسبی برای بررسی میزان مسؤولیت پذیری افراد و عوامل تأثیر گذار بر رفتارهای محیط زیستی در سطح اجتماعات روستایی است. اساس مدل تحقیقی حاضر، مدل مفهومی روانشناسی اجتماعی بوده است که با افزودن عوامل مؤثر دیگری که در تحقیقات پیشین مطرح شدند و البته در یک قالب منطقی، تعدیل شد.

کلیدواژه‌ها: عوامل روانشناسی اجتماعی، رفتار مسئولانه محیط زیستی، روستائیان، استان مازندران.

تشکر و قدردانی

این مقاله مستخرج از طرح تحقیقاتی با عنوان "سنجش وضع مسؤولیت پذیری جامعه روستایی نسبت به محیط زیست و ارتقاء آن در استان مازندران"، می‌باشد که با حمایت صندوق حمایت از پژوهشگران و فناوریان کشور- معاونت علمی و فناوری ریاست جمهوری انجام پذیرفته و بدین وسیله از حمایت آن کارفرمای محترم قدردانی می‌شود.

بدین ترتیب مقادیر آلفای کرونباخ متغیر عوامل روانشناسی اجتماعی با ۱۵ گویه (مقدار آلفا=۰/۷۹) و رفتارهای مسئولانه محیط زیستی با ۱۶ گویه (مقدار آلفا=۰/۷۸) به دست آمده است.

۳. یافته‌های تحقیق

میانگین رفتار مسئولانه محیط زیستی (مشخصه گرایش به مرکز) پاسخگویان متوسط (۳/۹۸)، باورهای دینی ۳/۷۳، سطح ارزش‌های محیط زیستی پاسخگویان در سطح متوسط با مقدار میانگین ۳/۶۸ از ۵ و سطح دانش محیط زیستی پاسخگویان با توجه به مقدار میانگین ۱/۸۱ از ۲ مطلوب است. بر اساس نتایج به دست آمده بر اساس مقادیر میانگین‌ها می‌توان گفت، میانگین نمرات در هر سه طبقه وضعیت تأهل تفاوتی ندارند. به طور کلی، می‌توان اینچنین عنوان نمود که بین مسؤولیت‌پذیری جامعه روستایی نسبت به محیط زیست و وضعیت تأهل تفاوت میانگین وجود ندارد و این تفاوت به لحاظ آماری معنی‌دار نیست. بین میانگین مؤلفه‌های رفتار مسئولانه محیط زیستی و وضعیت اشتغال تفاوت وجود دارد و این تفاوت به لحاظ آماری معنی‌دار می‌باشد. این تفاوت‌ها در ابعاد بازیافت و حفاظت از منابع طبیعی آشکار است. مقایسه بین گروه‌ها هم نشان می‌دهد که در سه بعد رفتار محیط زیستی، خانه دارها که زنان هستند، میانگین بیشتری دارند. بین مؤلفه حفاظت از منابع طبیعی و باورهای دینی همبستگی مثبت و قوی به دست آمده است. همچنین بین حفاظت از منابع طبیعی و ارزش‌های محیط زیستی رابطه‌ای معنی‌دار وجود دارد؛ با توجه به سطح معنی‌داری به دست آمده رابطه بین دانش محیط زیستی و حفاظت از منابع طبیعی نیز معنی‌دار است. در نهایت، در مجموع چهار متغیر مستقل توانستند تغییرات رفتارهای مسئولانه محیط زیستی را پیش‌بینی کنند. متغیرهای ارزش‌ها و دانش محیط زیستی، باورهای دینی و تعداد اعضای خانواده به ترتیب مهم‌ترین متغیرهای تبیین‌کننده تغییرات رفتارهای محیط زیستی مسئولانه هستند. ضریب همبستگی مدل گام به گام رگرسیون متغیرهای مستقل برای تبیین رفتارهای محیط زیستی مسئولانه با ۰/۱۳ برابر است. مطابق با ضریب تعیین، ۰/۱۵ درصد تغییرات رفتارهای مسئولانه محیط زیستی با متغیر ارزش‌های محیط زیستی قابل تبیین است.

۴. بحث و نتیجه‌گیری

امروزه با افزایش مسائل زیست محیطی از قبیل بحران انرژی، تغییر آب و هوا، اتلاف و تخریب منابع طبیعی و افزایش مواد زائد ناشی از توسعه



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