Food Security Status among Rural Households in Sarpolzahab and its Association with Socio-Economic and Agricultural Factors

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Abstract

Purpose- Food security (FS) is defined as sustainable access to safe and nutritious food for a healthy and active life. The present study was designed to investigate and determine FS status of rural households and the relevant influential factors. It was conducted on 432 rural households in six subdistricts of two districts of Sarpolzahab, West of Iran, in 2016 .

Design/methodology/approach- The samples were selected using random cluster sampling, and FS status was assessed using United States Department of Agriculture (USDA) household FS questionnaire. Therefore, both socio-economic questionnaire and the household FS questionnaire were completed during a face to face interview. Data were analyzed using the statistical software package SPSS-22. Chi-square, Mann-Whitney, Kruskal-Wallis, and forward multiple logistic regression were used for data analysis.

Findings- Prevalence of food insecurity (FI) in all of the surveyed households was 65.3%, and household FS status between the subdistricts had a significant difference (P< 0.01). The results of the study showed that the prevalence of FI in the subdistricts of Posht-Tang and Sarab (83.3% and 76.4%, respectively) was higher than other subdistricts. Number 5f household's members, land ownership, education of household's head, activity status, and household's income had significantly relationship with household FI (P< 0.01).

Practical implications- The high prevalence of FI is a major threat to the abnormal utilization of environmental resources in this realm. Therefore, given the impact of horticultural activities and diverse cultivation on household FS, macro and regional policies should be provided to increase the diversity of products through agroforestry and intercropping.

Original/value- This research presents the basic information on the FS status of rural households in Sarpolzahab and some related socio-economic factors the results of which can help planners and managers to implement interventions to improve the FS and welfare of rural households.

Key words- Food security, Food insecurity, Prevalence, Multiple cropping, Rural households.

Paper type- Scientific & Research.

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1. Introduction

Food and nutrition are the basic needs of human community (Bickel, Nord, Price, Hamilton, & Cook, 2000), and food security (FS) is defined as sustainable access to enough food to have an active and healthy life (Anderson, 1990). Therefore, FS in general has two concepts: (1) access to adequate and safe food with good quality, and (2) access to food must be sustainable and food gets through socially acceptable ways (Berry, Dernini, Burlingame, Meybeck, & Conforti, 2015; Nord & Prell, 2011). Food insecurity (FI) occurs when the eligible food is not readily available (De Haen, 2003); In such circumstances, household members begin to reduce the amount of food they need, and they remove some meals due to the lack of access to food.

FI is an influential factor on many important aspects of human life. It has a negative significant impact on the physical and physiological health of humans as well as the individual behavior in the community (Mohammadzadeh, Dorosty, & Eshraghian, 2010). FI, in addition to having a negative impact on the quality of human life (Campbell, 1991; Knowles, Rabinowich, de Cuba, Cutts, & Chilton, 2016), can have many negative consequences such as low self-efficacy in individuals (Martin, Colantonio, Picho, & Boyle, 2016), which greatly increases the importance of its survey. Hence, many studies are focused on examining FS status with the aim of identifying the potential influential factors (Keino, Plasqui, & van den Borne, 2014; Malkanthi, Silva, & Jayasinghe, 2011; Mohammadzadeh et al., 2010; Sharafkhani, Dastgiri, Gharaaghaji, Ghavamzadeh, & Didarloo, 2010) and developed countries (Furness, Simon, Wold, & Asarian-Anderson, 2004; Kirk et al., 2015; Quandt, Arcury, Early, Tapia, & Davis, 2004; Stuff et al., 2003). These studies have identified various factors such as socio-economic, demographic, and political factors as influential factors on household FS status with regard to the purpose of study and proposed recommendations to improve household FS status.

Given that rural communities are more vulnerable than urban communities, FS status in these communities seems to be more fragile, thus, identifying FS status of these communities and determining the factors associated with it are of great importance. Due to soil and water resources, rural areas of Sarpolzahab in Kermanshah Province are important for crop production. Farmers in the area are able to harvest crops twice a year due to hot weather. Therefore, determining FS status of rural household in the area is important, as household FS status can be directly linked to the overuse of environmental resources and it can also be linked to migration and marginalization, which both can threaten the food production and FS of the larger community at the regional level. Therefore, the aim of this study was to investigate FS status and its relationship with socioeconomic factors in the rural households of Sarpolzahab, Iran.

2. Research Methodology

2.1. Geographical Scope of the Research

The study was conducted in rural areas of Sarpolzahab City in Kermanshah Province, West of Iran. Sarpolzahab is located between $34°12'N$ to $34°41'N$ and $45°44'E$ to $46°08'E$ (figure 1). It consists two administrative districts, the lowest administrative units after the city. The districts altitude is ranging from 438 to 2,556 meters above sea level. There are rivers and streams in these areas serving as water for farming, animal husbandry, and drinking. The area has a semi-arid climate, and the total area is 903.39 km². (Iran Department of Agriculture, 2011). The total population of Sarpolzahab was 85,342 in 2016, about 47% of live in villages. Distribution of rural population among districts are as follows: Central district with a population of 28,452 persons (including subdistricts, Beshiveh: 5,480; Homeh: 8,360; Posht-Tang: 8,156; and Dashte-Zahab: 6,465) and Ghalae-Shahin district with a population of 11,262 persons (including subdistricts, Ghalae-Shahin: 5,291 and Sarab: 5,971). The livelihood of the local people is mainly based on agriculture, livestock, horticulture, or a combination of these activities.
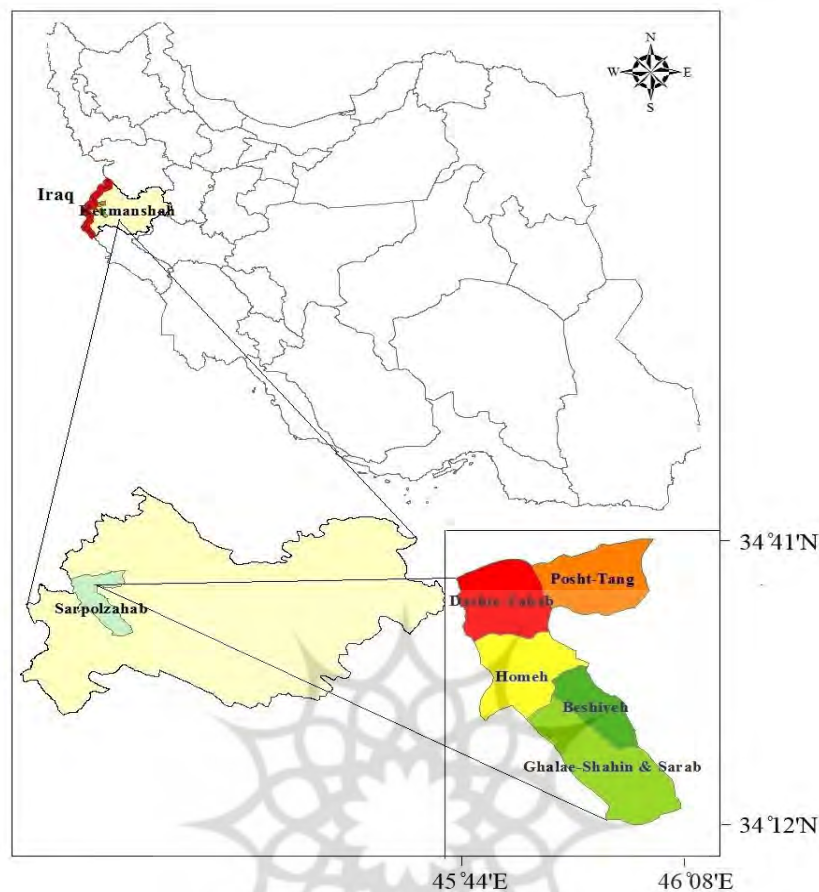
Figure 1. Location of the study area in Kermanshah Province, Western zone of Iran
(Source: Research Findings, 2018)

2.2. Study Sites and Households Selection

The study was conducted from November 2015 to April 2016 in six subdistricts of two districts (Beshiveh, Homeh, Posht-Tang, and Dashte-Zahab subdistricts in central district, and Ghalae-Shahin and Sarab subdistricts in Ghalae-Shahin district) of Sarpolzahab . Since demographic and biophysical characteristics of the two districts were somewhat different, hence, the researchers communicated with regional experts (an expert from each district in Sarpolzahab governorship for general demographic and socio-economic information and two experts from Agricultural Department of Sarpolzahab for general information on the agricultural activities in study area). Therefore, using randomized cluster sampling, six villages were selected from each subdistrict, and twelve families of each village (generally, 432 households) were selected.

2.3. Field Observations and Focused Group Discussions

The aim of field observations was to obtain real information about agricultural activities and household income sources that were mentioned during the interviews. In each of the studied sites (districts), a focused group discussion was conducted to obtain initial data and develop demographic and agricultural information questionnaire. After selecting three villages from each district, nine knowledgeable persons (three persons from each village) were selected using snowball sampling method (Bernard, 2011). In this vein, in each village, three farmers were randomly asked, each of which introduced five knowledgeable persons. As a result, three of the most knowledgeable persons were selected from among 15 persons in each village. Besides,18 knowledgeable people were selected for two sites studied.

2.4. Data collection

This study was a cross-sectional study. Demographic and agricultural data of households were collected using demographic information questionnaire (15 items) and agricultural information questionnaire (10 items), which were designed by the research team according to the information obtained from the

focused group discussion. The household FS status was assessed by United States Department of Agriculture (USDA) household FS questionnaire (18 items) (Table 1). It is an instrument to measure the severity of household food access problems, which is based on household experiences, conditions, and self-reported behaviors collected by an interview with one household member who has enough information (Bickel et al., 2000). FS status for each household was examined by answering 18 questions (10 in households without children). These questions cover a wide range of the severity of food access problems ranging from worrying about running out of food to children not eating for a whole day (Bickel et al., 2000; Wehler, Scott, & Anderson, 1992). In the standard module, all of the questions refer to 12 previous months. Rafiei et al. (2009) in the study conducted on households from all parts of Isfahan, Iran, assessed the internal validity of USDA household FS module in measuring adult and child FI. Their results showed that the module has internal validity to measure FI at the Iranian household level (Rafiei, Nord, Sadeghizadeh, & Entezari, 2009). Finally, the answers to all questions were coded, and the total score of the questionnaire determined the household FS status. For the often/sometimes/never responses, "often" or "sometimes" were coded as affirmative (value = 1), and "never" was coded as negative (value = 0). For yes/no responses, "yes" was coded as 1 and "no" as 0. For "how often?" responses, "almost every month" and "some months" were coded as 1 and "only 1 or 2 months" was coded as 0. The "how often?" follow up items were coded 0 if the base item (i.e., response to the preceding question) was 0, and missing if the base item was missing. Therefore, each household belonged to one of the classes of FS status, including FS, marginal FI, moderate FI, and severe FI (Bickel et al., 2000).

2.5. Statistical analysis

Data were analyzed using the statistical software package SPSS-22. Chi-square test was used to evaluate the difference between the various classes of FS status in each of the study sites. Mann-Whitney and Kruskal-Wallis tests were used to compare the FS status between the districts and the subdistricts, respectively. Spearmanss rho test was used to assess bivariate associations. Multiple logistic regression by forward stepwise method was used to determine relationship between FI and socio-economic factors. The significance was measured at level 5% (P< 0.05).

3. Research Findings

3.1. Distribution pattern and Households Characteristics

Of the total 432 households, 66.7% (288 households) of them were selected from central district, while the remaining 33.3% (144 households) were selected from Ghalae-Shahin district. The mean (SD) of the household size was 3.69 (±1.22), and most of the households (77.8%) had four or fewer members. The mean (SD) of the land ownership rate was 3.94 (±3.99) hectares. Most of the studied households had land ownership from 1-3 hectares, however, 13% of the studied households lacked agricultural land ownership. Despite the fact that the income poverty line in Iran is 30 million IRR, the monthly income of most households (67.6%) was equal to or less than 10 million IRR. The general characteristics of the households with respect to the study sites are shown in Table 2.

3.2. Household FS status

Of the total 432 households surveyed, 34.7% (95% CI: 30.3, 39.4) were FS, while the remaining 65.3% (95% CI: 60.6, 69.7) had a level of FI. Of the households with FI (N= 282), 44.4% (N= 125) had marginal FI, 31.5% (N= 89) had moderate FI, and 24.1% (N= 68) had sever FI. The Chi-square test results to assess the difference between the various classes of FS status in each subdistrict showed that there was no significant difference between the various classes of FS status in Posht-Tang subdistrict and in Sarab subdistrict (P< 0.05), but there was a significant difference between the various classes of FS status in each of the other subdistricts (P< 0.05), (see table 3). Household FS status between two districts had no significant difference (p< 0.05), (table 3). In central district, 36.5% of the households were FS, but in Ghalae-Shahin district, 31.3% of the households were FS. The prevalence of marginal, moderate, and severe FI (28.8%, 19.4%, and 15.3%, respectively) was less in central district than Ghalae-Shahin district (29.2%, 22.9%, and 16.7%, respectively), (table 3). Household FS status between the subdistricts had a significant difference (P<0.01), (table 4). The FS in the Homeh and Dashte-Zahab subdistricts (47.2% and 45.8%, respectively) was higher than the other subdistricts. The prevalence of FI in the Posht-Tang and Sarab subdistricts (83.3% and 76.4%, respectively) was higher than the other subdistricts (table 3).

3.3. Bivariate associations

The results of this study showed that there was no significant relationship between household FS status and some of variables surveyed such as, age of househll '' haa a rr ssccc ff oot aarnnts in the family, but there was a significant relationship between FS status and the other variables as it follows.

Household FI had a significant positive correlation with the uumeer of eeeeeeeld' memeers (Correlation Coefficient (CC) = 0.12, P <0.001). Of the total households they had FS, 78.7% of them   fuur rr f   emeer (≤ 4) while 21.3% of them had more than four members.

There was a significant negative correlation between household FI and land ownership (CC = -0.29, P < 0.001). The results showed that 45.3% of the households had more than three hectares of the farmland, 58% of the households they had equal or less than three hcctrr e (≤3) ff farmlnn nn also 96.7% of the households they had no farmland belonged to FI group.

In the current study, household FI had a significant negative correlation with educational level of eeeeeeeld' ee (CC   -0.21, P < 0.001). The results revealed that 94% of the households heads had no collegiate education and 6% of the households heads had a collegiate educational degree belonged to FI group.

A strong negative significant correlation was observed betwee ssss oool II   .... l''. income (CC = -0.77, P < 0.001). The results showed that 92.5% of the FI households had monthly income less than 10 million Rials

Table 1. The Original English Version of USDA household FS questionnaire (18 items)

	I'm going to read you several statements that people have made about their food situation. For these statements, please tell me whether the statement was often, sometimes true, or never true for (you/your household) in the last 12 months – that is, since last (name of current month).
	Ten adult items
Q1	"(I/We) worried whether (my/our) food would run out before (I/we) got money to buy more." Was that often true, sometimes true, or never true for (you/your household) in the last 12 months?
Q2	"The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more." Was that often, sometimes, or never true for (you/your household) in the last 12 months?
Q3	"(I/we) couldn't afford to eat balanced meals." Was that often, sometimes, or never true for (you/your household) in the last 12 months?
Q4a	In the last 12 months, since last (name of current month), did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food? (Yes/No)
Q4b	[IF YES ABOVE, ASK] How often did this happen . almost every month, some months but not every month, or in only 1 or 2 months?
Q5	In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money to buy food? (Yes/No)
Q6	In the last 12 months, were you every hungry but didn't eat because there wasn't enough money for food? (Yes/No)
Q7	In the last 12 months, did you lose weight because there wasn't enough money for food? (Yes/No)
Q8a	In the last 12 months, did (you/you or other adults in your household) ever not eat for a whole day because there wasn't enough money for food? (Yes/No)
Q8b	[IF YES ABOVE, ASK] How often did this happen – almost every month, some months but not every month, or in only 1 or 2 months?
	Eight child items

Q1	"(I/we) relied on only a few kinds of low-cost food to feed (my/our) child/the children) because (I was/we were) running out of money to buy food." Was that often, sometimes, or never true for (you/your household) in the last 12 months?
Q2	"(I/We) couldn't feed (my/our) child/the children) a balanced meal, because (I/we) couldn't afford that." Was that often, sometimes, or never true for (you/your household) in the last 12 months?
Q3	"(My/Our child was/The children were) not eating enough because (I/we) just couldn't afford enough food." Was that often, sometimes, or never true for (you/your household) in the last 12 months?
Q4	In the last 12 months, since (current month) of last year, did you ever cut the size of (your child's/any of the children's) meals because there wasn't enough money for food? (Yes/No)
Q5a	In the last 12 months, did (CHILD'S NAME/any of the children) ever skip meals because there wasn't enough money for food? (Yes/No)
Q5b	[IF YES ABOVE ASK] How often did this happen – almost every month, some months but not every month, or in only 1 or 2 months?
Q6	In the last 12 months, (was your child/were the children) ever hungry but you just couldn't afford more food? (Yes/No)
Q7	In the last 12 months, did (your child/any of the children) ever not eat for a whole day because there wasn't enough money for food? (Yes/No)

3.4 Multiple logistic regression results

Table 5 illustrates the results of multiple logistic regression model on the relationship between FI and socio-economic factors. According to the final model fit, land ownership, educational level of eeeee ee ld'aaee   he''' job status had a significant relationship with FI (P< 0.05).

Table 2. The general characteristics of the households in the studied sites (N=432),
(Source: Research Findings, 2018)

	Central District (N=288)								Ghalae-Shahin District (N=144)					
	Beshiveh		Homeh		Posht-Tang		Dashte-Zahab		Ghalae-Shahin		Sarab		Total	
Variables	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Age of household's head														
≤40 year	29	40.3	21	29.2	11	15.3	26	36.1	23	31.9	24	33.3	134	31
>40 year	43	59.7	51	70.8	61	84.7	46	63.9	49	68.1	48	66.7	298	69
Presence of parents														
One parent	70	97.2	71	98.6	68	94.4	68	94.4	67	93.1	69	95.8	413	95.6
Both parents	2	2.8	1	1.4	4	5.6	4	5.6	5	6.9	3	4.2	19	4.4
Family size														
≤4person	65	90.3	56	77.8	61	84.7	45	62.5	54	75	55	76.4	336	77.8
>4person	7	9.7	16	22.2	11	15.3	27	37.5	18	25	17	23.6	96	22.2
Land ownership														
No	6	8.3	8	11.1	22	30.6	5	6.9	9	12.5	6	8.3	56	13
1- 3 ha	53	73.6	42	58.3	41	56.9	13	18.1	27	37.5	43	59.7	219	50.7
>3 ha	13	18.1	22	30.6	9	12.5	54	75	36	50	23	31.9	157	36.3
Education of household's head														
No collegiate education	64	88.9	58	80.6	72	100	57	79.2	68	94.4	66	91.7	385	89.1
Collegiate education	8	11.1	14	19.4	0	0	15	20.8	4	5.6	6	8.3	47	10.9
Household's head activity status														
Farmer	34	47.2	37	51.4	16	22.2	59	81.9	35	48.6	19	26.4	200	46.3
Gardening	13	18.1	11	15.3	8	11.1	6	8.3	15	20.8	9	12.5	62	14.4
Livestock	9	12.5	10	13.9	40	55.6	4	5.6	13	18.1	29	40.3	105	24.3
Employee	4	5.6	5	6.9	0	0	0	0	3	4.2	8	11.1	20	4.6
Self-employed	3	4.2	4	5.6	2	2.8	0	0	1	1.4	0	0	10	2.3
Services (worker, driver)	9	12.5	5	6.9	6	8.3	3	4.2	5	6.9	7	9.7	35	8.1
Monthly income (million IRR)														
≤5	12	16.7	7	9.7	29	40.3	5	6.9	15	20.8	17	23.6	85	19.7
6-10	41	56.9	39	54.2	33	45.8	33	45.8	29	40.3	32	44.4	207	47.9
11-15	11	15.3	22	30.6	9	12.5	19	26.4	18	25	17	23.6	96	22.2
>15	8	11.1	4	5.6	1	1.4	15	20.8	10	13.9	6	8.4	44	10.2

Table 3. The Chi-square test results to assess the difference between the various classes of FS status in the studied sites

(Source: Research Findings, 2018)

Districts	Subdistricts	FS N (%)	Marginal FI N (%)	Moderate FI N (%)	Severe FI N (%)	P-Value
Central	Beshiveh	26 (36.1)	21 (29.2)	15 (20.8)	10 (13.9)	0.044
	Homeh	34 (47.2)	19 (26.4)	11 (15.3)	8 (11.1)	0.000
	Posht-Tang	12 (16.7)	24 (33.3)	19 (26.4)	17 (23.6)	0.250
	Dashte-Zahab	33 (45.8)	19 (26.4)	11 (15.3)	9 (12.5)	0.000
Ghalae-Shahin	Ghalae-Shahin	28 (38.9)	19 (26.4)	15 (20.8)	10 (13.9)	0.022
	Sarab	17 (23.6)	23 (31.9)	18 (25.0)	14 (19.4)	0.506
Total		150 (34.7)	125 (28.9)	89 (20.6)	68 (15.7)	0.000

Table 4. The results of Kruskal-Wallis and Mann- Whitney tests to compare FS status between the subdistricts and the districts, respectively

(Source: Research Findings, 2018)

		N	Mean Rank	P-Value
Subdistricts	Beshiveh	72	213.50	
	Homeh	72	189.50	
	Posht-Tang	72	255.50	0.000
	Dashte-Zahab	72	192.50	
	Ghalae-Shahin	72	207.50	
	Sarab	72	240.50	
District	Central	288	212.75	0.284
	Ghalae-Shahin	144	224.00	

Table 5. The results of forward multiple logistic regression model on the relationship between FI and socio-economic factors

(Source: Research Findings, 2018)

Socio-economic variables	B	OR	95% CI	P value
Land Ownership	-0.314	0.731	0.650, 0.821	<0.001
Education of household's head	-1.370	0.254	0.120, 0.539	<0.001
Household's head activity status				
Farmer		1.000	-	-
Gardening	-2.446	0.087	0.042, 0.178	<0.001
Livestock	0.110	1.117	0.506, 2.465	0.785
Employee	-2.255	0.105	0.035, 0.315	<0.001
Self-employed	-1.835	0.160	0.033, 0.777	0.023
Services (Mechanic, driver)	-0.727	0.484	0.135, 1.735	0.265
B, coefficient; OR, odds ratio; and CI, confidence interval				

5. Discussion and Conclusion

The findings of the present study showed that 34.7% of rural households were FS, thus, more than 60% of them had a level of FI. The rate of FI based on the various classes of FI was 28.9% marginal FI, 20.6% moderate FI, and 15.7% severe FI. Kirk et al. (2015) conducted a study on students in Nova Scotia, Canada; they reported the prevalence of FI up to 26.5% among the students, which included 8.5% marginal FI, 10.2% moderate FI, and 7.1% severe FI. (Kirk et al., 2015).

However, there were studies the results of which confirm our findings. Sharafkhani et al. (2010) conducted a study on rural households in Northwest of Iran, and they found that 59.6% of the rural households were FI (Sharafkhani et al., 2010). Babatunde et al. (2007) reported that 64% of rural households (farmers) in Northern Nigeria were FI (Babatunde, Omotesho, & Sholotan, 2007). Also, the findings of Piaseu and Mitchell (2004) in a study conducted on 199 households in Thailand Showed that 39.2% of the households had FI (Piaseu & Mitchell, 2004).

The results of this study clearly showed that more than 60% of households in the districts had FI (63.5% in central district and 68.7% in Ghalae-Shahin district). The prevalence of FI was higher in our study than some of studies (Furness et al., 2004; Holben, McClincy, Holcomb, Dean, & Walker, 2004; Holmes, 2008; Mohammadzadeh et al., 2010; Quandt et al., 2004; Stuff et al., 2003; Tester, Laraia, Leung, & Mietus-Snyder, 2016) and was lower in our study than some of studies (Ajani, Adebukola, & Oyindamola, 2006; Keino et al., 2014; Zalilah & Tham, 2002) in Iran and some other countries.

The findings of this study showed that there was a significant difference in the FS status between the subdistricts (P< 0.01). The lowest rate of FI was observed in Homeh and Dashte-Zahab (52.8% and 54.2%, respectively) subdistricts, while the highest rate of FI was observed in Posht-Tang and Sarab (83.3% and 76.4%, respectively) subdistricts. Homeh and Dashte-Zahab subdistricts are more near to Sarpolzahab city than Posht-Tang and Sarab subdistricts, so the households in Homeh and Dashte-Zahab subdistricts can easily provide food items. Results of a study in Neyshabur, Iran indicated that household FI increases with increasing distance from the main city (Gholami & Foroozanfar, 2015). Distance from the city might have an impact on FS status but this case cannot be a strong reason for a high prevalence of FI in our study, so we think that there are other ways to interpret this event.

After surveying the documents, analyzing the information from focused group discussions, and also field observations in the study sites, the reasons of the observed FS status were detected. Agriculture is a main source of income for majority rural households as it depends to various conditions. Access to surface water for the agriculture is easier in Homeh subdistrict than other subdistricts, therefore, farmers are able for the cultivation of the crops for which they can have high economic value (e.g., rice, maize, grape, and other cash-crops). As a result, they can earn high revenue in the land level unit due to the commercialization of agro-products. In Dashte-Zahab subdistrict, most of the farmers enjoy high land ownership and utilize subsurface water resources for the agriculture. Homeh and Dashte-Zahab subdistricts have also fertile land for the agriculture as compared to Posht-Tang and Sarab subdistricts. Posht-Tang and Sarab subdistricts are

located in mountainous areas, and dry farming is common in these subdistricts, therefore, farmland productivity is very low in these areas. Finitely availability to agricultural water, the lack of fertile and flat land for farming, and low productivity of dry farming can be cause the high prevalence of FI cccraas farmrr' incmnc; meiiiii i tsss e problems are redoubled through drought and climate changes in the recent years. Behera et al. (2016) in their study reported that commercial farming has positive consequences on the FS (Behera, Nayak, Andersen, & Måren, 2016).

Multiple cropping and gardening are rife in Homeh and Dashte-Zahab subdistricts, which can have a positive impact on the household FS. A study was conducted by Kalavathi et al. (2011) on 150 households in three sites in Kerala of India; they surveyed the outcome of interventions like gardening, livestock, and diversification of agricultural products to improve nutrition and FS. They reported that intercropping and off-farm activities like livestock have a significant role in the improvement of FS (Kalavathi, Krishnakumar, Thomas, Thomas, & George, 2011). Radhakrishna and Reddy (2004) concluded that the diversity of agriculture can increase the FS to increasing the purchase power of the poor households and to increase consumptive food diversity (Radhakrishna & Reddy, 2004).

In this study, there was no significant relationship between FI and age of householdss head which is consistent with the findings of some of the previous studies (Huddleston-Casas, Charnigo, & Simmons, 2009; Mohammadzadeh et al., 2010), but some of the studies reported a significant relationship between FI and age (Mohammadi, Omidvar, Houshiar Rad, Mehrabi, & Abdollahi, 2008; Payab, Motlagh, Eshraghian, Rostami, & Siassi, 2014). This occurrence can be due to the fact that agriculture and livestock are the main activities of rural households and all householdss members participate usually in these activities, therefore, the age of householdss head does not have a heavy impact on ooeeeoold' revenue.

In the present study, FI had a positive relationship with number of householdss members, which was consistent with results of some other studies (Chaput, Gilbert, & Tremblay, 2007; Rodriguez et al., 2016; Townsend, Peerson, Love, Achterberg, & Murphy, 2001). The observed relationship between these variables is possible due to the fact that in special situations such as rising food price or

temporary joblessness in bigger households, may decrease the amount of food for each household member (Mohammadzadeh et al., 2010).

In the present study there was a negative relationship between FI and educational level of householdss head. Some of the studies reported a positive impact of education on the quality and safety of consumed food and on the FS (Ball, Crawford, & Mishra, 2006; Sharafkhani, Dastgiri, Gharaaghaji Asl, & Ghavamzadeh, 2011; Thornton, Bentley, & Kavanagh, 2011; Thornton, Pearce, & Ball, 2014). Shariff and Lin (2004) reported that in the Malaysian households, FI is sscciatdd wit fttrrr' cccc atiolll leeel uut household II i ntt sssiii atdd wit mtt hrr's educational level. Education can increase the knowledge about the importance of food and nutrition, so it can encourage people to consume adequate and safe food (Galobardes, Shaw, Lawlor, Lynch, & Smith, 2006).

The analysis indicated that there is a significant indirect relationship between FI and family head activity status, which is consistent with results of other studies (Mohammadzadeh et al., 2010; Shariff & Lin, 2004). These findings may be due to the fact that the parents who have well-paid jobs can provide enough food for their households more easily than others.

The results of the present study showed that there is a negative relationship between FI and socio-economic indicators (e.g., householdss income),

which is consistent with results of other studies (Furness et al., 2004; Gulliford, Mahabir, & Rocke, 2003; Mohammadzadeh et al., 2010; Thornton et al., 2014). The relationship between FI and economic status could be elucidated through the important role of economic status in access to adequate and safe food.

Given the high prevalence of FI in the study area, intervention programs to improve the FS of rural households seem to be essential. Therefore, macro and regional policies should be provided for increasing the diversity of products through agroforestry and intercropping. Firstly, increasing dietary diversity by importing products such as legumes and vegetables, secondly, generating diversified household income, and thirdly sustainability and resilience of the region's agricultural systems have increased due to the climate change. This requires the financial and promotional support of government agencies and NGOs.

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وضعیت امنیت غذایی در میان خانوارهای روستایی سرپل‌ذهاب و ا رتباط آن با عوامل اجتماعی-اقتصادی و کشاورزی

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۲. روش تحقیق

مطالعه در شـش زیربخش از دو بخش (زیربخش‌های بشـیوه، حومه، پشت‌تنگ و دشت‌ذهاب از بخش مرکزی و زیربخش‌های قلعه‌شاهین و سـراب از بخش قلعه‌شـاهین) سـرپل‌ذهاب انجام شـد، و از نوامبر ۲۰۱۵ تا آوریل ۲۰۱۶ به‌طول انجامید. با اسـتفاده از نمونه‌گیری خوشـه‌ای تصادفی شش روستا از هر زیربخش به‌طور انتخاب شدند و از هر روسـتا نیز ۱۲ خانوار انتخاب شـدند (در کل، ۴۳۲ خانوار). داده‌های دموگرافیک و فعالیت‌های کشـاورزی خانوارهای مورد مطالعه به‌ترتیب با اسـتفاده پرسـشـنامه اطلاعات دموگرافیک (۱۵ آیتم) و پرسشنامه اطلاعات کشاورزی (۱۰ آیتم) گردآوری شد، که این پرسشنامه‌ها توسط تیم تحقیقاتی و با توجه به اطلاعات به‌دست آمده از طریق بحث‌های گروهی متمرکز طراحی شده بودند. وضعیت امنیت غذایی خانوار توسط پرسـشـنامه امنیت غذایی خانوار وزارت کشاورزی ایالات متحده ارزیابی شد (۱۸ آیتم). داده‌ها با اسـتفاده از بسـته نرم‌افزار آماری SPSS-22 تجزیه و تحلیل شـدند. آزمون‌های مربع-کای، من-ویتنی، کروسـکال-والیس و رگرسـیون لجسـتیک چندگانه رو به جلو برای تحلیل داده‌ها استفاده شد.

چکیده مبسوط

۱. مقدمه

غذا و تغذیه از نیازهای اساسی جامعه بشری هستند، و امنیت غذایی به‌عنوان دسـترسـی پایدار به غذای سالم و مغذی برای داشـتن یک زندگی سالم و فعال تعریف شده است. زمانی‌که غذا با چنین شرایطی در دسـترس نباشـد ناامنی غذایی اتفاق می‌افتد. با توجه به‌اینکه جوامع روستایی نسبت به جوامع شهری بیشتر آسیب‌پذیرتر هستند، به نظر می‌رسـد وضعیت امنیت غذایی این جوامع دارای شـکنندگی بیشـتری باشـد، بنابراین مشـخص کردن چگونگی وضعیت امنیت غذایی این جوامع و تعیین عوامل مرتبط با آن از اهمیت بسـزایی برخوردار اسـت. در جوامع روسـتایی وضعیت امنیت غذایی می تواند مسـتقیماً با اسـتفاده بیش از حد از منابع محیطی در ارتباط باشد و همچنین می تواند با مهاجرت و حاشیه نشینی ارتباط داشته باشد، که هر دو می‌توانند برای تولید غذا و امنیت غذایی جامعه بزرگتر در سطح منطقه‌ای تهدید باشند. بنابراین، هدف ما از این مطالعه بررسـی وضـعیت امنیت غذای و ارتباط آن با عوامل اجتماعی-اقتصـادی در خانوارهای روستایی سرپل‌ذهاب، در غرب ایران، بود.

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۳. یافته‌های تحقیق

شـیوع ناامنی غذایی در کل خانوارهای مورد بررسـی ٦٥/٣٪ بود، و شـیوع ناامنی غذایی خانوار بر اسـاس کلاس‌های مختلف آن شـامل ۲۸/٪۹ درصـد ناامنی غذایی کم، ۲۰/٦٪ ناامنی غذایی متوسـط، و ۱۵/٪٧ ناامنی غذایی شـدید بود. بین دهسـتان‌ها از نظر وضـعیت امنیت غذایی خانوار اختلاف معنی‌داری وجود داشـت (P< 0.01). نتایج مطالعه نشـان داد که شـیوع ناامنی غذایی در دهسـتان‌های پشـت‌تنگ و سـراب (به‌ترتیب با ٨٣/٣٪ و ٧٦/٤٪) نسـبت به سـایر دهستان‌ها بالاتر بود. ناامنی غذایی خانوار ارتباط مثبت معنی‌داری با تعداد اعضای خانوار داشت (P< 0.001). ارتباط منفی معنی‌دار بین ناامنی غذایی و مالکیت زمین زراعی، تحصـیلات سـرپرسـت خـانوار و درآمد خانوار وجود داشـت (P< 0.001). نتایج مدل رگرسـیون لجسـتیک چندگانه نشـان داد که میزان مالکیت زمین زراعی، تحصـیلات، داشـتن کار آزاد افزون بر کشـاورزی، کارمند بودن افزون بر کشـاورزی و فعالیت باغبانی دارای ارتباط منفی معنی‌دار با ناامنی غذایی هستند.

۴. بحث و نتیجه‌گیری

کمترین میزان ناامنی غذایی در زیربخش‌های حومه و دشـت‌ذهاب مشاهده شد (به‌ترتیب، ٥٢/٨٪ و ٥٤/٢٪)، در حالی‌که بالاترین میزان ناامنی غذایی در زیربخش‌های پشـت‌تنگ و سـراب مشـاهده شـد (به‌ترتیب ٨٣/٣٪ و ٧٦/٤٪). کشـاورزی منبع اصلی درآمد برای اغلب خانوارهای روسـتایی اسـت، و این فعالیت به شـرایط مختلفی بسـتگی دارد. دسـترسـی به آب سـطحی برای کشـاورزی در زیربخش حومه نسـبت به سـایر زیربخش‌ها آسـان‌تر است، بنابراین کشاورزان در این دهسـتان قادر به کشـت محصـولات زراعی با ارزش اقتصـادی بالاتر هسـتند (برای مثال، برنج، ذرت، انگور یاقوتی و سـایر محصـولات نقدینه)، بنابراین آن‌ها به‌علت تجاری‌سـازی محصـولات زراعی می‌توانند درآمد بیشتری در واحد سـطح زمین داشـته باشـند. در

زیربخش دشـت‌ذهاب اغلب کشـاورزان از مالکیت زمین زراعی بیشـتری برخودار هسـتند و از منابع آب زیرسـطحی برای کشاورزی بهره می‌برند. همچنین زیربخش‌های حومه و دشـت‌ذهاب از زمین حاصـلخیزتری نسـبت به زیربخش‌های پشـت‌تنگ و سـراب برخوردار هسـتند. زیربخش‌های پشـت‌تنگ و سـراب در نواحی کوهستانی واقع شـدند، و زراعت دیم در این نواحی متداول اسـت، بنابراین بهره‌وری زمین زراعی در این نواحی بسیار پایین است. نهایتاً دسترسی محدود به آب کشـاورزی، کمبود حاصـلخیزی و زمین مسـطح برای زراعت و بهره‌وری پایین زراعت دیم می‌توانند علت شـیوع بالای ناامنی غذایی توسـط کاهش درآمد خانوار کشـاورز در این نواحی باشـند؛ ضـمن این‌که در سـال‌های اخیر این مشکلات توسط خشک‌سالی و تغیرات آب و هوایی تشـدید شـدند. در زیربخش‌های حومه و دشـت‌ذهاب چندکشتی و باغبانی رایج است، که این فعالیت‌ها می‌توانند یک تأثیر مثبت بر روی وضـعیت امنیت غذایی خانوارها داشته باشد. با توجه به شــیوع بالای ناامنی غذایی در ناحیه مورد مطالعه، برنامه‌های مداخله‌ای برای بهبود امنیت غذایی خانوارهای روسـتایی ضـروری به‌نظر می‌رسد. بنابراین، سیاست‌های کلان و منطقه‌ای برای افزایش تنوع تولیدات از طریق جنگل‌زراعی و چندکشـتی باید تدارک دیده شـود، که اولاً تنوع غذایی رژیم غذایی توسط محصولات ورودی مانند لگوم‌ها و سـبزیجات افزایش می‌یابد، دوماً برای خانوار درآمد متنوع ایجاد می‌شـود و سـوماً پایداری و تاب‌آوری سیستم‌های کشاورزی در برابر تغییرات اقلیمی افزایش می‌یابد. این امر نیازمند حمایت مالی و ترویجی سازمان‌های دولتی و مردم‌نهاد است.

کلیدواژه‌ها: امنیت غذایی، ناامنی غذایی، شـیوع، چندکشـتی، خانوارهای روستایی.