Investigating the Quality of Life in Rural Areas of Tehran, Iran: Application of World Health Organization Standard Questionnaire (WHOQOL-BREF)

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Abstract

This research has been an attempt to study the Quality of Life (QoL) in rural regions of Tehran, which is one of the metropolises of Iran. This survey study applied a non-experimental method in rural regions of Tehran, i.e., the causal-correlational approach, which has studied the status of QoL and its relationship with general health and life satisfaction. The statistical population of the study included 61402 households. A multi-stage random sampling method was used for sampling (n=382). The findings revealed that among the four aspects of QoL, physical health (with an average of 3.62) had the highest rank. Furthermore, the psychological health, social relations, and environmental situation were in the second to fourth ranks, respectively, with an average of 3.37, 3.17, and 3.15. The results revealed that the total score of QoL in the range of 4-20 was equal to 13.31, and in the range of 0-100, it was 58.18. Therefore, the QoL in rural areas of the metropolis of Tehran is not desirable and needs urgent care. The results of this research can be used to prioritize policy-making and planning for rural development and the achievement of millennial goals.

Introduction

Today, with the development of societies and the improvement of living standards, the issue of Quality of Life (QoL) has gained considerable importance because the ultimate goal of development is to achieve the desired life (Abbasnia et al. 2019; Catré et al. 2019). Obtaining information about the status of QoL of different populations can be considered as basic information for planning and policy-making (Ko and Choi 2015). QoL can be considered on two aspects, objective and subjective, which in the objective aspect, indicators such as economic production (Sofer and Saada 2017), literacy rate, life expectancy at birth, or other data, without any valuing, will be used (Boncinelli 2015; McCrea et al. 2006; von Wirth et al. 2015). In other words, to assess respondents’ experiences of their lives in terms of satisfaction, the subjective view of the quality of life is based on survey and interview tools (Singh et al. 2016; Shahraki et al. 2020), happiness (Senasu and Singhapakdi 2018), well-being (Sandhu et al. 2012; Proverbs et al. 2020), or things like that (Rastegar et al. 2017). However, at first, the emphasis of the researches was on examining the objective aspect of QoL, but since the 1970s, subjective indicators have also been used for it. Traditionally, various indices for instance death rate and life expectancy were used to calculate QoL, while these factors alone cannot estimate the QoL. “QoL” is a complicated, multidimensional, and qualitative term in association with the condition of a population at a particular geographical scale (Raphael et al. 1996). QoL is a broad notion that embraces concepts such as good, valuable, satisfying, and happy life. Therefore, the discussion of QoL has been the subject of many studies in various fields and disciplines such as health and medicine, environmental studies, psychology, economic studies, human geography, sociology, development studies, and other fields. It has not been possible to provide a comprehensive and uniform definition for it. One of the main reasons for this failure is the multifaceted nature of the concept (Darbanastaneh and Mahmoudi 2016; Tavares et al. 2014). Campbell et al. (1976) first looked at the subjective and psychological characteristics of QoL. The importance of the issue of QoL has caused different perspectives, among which, from the perspective of health researchers, the
The concept of “Health-related QoL” has been proposed as a vital and practical issue (Hays et al. 1993). This was achieved at a time when odd diseases like COVID-19 had not yet emerged, and in the current context of coping with different diseases, a health-related QoL is becoming more important.

**Dimensions of QoL**

However, most experts and scholars in this field have an opinion that QoL has different dimensions including ecological, spiritual, communal, and physical ones. For example, Rahiminia et al. (2017), in a study entitled "Evaluation of Physical, Mental, Social, and Environmental Quality of Life in Female Students Living in Dormitories of Qom University of Medical Sciences," examined the quality of life in four aspects: physical, social, psychological, and ecological ones, and the psychological dimension was the lowest. In another research entitled “Health-Related QoL in Iranian Patients with Type 2 Diabetes: An Updated Meta-Analysis," they found that among patients, physical health had the lowest status (Mokhtari et al. 2019), and in another research, Kazemi Karyani et al. (2019) found that among the 4 dimensions of health-related QoL, poor QoL in Iran was approved.

In general, questions related to the physical dimensions of humans, including self-care and the ability to perform daily activities, strength, as well as symptoms of disease such as pain, are interpreted and measured. The feeling of well-being and the quality of people's relationships with colleagues, family, friends, and the community are explained in the social dimension (Olsen and Misajon 2020). This is especially true when measuring the psychological dimensions of psychological signs, including fear, depression, anxiety, and deprivation (Xie et al. 2018). The quality of the environment around human life is assessed for biology and components such as salary satisfaction, type of job, or job satisfaction in the environmental dimension (Sharbatiyan and Imani 2018; Qaderi et al. 2019).

In General, within the former few eras, there has been a rising focus on understanding and measuring people's health beyond traditional health indicators. One of these indicators is the World Health Organization's QoL Index. Health is one of the sets and components of QoL, but it is not equivalent because health is well-defined by the WHO as “lacking any physical, psychological, or communal defects,” while QoL is a sense of life satisfaction, and this life may or may not be associated with health, so QoL has a wide-range meaning that includes all features of life. Health is the center and gravity of QoL (Skevington and Epton 2018). Meanwhile, the World Health Organization has provided one of the best definitions of QoL which is: value systems, a person's understanding of their life situation, in the context of culture and in relation to their standards, expectations, concerns, and goals (Hawthorne et al. 2006).

**QoL in rural areas**

Along with the significant increase in relocation from the countryside to urban areas in the last century, some villages have accepted immigrants. Therefore, immigrants who cannot afford to live in cities, due to the availability of cheap land and housing, as well as the relative expansion of the intercity transportation network and ease of access, settle in the villages around the cities. This overflow of the population will have consequences, one of which is the transformation on the outskirts of cities. Villages around these
cities are not left without these changes and changes occur in their socio-economic, environmental, and physical structure and sometimes cause the formation of settlements. RURBAN or rural urbanization is the integration of urban and rural social structures on the outskirts of metropolitan areas. Suburban villages, economically and politically, are dependent on cities and are usually considered dormitory cities because immigrants who have come to big cities and towns for work, etc., due to their inability to provide housing, inevitably choose to live around cities, which are cheaper. This overflow of the population has consequences, one of which is the transformation of villages to RURBANs. In fact, these settlements, on the one hand, enjoy some benefits and services due to their proximity to the city, and on the other hand, because of this proximity, face problems that affect their QoL, health, and overall life gratification.

In the last three decades, developing countries have seen increasing urban population growth. Most of this urban population growth has occurred on the outskirts of metropolises and large cities. Demographic changes in the metropolitan area of Tehran also show that in the last three decades, the urban population has tripled and the surrounding areas of the metropolis of Tehran have increased eightfold. Therefore, most of the population of Tehran metropolis has settled on the outskirts of the city. Tehran province in the 2011-2016 period had more than 20% of the country's immigrant population (951248 people) and the figure in the period of 2006-2011 was equal to 17.7% (equivalent to 979636 people), which has been the most immigrant-friendly province in the country (DSITP, 2016). Tehran, as a metropolis, is facing an increasing influx of immigrants, and such rural areas around it, as a complementary arena for its functions, accept part of its residential role as a dormitory. The formation and expansion of these villages around Tehran have been a spontaneous phenomenon without any planning. Attracting the population to these villages has not been done by decentralizing the metropolis of Tehran, but by attracting rural immigrants from other parts of the country, who are not able to live in Tehran, at least for a short time. Therefore, the formation and expansion of these villages around Tehran did not reduce the population pressure on Tehran. By contrast, they have increased it indirectly.

Among all QoL studies, the QoL in rural areas around metropolitan areas has not been addressed. The poor cannot live in metropolitan areas because of the high cost of living; therefore, they are forced to live in rural areas around these areas. The real gap in relation to the rural areas of the metropolitan areas, which has led to the formation of several challenges in these villages, in addition to the lack of integrated management in the metropolitan areas, is a lack of rural development programs and a lack of attention to QoL in these areas. Failure to concentrate on the QoL in these rural zones will lead to a change in the functioning of the villages from the productive, economic, and residential functions to urban labor dormitories. However, by carefully examining the QoL situation in these rural areas, careful planning can be done to develop these areas in accordance with their main function. Development of rural regions is in line with the expansion and enhancement of the QoL of the villagers, and the villages will achieve development when the QoL has undergone a fundamental change, and these changes in QoL begin with the implementation of rural development steps in an infrastructural manner (Gholami et al. 2016) (Spellerberg et al. 2007) (D'Agostini and Fantini 2008) (Yang et al. 2017).
Bernard et al. (2016) identified the causes of deficiency in rural regions. The results of these researchers revealed that the absence of decent quality is more common in rural districts. In rural areas, factors such as transportation options, employment, infrastructure, housing, etc. are limited in terms of viability. These restrictions reduce the QoL in these areas and provide fewer living conditions compared to cities, and therefore reduce population. (Bernard 2018). The goal of QoL in rural spaces is to stabilize the population of rural households and their fair access to resources in rural areas (Pourtaheri et al. 2011). The role and position of villages at different regional scales in political, social, and economic development processes are obvious. Outcomes of not concentrating on QoL in rural spaces can be growing inequality, poverty, rapid expansion of residents’ in urban areas, job loss, urban marginalization, migration, etc., which show the need for essential attention to rural development and its importance to urban development, especially in the metropolises of Tehran province, the center of Iran. The outcomes of this study can be considered as primary information and statistical documents in rural development policies and programs.

**Relation of QoL with general health and life satisfaction**

Health-related QoL is a multi-aspect notion that comprises social, psychological, physical, and environmental aspects. In this view, these dissimilar aspects of HRQOL structure layers of life satisfaction and general health (Yin et al. 2016). Life satisfaction occurs when basic needs are met and satisfied (Veenhoren 1999). Life satisfaction indicates the degree of satisfaction of basic human desires and needs, and it is why the concept of satisfaction is related to need. Human, as the most complex and complete being in the world of creation, has various and endless needs and motivations that affect his goals and activities. Therefore, life satisfaction can be considered as satisfying human needs, positive perceptions, and pleasant feelings of people towards the realms of life (Di Castro et al. 2018). Michalos (2014) in his research confirmed that there is a noteworthy relation between QoL and life satisfaction. Furthermore, in a study entitled “The Relationship Between Life Satisfaction with QoL and Subjecting Wellbeing in Tehran Teachers,” the results showed that life satisfaction can be predicted through two variables, namely personal well-being and QoL (Farani et al. 2009). According to Maja and Ayano (2021), population and natural resource growth are significantly associated with climate change and the ability of farmers to adapting to climate change, particularly in developing countries with fast changes in resource-dependent demographic and economic changes. One of the important factors in environmental degradation is rapid population growth, which is a fundamental force and threat to the sustainable use of natural resources. These issues reduce the quality of natural resources and their quantity through land fragmentation, intensive agriculture, and over-exploitation. Lack of arable land in areas with increasing population leads to reduced soil fertility and shorter fallow removal and farm incomes due to farmland fragmentation. In addition, landless people or those who work on small farms, settling or cultivating marginal land, reach for natural forests in search of more vacant land, which changes the dynamics of sinking the carbon source in the environment. Food insecurity is exacerbated by low-income farmers working on small farms, limiting their ability to use some of the technologies adapted to climate change. In another research entitled “Relationship Between Life Satisfaction and QoL in Turkish Nursing School Students,” there was an important relationship between life gratification and QoL (Yildirim et al. 2013). Other studies showed that QoL is a predictor of general health (Aguilar et al. 2009) (Aghaei et al. 2013).
An individual's general health is the condition of his/her body and the degree to which it is free from disease or is capable to fight it. The only question “How is your health in general?” is an unpolished and easy measure that has been broadly used, as it grants researchers a brief description of an individual's general state of health (Simon et al. 2005) (Galenkamp et al. 2020). This scale is confirmed to be a strong forecaster for people's health (Idler and Benyamini 1997), and this general health is strongly affected by the QoL of individuals.

Previous studies (Badiora and Abiola 2017; Nyamathi et al. 2017; Hongthong and Somrongthong 2015) have concluded that the satisfaction of peoples with life may be hemostatic, meaning that their level of satisfaction with life remains constant. This may not be possible in terms of life satisfaction of low-income families in rural communities. The satisfaction of rural communities may have changed with a combination of higher levels of relentless rural poverty and a welfare reform constitution. In fact, understanding the realization of deprivation, which is the perceived difference between people's desire and success, may indicate a level of life satisfaction. Eventually, life satisfaction contributes to QoL, sometimes known as feelings of happiness or mental well-being. QoL may be described as the level to which individuals are able to meet their psychological needs or as a general understanding of the satisfaction of their needs over time. With the use of data from a project such as the current research of rural low-income families, we evaluated the influence of variables representing different forms of capital (public health and satisfaction of life) in low-income villages. This study investigated the perception of life satisfaction and QoL in a highly disadvantaged, yet neglected, group using longitudinal data and four dimensions of QoL in a unique combination. In addition, rural areas are very heterogeneous with urban areas in terms of income level, poverty, and QoL. The significant rate of rural poverty is an important justification for research into its characteristics. Another justification based on these observations is that rural experiences of QoL are often different from those in urban areas and this can affect the QoL, life gratification, and general health of villagers. Improving the QoL in rural communities is recognized as the final aim of development programs in rural regions. However, the primary precondition for achieving the mentioned goal is to provide suitable living situations that can improve the QoL for villagers. In addition, there is a great challenge today for many planners to understand that living conditions can provide a good quality of life for any individual or community.

Now, this research intends to investigate the QoL of the villagers of Tehran metropolis and find out which of the four aspects of QoL has better and which has worse status. In addition, it examines the relationship of QoL with general health and life satisfaction among rural people of Tehran metropolis.

In general, the present study seeks to answer the following two questions:

1) What is the status of QoL in rural spaces of Tehran?

2) What is the relation of QoL with life gratification and general health?

Research Background and conceptual framework
Today, QoL as a key element in policymaking is called one of the basic indicators of development. Numerous studies have been conducted in this field and researches show that the QoL in the medical field is 8 times higher than the study of the QoL in the social sphere. The following are some of these studies. As it is clear in Table (1), Quang Vo et al. (2018), Kar et al. (2017), Yang et al. (2017), Sreedevi et al. (2016), and Lodhi et al. (2019) used the WHOQOL-BREF questionnaire to calculate the QoL; Yildirim et al. (2013) investigated the “Relationship Between Life Satisfaction and QoL in Turkish Nursing School Students,” and Simon et al. (2005) paid attention to the relation between general health and QoL (Table 1). However, none of the previous studies has examined the effect of QoL on life satisfaction and general health, which is one of the innovations of the present study, and this research intends to fill this knowledge gap.

Based on the researches and field studies of this research, it intends to calculate the status of QoL in 4 general dimensions in the rural regions of Tehran province and evaluate the impact of these dimensions on life satisfaction and general health (Figure 1).

Fig. 1 is developed in the form of equation modeling structure to show the structural model of the research, which consists of measurement models. The model for measuring the QoL based on the questionnaire of the World Health Organization (WHO) includes a latent variable and a number of observed variables (physical, psychological, and social relations and environmental dimensions). In addition, in this model, feeling good is measured as a latent variable through observed variables (general health and life satisfaction).

Data And Methodology

Research area

Tehran province is one of the largest provinces in the country that accommodates more than 20% of the total population, and the villages of the province have more special demographic conditions than other provinces of the country. Tehran province is placed between 34 and 36.5 degrees’ northern latitude and 50 and 53 degrees’ eastern longitude. This province is limited to Mazandaran province from the north, Qom province from the south, Markazi province from the southwest, Alborz province from the west, and Semnan province from the east. According to the 2016 census, the population of this province was 13,267,637, of which 12,452,230 live in urban areas and 814,698 live in rural areas. It consists of 10 counties (Figure 2).

The population growth of Tehran province in the last three censuses has always been higher than the country’s growth. The population growth of the Tehran province in the 1996-2006 period was 3.03%; this
number for urban and rural areas was 3.75% and 3.27%, respectively. According to statistics, the rural population of Tehran province has been increasing during this period. Meanwhile, the growth trend of the country's rural population has been -0.44% and has been decreasing. This indicates the migration of a large number of villagers from other villages of the country to Tehran. In the period of 2006 to 2011, the percentage of population growth in Tehran province was 1.44, which was 1.95 and -1.5 for urban and rural areas, respectively. This period is the beginning of the evacuation of the population in rural areas of Tehran province. This trend also continues and in the 2011-2016 period, despite the increasing trend of the province's population, i.e., 1.72%, the figure in urban areas has increased to 2.6%, while this rate for rural areas of Tehran province has reached -7.43% (Figure 3). One of the reasons for the evacuation of the mentioned population is the reduction in the QoL of Tehran villagers, which shows the need for paying more attention to the research questions.

Data collection and analysis

In the past decades, many tools and questionnaires with different approaches (health, urban biology, economics, environmental quality, living standards, basic needs, etc.) have been developed and designed, each from a different perspective. Meanwhile, one of the tools that measure the QoL of individuals is the World Health Organization's QoL Questionnaire (WHO 1995) (Kim 2014). The WHOQOL-BREF questionnaire has been transformed into different languages and validated in various regions due to the reduction of domains and items and the ease of use and scoring instructions. In Iran, this questionnaire was first translated and validated in 2006 (Nejat et al. 2006) (Nedjat et al. 2010). The questionnaire includes four areas of “physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental status (8 items)” (Nedjat et al. 2010) (Table 4), and two overall questions about the general health quality and general life satisfaction. All factors were examined in the 5-point Likert range, from 1=very low to 5= very high. It is noteworthy that none of the previous studies assessed the relation between QoL and feelinggood (general health and life satisfaction), and this research seeks to answer this question.

Sampling

In the present study, the statistical population includes 61402 families in rural regions of Tehran metropolis in 2019-2020. The sampling method was multi-stage random sampling. To determine the sample size, Karaj-Morgan table (1970) was used, according to which, the number of samples was 382 (Table 2).

The results of Cronbach alpha, AVE, and CR revealed the good reliability and validity of the research tool in the studied area. In addition, Structural Equation Modeling (SEM) was used to confirm the study model. For the goodness of fit (GOF) of the model, indices such as GFI (“Goodness of Fit Index”), AGFI (“Adjusted
Goodness of Fit Index”), NFI (“Normalized Fit Index”), TLI (“Tucker-Lewis Index”), IFI (“Incremental Fit Index”), CFI (“Comparative Fit Index”), and RMSEA (“Root Mean Square Error of Approximation”) (Cheraghi et al. 2019) have been used.

**Results**

Ruralization is a special form of human settlement and livelihood and is a clear manifestation of economic and social life that has lasted with a more or less stable system for centuries. The role and position of villages in the processes of financial, communal, and political development at a provincial, national, and global level and the outcomes of underdevelopment of rural areas such as deprivation, growing discrimination, urbanization expansion, unemployment, and so on, have called serious attention to rural development and its urgency over metropolitan development. With this attitude, the present article aims to calculate the QoL in rural spaces from the perspective of the sample community, and the number of participants was 382, of which 353 (92.4%) were men and 369 (96.6%) were married. The youngest and the oldest respondents were 29 and 80 years old. Most of them (49%) were between the ages of 46 and 63. Regarding the degree of education of the studied people, it was shown that the literacy level of 311 of respondents (81.4%) was undergraduate. Among the sample, 236 people (61.8%) reported that they had good health status, 123 people (32.2%) had moderate health status, 18 people (4.7%) had poor health status, and five people (1.3%) were in very good health status. The average of general health status was 3.54. Regarding the general life satisfaction, 47 (12.3%) people had low, 223 (58.4%) people had moderate, 100 (26.2%) people had good, and 12 (3.1%) people had very good life satisfaction status (Table 3), and the average of overall life satisfaction was 3.07.

[Insert Table 3]

The findings show that among the four aspects of QoL, the physical dimension with an average of 3.62 has the highest rank. In addition, psychological health with an average of 3.37, social relations with an average of 3.17, and environmental situation with an average of 3.15 are in the second to fourth ranks, respectively (Table 4).

[Insert Table 4]

Figure (4) shows the status of different dimensions of QoL. As it is depicted in the radar diagram, there is a wide difference among various aspects of QoL.

[Insert Fig. 4]

**QoL score divided into four dimensions**

Based on the guidelines of the questionnaire prepared by the QoL Group of the WHO, the method of scoring the total QoL is in the ranges of 4-20 and 0-100. Table 5 shows the QoL scores in rural regions of Tehran province in the mentioned period and in four dimensions.
The scores of the table revealed that the total score of QoL in the range of 4-20 was equal to 13.31, and in the range of 0-100, it was 58.18.

**Structural equation modeling**

In addition, in this study, in order to evaluate the effect of QoL on feeling good, which includes life satisfaction and general health, structural equation modeling (SEM) was used. Regarding the fit indices of the model (IFI, TLI, NFI, and GFI), the results showed that the values of these indices for the model were higher than 0.9, which is an acceptable value. Finally, the RMSEA index showed that the measurement error in the model is controlled. In general, the evaluation of the goodness of fit of the structural model was satisfactory (Table 6). In addition, the values of CR and AVE were calculated with a value of AVE greater than 0.5 and a CR value greater than 0.7, which indicated the validity and reliability of the research tool.

Based on the results obtained in Table 6 and Figure 3, which show the structural model of the research, it can be concluded that the model is appropriate. Given that, in addition to examining and testing the goodness of fit (GOF) of the model of research and determining the amount of variance explained by independent research variables, it is clear that QoL affects people’s life satisfaction and health, and 66% of the variance of feeling good (life satisfaction and health) is explained (Table 7).

In addition, from the regression equation, feeling good can be predicted through QoL as follows: QoL * (0.676) = Feeling good

**Discussion**

Improving the QoL in a place or for specific individuals and groups has always been the main focus of planners, and improving the QoL in any society is one of the most important goals of the public policies of that society.

The results of the present research revealed that the QoL in rural spaces is generally 58.18 in the 0-100 range, which is less than other countries, such as the elderly in southern Brazil which is 67.3 (Gambin et al. 2015). Even compared to Hong Kong, although the arrangement of the dimensions (i.e., physical, psychological, social, and environmental dimensions) is the same, the cultivars are very different, so in the present study, these scores are 65.5, 59, 54.25, and 53.7, respectively. However, these figures for similar dimensions in Hong Kong were 70.83, 65.43, 63.69, and 61.98, respectively (Wong et al. 2018).
This shows a huge difference in the QoL in the compared areas. The difference between living standards in urban and rural areas of Iran is very huge. The QoL in many rural areas of Iran varies for various reasons, perhaps the most important of which is the lack of attention of officials, planners, and politicians. Factors such as access to human capital, physical capital, financial capital, and social capital will have a crucial role in satisfying and improving the quality of life.

However, the results of the current research displayed that the QoL of villagers living in the metropolitan area of Tehran is better than the QoL of COVID-19 patients, living in Wenzhou, China. The average of health related QoL between them was estimated below 50 and patients had low physical and psychological QoL status (Chen et al. 2020). As shown by Nguyen et al. (2020), COVID-19 affects the health and quality of life of people, especially people with suspected COVID-19 (S-COVID-19-S) symptoms. However, to accurately confirm the research findings, it is suggested to examine the QoL related to health in rural areas infected with COVID-19. The results showed that physical health had the highest score, and environmental situation score had the least position. In addition, in the present study, in comparison with the average values of 24 countries, the means are drastically different, so that the QoL in rural spaces of the metropolis of Tehran for different physical, psychological, social, and environmental dimensions in the range of 4–20 is 14.48, 13.44, 12.68, and 12.60, and these figures were 16.2, 15, 14.3, and 13.5 in 24 countries (Skevington and Epton 2018), respectively. In the rural areas of Tehran metropolis, the QoL in the physical and psychological dimensions is higher, except for people with certain diseases (Veeri et al. 2019) and the elderly who have special problems in these two dimensions. For example, the mentioned figures for people with sclerosis in the range of 4–24 were 13.19 and 13.11 (Pomeroy 2020), and these figures were calculated for our respondents as 14.48 and 13.44, which is due to the physical problems of the mentioned people.

In addition, in a meta-analysis about health related QoL, 25 studies were reviewed. The overall HRQoL was estimated to be 54.92, far from ours, 58.18, and the domains ranged from 49.77 (physical dimension) to 63.02 (social relation dimension), which show different findings and different rankings. The reason for this difference was the different statistical population studied in the meta-analysis who were elders (Tourani et al. 2018).

In addition, this study shows a positive and significant relation between QoL and life satisfaction which is similar to the results of the study by Yildirim et al. (2013). However, in their research, the severity of this correlation was less than that of the present study. In addition, among infertile couples, the relation between QoL and life gratification was examined (Abedi et al. 2014), and the study revealed that there was a positive and meaningful relationship between the QoL and couple's life satisfaction at a significant level of 5%, which is consistent with the present study.

In addition, regarding the relationship between QoL and general health, this study was in line with previous studies by Esmaeilpour and Jafarjalal (2019) and Najafi et al. (2018), which showed a positive and significant relation between QoL and general health. Of course, it is worth mentioning that both of these studies have been performed on nurses and no research has been done on the relationship between
the health-related QoL and the general health of villagers, and this research sought to find this connection.

In addition, the impact of QoL on feeling good (general health and satisfaction) had not been addressed in previous studies, which is one of the innovations of the present study.

The results of this study displayed that 66% of the variance of feeling good is affected by QoL, which is a high percentage of variance that can be considered in development planning. In addition, in the dimensions that affect feeling good, psychological, environmental, physical, and social factors are effective, respectively. Due to the low status of QoL in the psychological and ecological dimensions, these should be considered to improve feeling good in rural areas of Tehran metropolis. The current research presents a limitation that is inherent in the sampling process. This means that people living away from the area of the sample households may have different characteristics and ways of life from the assessed items that can correct the observed results. In addition, the study was conducted during the months when more crops were harvested and it was not possible to interview people who had a full crop and could report lower quality. In other words, we showed the sample sizes that are big and the losses and refusals with the lowest percentage. In the case of QoL, we revealed the use of a tool extended by the WHO and validated in Brazil. Moreover, this is a demographic study and is distinguished by the assessment of adults who live in rural regions. Most urban-specific QoL assessment studies are conducted on older adults and people with correlated diseases. In addition, as can be seen, only 29 (about 7.9%) of the respondents were women, which was due to the reluctance of women to participate in completing the questionnaire due to cultural issues. Iranian rural women are often kept in isolation and are usually not allowed to associate with strangers, which is one of the limitations of the present study. On the other hand, regarding the QoL in terms of social relations, some questions were taboo for the villagers and when they reached these questions, they refused to fill the questionnaire. These incomplete questionnaires were removed from the research. The limitation of the research may imply a potential for further study on QoL in the region. The WHO questionnaire could be standardized very much to meet everywhere in the world. In future studies, authors should develop a localized method that fits the Iranian society to measure QoL more appropriately.

Conclusion

Quality of rural life is defined as a comfortable life and access to basic and healthy needs in a rural environment. In fact, this concept means the ability to live in a place. Actually, the initial point for the development of human being communities is the creation of a proper perception of the needs of the people. QoL assessment provides a good tool for such understanding because the study of QoL is a way for regional officials and villagers for profitable communication that leads to understanding and analysis of key concerns influencing people's lives.

According to the findings, the lowest score in terms of environmental QoL belonged to the lack of suitable recreational places and sports facilities, so measures should be taken to create these facilities for the use
of youth and families in rural areas. Increasing per capita green spaces in the rural area of Tehran metropolis through the acquisition of barren lands in the studied areas and the allocation of these lands to the construction of parks and sports fields, to improve the air quality and the visual appearance of the village environment, needs special attention.

Furthermore, in the dimension of social relations, the lowest score was related to the item of “satisfaction with their sexual relations”; as a result, measures such as training courses on how to have a pleasant emotional and marital relationship should be planned in rural areas.

In the field of psychological health, the lowest score was related to the “amount of enjoyment of life”. As a result, measures such as cooperation of rural communities in holding educational classes such as painting, calligraphy, pottery, etc., which cause peace and increase the enjoyment of life, should be considered in rural areas.

Regarding physical health, the lowest average belonged to the level of mobility and agility. Therefore, measures such as establishing sports equipment, for encouraging families to do sports in rural areas, should be considered. Today, the most important task of the officials is to promote the level of health in the society, increase the awareness of the people, and create platforms and facilities for the spread of sports culture in the society, and it is better to lay the foundations of this great movement in the early stages of life and in schools.

Furthermore, considering the effective role of QoL in the health and life gratification of people, addressing the QoL, and increasing its levels can play an effective role in the good sense of life of villagers. This research provides planners, health officials, and decision-makers with evidence-based information on how QoL increases general health and life satisfaction. Moreover, considering the role of the psychological dimension in the overall improvement of health and life satisfaction, it is suggested that counseling centers be established in this regard.

To further improve the QoL of rural communities, it is recommended that the focus should be on attempts to further improve infrastructure facilities. Furthermore, strategies and programs to increase the QoL of rural communities should focus on specific groups of low-income minorities, such as women and people with low education. Therefore, it is recommended that the rural woman's QoL be investigated since a gender-sensitive analysis of QoL can provide better solutions for rural development. In addition, factors affecting QoL should be investigated. Accordingly, rural development programs around urban areas, family hope programs that include social programs aimed at eliminating gender discrimination, reducing poverty, and nutrition care and support for children and the elderly should be a planning priority. The results of this study can be used in other similar/different rural areas. These findings can help rural development planners, the WHO, and national and regional health centers. By targeting the findings of this study, they can improve the living conditions, increase the quality and satisfaction of people in rural areas, identify challenges, and provide opportunities.

**Policy recommendations**
These findings call for policymakers’ attention. According to recent evidence, rising incomes are often only undermined by significant improvements in the lives of people. The QoL aspect can provide policymakers with a more profound comprehension of the requirements of individuals. QoL emphasizes how investing in people and social capital is usually the most efficient way to attain revenue growth in the background of broader development achievements. In this regard:

- Challenges of improving QoL cannot be overcome. Evidence suggests that the fundamental benefits of quality of life status will come from increased social spending on health, education, and nutrition; the development of rural substructures and financial institutes; the promotion of rural participation in the political procedure; and, perhaps most importantly, the improvement of women status. If policymakers can improve the links in these enterprises, moral spirals could be created, which, in turn, can lead to a wide improvement in QoL in a number of indicators. Policies should be aimed at providing welfare services and reducing class differences between rural and urban areas. Furthermore, by adopting approaches coordinated with rural and urban development and enhancing the environmental situation of rural societies, rural migration will be reduced.

- Policies and programs of QoL need to be designed for tomorrow’s and today’s challenges. This refers to the comprehension of the individuals’ desires for the future and also the elements that are changing the world and where we all live. Policymakers need to ask a basic question about the relationship between rural societies, the economy, and the emerging global community.

- In the future, villages will face challenges such as gender equality, population aging, and poverty reduction. To build an inclusive rural society, progress in all these areas is essential for deep and sustainable development in the future. By understanding these challenges, assuming a vision for QoL, and formulating new procedures, policymakers can take advantage of the promise of rural areas by taking an open and rational approach.

In this study, the QoL related to the health of rural men and women were not compared; it is suggested that this issue be addressed in future studies. In addition, it is suggested that the same relationships in different age groups, i.e., young, middle-aged, and old, be examined and compared. In addition, according to the existing COVID-19 conditions, it is suggested to compare the health-related quality before and after the CORONA pandemic in rural areas that are more affected. It is also recommended that the correlation of QoL in the pandemic situation with life satisfaction and general health be examined.

Declarations

Funding This study received no findings from any organizations.

Conflicts of interest We have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical approval This study has been conducted in line with the ethical standards established.

Informed consent Informed consent was obtained from all respondents.
Availability of data and material Raw data were generated at Tehran University. We confirm that the data, models, or methodology used in the research are proprietary, and derived data supporting the findings of this study are available from the first author on request.

Authors’ contributions L.A.: Conceptualization, Methodology, Software, Writing-Original draft, and Visualization. Sh.Ch., H.S., and H.A.: Supervision, Conceptualization, Reviewing, Editing, and Validation.

References


40. Nguyen HC, Nguyen MH, Do BN, Tran CQ, Nguyen TT, Pham KM, ... Duong TV. 2020. People with suspected COVID-19 symptoms were more likely depressed and had lower health-related quality of life: the potential benefit of health literacy. J of Clinical Med. 9(4): 965.


Tables

Table 1. Studies related to QoL
<table>
<thead>
<tr>
<th>Title</th>
<th>Findings</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Assessing the QoL Among Pakistani General Population and Their Associated Factors by Using the World Health Organization’s QoL Instrument (WHOQOL-BREF): A Population Based Cross-Sectional Study”</td>
<td>- Overall score of quality was 65.0.</td>
<td>Lodhi et al. (2017)</td>
</tr>
<tr>
<td>“Measuring Health Related QoL Among Vietnamese Health-Care Staff: An Application of the WHOQOL-BREF”</td>
<td>- The WHOQOL-BREF questionnaire was an appropriate one.</td>
<td>Quang Vo et al. (2018)</td>
</tr>
<tr>
<td>“The WHOQOL-BREF: Translation and Validation of the Odia Version in a Sample of Patients With Mental Illness”</td>
<td>-WHOQOL-BREF has appropriate reliability and validity for use in “Patients with Mental Illness”.</td>
<td>Kar et al. (2017)</td>
</tr>
<tr>
<td>“Health-Related QoL and Related Factors Among Rural Residents in Cambodia”</td>
<td>- Social relationships domain had the highest score, followed in run down order by the psychological, physical, and environmental score.</td>
<td>Yang et al. (2017)</td>
</tr>
<tr>
<td>“Validation of WHOQOL-BREF in Malayalam and Determinants of QoL Among People With Type 2 Diabetes in Kerala, India”</td>
<td>- Impact of different dimensions of QoL on general health</td>
<td>Sreedevi et al. (2016)</td>
</tr>
<tr>
<td>“QoL Among Elderly in a Rural Area”</td>
<td>-QoL among elderly in a rural area was average.</td>
<td>Praveen &amp; RaniM (2016)</td>
</tr>
<tr>
<td>“Relationship Between Life Satisfaction and QoL in Turkish Nursing School Students”</td>
<td>-Significant correlation between life gratification and QoL</td>
<td>Yildirim et al. (2013)</td>
</tr>
<tr>
<td>“An Assessment of QoL Using the WHOQOL-BREF Among Participants Living in the Vicinity of Wind”</td>
<td>-Lower grades on Physical and Environment dimensions</td>
<td>Feder et al.</td>
</tr>
</tbody>
</table>
The utilization of this questionnaire in the vicinity of wind turbines was not appropriate.

Table 2. Statistical population and sample size

<table>
<thead>
<tr>
<th>Code</th>
<th>Areas</th>
<th>Counties</th>
<th>Statistical population</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>North</td>
<td>Shemiranat</td>
<td>6692</td>
<td>42</td>
</tr>
<tr>
<td>2</td>
<td>South</td>
<td>Varamin</td>
<td>23318</td>
<td>145</td>
</tr>
<tr>
<td>3</td>
<td>East</td>
<td>Damavand</td>
<td>7906</td>
<td>49</td>
</tr>
<tr>
<td>4</td>
<td>West</td>
<td>Shahryar</td>
<td>23486</td>
<td>146</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>61402</td>
<td>382</td>
</tr>
</tbody>
</table>

Table 3. Descriptive statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Levels</th>
<th>Frequency</th>
<th>Percent</th>
<th>Mod</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>353</td>
<td>92.4</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>29</td>
<td>7.6</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>Married</td>
<td>369</td>
<td>96.6</td>
<td>Married</td>
</tr>
<tr>
<td></td>
<td>Not-Married</td>
<td>13</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>Level of education</td>
<td>Undergraduate</td>
<td>311</td>
<td>81.4</td>
<td>Undergraduate</td>
</tr>
<tr>
<td></td>
<td>Diploma</td>
<td>57</td>
<td>14.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bachelors</td>
<td>14</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>General Health status</td>
<td>Very low</td>
<td>0</td>
<td>0</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>18</td>
<td>4.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>123</td>
<td>32.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>236</td>
<td>61.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>5</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>Overall life quality Satisfaction</td>
<td>Very low</td>
<td>0</td>
<td>0</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>47</td>
<td>12.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>223</td>
<td>58.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>100</td>
<td>26.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>12</td>
<td>3.1</td>
<td></td>
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Table 4. Ranking of items of QoL
<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Items</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical health</td>
<td>Do not use medical treatments</td>
<td>4.46</td>
<td>0.71</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Lack of physical pain</td>
<td>4.30</td>
<td>0.72</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Having enough energy for everyday life</td>
<td>3.60</td>
<td>0.60</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Daily activities</td>
<td>3.59</td>
<td>0.61</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Satisfaction with your work capacity</td>
<td>3.50</td>
<td>0.67</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Satisfaction with your sleep state</td>
<td>3.39</td>
<td>0.71</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Your mobility and agility</td>
<td>2.50</td>
<td>0.71</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Total average</td>
<td>3.62</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Psychological health</td>
<td>Not-feeling of frustration, despair, and anxiety</td>
<td>4.15</td>
<td>0.69</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Self-satisfaction</td>
<td>3.42</td>
<td>0.69</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Satisfaction with the appearance of your body</td>
<td>3.34</td>
<td>0.66</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>How much power do you have?</td>
<td>3.24</td>
<td>0.70</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>How meaningful life is</td>
<td>3.16</td>
<td>0.61</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Enjoying life</td>
<td>2.90</td>
<td>0.89</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Total average</td>
<td>3.37</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Social Relations</td>
<td>Satisfaction with personal relationships</td>
<td>3.51</td>
<td>0.55</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Friends support</td>
<td>3.04</td>
<td>0.75</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Satisfaction with your sex</td>
<td>2.97</td>
<td>0.77</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total average</td>
<td>3.17</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Environmental situation</td>
<td>Feeling safe and free</td>
<td>3.74</td>
<td>0.58</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>How healthy is the environment around you?</td>
<td>3.57</td>
<td>0.87</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>The amount of information required for daily access</td>
<td>3.45</td>
<td>0.65</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Benefit from medical and health services</td>
<td>3.13</td>
<td>1.04</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Satisfaction with the environmental situation</td>
<td>2.98</td>
<td>1.04</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Having enough money to meet your needs</td>
<td>2.90</td>
<td>0.56</td>
<td>6</td>
</tr>
</tbody>
</table>
Satisfaction with living conditions | 2.88 | 0.98 | 7
There are suitable sports and entertainment facilities. | 2.09 | 0.97 | 8
Total average | 3.15 | - | 4

Table 5. QoL dimensions score

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Raw score</th>
<th>Average</th>
<th>4-20</th>
<th>0-100</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical health</td>
<td>25.37</td>
<td>3.62</td>
<td>14.48</td>
<td>65.50</td>
<td>11.96</td>
</tr>
<tr>
<td>Psychological health</td>
<td>20.24</td>
<td>3.37</td>
<td>13.44</td>
<td>59.00</td>
<td>10.92</td>
</tr>
<tr>
<td>Social relationship</td>
<td>9.53</td>
<td>3.17</td>
<td>12.68</td>
<td>54.25</td>
<td>9.76</td>
</tr>
<tr>
<td>Environmental health</td>
<td>24.79</td>
<td>3.15</td>
<td>12.60</td>
<td>53.75</td>
<td>11.88</td>
</tr>
<tr>
<td>Total</td>
<td>79.93</td>
<td>13.31</td>
<td>13.31</td>
<td>58.18</td>
<td>11.84</td>
</tr>
</tbody>
</table>

Table 6. Results of fit indices

<table>
<thead>
<tr>
<th>Fit Indices</th>
<th>Recommended Criteria *</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN/DF</td>
<td>“Smaller than 3”</td>
<td>2.404</td>
</tr>
<tr>
<td>GFI</td>
<td>“Larger than or equal to 0.90”</td>
<td>0.972</td>
</tr>
<tr>
<td>NFI</td>
<td>“Larger than or equal to 0.90”</td>
<td>0.984</td>
</tr>
<tr>
<td>CFI</td>
<td>“Larger than or equal to 0.90”</td>
<td>0.912</td>
</tr>
<tr>
<td>TLI</td>
<td>“Larger than or equal to 0.90”</td>
<td>0.959</td>
</tr>
<tr>
<td>RMSEA</td>
<td>“Smaller than or equal to 0.08”</td>
<td>0.054</td>
</tr>
</tbody>
</table>

* MacCallum et al. (1996)

Table 7. Standardized total effect of independent variable on the feeling good

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Dependent Variable</th>
<th>Total Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>QoL</td>
<td>Feeling good</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td>(Health and Satisfaction)</td>
<td></td>
</tr>
</tbody>
</table>

Figures
Figure 1

Conceptual framework

Figure 2

Map of the study area
Figure 3

Percentage of population growth rate in urban and rural areas of Tehran province

(Department of Statistics and Information of Tehran Province, 2016)

Figure 4

Status of QoL components
Figure 5

The impact of QoL on Feeling good