J. Agr. Sci. Tech. (2022) Vol. 24(4): 793-809

Farmers' Cultural Biases and Adaptation Behavior towards Drought: A Case in Sistan Plain

H. Karimi[1*], and P. Ataei[2]

ABSTRACT

Recent droughts have aroused extensive concerns on crop and food production in the world. Since agricultural sector is the leading water consumer in Iran and farmers are most vulnerable to drought, a correct understanding of farmers' adaptation behavior towards drought can help policymakers develop proper drought-coping policies and strategies. The present study aimed to investigate farmers' drought adaptation behavior and the effect of cultural biases on it among farmers in the Sistan Plain, Iran. A sample of 361 farmers was taken by the multi-stage randomization technique. The measurement instrument was a questionnaire whose face validity was confirmed by a panel of experts and its reliability was estimated by calculating Cronbach's Alpha in a pilot study. The results showed that the worldview of the farmers had a significant effect on their attitude, social norms, and perceived behavioral control. Also, behavioral intention and perceived behavioral control had a significant positive effect on the farmers' drought adaptation behavior. It is concluded that farmers' worldviews may be involved in the process of drought adaptation behavior and can influence their attitude, social norms, and perceived behavior control directly, and their intention and behavior indirectly.

Keywords: Cultural Theory, Drought-coping policies, Farmers' worldview, Theory of Planned Behavior.

INTRODUCTION

A present-day global issue is environmental conservation. Environmental disasters threaten the comfort, health, and security of mankind, whereas environmental quality has been jeopardized throughout the world by such issues as global warming, pollution of water bodies, rapid depletion of forests, and a high rate of desertification (Bahta, 2020; David *et al*., 2020). A major impact of global warming is its effect on water resources. Climate change has increased the frequency of unexpected events like drought (Wheeler and Zuo, 2017; Gebrehiwot and van der Veen, 2020; Rakgwale and Oguttu, 2020). Global statistics show that the frequency and intensity of droughts are growing in Asia, south of Africa, the US, and Brazil (Khetwani *et al*., 2020), which would then aggravate poverty and livelihood unsustainability of rural people and farmers (Izadi and Hayati, 2014; Muthelo *et al*., 2019). As a natural hazard, drought is most influential in the arid and semi-arid zone of the world, where Iran is also located in this zone (Shariatzadeh *et al*., 2021). Drought in the Sistan Plain has caused extensive losses causing water scarcity, desolation of some villages, and the increasing rates of migration and unemployment (Ahrari Rudi, 2018). The Sistan Plain is located in the southeast of Iran and north of Sistan and Baluchestan Province. It is a flat and alluvial plain where a part of the alluvial layers of the Quaternary Period is located on igneous rock masses. This plain has

[1] Department of Agricultural Extension and Education, Faculty of Agriculture, University of Zabol, Zabol, Islamic Republic of Iran.
[2] Department of Agricultural Extension and Education, Faculty of Agriculture, Tarbiat Modares University, Tehran, Islamic Republic of Iran.
[*] Corresponding author; e-mail: karimihamid@uoz.ac.ir

a population of over 400,000 people and its economy is highly dependent on agriculture. The plain has a desert climate with very hot and arid weather, annual rainfall of 50-55 mm, and annual evaporation of about 4800 mm (Firouzi *et al*., 2019).

The underpinning theory of adaptation to drought is the paradigm of the social construction of nature. Based on this paradigm, human is defined as active, creative, and meaning-creating being that is constantly engaged in creating meaning in social life (Tajeri Moghadam *et al*., 2018). People make sense of the social environment by attaching meanings and objective symbols to it (Sutton, 2007). Social constructivists in environmental sociology argue that environmental issues are mainly constructed socially within society and are perceived and understood by activists (Sutton, 2007). Hanigan (2014) distinguished two forms of constructivism: contextual and strict. Strict constructivism believes that the environment always needs humans to speak on its behalf. Thoughts, theories, and concepts in society can shape how the environment is perceived, assessed, and be thought about (Sutton, 2007). In contrast, contextual constructivism is based on the premise that environmental issues may be real. However, some environmental issues are important and others are less important (Sutton, 2007).

Drought may cause the loss of crops, food deficiency, and in most cases, the expansion of poverty and hunger, migration, and food insecurity if it is not managed properly (Keshavarz *et al*., 2010; Hesam *et al*., 2021). The factors responsible for these issues and the relevant solutions can mostly be sought in human behavior (Gardner and Stern, 2002; Nickerson, 2003). One solution is to change farmers' attitudes and behavior (Katuwal, 2012). To tackle environmental problems and crises, especially drought, it is imperative to understand how farmers think and perceive the natural environment and what attitude they have towards environmental conservation measures (Dong *et al*., 2020; Solano-Hernandez *et al*., 2020; Gebrehiwot and van der Veen, 2020). Some of the reviewed studies have based the human decision-making module on socio-psychological theories that describe the cognitive processes behind the adaptation decisions. Neisi *et al*. (2020) have used the protection motivation theory, which assumes that farmers' intention to adapt depends on the threat appraisal and coping appraisal. Haigh and Knutson (2013), and Aliabadi *et al*. (2019) used the theory of planned behavior, which assumes that adaptation intentions are influenced by one's attitude, subjective social norms, and perceived control over the situation. Furthermore, Hallaj *et al*. (2021) applied the norm activation theory and concluded that farmers' awareness of consequences, ascription of responsibility, subjective norms, and personal norms have positive effects on farmers' pro-environmental behavior in the face of drought. Savari *et al*. (2021) used the health belief model and pointed out that cues to action, self-efficacy, perceived susceptibility, perceived severity, and perceived benefits had a significant impact on farmers' drought-coping behaviors.

The theory of planned behavior developed by Ajzen (1991) is a psychological theory that is regularly applied in many studies. The central factor in the decision-making process, according to this theory, is an individual's intention to perform certain behavior, which is influenced by three factors: attitude, subjective norm, and perceived behavioral control (Ajzen, 1991). Attitude refers to the degree of personal positive or negative evaluation of the behavior. Subjective norms refer to the perceived social pressure to perform the behavior. Perceived behavioral control refers to an individual's belief in his or her own ability to implement the intended decision (Schrieks *et al*., 2021).

The cultural theory was founded on a theoretical rationale by anthropologists like Douglas (1982) and Wildavsky (1987). The approach was then developed by Thompson *et al*. (1990) and Rayner (1992). This theory is associated with people's values, ideas, and worldviews (Billgren and Holmén, 2008; Singleton, 2016). Owing to these factors, the cultural theory has been successfully used in environmental issues as a way to categorize people's different opinions (Fath and Beck, 2005; Price *et al*., 2014; Halik *et al*., 2018; Markle, 2019).

To identify different types of cultures and views, Douglas and Wildavsky developed a grid-group typology that defines four lifestyles, worldviews, or cultural biases (Gross and Rayner, 1985). The categorization is based on the idea that different worldviews are the result of people's cooperation and socialization and can be described from two dimensions of group (the degree of interwoven social units) and grid (the degree of externally imposed constraints on acts and behaviors). The group dimensions are related to social solidarity whereas the grid dimensions are related to the internal structure of classes and show how people behave towards one another (Douglas, 1982). The cultural theory claims that all people belong to one of the four cultural biases or worldviews–fatalism, individualism, hierarchy, and egalitarianism, depending on their status in society (Oltedal and Rundmo, 2007).

Fatalists do not involve themselves in ethical discourses and social disputes. They are dependent on, and influenced by, external norms such that they have limited choices in their lives and find no profit in further endeavor (O'riordan and Jordan, 1999). Since they believe that all events occur by chance, they perceive nature to be unpredictable and unmanageable (Kwame, 2007). Individualists believe that nature is harmless, flexible, and responsive (Thompson *et al*., 1990). In other words, for them, nature and the business world are robust and benign and can compensate for all human interventions (Kwame, 2007). They have no environmental concern and feel no responsibility for nature, so, they are reluctant to change their behavior (Poortinga *et al*., 2002). Egalitarians regard nature to be ephemeral and transient (Thompson *et al*., 1990). They believe that nature is usually in a sensitive and fragile balance, which is disturbed by the least intervention by humans with disastrous and irreparable ramifications. This group is, therefore, risk-aversion and most concerned about nature and the environment. They argue that they can and should reduce their needs to contribute to solving environmental issues (Oltedal *et al*., 2004; Hoogstra and Schanz, 2008). People in the hierarchy group conceive nature to be robust to a certain point (Thompson *et al*., 1990). This means that nature is in an unstable and scarce status. In other words, if the intervention is at a low level, nature can return to its original status or to its balance status, but if the intervention is at a high level, nature will be jeopardized and cannot remedy its possibly remarkable consequences. In fact, they believe that nature can bear moderate interventions to a certain point that is determined by experts and governments (Poortinga *et al*., 2002).

In a study on drought in rural areas of Australia, Kiem and Austin (2016) concluded that adaptive capacities should be increased to alleviate the economic and social effects of drought on these areas. Meanwhile, it is necessary to change the view on drought as an unexpected and harmful event to increase tolerance. Keshavarz *et al*. (2013) revealed that in dealing with drought, susceptible and less-susceptible families attempted to adapt to the conditions by applying drought-coping management practices and strategies. They concluded that constraints on assets (physical, natural, and environmental) hindered the implementation of drought-coping strategies. Yazdanpanah *et al*. (2011) reported a significant relationship between different cultural biases and the variables of perceived risk, subjective norms, attitude, and a sense of responsibility. Hallaj *et al*. (2018) found that most farmers had a biosphere and philanthropic attitudes and personal norms were most influential on their pro-environmental behavior. In an assessment of the effects of farmers' worldviews on the conservation of water resources, Tajeri Moghadam *et al*. (2018) revealed that the highest mean was related to the egalitarian worldview and the lowest to the individualism worldview among the farmers. According to them, people's intention for water conservation is directly affected by four variables of attitude, perceived risk, subjective norms, and responsibility, and indirectly by the egalitarian, hierarchy, and fatalism worldviews. From another viewpoint, water conservation behavior is significantly determined by intention. Aliabadi *et al*. (2019) concluded that attitude, perceived behavioral control, and subjective norms influenced farmers' adaptive behaviors. Furthermore, farmers decide on drought adaptation

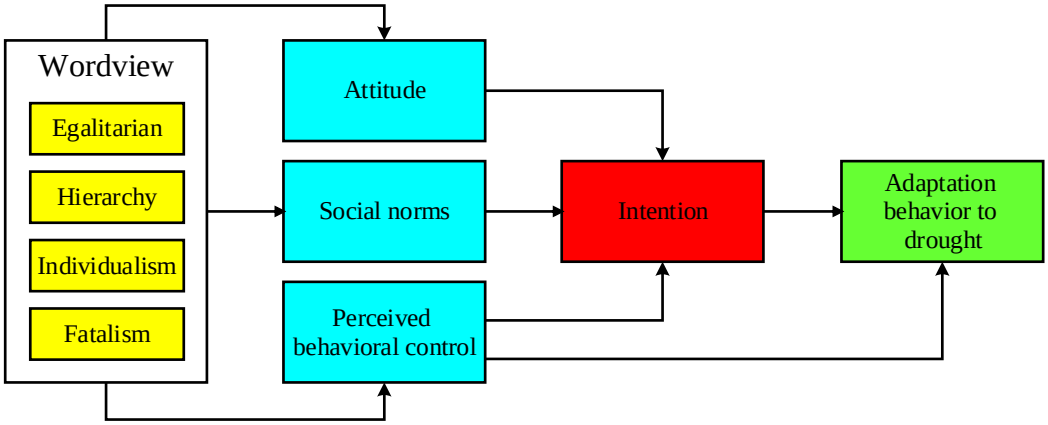


Figure 1. The theoretical framework of the research (Source: Ajzen, 1991; Douglas, 1982).

strategies based on personal factors, attitudes, and goals (Sharafi *et al*., 2021).

Accordingly, the present research aimed to explore farmers' drought adaptation behavior and the effect of cultural biases on it. The novelty of the research is that few studies have addressed the effect of farmers' worldviews on their behavioral processes in the context of drought adaptation. This research can provide a deep and new understanding of farmers' mentality about drought and their adaptation behavior. This study attempts to fill the gap in the literature on drought adaptation behaviors by considering farmers' worldviews and different dimensions of cultural theory. Previous studies have mostly dealt with farmers' social and psychological dimensions and have less focused on cultural dimensions. As such, this research can supplement the literature from social, cultural, and psychological perspectives.

Based on the review of the literature and behavioral theories, the theoretical framework of the present research was developed by combining the cultural theory and the theory of planned behavior (Figure 1). According to the cultural theory, farmers' worldview influences drought adaptation behaviors indirectly. It also affects farmers' attitudes, perceived behavioral control, and social norms directly. It reflects the fact that farmers have different perceptions of nature, the perceptions that they use in the management of natural resources. Their perceptions formed attitudes, norms, and perceived behavioral control to drought adaptation behaviors. If farmers had the fatalism worldview, they would not be so concerned about the environment, and their risk perception would be based on the belief that what people do not know cannot be harmful to them. However, egalitarians think that people and society need profound changes in their behaviors to protect the environment. In other words, this framework shows that farmers' drought adaptation behavior can be affected by their worldview, socio-psychological factors, and behavioral intention such that the drought adaptation behavior emerges as a process.

MATERIALS AND METHODS

The present research is an applied study since its results are intended to be used by the planners and officials of the agricultural sector. In paradigm, it is quantitative. Also, it is non-experimental in terms of the control over variables and 'causal-relational' and 'descriptive-correlational' from the statistical analysis aspect, and the survey technique was used for data collection. The statistical population was composed of farmers in the Sistan Plain, Sistan and Baluchistan Province (N= 6,000). The sample was taken by the multi-stage randomization technique, for

which 12 rural districts were first selected randomly out of 18 rural districts in the plain (cluster sampling). Then, 31 villages were selected randomly from the 12 rural districts. The sample was then taken from these 31 villages proportionally (stratified sampling). Finally, the farmers engaged with drought in the Sistan Plain were randomly sampled from each village (simple random sampling). Krejcie and Morgan's (1970) table was used to determine sample size (n= 361).

Based on the latest administrative division of Iran, Sistan Plain has 5 counties, 9 districts, 7 cities, 18 rural districts, and 823 non-desolated villages. This plain accounts for about 9.3% of the area of Sistan and Baluchistan Province and 15.8% of its population. The mean annual precipitation was estimated at 59 mm according to the data provided by the synoptic station. The region also has a mean annual temperature of about 22°C, a maximum absolute temperature of 45.9°C, a minimum absolute temperature of -4.4°C, a mean relative humidity of about 46%, a mean wind speed of about 4 m s^{-1} at an elevation of 2 m, an annual evapotranspiration rate of 2,579 mm, and an evaporation rate of about 5.87 mm (Figure 2).

The data collection instrument was a questionnaire composed of four sections for farmers' demographic characteristics, farmers' worldviews, the components of the theory of planned behavior, and drought adaptation behavior. The face validity of the questionnaire was verified by a panel of drought and behavioral experts. To estimate the reliability of the instrument, a pilot study was conducted to fill 30 questionnaires by farmers outside the sample and to calculate the coefficient of Cronbach's Alpha. The variables were measured on a five-point Likert scale. Drought adaptation behavior was measured by 10 items on an ordinal scale (from 1= None to 5= Very high), farmers' worldviews by 19 items (5 items for egalitarian, 4 items for hierarchy, 5 items for individualism, and 5 items for fatalism) on an ordinal scale (from 1= Completely disagree to 5= Completely agree). The components of the theory of planned behavior were measured by 14 items (4 items for attitude, 3 items for perceived behavioral control, 3 items for social norms, and 4 items for behavioral intention) again on an ordinal scale (from 1= Completely disagree to 5= Completely agree) (Table 1). Before the interviews, an invitation letter was sent to all farmers to describe all the details of the study objectives and questions and to invite them to the face-to-face interview. The interviews were conducted at the farmers' homes and farms and each interview lasted 15–20 minutes. The collected data were analyzed by the

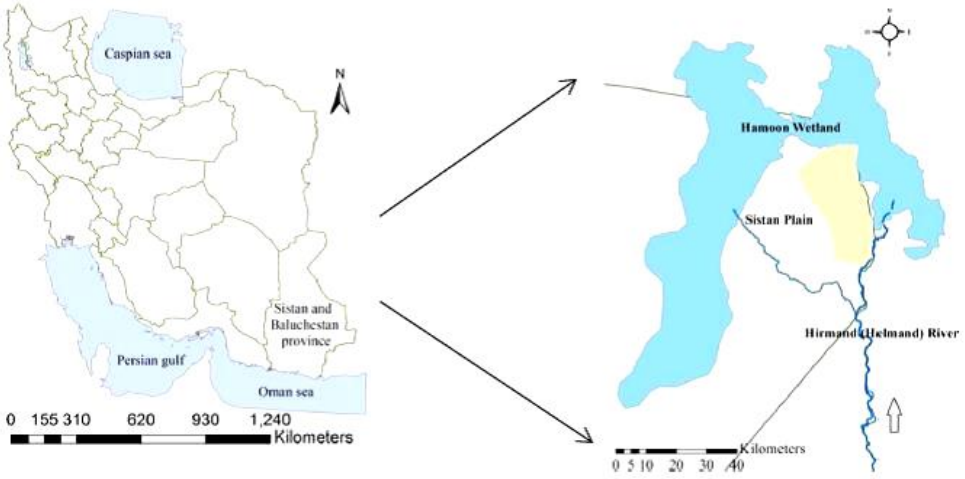


Figure 2. The location of the study area.

Table 1. Statements and scales used for the direct measures.

Variable	No.	Item	Reference
Egalitarian (α= 0.81)	1	The excessive abstraction of water resources causes land subsidence, crop degradation, and continued drought.	Tajeri Moghadam *et al.* (2018)
	2	If I keep consuming water in the present manner in the next ten years, I will have neither agriculture nor livestock.	Tajeri Moghadam *et al.* (2018)
	3	I trust the information of government organizations (such as Agriculture Jihad and Regional Water) about the drought situation.	Tajeri Moghadam *et al.* (2018)
	4	The long-term benefits of drought adaptation strategies are more important than short-term benefits.	Hoogstra-Klein *et al.* (2012)
	5	Drought adaptation strategies should be tailored to the needs of local communities.	Self-developed
Hierarchy (α= 0.71)	1	The use of water resources in drought conditions must be regulated by the government.	Tajeri Moghadam *et al.* (2018)
	2	The government should legislate for the implementation of drought adaptation strategies by farmers.	Self-developed
	3	In my opinion, the solution to drought management is to establish regulations and strictly control them by government monitors.	Self-developed
	4	It must be ensured that local people do not claim that water resources belong only to them.	Self-developed
Individualism (α= 0.84)	1	Some farmers just waste agricultural water. This water should be allocated to successful farmers.	Tajeri Moghadam *et al.* (2018)
	2	You do not have to worry about water and rain. Everything will be solved with some rainy years.	Self-developed
	3	Drought adaptation strategies are transient and will not be needed after some wet years.	Self-developed
	4	It is the farmer's right to decide when and how much to use natural resources.	Self-developed
	5	We need to focus on the present to adapt more to the drought.	Hoogstra-Klein *et al.* (2012)
Fatalism (α= 0.81)	1	Knowing drought adaptation strategies does not change my attitude towards water conservation.	Self-developed
	2	Drought adaptation strategies do not affect drought conditions.	Self-developed
	3	It is too late to do anything to address the drought.	Self-developed
	4	Whether I like it or not, I have to accept the drought in my life.	Self-developed
	5	There is no need to develop new strategies to adapt to drought because farmers have been farming with their own methods for years.	Self-developed
Drought adaptation behavior (α= 0.87)	1	Crop diversification	Keshavarz and Karami (2016)
	2	Using appropriate crop rotation	Self-developed
	3	Changing irrigation type and method (based on modern irrigation methods)	Self-developed
	4	Crop insurance	Self-developed
	5	Changing the use of chemical inputs	Self-developed
	6	Livestock diversification (changing or adding livestock)	Keshavarz and Karami (2016)
	7	Using new drought-tolerant cultivars	Self-developed
	8	Changing crop type (low-water crops)	Self-developed
	9	Shifting cropping calendar (planting, cultivating, and harvesting)	Self-developed
	10	Employing conservation tillage	Self-developed

Table 1 continued…

Continued of Table 1. Statements and scales used for the direct measures.

Variable	No.	Item	Reference
Attitude (α= 0.74)	1	I have a positive attitude towards drought adaptation strategies.	Ataei *et al*. (2021)
	2	I think it would be useful to use drought adaptation strategies.	Ataei *et al*. (2021)
	3	In my opinion, drought is a critical issue and farmers need to be aware of adaptation strategies.	Self-developed
	4	I believe that engaging in drought adaptation activities is one of the first steps in solving this problem.	Ataei *et al*. (2021)
Perceived behavioral control (α= 0.88)	1	Applying drought adaptation strategies is not complicated and I can use them easily.	Self-developed
	2	I am confident enough in my ability to apply drought adaptation strategies.	Self-developed
	3	I feel that drought adaptation strategies are not out of my control.	Self-developed
	1	I feel socially pressured to implement drought adaptation strategies.	Self-developed
	2	Most people who are important to me think that I should use drought adaptation strategies.	Self-developed
	3	Most people who are important to me think that drought adaptation strategies are appropriate.	Ataei *et al*. (2021)
Behavioral intention (α= 0.75)	1	Next time I plan to apply drought adaptation strategies on my farms.	Self-developed
	2	I plan to engage in drought adaptation strategies in the future.	Self-developed
	3	I intend to encourage other farmers to use drought adaptation strategies.	Ataei *et al*. (2021)
	4	I plan to implement drought adaptation strategies next year.	Ataei *et al*. (2021)

$SPSS_{22}$ and $AMOS_{22}$ software packages. Path analysis was used to show causal mechanisms through which independent variables produce both direct and indirect effects on the dependent variable (farmers' intention and drought adaptation behavior). Path analysis is a form of multiple regression statistical analysis that is used to evaluate causal models by examining the relationships between a dependent variable and two or more independent variables. By using this method, it can estimate both the magnitude and significance of causal connections between variables. In this study, the effects of farmers' worldviews on social norms, perceived behavioral control, and attitudes were first examined. Then, their effects on farmers' intentions and drought adaptation behavior were estimated as the dependent variable. The items of each variable were computed to use path analysis. First, the items of each variable were measured using 5-point Likert scales. Then, the items were computed in the SPSS software packages.

RESULTS

Farmers' Demographics

The results showed that the farmers were, on average, 46.75 years old. An absolute majority of them (93.10%) were male, while only 6.90% (25 farmers) were female. The farmers were mostly (91.96%) married. In terms of educational level, most of them (54.84%) had an elementary and high-school education. In terms of job experience, 84 farmers (23.27%) had less than 10 years of experience, 82 farmers (22.71%) had 10-20 years of experience, and 195 farmers (54.02%) had

more than 20 years of experience. The average cultivated area of the farmers was 4.01 ha (SD= 4.59). Most farmers (89.75%) owned land, while 10.25% were using leased lands. An overview of the respondents' status in terms of water source reveals that most farmers (76.18%) were using rivers (Hirmand, Sistan, and Parian) for their land irrigation whereas 13.30% were using exclusive wells and 10.52% were using springs, qanats, shared wells, and dams. In terms of annual revenue, 148 farmers (41%) had an income of less than 12,000 $, 126 farmers (34.90%) had an income of 12,000-23,000 $, and 87 farmers (24.10%) had an income of higher than 23,000 $.

Means Comparison for the Farmers' Worldview with Mean Intervals

The one-sample t-test was used to compare the means of the farmers' worldview with the mean of intervals. The results revealed a significant difference between the mean of all worldviews and the mean of intervals at the P< 0.01 level, whereas the high and low bounds of the individualism, hierarchy, fatalism, and egalitarian worldviews were positive. This implies that the mean of the study sample is significantly greater than the mean interval of the variables. In other words, the mean of the dimensions mentioned is significantly higher than the average value. Other findings are presented in Table 2.

Exploration of the Causal Model of Farmers' Drought Adaptation Behavior

The path analysis was applied to investigate the model of the farmers' drought adaptation behavior. This analysis measures the impacts of a series of variables on one another. At first, the model's fit was examined using chi-square per degrees of freedom (χ^2/df), Normed Fit Index (NFI), Incremental Fit Index (IFI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). Based on the values reported for the model fit in Table 3, χ^2/df is 4.01, showing the good fit of the model. The indices of investigating alternative models (NFI, IFI, and CFI) are used to check how well a model performs in explaining a set of observed data, especially in comparison with other possible models. They were estimated in the present study to be 0.9, 0.9, and 0.91, respectively. Finally, RMSE was used to check how the research conceptual model integrated fitness and saving. It was found to be 0.06, implying the control of the measurement error in the model. Accordingly, most reported indices had acceptable values for the overall fit of the model. It can, therefore, be said that the model was, in general, consistent with the data used.

The second step in model estimation is to test the significance of the coefficients of the paths assumed in the research model and the variance accounted for, or the coefficient of determination that is estimated by each path. Figure 3 and Table 4 present the results as to the coefficients of the causal paths between the variables of the fitted model in the context of the structural model. The variations in the variance of the internal and mediator variable of attitude are directly influenced by the external variable of farmers' worldview. As is evident in Figure 3, the worldviews of egalitarian (β= 0.19, P< 0.01), hierarchy (β= 0.15, P< 0.01), and fatalism (β= -0.35, P< 0.01) have significant effect on farmers' attitude towards drought adaptation strategies.

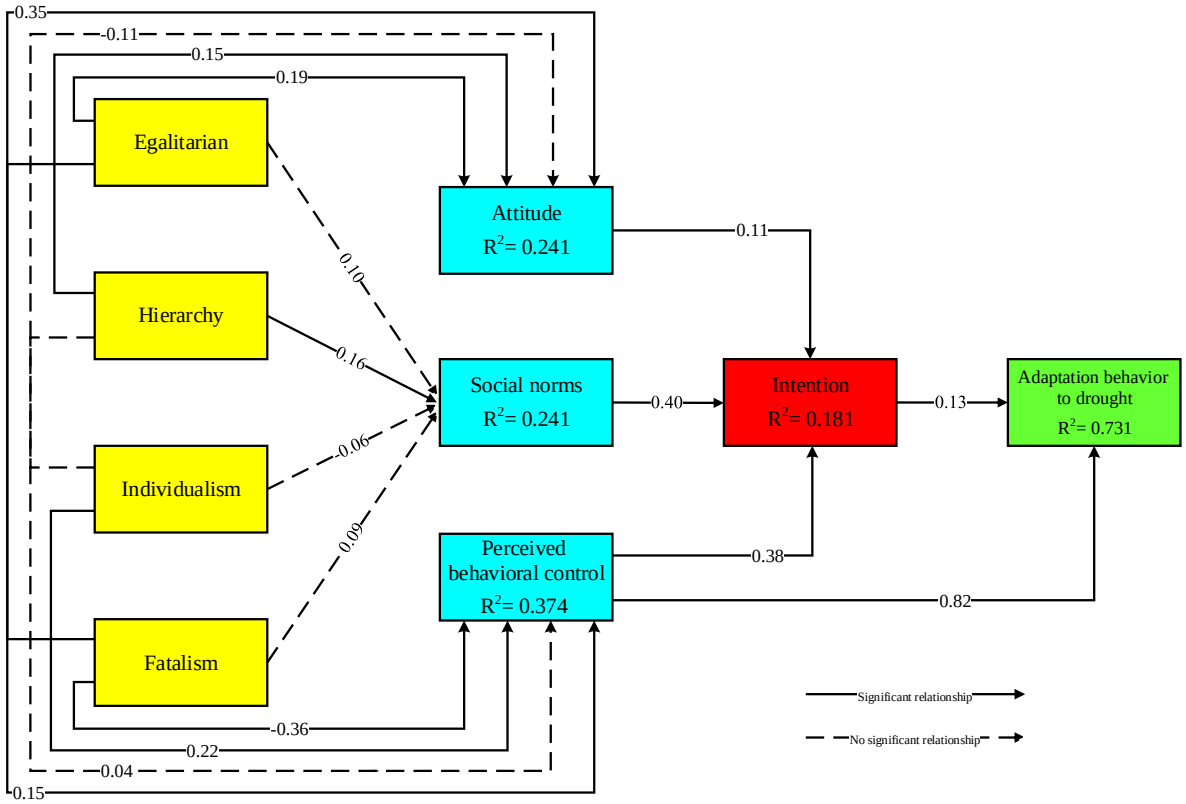
Table 2. Comparison of the means of the farmers' worldview with the interval means.

Variable	Scale mean	Sample mean	SD	t	Sig	Confidence interval
Egalitarian	15	17.76	3.86	13.57	0.000	2.36, 3.16
Hierarchy	12	14.62	2.93	16.95	0.000	2.31, 2.92
Individualism	15	17.26	4.43	9.7	0.000	1.8, 2.72
Fatalism	15	17.51	4.3	11.11	0.000	2.07, 2.96

Table 3. The fitness indices of the structural model.

Test	Recommended value[a]	Proposed model
Likelihood ratio Chi-square (χ^2)	Insignificant χ^2 (P> 0.05)	0.000
Normed Chi-square (χ^2/df)	χ^2/df< 5	4.01
Root Mean Squared Error	RMSEA< 0.08	0.06
Normed Fit Index	NFI > 0.90	0.90
Incremental Fit Index	IFI= Values close to 1	0.90
Comparative Fit Index	CFI> 0.90	0.91
Goodness of fit index	GFI> 0.9	0.94

[a] Byrne (2016).



The coefficient of determination (R^2) was estimated at 0.241 for the farmers' attitude. This means that 24.1% of the variance in the variable of farmers' attitude towards drought adaptation strategies is related to the worldviews of hierarchy, fatalism, and egalitarian.

Based on the results, the hierarchy worldview has a significant effect on social norms (β= 0.16, P< 0.01). Other worldviews do not influence social norms significantly. Also, the variance of the internal and mediator variable of perceived behavioral control is directly affected by the worldviews of hierarchy, fatalism, individualism, and egalitarian, and the worldviews of egalitarian (β= 0.15, P< 0.01), individualism (β= 0.22, P< 0.01), and fatalism (β= -0.36, P< 0.01) have a significant effect on farmers' attitude towards drought adaptation strategies. According to the coefficient of determination (R^2= 0.374), farmers' worldviews account for 37.4% of the variance in perceived behavioral control. In addition, worldviews have an indirect impact on intention and drought adaptation behavior. As shown in Table 4, fatalism, individualism, egalitarian, and hierarchy worldviews have the

Table 4. The overall, direct, and indirect effects of the research variables on farmers' drought adaptation behavior.

Variables	Effects	Egalitarian	Hierarchy	Individualism	Fatalism	Attitude	Social norms	Perceived behavioral control	Intention
Behavior	Direct	-	-	-	-	-	-	0.826	0.13
	Indirect	0.139	0.031	-0.198	-0.315	0.015	0.053	0.05	-
	Total	0.139	0.031	-0.198	-0.315	0.015	0.053	0.877	0.13
Intention	Direct	-	-	-	-	0.119	0.404	0.388	-
	Indirect	0.08	0.068	-0.099	-0.137	-	-	-	-
	Total	0.08	0.068	-0.099	-0.137	0.119	0.404	0.388	-
Attitude	Direct	0.199	0.152	-0.116	-0.35	-	-	-	-
	Indirect	-	-	-	-	-	-	-	-
	Total	0.199	0.152	-0.116	-0.35	-	-	-	-
Social norms	Direct	0.108	0.169	-0.063	0.097	-	-	-	-
	Indirect	-	-	-	-	-	-	-	-
	Total	0.108	0.169	-0.063	0.097	-	-	-	-
Perceived behavioral control	Direct	0.156	0.048	0.224	-0.36	-	-	-	-
	Indirect	-	-	-	-	-	-	-	-
	Total	0.156	0.048	0.224	-0.36	-	-	-	-

(Source: The results of the study).

strongest indirect effect on the farmers' drought adaptation behavior and intention.

According to the theoretical framework, the variance of the internal and mediator variable of behavioral intention is directly influenced by social norms, perceived behavioral control, and farmers' attitude towards drought adaptation strategies. The results indicate that perceived behavioral control has a significant and positive effect on farmers' intention to adopt drought adaptation strategies (β= 0.38, P< 0.01). In addition, social norms and farmers' attitudes (with impact coefficients of 0.4 and 0.11, respectively) affect farmers' behavioral intentions positively and significantly. R^2 was 0.181 for the farmers' behavioral intention, implying that 18.1% of the variance in the farmers' intention to use drought adaptation strategies was related to the variables of perceived behavioral control, social norms, and farmers' attitude. As the results show, the mediator and internal variables of perceived behavioral control (β= 0.82, P< 0.01) and behavioral intention (β= 0.13, P< 0.01) have significant and positive causal relationships with farmers' drought adaptation behavior. Overall, the variables directly or indirectly affecting farmers' drought adaptation behavior account for 73.1% of the variance in this variable.

DISCUSSION

The results showed that the farmers had a moderate level of all four worldviews. This is consistent with the results of Yazdanpanah *et al*. (2011), Tajeri Moghadam *et al*. (2018), Price *et al*. (2014), and Fath and Beck (2005), who argue that people have all four worldviews at different rates. Since the farmers assigned the highest score to the two worldviews of individualism and fatalism, and given the characteristics of these two worldviews and the extent of the use of drought-coping strategies, it can be concluded that most farmers are not much concerned about the consequences of droughts, and their intention to adopt adaptation strategies is lower than the mean.

The results show that farmers' worldviews influence their attitude towards drought adaptation strategies significantly. Fatalist farmers believe that drought is unpredictable and unmanageable. Therefore, they have a negative attitude towards drought adaptation strategies. However, farmers with the

hierarchy or egalitarian view have a positive attitude towards drought adaptation strategies and believe that their implementation should be monitored since these strategies are beneficial. Other researchers (Markle, 2019; Billgren and Holmén, 2008) have concluded that people's worldviews shape their attitude towards environmental concerns such that people with the hierarchy or egalitarian worldview have a positive attitude towards environmental sustainability.

The results reveal that the hierarchy worldview influences social norms significantly. Accordingly, the belief that the government and experts can control environmental issues increases social pressure on the use of drought adaptation strategies. This is in agreement with Yazdanpanah *et al*. (2011), Tajeri Moghadam *et al*. (2018), Hallaj *et al*. (2018), Halik *et al*. (2018), and Schwarz and Thompson (1990). They have also concluded that people's worldviews can proportionally shape social norms such that, if people's worldviews are consistent with environmental protection, social norms can be shaped accordingly.

Based on the results, farmers' worldviews have a significant effect on perceived behavioral control. It can be claimed that if farmers are fatalists, they will not have control over drought adaptation behaviors. But, egalitarian farmers argue that they can cooperate with efforts to cope with drought by reducing their needs. Fath and Beck (2005), Price *et al*. (2014), Halik *et al*. (2018), Markle (2019), and Billgren and Holmén (2008) have confirmed this finding. They have also concluded that people's worldview is a decisive factor in determining their capabilities and behavior control. Individualists and fatalists have surrendered to nature and believe that they have no control over their environmental behaviors, but egalitarian and hierarchy groups have put drought adaptation behaviors under their control.

Also, the results indicate that attitude has a significant and positive impact on farmers' behavioral intention to adopt drought adaptation behaviors. This implies that if farmers have a positive attitude towards drought adaptation strategies, their intention to adopt them will be reinforced. It means that the more stable the assessments, feelings, and intentions of farmers are about drought adaptation strategies, the more determined they would be to use them. This corroborates with the results reported by Price *et al*. (2014), Solano-Hernandez *et al*. (2020), Sulewski *et al*. (2020), Pan *et al*. (2020), and Sulewski *et al*. (2020) according to whom people's attitudes and behavioral intentions are two key factors to adopt or not to adopt certain strategies. In other words, the general feeling of people as to optimality or non-optimality of a strategy or behavior determines whether or not they intend to adopt that strategy.

Social norms had also significant and positive effect on the farmers' behavioral intention to use drought adaptation strategies. It can be said that farmers' subjective perception of important people's opinions as to the adoption/non-adoption of drought adaptation strategies can influence their behavioral intention. Others have supported this finding (Wang *et al*., 2019; Afroz *et al*., 2019; Alhama *et al*., 2020; Dong *et al*., 2020). They have asserted that an individual's perception of social opinions about displaying or not displaying a certain behavior can reinforce or weaken his/her behavioral intention. The individual considers a group of people as the reference and adjusts his/her behavior with their requirements. Furthermore, Labra and Gayan (2021), Wu *et al*. (2020), and van Duinen *et al*. (2016) mentioned the important role of social networks in forming social norms in rural communities. They pointed out that social norms can influence farmers' intention to use drought adaptation strategies by social networks.

The construct of perceived behavioral control was another decisive factor that influenced the farmers' behavior in addition to their intention to use drought adaptation strategies. Perceived behavioral control is related to farmers' perception of ease or difficulty of performing drought adaptation strategies. In other words, if farmers estimate that they are capable of performing a drought adaptation strategy, they will be more intended to adopt it and use it on their farms. Likewise, van Dijk *et al*. (2015), Wang *et al*. (2019), Kim Dang *et al*. (2020), and Savari and Shokati Amghani (2020) concluded that

people's belief in the presence or absence of factors that facilitate their behavioral performance can reinforce their behavioral intention and finally result in the display of the behavior.

The behavioral intention had a significant and positive effect on the farmers' drought adaptation behavior. This specifies that the reference for behavior is the attitude towards it, which is considered behavioral attitude (the individual's motive to decide on or informatively design for performing a behavior or an effort to perform a certain behavior). Farmers are expected to do what they have an attitude towards. It means that the stronger the farmers' intention to adopt a drought adaptation strategy, the more likely it will be for them to adopt it. This is in agreement with the studies reported by Alhama *et al*. (2020), Yaghoubi Farani *et al*. (2019), Afroz *et al*. (2019), Gatto *et al*. (2019), and Wang *et al*. (2018). They argue that people's determination to perform a certain behavior determines their behavior level, and it dictates the expectation for the display of the behavior and is an important factor in shaping the final behavior.

CONCLUSIONS

Given the population growth, the increased competition over water, and the growing attention to environmental issues, the aggravation of droughts have extensively aroused concerns throughout the world, especially in Iran. A major water-consuming sector is the agricultural sector and farming systems. A sound understanding of farmers' adaptation behavior in the face of drought can help policymakers develop policies and programs for farmers to cope with and adapt to drought. This research aimed to apply the cultural theory (cultural biases), originating from anthropology (Douglas, 1982), to behavior analysis. Based on the results, the farmers had all the four types of cultural biases (worldviews). However, the farmers with egalitarian and hierarchy worldviews were assigned the first and last the ranks, respectively. A stronger egalitarian worldview and weaker individualism worldview among farmers are good signs for drought adaptation and coping because farmers with an egalitarian worldview understand the critical conditions of the region. They are very concerned about the environment, treat nature with strong concern, and attempt to manage and protect water resources. But, farmers with the individualism worldview are not concerned with environmental problems. They feel no commitment to, and responsibility for, the protection of natural resources and do not intend to use drought adaptation strategies. The former worldview among farmers is promising for improvements in drought by farmers' management and more protection. In this regard, it is recommended to the governmental agencies, such as Agriculture Jahad Organizations and Regional Water Companies, to focus on changing farmers' worldview to the egalitarian worldview.

Farmers' attitudes towards drought adaptation strategies, social norms, and perceived behavioral control are determined by their cultural biases. The cultural theory argues that if people perceive a conflict in the worldview that they believe in, they will experience an imbalance and will shift from the current worldview to a better one to regain their balance. It is, therefore, recommended to make changes in development programs and policies of the drought management sector so that the rationale and consequence of the drought management programs emphasize on adoption of drought adaptation strategies by farmers. Also, policymakers should attempt to alleviate or compensate for the barriers to adaptation that arise due to a certain worldview. In addition, establishing social networks among farmers to facilitate knowledge sharing can be effective in aligning social norms with drought adaptation strategies. This will change farmers' attitudes towards deciding on adoption of drought adaptation strategies in the long run.

Albeit this research broadened our comprehension of farmers' worldview in drought adaptation behavior, it has some specific impediments that should be spotted in ongoing studies. This research was only investigated in one province of Iran. Subsequently, what is presently required is a cross-public research study on samples from different provinces so that it can assist with announcing summed-up outcomes. The main restriction of the study was

variability in farmers' worldviews. In other words, it is difficult to determine exactly what each farmer's worldview is. Some farmers may have a combination of worldviews. Therefore, it is difficult to accurately measure the farmers' worldview and their worldviews may change depending on the situation. One of the limitations of the study was the weak link between the Theory of Planned Behavior (TPB) and observed behavior. Future exploration should incorporate a wider range of empirical occasions to prove the certifiable framework. Future researches can also concentrate on comparing the paradigmatic model with other behavioral theories investigating how to foremost integrate approaches and frameworks with legislative and rural community endeavors to adopt drought strategies.

ACKNOWLEDGEMENTS

This work was funded by the University of Zabol, Project code: PR-UOZ1400-3

REFERENCES

1. Afroz, R., Muhibbullah, M. and Morshed, M. N. 2019. Factors Affecting the Intention of the Rice Farmers to Adopt the Integrated Cash Waqf Environmental Protection Model: An Empirical Study in Kedah Malaysia. *J. Asian Fin. Econ. Bus.,* **6(4):** 189-199.
2. Ahrari Roudi, M. 2018. Assessment the Effects of Drought on Groundwater Quantity and Quality of Sistan and Baluchistan Province. *New Find. Applied Geo*., **12(23):** 104-113.
3. Ajzen, I. 1991. The Theory of Planned Behavior. *Organ. Behav. Hum. Decis. Process.,* **50:** 179–211.
4. Alhama, I., García-Ros, G. and Alhama, F. 2020. Integrated Water Resources Management in the Basin of the Segura River (Southeast Spain): An Example of Adaptation to Drought Periods. *Envir. Earth Sci.,* **79(1).**
5. Aliabadi, S. G., Agahi, H. and Farhadian, H. 2019. The Social Psychological Components of Farmers' Adaptive Behavior in Dealing with Drought: The Case of Kermanshah County. *Int. J. Sci. Tech. Res.,* ***8*(8):** 675-682.
6. Ataei, P., Gholamrezai, S., Movahedi, R. and Aliabadi, V. 2021. An Analysis of Farmers' Intention to Use Green Pesticides: The Application of the Extended Theory of Planned Behavior and Health Belief Model. *J. Rural Stud.,* ***81*:** 374-384.
7. Bahta, Y. T. 2020. Smallholder Livestock Farmers Coping and Adaptation Strategies to Agricultural Drought. *AIMS Agri. Food*, **5(4):** 964-982.
8. Billgren, C. and Holmén, H. 2008. Approaching Reality: Comparing Stakeholder Analysis and Cultural Theory in the Context of Natural Resource Management. *Land Use Policy, **25*(4):** 550-562.
9. Byrne, B. 2016. Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming. 3nd Edition, Taylor and Francis Group, Routledge, New York.
10. David, M., Bernard, B., Anthony, E., Michael, M. S., James, W., Andrew, A., Stephen, K., Zakia, N. and Claire, N. 2020. The Role of Indigenous Knowledge (IK) in Adaptation to Drought by Agropastoral Smallholder Farmers in Uganda. *Indian J. Tradi. Know*, **19(1):** 44-52.
11. Dong, X., Liu, Y. and Li, Q. 2020. Psychoanalysis of Farmers' Irrational Drought-Control Behaviors. *Revista Argentina de Clinica Psicologica,* **29(1):** 194-198.
12. Douglas, M. 1982. *Essays in the Sociology of Perception*. London: Routledge and Kegan Paul.
13. Fath, B. D. and Beck, M. B. 2005. Elucidating Public Perceptions of Environmental Behavior: A Case Study of Lake Lanier. *Envir. Model. Softw.,* **20:** 485-498.
14. Firouzi, F., Tavosi, T. and Mahmoudi, P. 2019. Investigating the Sensitivity of NDVI and EVI Vegetation Indices to Dry and Wet Years in Arid and Semi-arid Regions (Case study: Sistan Plain, Iran). *Scientific-Research Quarterly of Geographical Data* (*SEPEHR*), **28(110):** 163-179.
15. Gardner, G. T. and Stern, P. C. 2002. *Environmental Problem and Human Behavior*. Boston: Pearson.
16. Gatto, P., Mozzato, D. and Defrancesco, E. 2019. Analysing the Role of Factors Affecting Farmers' Decisions to Continue with Agri-Environmental Schemes from a

Temporal Perspective. *Envir. Sci. Policy*, **92:** 237-244.
17. Gebrehiwot, T. and van der Veen, A. 2020. Farmers' Drought Experience, Risk Perceptions, and Behavioural Intentions for Adaptation: Evidence from Ethiopia. *Clim. Dev*., **13(6):** 493-502
18. Gross, J. and Rayner, S. 1985. *Measuring Culture: A Paradigm for the Analysis of Social Organization*. Columbia University Press, New York.
19. Haigh, T. and Knutson, C. 2013. Roles of Perceived Control and Planning in Ranch Drought Preparedness. *Great Plains Res.*, **23(1):** 51-58.
20. Halik, A., Verweij, M. and Schlüter, A. 2018. How Marine Protected Areas Are Governed: A Cultural Theory Perspective. *Sustainability*, **10(1):** 252.
21. Hallaj, Z., Sadighi, H. and Farhadian, H. 2018. Investigation Environmental Attitude Values in Pro-Environmental Behavior of Sistan Region's Farmers in Copping with Drought. *J. Rural Research, **9*(1):** 136-147.
22. Hallaj, Z., Sadighi, H., Farhadian, H. and Bijani, M. 2021. Human Ecological Analysis of Farmers' Pro-Environmental Behaviour in the Face of Drought: Application of Norm Activation Theory. *Water Env. J.*, **35(4):** 1337-1347.
23. Hanigan, J. 2014. *Environmental Sociology*. London, Routhledge.
24. Hesam, M., Roshan, G., Grab, S. W. and Shabahrami, A. R. 2021. Comparative Assessment of Farmers' Perceptions on Drought Impacts: The Case of a Coastal Lowland versus Adjoining Mountain Foreland Region of Northern Iran. *Theor. App. Clim.*, **143(1-2):** 489-503.
25. Hoogstra-Klein, M. A., Permadi, D. B. and Yasmi, Y. 2012. The Value of Cultural Theory for Participatory Processes in Natural Resource Management. *For. Policy Econ.*, **20:** 99-106.
26. Hoogstra-Klein, M. A. and Schanz, H. 2008. The Future Orientation of Foresters: An Exploratory Research among Dutch Foresters into the Prerequisite for Strategic Planning in Forestry. *For. Policy Econ.*, **10:** 220-229.
27. Islam, M. D. I., Rahman, A., Sarker, M. N. I., Sarker, M. S. R. and Jianchao, L. 2021. Factors Influencing Rice Farmers' Risk Attitudes and Perceptions in Bangladesh amid Environmental and Climatic Issues. *Pol. J. Environ. Stud., **30*(1):** 177-187.
28. Izadi, N. and Hayati, D. 2014. Appraising Iranian Maize Growers' Ecological Behavior: Application of Path Analysis. *J. Agr. Sci. Tech*., **16(5):** 993-1003.
29. Katuwal, H. 2012. Demand for Water Quality: Empirical Evidence from a Knowledge, Attitude, Behavior, and Choice Experiment Survey about the Bagmati River in Kathmandu, Nepal. Ph.D. Dissertation. The University of New Mexico.
30. Keshavarz, M. and Karami, E. 2016. Farmers' Pro-Environmental Behavior under Drought: Application of Protection Motivation Theory. *J. Arid Environ*., **127:** 128-136.
31. Keshavarz, M., Karami, E. and Vanclay, F. 2013. The Social Experience of Drought in Rural Iran. *Land Use Policy*, **30(1):** 120-129.
32. Keshavarz, M., Karami, E. and Kamgare-Haghighi, A. 2010. A Typology of Farmers' Drought Management. *American-Eurasian J. Agri. Environ. Sci.*, **7(4):** 415-426.
33. Khetwani, S., Singh, R. B. and Moin, K. 2020. Impact of Drought, Farmers' Adaptation Strategies and Administrative Mitigation Measure in the Marathwada Region, India. *Environ. Socio-Econ. Stud.*, ***8*(2):** 1-11.
34. Kiem, A. S. and Austin, E. K. 2016. Drought and the Future of Rural Communities: Opportunities and Challenges for Climate Change Adaptation in Regional Victoria, Australia. *Glob. Environ. Change*, **23(5):** 1307-1316.
35. Kim Dang, K., Do, T. H., Le, T. H. L., Le, T. T. H. and Pham, T. D. 2020. Impacts of Farmers' Adaptation to Drought and Salinity Intrusion on Rice Yield in Vietnam's Mekong Delta. *J. Agribus. Dev. Emerg. Econ*., **11(1):** 27-41.
36. Krejcie, R. V. and Morgan, D. W. 1970. Determining Sample Size for Research Activities. *Edu. Psych. Measur.*, **30:** 607-610.
37. Kwame, D. S. 2007. Domestication of Excreta: A Cultural Theory Analysis of Ecosan Dry Toilet Schemes in Peri-Urban Accra, Ghana. MSc. Thesis, Norwegian University of Life Sciences, Norway.
38. Labra, G. E. and Gayan, P. C. 2021. The Drought of 1886. Hydro-Social Networks, Water Appropriation and Environmental Conflict in the Central and Northern Zone of Chile. *Revi. Aust. de Ciec. Soci*.. **2021(40):** 7-27.
39. Markle, G. 2019. Understanding Pro-Environmental Behavior in the US: Insights

from Grid-Group Cultural Theory and Cognitive Sociology. *Sustainability*, **11(2):** 532.
40. Muthelo, D., Owusu-Sekyere, E. and Ogundeji, A. A. 2019. Smallholder Farmers' Adaptation to Drought: Identifying Effective Adaptive Strategies and Measures. *Water*, **11(10)**: 1-18
41. Neisi, M., Bijani, M., Abbasi, E., Mahmoudi, H. and Azadi, H. 2020. Analyzing Farmers' Drought Risk Management Behavior: Evidence from Iran. *J. Hydr.*, **590**.
42. Nickerson, R. S. 2003. *Psychology and environmental change*. London: Lawrence Erlbaum.
43. Oltedal, S., Moen, B.E., Klempe, H. and Rundmo, T. 2004. *Explaining Risk Perception. An Evaluation of Cultural Theory*. Rotunde Publication, Trondheim.
44. Oltedal, S. and Rundmo, T. 2007. Using Cluster Analysis to Test the Cultural Theory of Risk Perception. *Transp. Res. F: Traffic Psychol. Behav.*, **10(3):** 254-262.
45. O'Riordan, T., and Jordan, A. 1999. Institutions, climate change and cultural theory: Towards a common analytical framework. *Glob. Environ. Change*, **9:** 81-93.
46. Pan, D., He, M. and Kong, F. 2020. Risk Attitude, Risk Perception, and Farmers' Pesticide Application Behavior in China: A Moderation and Mediation Model. *J. Clean. Prod.*, **276**.
47. Poortinga, W., Steg, L. and Vlek, C. 2002. Environmental Risk Concern and Preferences for Energy-Saving Measures. *Environ. Behav.*, **34:** 455-478.
48. Price, J. C., Walker, I. A. and Boschetti, F. 2014. Measuring Cultural Values and Beliefs about Environment to Identify Their Role in Climate Change Responses. *J. Environ. Psychol.*, ***37*:** 8-20.
49. Rakgwale, T. J. and Oguttu, J. W. 2020. The Impact of the 2014–2016 Drought in Greater Letaba Local Municipality: How the Farmers Coped and Factors that Were Significantly Associated with Loss of Animals. *Int. J. Disast. Risk Reduc.*, **50**.
50. Rayner, S. 1992. Cultural Theory and Risk Analysis. In: "*Social Theories of Risk"*, (Eds.): Krimsky, S. and Goldring, D. Praegar, West Point, PP. 83-116.
51. Savari, M., Eskandari Damaneh, H. and Damaneh, H. E. 2021. Factors Influencing Farmers' Management Behaviors toward Coping with Drought: Evidence from Iran. *J. Environ. Plan. Manag.*, **64(11):** 2021-2046.
52. Savari, M. and Shokati Amghani, M. 2020. Factors Influencing Farmers' Adaptation Strategies in Confronting the Drought in Iran. *Environ. Dev. Sustain*., **23:** 4949–4972
53. Schrieks, T., Botzen, W. J. W., Wens, M., Haer, T. and Aerts, J. C. J. H. 2021. Integrating Behavioral Theories in Agent-Based Models for Agricultural Drought Risk Assessments. *Front. Water*, **3:** 1-19.
54. Sharafi, L., Zarafshani, K., Keshavarz, M., Azadi, H. and Van Passel, S. 2021. Farmers' Decision to Use Drought Early Warning System in Developing Countries. *Sci. Total Environ.*, **758**.
55. Shariatzadeh, M., Bijani, M., Abbasi, E. and Morid, S. 2021. An Adaptation Capacity Model in the Face of Climate Change: A Qualitative Content Analysis. *J. Arid Environ.*, **185:** 104326.
56. Schwarz, M. and Thompson, M. 1990. Divided We Stand: Redefining Politics, Technology, and Social Choice. Philadelphia: University of Pennsylvania Press. https://mail.google.com/mail/u/1/?ik=23c8625475&view=pt&search=al...1
57. Singleton, B. E. 2016. Clumsiness and Elegance in Environmental Management: Applying Cultural Theory to the History of Whaling. *Environ. Politics*, **25(3):** 414-433.
58. Solano-Hernandez, A., Bruzzone, O., Groot, J., Laborda, L., Martínez, A., Tittonell, P. and Easdale, M. H. 2020. Convergence between Satellite Information and Farmers' Perception of Drought in Rangelands of North-West Patagonia, Argentina. *Land Use Policy*, **97**: 104726.
59. Sulewski, P., Was, A., Kobus, P., Pogodzinska, K., Szymanska, M. and Sosulski, T. 2020. Farmers' Attitudes towards Risk: An Empirical Study from Poland. *Agronomy*, **10(10).**
60. Sutton, P. W. 2007. The Environment: A Sociological Introduction. Polity Press, UK.
61. Tajeri Moghadam, M., Raheli, H., Zariffian, S. and Yazdanpanah, M. 2018. Application of Cultural Theory in Analysis of Farmers' Water Conservation Behavior in Neyshabur Plain. *Iran. Agri. Exten. Edu. J.*, **14(1):** 113-129.
62. Thompson, M., Ellis, R. and Wildavsky, A. 1990. *Cultural Theory*. Westview Press, Oxford.

63. van Dijk, W. F. A., Lokhorst, A. M., Berendse, F. and de Snoo, G. R. 2015. Collective Agri-Environment Schemes: How Can Regional Environmental Cooperatives Enhance Farmers' Intentions for Agri-Environment Schemes? *Land Use Policy*, **42:** 759-766.
64. van Duinen, R., Filatova, T., Jager, W. and van der Veen, A. 2016. Going Beyond Perfect Rationality: Drought Risk, Economic Choices and the Influence of Social Networks. *Ann. Reg. Sci.*, **57(2-3):** 335-369.
65. Wang, Y., Liang, J., Yang, J., Ma, X., Li, X., Wu, J., Yang, G., Ren, G. and Feng, Y. 2019. Analysis of the Environmental Behavior of Farmers for Non-Point Source Pollution Control and Management: An Integration of the Theory of Planned Behavior and the Protection Motivation Theory. *J. Environ. Manag.*, **237:** 15-23.
66. Wang, Y., Yang, J., Liang, J., Qiang, Y., Fang, S., Gao, M., Fan, X., Yang, G., Zhang, B. and Feng, Y. 2018. Analysis of the Environmental Behavior of Farmers for Non-Point Source Pollution Control and Management in a Water Source Protection Area in China. *Sci. Total Environ.* **633:** 1126-1135.
67. Wheeler, S. A. and Zuo, A. 2017. The Impact of Drought and Water Scarcity on Irrigator Farm Exit Intentions in the Murray–Darling Basin. *Aust. J. Agri. Resour. Econ.*, **61(3):** 404-421.
68. Wildavsky, A. 1987. Choosing Preferences by Constructing Institutions: A Cultural Theory of Preference Formation. *Am. Polit. Sci. Rev.*, **81(1):** 3-21.
69. Wu, Y., Wu, Y., Shang, Y., Guo, H. and Wang, J. 2020. Social Network Efficiency of Multiple Stakeholders on Agricultural Drought Risk Governance: A Southern China Case Study. *Int. J. Disast. Risk Reduc.*, **51**.
70. Yaghoubi Farani, A., Mohammadi, Y. and Ghahremani, F. 2019. Modeling Farmers' Responsible Environmental Attitude and Behaviour: A Case from Iran. *Environ. Sci. Pollut. Res.*, ***26*(27):** 28146-28161.
71. Yazdanpanah, M., Hayati, D. and Zamani, G. 2011. Application of Cultural Theory in Exploring Attitude and Activities of Water Resources Conservation: The Case of the Staff of Agriculture Jahad Organization of Bushehr Province. *Iran. Agri. Ext. Edu. J.*, **7(2):** 1-18.

سوءگیری‌های فرهنگی و رفتار سازگاری کشاورزان در مقابله با خشکسالی: نمونه‌ای در دشت سیستان

حمید کریمی، پوریا عطائی

چکیده

خشکسالی‌های اخیر نگرانی‌های گسترده‌ای را در سراسر جهان برای تولید محصولات کشاورزی و غذا ایجاد کرده است. با توجه به این که بخش کشاورزی بزرگترین مصرف‌کننده آب در ایران است و کشاورزان به‌عنوان مهمترین افراد آسیب‌پذیر از خشکسالی، درک صحیح از رفتار سازگاری کشاورزان در مقابله با خشکسالی می‌تواند به سیاست‌گذاران در تدوین سیاست‌ها و استراتژی‌های گسترده مقابله با خشکسالی کمک کند. هدف اصلی پژوهش حاضر بررسی رفتار سازگاری کشاورزان در مقابله با خشکسالی و تأثیر سوءگیری‌های فرهنگی بر این فرآیند بود. این مطالعه در بین کشاورزان منطقه سیستان در ایران (N= 6000) انجام شد. نمونه با استفاده از نمونه‌گیری تصادفی چندمرحله‌ای

361 کشاورز بود. ابزار سنجش در این مطالعه پرسشنامه بود که روایی صوری و محتوایی آن را متخصصان تأیید نمودند و برای بررسی پایایی آن نیز یک آزمون راهنما و محاسبه ضریب آلفای کرونباخ انجام شد. یافته‌ها نشان داد که جهان‌بینی‌های کشاورزان تأثیر معنی‌داری بر نگرش، هنجارهای اجتماعی و کنترل رفتاری درک‌شده داشته است. همچنین، قصد رفتاری و کنترل رفتاری درک‌شده تأثیر مثبت و معنی‌داری بر رفتار سازگاری کشاورزان با خشکسالی داشتند. می‌توان نتیجه گرفت که جهان‌بینی کشاورزان می‌تواند در فرآیند رفتار سازگاری با خشکسالی دخیل باشد و به‌طور مستقیم نگرش، هنجارهای اجتماعی و کنترل رفتاری درک‌شده و غیرمستقیم قصد و رفتار کشاورزان را تحت تأثیر قرار دهد.