



## Spatial analysis of life quality at rural areas of Lahijan city with emphasis on health and safety

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### ABSTRACT

The quality of life, along with its quantity, has highly been taken into consideration in recent decades. The life quality of any individual and society is associated with various factors, but health- and security-related quality of life involves the part of the life affected by human health. In this study, we tried to briefly discuss the promotion of health, safety, and quality of life issues as well as the quality of their interrelationships. It can be concluded that improving the quality of life renders health enhancement, which in turn leads to promotion and development of health- and security-related quality of life. This research is based on a descriptive-analytic method being an applied study according to the goal. The study population consisted of 12 villages of Lahijan city at three geographical levels of coastal, plains, and foothills. A sample number of 385 cases was selected according to the Morgan standard table and data were gathered through both field and library surveys. The health and safety indicators and items were selected and the data obtained from questionnaires were analyzed by the software SPSS using Friedman test and correlation coefficients. The results showed statistically significant correlations at the alpha level in the qualities of health and safety with the life quality of rural people.

**Key words:** Village, quality of life, health and safety, Lahijan city

Received 09.09.2016

Revised 06.10.2016

Accepted 07.11.2016

### INTRODUCTION

Based on Article 194 of the Fifth Development Plan, the government is obliged to take required measures in order to improve the situation in rural areas concerning policy-making, planning, administration, monitoring and coordination between executives, promotion of income levels and life quality of villagers and farmers, and reduction of disparities between the rural-nomadic and urban communities; it is also necessary to support measures such as securing physical structure, rural environment and housing, access to sustainable and safe sources of drinking water, proper sanitation facilities, etc. in line with the health and safety of people. Academic approaches to the quality of life have found a new course since 1920 when Pigou addressed this issue in his book called "Economy and Welfare". Since the 1930s, researchers have begun to assess the quality of life at different regions of the world, which gained ground as an interdisciplinary issue because of gradual development in other sciences such as psychology, economics, sociology, and medicine [1-10]. About 40 years ago, the quality of life in relation to health status was studied and reported for the first time. In 2000, the World Health Organization defined the concept of life quality in individuals with regard to their situation in life in terms of culture, the value system in which they are living, goals, expectations, standards, and priorities. The quality of life is, therefore, completely individual being based on the individuals' perceptions of various aspects of their lives. The formation, growth, and development of the concept of life quality over the last half century have turned it into a key and important concept for global implications and human issues so that, in addition to the concepts of life quality, quality of working life, life satisfaction, and health-related quality of life, another concept has also emerged known as quality adjusted life year (QALY), which is used as a health indicator instead of life expectancy (Zahedan Journal of Medical Sciences, 13: 4) [11-15]. The study eventually attempts to address the main question that "How is the quality of life at rural areas of Lahijan

in terms of health and safety? Accordingly, this study seeks to spatially analyze the quality of life in health and safety dimensions in the villages of Lahijan city in order to provide solutions.

## METHOD

The main method at any scientific research is defined based on the goals. Hence, this is objectively an applied study entitled spatial analysis of the life quality in terms of health and safety at rural areas of Lahijan city, based on a descriptive-analytic method. Information on defining problems, theoretical, and conceptual framework, the literature review, and geographic and demographic characteristics of the study area were achieved through documentation and determination of the villagers' life quality in Lahijan city and spatial analysis of their life quality in relation to the indicators of food consumption, health services, police post, local integration, public safety, and other information required in the research by documentary, field, and survey methods. In addition, data were collected by questionnaires, taking notes, interviews, and computer. In this study, after the required information were gathered through documentary sources and field studies, they were organized and classified in order to be analyzed by the statistical methods (descriptive and inferential) such as Cronbach's alpha test and Spearman correlation coefficient. The SPSS software was used to analyze the data and Excel was employed to draw tables and diagrams. The software "Arc-Gis" was also applied for mapping. At this stage, the data obtained through the library documents and field studies were organized and categorized as tables, charts, and maps to facilitate and accelerate the preparation of the thesis work. The study sample comprised all the villages of Lahijan. According to the latest administrative-political divisions, Lahijan has 184 villages with inhabitants. The sample population was characterized according to the dispersion of rural areas in the geographic reaches of coastal, plains, and foothills, from which 6, 4, and 2 villages, respectively, were determined based on the population size and the height information of the Gilan villages obtained from the Management and Planning Organization of Gilan Province. To determine the quality of life, health, and safety at the rural areas of Lahijan city, a size of 385 was obtained according to the Morgan table, which was distributed by simple random sampling method among the sample villages. The validity and reliability of the questionnaire were determined by the experts' comments and Cronbach's alpha. The number of sample villages and their specifications are listed in Table 1.

**Table 1: Number of sample villages and their specifications in the study area based on the 2011 census.**

R	Village name	Geographical location	Rural district	District	Family	Population	No. of questionnaires
1	Dehsar	Coastal	Bazkiagurab	Central	126	343	11
2	Zemidan	//	Lil	//	97	331	11
3	Haji Salim Mahalleh	//	Rudboneh	Rudboneh	308	958	31
4	Hasan Bekandeh	//	Shirjuposht	Rudboneh	202	663	21
5	Lialestan	//	Lialestan	Central	598	1831	62
6	Barku Sara	//	Shirjuposht	Rudboneh	493	1451	51
7	Chalak	Plain	Lil	Central	51	169	11
8	Bala Tamushal	//	Ahandan	//	110	344	11
9	Gukeh	//	Lafamjan	//	190	540	21
10	Bazkiagurab	//	Bazkiagurab	//	1489	4491	140
11	Azarestan	Foothill	Ahandan	//	45	120	11
12	Sarcheshmeh	//	Lil	//	123	344	17

**Source: Extracted by the author: 2016**

### Geographical location

Lahijan city is situated in the east of Gilan at the geographic coordinates of 45 49 to 13 50 eastern longitude and 37 04 to 23 37 northern latitude. The city is limited to the Caspian Sea in the south, Siahkal city in the south, Langerud city in the east, and Astaneh Ashrafieh city in the west. The area of this city is 436.7 km<sup>2</sup>. Lahijan city has two urban point named Lahijan and Rudboneh, two districts of Central and Rudboneh, and 7 districts named Ahandan, Bazkiagurab, Rudboneh, Shirjuposht, Lafamjan, Lialestan, and Lil. It also has 184 villages with residents and three non-residential villages (Deputy Planning of Gilan Province, 2015).

### Assessing the indicators of health and safety quality

Food security and safety are important and useful words that are nowadays considered in developing documentations to be handled by the authorities. Food security will be provided when the per

capita family food basket is properly chosen and prepared, and when the food is cooked adequately and correctly for family members in order supply accurate and healthy nutrients to the cells and organs of the body. For food security in a country and social system, organizations and institutions should coordinate and work together to play a role as a single organization in charge of food security, production or import of foodstuff, education and promotion, creating awareness among the community, and macro-economic policy making. The organization in charge of food security should always be informed of the type, amount, and price of food and verify that all people have physical access to the food and that they have sufficient income to be able to buy the food. Such an organization should sound the alarm in case of crisis and undertake this security evaluation. A total of six parameters were used in order to assess the quality of health and security at the rural areas of Lahijan city.

#### **Weekly use of protein (meat, fish) in the diet**

Any material consumed to nourish and protect the human body is referred to as foodstuff. Foodstuff are mostly of animal or vegetable origin and contain nutrients such as proteins and vitamins, which are essential for the human body. Proteins are one of the main food sources and the most important constituents of the body structure. Nutritionists and health experts emphasize that dietary protein intake is essential to control body metabolism and vital processes. With an emphasis by diet specialists on the consumption of both low-fat and low-calorie foods, protein as one of the most effective elements in determining body weight but also a major source of nutrition has been eliminated from the diet or has reached a minimum intake. Studies show that reducing or avoiding the use of high-protein foods can lead to overeating and being overweight. In addition, protein is essential for growth and repair of muscles. Important and useful sources of foodstuff needed by the body for protein supply include dried fruits and nuts, eggs, yogurt, types of meat including chicken, turkey, lamb, fish eggs and caviar, cheese, lentils, peanuts, pumpkin seed, etc. Results obtained on appropriate nutrition concerning weekly consumption of dietary protein (meat, fish) in sufficient quantities at the rural areas of Lahijan city show that 82.4 percent of people agree to use protein in sufficient quantities in the diet on a weekly basis. A portion of 17.6 percent suggested the use of protein in the diet on a weekly basis was not enough. In total, the results indicate that nutritional status to be appropriate in the rural areas of Lahijan and that protein foodstuff are used in their weekly schedule. Accordingly, protein food consumption is in a good condition.

Three out of seven rural districts around Lahijan, namely Lialestan, Rudboneh, and Shirjuposht are deemed flat with zero coastal heights, where a number of people are engaged in fishing jobs so that their access to fish is in a good status. Farming cattle, sheep, and goat, on the other hand, was observed in the mountainous areas of Ahandan and Lil districts. Poultry, chickens, roosters, ducks, geese, and turkeys are also reared in most rural households.

**Table 2. Weekly consumption of protein (meat, fish) in the diet in sufficient quantities**

Description	Totally agree	Agree	Somewhat agree	Disagree	Totally disagree
Number	67	132	118	47	21
Percent	17.4	34.3	30.6	12.2	5.4

Source: Fieldwork, 2016

#### **Weekly consumption of fruits and vegetables in the diet in sufficient quantities**

Food has had a key role in the emergence, survival, and demise of civilizations. Besides affecting physical growth, nutritional knowledge has crucial roles in increasing intellectual capacity, fighting diseases, longevity, and quality of life. Indeed, proper nutrition contributes to public health and happiness in life, business, activity, creativity, and innovation. Food and nutrition comprise one of the fundamental aspects of life, health and also social welfare. From the perspective of national development, social justice, and economic growth, providing sufficient food, the quantity and quality of food consumption pattern, and public nutritional health status are the main pivots and determinants in the context of human-centered movement whereas malnutrition accounts for an effective deterrent to national development process. Furthermore, food security has a quite direct relationship with justice. Results of the study indicate that there are a lot of vegetables in the diet of villagers such that 87.8 percent of the respondents have confirmed this issue. A volume of 12.2 percent the villagers do not use vegetables during a week. Vegetables in the food basket of villagers come first because veggies are planted and harvested by them. Most villagers believe that they are independent especially in the production of vegetables, while vegetable stew is prepared in the market, especially in the case of visitors. Additionally, watermelon, tomatoes, cucumbers, lettuce, and Mazandarani broad beans are planted and harvested in proportion to the agricultural land that they have in possession.

**Table 3. Weekly consumption of fruits and vegetables in the diet in sufficient quantities**

Description	Totally agree	Agree	Somewhat agree	Disagree	Totally disagree
Number	101	130	107	30	17
Percent	26.2	33.8	27.8	7.8	4.4

Source: Fieldwork, 2016

### Health services (health centers, clinics, family planning centers)

Evaluation of health care quality is considered as the gate of care quality improvement. Nonetheless, assessing the quality of health care is not an easy task and requires precise and valid instruments due to its various aspects and also complexity of care processes. The results indicate that 78.1 percent of people agree that their villages have proper health care services (health centers, clinics, family planning centers). A percentage of 21.9 of the villagers suggest their villages do not have access to appropriate health care services (health center, clinics, and family planning centers). Nevertheless, field studies reveal that the majority of them believe in access to proper health care and sanitation in their villages. In addition to a health center, Bazkiagoorab village is also equipped with an old hospital responsible for providing medical care to all patients of accidents, kidney, lung, etc. in Lahijan, Siahkal, and Astaneh Ashrafieh. Fortunately, the health centers cover both centrally and individually all rural families as much as possible.

**Table 4. Shortage of health services (health centers, clinics, family planning centers)**

Description	Totally agree	Agree	Somewhat agree	Disagree	Totally disagree
Number	29	55	71	134	96
Percent	7.5	14.3	18.4	34.8	24.9

Source: fieldwork, 2016

### Access to the police station at emergency cases

Police is obviously one of the main criteria for the effectiveness and efficiency of the ability to reduce a feeling of insecurity in citizens. In theory, the views of citizens on adopting a community-based bottom-up approach, shaping and promoting social capital, and identification and prevention of crime can increase satisfaction and feeling safe, and ultimately help them with the quality of life. There is a high level of security in rural areas but given the dispersion of villages it takes time for the police to be deployed in the area. In case of access to police station, 75.6 percent of people agree that they have access to police at emergency cases. A percentage of 24.4 of the villagers suggest that they do not have access to police station in the villages at emergency cases. Given that the villages studied are the centers of rural districts selected at three geographical regions of coastal, plains, and foothills, all districts such as Shirjooosht, Rudboneh, Bazkiagoorab, Lialestan, Ahandan, and Lafamjan have independent police stations and only the villagers in Lil district refer to Police Station 12 in the city for their policing affairs. It is, therefore, necessary to plan in future the prediction of law enforcement establishment in Lil district with more dispersion and a greater number of villages.

**Table 5. Access to police station at emergency cases**

Description	Totally agree	Agree	Somewhat agree	Disagree	Totally disagree
Number	65	131	95	59	35
Percent	16.8	34.1	24.7	15.3	9.1

Source: Fieldwork, 2016

### Unity and solidarity among the residents and being free of strife

Participation and rural social cooperation such as the desire to solve the existing problems in the village at gatherings and meetings, contribution and attendance at happiness and mourning ceremonies in the village, respect for common values among citizens (such as simplicity, senses of collaboration and communion), public assistance to help injured people, assistance to others as needed, being kind with neighbors compassionately, cordial and friendly behaviors with neighbors and locals, social functions like voluntarily garbage collection, improvement of communication with neighbors and friends, family relationship with colleagues, attending parties and family get-togethers, presence in religious ceremonies in the village, forgiveness, honesty, integrity, and helping others among neighbors all can affect their quality of life. Moreover, trust in locals and neighbors, family and relatives, participation in charity work in the village, participation in rural public facilities maintenance, local participation in financing of rural services, intellectual and advisory contribution to the improvement of locale and neighborhood, cooperation in the cleanliness of the rural dwelling place, cooperation in setting up social and religious ceremonies in the village, exchange of experiences and information with neighbors on important rural

issues all can create intimate relationships among the villagers making them closer together and prevent conflicts between residents of the villages. Studies show that strengthening social capital leads to partnership and individual relationships with other people, which, in turn, plays an important role in improving the quality of life at rural areas. Thereby, unity and solidarity among the residents and being free of strife in the village were approved from the perspective of 81.8 percent of the respondents. Only 18.2 percent of the respondents stated that there was no solidarity among the rural residents.

**Table 6. Unity and solidarity among the residents and being free of strife**

Description	Totally agree	Agree	Somewhat agree	Disagree	Totally disagree
Number	46	132	137	44	26
Percent	11.9	34.3	35.6	11.4	6.8

Source: Fieldwork, 2016

### Public safety among the inhabitants of rural areas

Quality of life is a concept that has gained a great importance in recent years due to its role in mental integrity. Low level of life at rural areas and, therefore, rural migration to big cities have been associated with numerous social, economic, and environmental problems both at rural areas and cities. The role and status of villages in the processes of economic, social, and political developments are obvious in various regional scale. The consequences of not paying attention to the quality of life at rural areas can include widespread poverty, growing inequality, rapid population growth, unemployment, immigration, marginalization, etc., which justify the need to pay attention to rural development and even its priority to urban development. Accordingly and considering the statements made by 90.2 percent of the respondents, there is public security in rural areas of Lahijan city and only 9.8 percent of people stated that there was no security in the villages of this area .

**Table 7. Public security among the residents of villages**

Description	Totally agree	Agree	Somewhat agree	Disagree	Totally disagree
Number	66	169	113	24	13
Percent	17.1	42.6	28.8	6.4	3.4

Source: Fieldwork, 2016

### Inferential findings

The following tables and the figures contained were analyzed based on the element of safety quality in the villages studied.

**Table 8. Effects of health and safety parameters on quality of life**

Quality of health and safety	Between groups	54.491	4	13.623	34.173	0.000
	Within groups	139.127	349	0.399	-	-
	Total	193.619	353	-	-	-

**Table 9: Results of Friedman test (quality of health and security)**

N		354
Normal parameters <sup>a, b</sup>	Mean	3.2458
	Std. deviation	0.74060
Most extreme differences	Absolute	0.314
	Positive	0.314
	Negative	-0.282
Kolmogorov-Smirnov Z		5.901
Asymp. Sig. (2-tailed)		0.000

Given that the data are not normal, nonparametric tests were used to examine the relationships and ratings of the parameters.

### Results of Friedman test

The Friedman test can be used to examine the equality of independent variables' rank levels. This study used an independent and a dependent variable. Friedman test was applied to address the ranks of quality, health, and safety items. Six items were used in the health quality dimension and the results obtained were examined. According to the results, the most influential factor is health service to which

the villagers have medium access. The second affecting item is friendship and peace among the villagers. The third place is related to protein consumption item that affects the quality of life. Police station is the fourth rank existed in two sample villages as district centers as well as in the centers of rural districts at the city level with on-demand access. The security among the residents lies in the fifth rank. The use of vegetables is the last item. Although all of the items affect the quality of life in Lahijan city, the amount and intensity of items' impact' are shown in the following table.

**Table 10. Average ratings of Freidman test (quality of health and safety)**

Items	Average	Rank
Consumption of protein (meat and fish) in weekly diet	4.95	3
Consumption of more fruits and vegetables in sufficient quantities in weekly diet	4.02	6
Access to health services	5.82	1
Access to a police station at emergency cases	4.72	4
Solidarity in the village and having no strife	5.43	2
Having public safety	4.56	5

### Hypothesis

There is a significant relationship between the health and security status with the quality of life in the villages of Lahijan city. Quality of life is a concept used to trace the development of society welfare. To put it very simply, it can be stated that quality of life reflects the living conditions and welfare of people. Quality of life has both objective and subjective dimensions and determines how to meet human needs; it is also a measure for the perception of satisfaction or dissatisfaction of individuals and groups from different aspects of life. In the case of well-being and good living conditions for villagers, it could provide them with satisfaction. The index is of great importance at rural areas as one of the residential areas. The qualities of health and security were measured by the parameters of health services, health and security, access to police station at emergency cases, solidarity status in the village, being free of strife among the residents, and public safety for the inhabitants of rural areas. Accordingly and given the statements of the respondents, a total of 36.8 % of the rural respondents in Lahijan city were satisfied with the qualities of health and safety. An average portion of almost 54.8 percent showed consent and only 8 percent of the respondents stated that the qualities of health and safety were not satisfactory.

### Relationship between health and safety qualities with life quality

As seen in the following table, there are significant correlations between the qualities of health and safety with quality of life based on Spearman test at a level of 0.01 with a coefficient of 0.507.

**Table 11. Relationship between health and safety quality with life quality**

Correlations				
			Quality of health and safety	Quality of life
Spearman's rho	Quality Health & Safety	Correlation coefficient	1.000	0.507 **
		Sig. (2-tailed)	0	0.000
		N	385	385
	Quality of life	Correlation coefficient	0.507**	1.000
		Sig. (2-tailed)	0.000	.
		N	385	385
**Correlation is significant at a level of 0.01 (2-tailed).				

### CONCLUSION

In this research, attempts were made to focus on a social dimension (health and safety) with a geographical approach and, ultimately, a combination of objective and subjective indicators has been considered with regard to the intellectual works in the global literature. The subjective and objective indices, respectively, focus on the attitudes and on the facts. Given that the purpose of this study was to assess the qualities of health and safety, the capability approach was used as a backing theory. However, it does not cover the whole concept of life quality, hence, structure-oriented approaches have been used to address this deficiency. In fact, the structure-oriented approach is a more complete concept raised as a totality. With this attitude, the present study aimed to assess the quality of life at rural areas from the perspective of sample population. Six items were designed and tested in the form of social dimension (health and safety). It can be inferred from the results that the city has a relatively good situation in this

regard. Analysis of the rural city views through the Spearman test shows that the component of health and safety qualities determined by the investigator has a significant relationship.

### PROPOSITIONS

- Strengthening rural security through the presence of law enforcement and boosting Islamic councils of villages and rural managers
- Reducing ethnic, tribal or family disputes by strengthening the dispute settlement councils and expansion of the culture through local mass media (TV and radio) and via encouraging participation and collaboration among villagers to accomplish commonwealth works by strengthening local trustees
- Government planning to increase rural incomes in order to enhance their ability to consume foods needed
- Development of health services at rural regions, especially at mountainous and forest areas

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