

# Research Paper: A Comparison of Social Health Components Among the Farmers in the Villages of Saffron and Other Plants in South Khorasan Province



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## ABSTRACT

**Background:** Social health is defined as the individual's ability to effectively and efficiently play social roles without hurting other people. It is the examination of an individual's activities and status in society. Saffron cultivation, given its special properties, such as teamwork, cooperation, and social correlation, plays a major role in social health. Thus, the current study was done to compare the social health components among the farmers in saffron villages and the others in South Khorasan Province.

**Methods:** The current study was applied and comparative. The statistical population included the farmers in saffron villages and the others in South Khorasan Province in 2018. The sample consisted of 550 farmers (275 producing saffron and 275 producing other plants) based on the Cochran formula who were selected through multistage sampling. The tool used to collect the data was Keyes's standard Social Well-being Questionnaire (2004), consisting of 28 questions. After collecting the questionnaires, the data were analyzed using SPSS v. 23 and an independent t-test at a significance level of  $P < 0.05$ .

**Results:** There was a significant difference between the villagers planting saffron and other plants regarding their social health levels ( $P < 0.000$ ). The obtained t-value for social health, as a dependent variable, was 15.47. The obtained t-value for all the aspects of social health was higher than the acceptable t-value ( $P < 0.05$ ).

**Conclusion:** The results showed that saffron villages had higher social solidarity, compared to other plants. Because cooperation and collaboration are necessary for different stages of saffron production, social cohesion is naturally reinforced.

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## 1. Introduction

**S**ocial health is one of the key concepts that has recently appeared in the literature of sociology and refers to every individual's performance in society [1]. From a social viewpoint, members of the society with no health condition or weak status of health will not be able to play their social roles, leading to the disruption of social order and the inability of society to achieve a certain level of development [2].

According to the World Health Organization (WHO; 1948), health is defined as people's complete physical, mental, and social well-being, rather than merely the absence of any illness or disability [3]. The above definition encompasses three dimensions of health: physical, mental, and social [4].

Shapiro and Keyes state that since five decades ago, WHO (1948) has identified social health as an important and fundamental component of an individual's general health [5]. Social health is also one part of individual health, which manifests itself in society. Only when an individual can perform his social roles and activities reasonably and feels a connection with society and social norms he can enjoy social health [6].

Social health can be evaluated through some parameters; WHO identifies health parameters as the condition, in which people are born, are raised, live, and work [7]. The social dimension of health encompasses levels of any individual's social skills, social performance, and self-awareness ability as a member of a larger community. A healthy life is the product of social interaction between an individual's choices on the one hand, and the socioeconomic environment surrounding each individual on the other hand [8].

Larson defines social health as the quality of an individual's interactions with other people, including relatives and the social groups, which they join. He believes that social health is a criterion measuring that part of an individual's health, which includes their inner responses demonstrating satisfaction or dissatisfaction with their lives and social environment [9].

Keyes believes that the hybrid model of social health consists of five dimensions, which demonstrate whether individuals' performance in society is reasonably acceptable or not. These dimensions are social integration, social participation, social acceptance, social flourishing, and social dependence or social adjustment [10].

A) Social integration is defined as the individual's assessment of the quality of their mutual relationship in society and different communities; B) Social participation includes an individual's evaluation of his own social value; C) Social acceptance includes an individual's understanding of the society members' features and characteristics as a unified whole; D) Social flourishing includes evaluating the potentials of society and its development path and believing in the fact that society is gradually developing and has potentials for positive changes; and E) Social dependence or social adjustment is defined as the individual's knowledge and willingness toward society and the concepts associated with the fact that society is understandable, rational, and predictable. Healthy and sociable individuals are careful about social issues and feel a sense of control over what is happening around them [11].

In Christine and Lorry's study, the factors determining social health are as follows: Living under poverty, persistent unemployment, losing the job, lacking transportation facilities, stress, having a sense of deprivation, lack of social support, drug abuse, and lack of medical care [12].

Goldsmith claims that social health indices are among the most prominent health indices in many countries and he defines social health as assessing an individual's significant positive or negative behavior in the relationship with other people [13]. Social environment and socioeconomic conditions play a significant role in determining each aspect of individuals' health. In rural communities, due to the collective nature of their occupations, the levels of social solidarity and cooperation are high. Behnia believes that there is no herb like saffron that can result in cooperation among villagers since they need each other's help while planting, harvesting, and processing [14].

Durkheim mentions that any kind of disconnection in the relationship between an individual and society in a way that prevents them from being absorbed by social frameworks is likely to increase social deviations in society members. In this case, an extreme kind of neo-individualism causes an individual's wishes to conflict with their social life [13].

Cooperation among people is the opposite of individualism in society and brings about collective benefits. Paying attention to collective benefits may promote a sense of trust, life expectancy, and participation and facilitate collective actions; these collective actions based on mutual trust and sympathy contribute to social health [15].

According to Sadeghi et al., saffron production increases the participation and social solidarity of saffron villages on the one hand and provides families with better access to healthier nutrition as well as health and educational equipment via the increase in people's income on the other hand [16].

The results of Alizadeh Saletch et al.'s study showed that saffron has numerous economic and social effects on saffron villages, and the income from saffron cultivation positively affects the family economy (the profit is 5 to 35 million tomans per hectare in 2017). In regard to society, saffron production leads to higher well-being and security, population stabilization, and reduced migration rate from villages to the city [17].

According to Aliaei et al., reinforcing the sense of life satisfaction and population stability in villagers and the scope of social interactions between these people are among the other effects of saffron production [18].

Riahi and Azizi found that saffron production provides the possibility to use the labor force among family members of native and non-native residents of the village and because the income from saffron production is higher than that of the other agricultural activities. It improves people's access to services and facilities, family income security, savings, and investment, and ultimately, helps to increase their life expectancy, access to healthy nutrition, ability to meet basic needs, and purchasing power [19]. As a result, it empowers the villagers and provides them with a sustainable livelihood. It also protects the environment, supports the local culture, and enriches the social customs of the villagers [20].

Alavizadeh et al. also found that families living in saffron villages have a better life quality as well as a more favorable economic situation compared to the other villagers [21]. Also, the production process requires the villagers to cooperate and collaborate with each other. Cooperation and participation in saffron production build more trust among the people and improve social solidarity. Today, reduced social solidarity, individualism, and poverty are considered the main causes of many social harms. The relationship between poverty and social anomalies has been virtually proved. In the villages where people cultivate saffron and hence enjoy higher incomes, fewer cases of anomalies with roots in the economy have been observed. Evidence shows that the lower the people's socioeconomic condition and their status regarding power and resources, the more unpleasant their health conditions [22]. Therefore, improving health level is possible through modifying life condi-

tions, physical environment, and socioeconomic factors [23] and as people's social level is promoted, individuals' average social health will also increase [13].

Saffron production can improve the villagers' social welfare level [24] and have socioeconomic effects on rural families [25]. It increases villagers' incomes and creates sustainable employment [26]; this could directly affect social health parameters and hence, contribute to individuals' social health in the villages in South Khorasan Province. Limited prior research has used the variables of this research and so far no research either inside or outside Iran has examined the same variables. Therefore, conducting this study can help address the shortcomings in this regard. This study aims to help promote social health in the villages in South Khorasan Province and the results can be of great importance to many organizations and institutions, such as the governor's office, agriculture, industry, and mining.

Since South Khorasan is located in a dry and arid region, it deals with many economic and social challenges and problems, such as economic collapse and poverty, reduced food production, unemployment, local and regional disputes over water, lifestyle changes from livestock and agricultural activities to drug and fuel trafficking because of sharing a border with Afghanistan, widespread migration from rural to urban areas, and reduced health and well-being [27]. Now the province is confronted with constant, severe drought and its spatial consequences, such as the evacuation of villages, especially in the southern parts of the province [28]. In such conditions, planting saffron can help the villagers with their economic status and save water because saffron needs little water and from mid-spring to early autumn, it does not need any irrigation [14]. On the other hand, according to studies, the income from saffron cultivation is higher than many other crops, and as a profitable activity with a high employment rate, it can also be a solution to the problem of unemployment [29] because this product requires too much effort as well as at least two months of active work in the cold season, which is the leisure time of the farmers [14].

Planting saffron can improve sustainability and stability, cooperation and participation, and social cohesion, and also reduce conflicts caused by water shortages in the rural areas of the province. Accordingly, conducting this study is of great importance. In this regard, the current research was done to answer the question of to what extent has saffron production been effective in the social health of saffron villages?

## 2. Methods

The present study was applied and comparative. The statistical population included all the farmers in the villages in South Khorasan Province based on the statistics obtained from the Agriculture Jihad Organization of South Khorasan Province (an agriculture expert), the number of all the farmers (including those who cultivate saffron and other plants) in the crop year 2018, which was 82000, of whom 19053 farmers were cultivating saffron. To compare the social health levels of the two groups of farmers (planting saffron and the others), those in Qaenat, Sarayan, Ferdows, Boshruyeh, and Zirkooh counties, with the maximum saffron yield in 2018 (more than 5 tons) according to the statistics obtained from Agriculture Jihad Organization of South Khorasan Province, were selected as the statistical population. To determine the exact number of subjects, the famous Cochran formula was employed. The resulting sample included 382 farmers (both those cultivating saffron and the others). To compare the results in a better way and based on the different dimensions of social health, after consulting with sociology experts and according to their ideas, the sample size was expanded to 550 people (275 saffron cultivators and 275 other farmers). Given a large number of subjects in the sample under study and its dispersion, the multistage cluster sampling method was employed. To this end, from each town, two rural districts, and from each rural district, two villages (with the highest and minimum saffron yield) were selected. Thus, the farmers living in 40 villages (20 villages cultivating saffron and 20 others) made up the subjects of the population of the study and in the final stages, the subjects were randomly selected from each studied village.

The data were collected using a three-section survey: 1) general information (age, education levels, and the experience of working as a farmer), 2) the information about production procedure (the cultivated land area, the amount of revenue, and the type of product sale), and 3) the standard survey of social health (Keyes, 2004) [30]. This survey was designed based on the five-point Likert's scale, ranging from "strongly agree" to "strongly disagree" and consisted of 5 parameters, including 1) social flourishing (6 questions), 2) social integration (8 questions), 3) social participation (5 questions), 4) social dependence or social adjustment (4 questions), and 5) social acceptance (3 questions).

The questions were scored based on a five-point scale (strongly agree= 5, agree= 4, neither agree nor disagree= 3, disagree= 2, and strongly disagree= 1). Each component's score was obtained as a sum of all the scores of its relevant questions.

In this study, among the 28 questions in Keyes' social health survey, 26 questions were selected as the basis (after applying the primary stage of the questionnaire with 28 questions, it was found that the alpha value of two of these questions was too low; thus, they were eliminated in the final test) and it was slightly modified based on academic texts and local conditions of the statistical population under study. Then, the comments of the experts in sociology were applied to the survey. In the next stage, this survey was filled out by 60 farmers (saffron cultivators and others) and then, based on the evaluation, both the survey's format and content were modified and its problems were fixed. Next, the credibility of the survey's content and its face validity were confirmed by several university professors of sociology and agriculture experts. To determine the reliability of this survey, Cronbach's alpha test was used in two stages; in the initial stage, the obtained alpha was 0.88 and in the final stage, it was 0.89. After collecting the questionnaires, the data were analyzed using SPSS v. 23 statistical software as well as descriptive (mean and standard deviation) and inferential (t-test for two independent groups) statistics at a significance level of  $<0.05$ .

## 3. Results

The results obtained from this study showed that the average age of the saffron farmers was 43.36 years and that of the other farmers was 40.53; that is, the average age of farmers planting saffron was around three years more than that of the farmers planting other products. Further, the average agricultural experience of saffron farmers and the others were respectively 18.83 and 18.44 years. The average cultivated land area for the saffron farmers and the others were 1.26 and 1.85 hectares, respectively. In simpler terms, the average cultivated land area of saffron farmers was 60% smaller than the other farmers. The average yearly income was 22.8 million Tomans for the saffron farmers and 8.64 million Tomans for the others. Also, 45.1% of saffron cultivators and 19.3% of other farmers have sold their products to wholesalers, while 33.5% of saffron cultivators and 34.9% of others have sold their products to shops; 16.4% of saffron cultivators and 45.8% of cultivators of other plants have also sold them to people right from their fields. The other farmers did not fill out the survey. Concerning education, 47.6% of saffron cultivators and 45.8% of other farmers were illiterate, 33.8% of saffron cultivators, 36% of other farmers had education below diploma, and about 18% of saffron cultivators and 19% of other farmers had education above diploma.

**Table 1.** The methods used in the different stages of saffron production

Saffron Production Stages	Methods		
	Both (Traditional & Modern Technologies)	Using Modern Technologies	Traditional Technologies
Saffron cultivation (Getting the soil ready and planting saffron corm)	26.6	16.3	67.2
Growing saffron (irrigation, fertilization, and using pesticides)	14.1	1.4	84.5
Harvesting the crocus	-	-	100
Drying and packaging	9.8	8.4	81.9

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As can be observed in Table 1, traditional methods are mostly used in different stages of saffron production as harvesting the crocus is totally done manually. In the inferential section of the t-test, the two groups (saffron farmers and non-saffron farmers) were compared with two defaults: (a) the distribution of the different variables is normal in the population, (b) the subjects have been chosen randomly as a sample of the whole population and difference scores are independent. [31] To test the data normality, skewness and kurtosis were employed. The results indicated that the skewness and kurtosis of all variables were between -2 and 2; thus, all the research variables were normal. Besides, the samples were randomly selected, and hence, they were independent. In Table 2, the skewness and kurtosis measures were estimated for all these variables.

As it is obvious, there was a difference between saffron cultivators and the other farmers in regard to the obtained scores for general health and the rest of its dimensions, and the farmers who cultivated saffron had higher social health scores compared to those that did not.

Given the obtained means presented in Table 1 and the data provided in Table 2, the level of individuals' social health in the villages, in which farmers cultivate saffron was significantly higher than that of those living in the other villages. It should be noted that because the variances were not equal, the WELCH test was employed.

#### 4. Discussion

The results of this study showed that the mean and standard deviation of the age saffron cultivators were three years more than the other farmers. Concerning the experience of working as farmers, no big difference was observed between these two groups of farmers. While the average cultivated land area for the saffron cultivators was 60 hectares smaller than that of the other farmers, the saffron cultivators' income was almost 14 million Tomans higher than the others. This proves the relative advantage of cultivating saffron over other products in South Khorasan. The results showed that the farmers' product sale was about to be commercialized and they were selling the product mostly to wholesalers gradually. Regarding the education parameter, the number of illit-

**Table 2.** The skewness and kurtosis of the research variables

Variables	Skewness	Kurtosis
Health Dimensions and General Health		
Social integration	-0.026	-0.73
Social participation	-0.21	-0.10
Social acceptance	-0.19	-0.19
Flourishing	-0.17	-0.09
Social dependence	-0.40	0.08
General health	-0.05	-0.55

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**Table 3.** Comparison of means and standard deviations of saffron cultivation and social health

Variable	Mean±SD	
	Saffron Cultivators	Other Farmers
<b>Health Dimensions and General Health</b>		
Social integration	32.15±4.55	24.93±4.20
Social participation	20.81±2.44	18.77±2.53
Social acceptance	11.40±2.13	10.23±2.02
Flourishing	23.36±3.61	19.90±3.08
Social dependence	15.49±2.98	14.26±2.70
General health	103.22±12.44	88.12±10.33

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erate farmers was 2% higher among saffron cultivators and this was one of their biggest concerns, mentioned in the interviews conducted by researchers with some of them. They stated that although the income of cultivating saffron solves their problems in many respects and facilitates their lives, the increase in the income has decreased these farmers' motivation for education and working in public sectors to some extent. Table 3 shows that the average score of saffron farmers in all dimensions of social health (Social integration, Social participation, Social acceptance, Flourishing, Social dependence) and general health is higher than non-saffron farmers (Table 4).

According to the results obtained, it was found that saffron cultivators' social health level in different dimensions and hence their general health level (resulting from all these dimensions) was higher than that of the other farmers. Among all the social health parameters, the average social cooperation score was higher in the farmers cultivating saffron compared to the others. It can be stated that due to the nature of saffron cultivation and recording, which are based on team working, a

higher level of social cooperation is naturally observed in the farmers working in these villages. In this respect, Behnia, a saffron researcher, proved that the nature of saffron cultivating and recording requires cooperation and collaboration. In his view, cultivating and recording saffron is a group or teamwork; thus, saffron is a cause of group integration and collaboration in these villages [14]. The study conducted by Barabadi about the systems of saffron production in South Khorasan showed that still, the collaborative, cooperative methods in cultivating and producing saffron are common [32]. In the second place, social integration had the highest mean, compared to the other parameters. According to Keyes' theory, social integration is a process, during which an individual feels that he/she is an integral part of the society and he has something in common with those who create the social reality [3]. Naderi et al. indicated that there is a significant relationship between planting saffron and social integration [33]. The socioeconomic consequences of saffron cultivation can reinforce this common feeling among the individuals in the village

**Table 4.** Comparative results of t-test for cultivating saffron and social health

Variables	f (Levene's Test)	Significance Level (Levene's Test)	t	Level of Freedom	Sig.
Social integration	2.47	0.11	19.03	548	0.001
Social participation	0.22	0.63	9.55	548	0.001
Social acceptance	1.56	0.21	6.58	548	0.001
Social flourishing	5.51	0.01	12.04	534	0.001
Social dependence	4.97	0.02	5.07	542	0.001
General health	9.73	0.002	15.47	530	0.001

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community. Boozarjmehri et al. demonstrated the fact that saffron cultivation has positive socioeconomic effects on villagers and especially, disadvantaged families and can cause social changes and mobility in the village [25]. On the one hand, according to the results of the research by Karami, saffron cultivation can prevent villagers' migration to cities and may potentially be an influential factor in villages' sustainability [26]. This can play a major role in promoting saffron farmers' social health.

Regarding the flourishing dimension, the difference between the farmers cultivating saffron and the others was significant. In this condition, the society members are hopeful about the future and believe that they have control over their fates [8]. Sotoodehfar et al. showed that cultivating saffron has positive effects on the economy of rural communities and hence results in promoting the welfare level of these villagers [34]. Positive thinking about the future and a high level of well-being creates a sense of empowerment in any society; thus, the lower the sense of deprivation in a society, the smaller the social distance. Shortening the social distance is a necessary condition for individuals' desire for participation and social integration. Improving the employment level causes an increase in incomes and welfare levels and contributes to the relatively fair distribution of wealth among farmers; this plays a major role in the individuals' self-control and social health.

The results showed that with respect to the social acceptance dimension, there was a significant difference between the farmers who produce saffron and those that do not. Social acceptance is defined as having positive attitudes towards people and generally accepting people despite some of their disappointing and complex behavior [3]. Boozarjmehri et al. confirmed that saffron production has some socioeconomic effects, such as satisfaction, inclination to live in villages, and leaving in peace with others [25]. The study by Karami on the effects of saffron cultivation, also showed that recording saffron promotes the feeling of empathy and social solidarity among the saffron producers [26].

Concerning social dependence or adjustment, the results of the same study demonstrated a significant difference between the farmers producing saffron and the others. This dimension shows that healthy individuals can perceive their surroundings [8]. Individuals who are considered healthy with respect to this dimension have a commanding view of their surroundings and recognize their duties and responsibilities. According to the study conducted by Behnia, a saffron researcher, the net revenue of selling saffron in South Khorasan is found to

be much higher than the profits from selling any other plants per square [14]. This has a positive effect on the local people's socioeconomic status. In the research by Lavasani et al., a significant relationship was observed between individuals' socioeconomic status and a sense of justice as well as their sense of justice and self-esteem. The higher people's sense of deprivation in their lives, the lower their self-esteem and sense of justice [35] and hence, the lower their social health levels. Further, Modiri et al. indicated that there is a significant relationship between individuals' socioeconomic status and social health; those with a higher socioeconomic status enjoy a higher level of social health [3].

Generally, the nature of saffron production plays a significant role in developing and improving cooperation and collaboration among the saffron farmers; thus, since the saffron flowers should be picked immediately after opening up and this should be done before the sunrise, saffron farmers have limited time and the villages cultivating saffron ask for workers at the time of harvesting this product; this requires cooperation and collaboration in harvesting this product. Furthermore, in the other stages of production, such as flattening the land, watering the land, preparing the seeds (saffron bulbs), and removing weeds, this collaboration is required. On the other hand, among agricultural products, saffron is considered a strategic product. The villagers' economy is based on selling saffron and because of the villagers' lack of self-sufficiency in using saffron, this product has gained a business quality and should be sold in the market. Hence, saffron production has been the basis of social organization in all life dimensions, including cooperation and collaboration.

## 5. Conclusion

The research findings confirmed the relationship between cultivating saffron and the social health level of the individuals in villages cultivating saffron and it was proved that cultivating saffron can play a major role in developing different aspects of cooperation (including, social integrity, social cooperation, social acceptance, social flourishing, and social dependence), which totally shows a higher level of social health among the saffron farmers, compared to the other farmers that cultivate other plants. Thus, given the relative advantage of South Khorasan in producing saffron, putting saffron cultivation (compared to other farm products) in the highest priority status is highly recommended and the organizations and institutions associated with this program should pave the ground for cultivating this product and try to encourage and train farmers in this regard.

## Ethical Considerations

### Compliance with ethical guidelines

There were no ethical considerations to be considered in this research.

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### Authors' contributions

All authors equally contributed to preparing this article.

### Conflict of interest

The authors declared no Conflict of interest.

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