

*Original Article*

## Quality of Life Model Based on Perceived Stress and Distress Tolerance of the Elderly in Ilam with the Mediating Role of Hope

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### Abstract

**Background and Aim:** Quality of life is an important concept in a successful elderly life, therefore the aim of this study was to examine the quality of life modeling based on perceived stress and distress tolerance of the elderly in Ilam with the mediating role of hope.

**Materials and Methods:** This applicable study was conducted through a descriptive-structural equation modeling. Statistical population were elderly people of Ilam city during 2020 (N=9496). The sample size was estimated to be 384 cases using Power-G software. The samples were selected through available sampling method. Participants evaluated by standard quality of life questionnaires of the World Health Organization, Cohen Perceived Stress, Distress Tolerance Scale of Simons and Goher and the Schneider Hope Scale. Data analyzed in SPSS25 and Amos 8 software.

**Results:** The results revealed a significant relationship between perceived stress, distress tolerance, and hope with the quality of life of the elderly in Ilam city. Similarly, there was a significant relationship between perceived stress and distress tolerance with hope. The results of structural equation model showed that hope has a mediating role in the relationship between quality of life with distress tolerance and perceived stress. Perceived stress and distress tolerance showed a total, direct, and indirect effects on hope and quality of life.

**Conclusion:** This finding shows that the relationship between stress and distress tolerance with quality of life is not simple and linear. Factors such as hope can affect this relationship.

**Keywords:** Perceived stress, Distress tolerance, Hope, Quality of life, Elderly

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### Introduction

In recent decades, the progressive growing of the elderly population has become a global concern. This problem is visible in most of countries;

although in developing countries, older people face more severe challenges (1). Enhancement of quality of life is the main way to manage the challenges associated with elderly age (2). Numerous studies reported poor quality of life among the elderly (3, 4).

Knowledge about factors affecting the quality of life of elderlies can guide researchers to design effective programs to enhancement of quality of life of them. Evidence showed high stress and mental disorders negatively effects the quality of life (5). Healthy lifestyle in elderly and making the best use of opportunities and capacities requires mental and physical health (6). Stress can negatively affect various dimensions of mental, physical health and quality of life(7, 8). The degree of vulnerability to stress is dependent to individualized evaluation of each person, which called, perceived stress. The degree of perceived stress is highly depended to personal and cognitive factors (9). Factors such as hope play a role in perceived stress (10). Therefore , people with higher hope are more likely to experience lower stress and consequently better quality of life (11). On the other hand, hopeful people show more passion to improve their quality of life (12). Lack of hope and low quality of life is one of the most important contributing factors in committing suicide in older ages (13). Meanwhile, hope decrease worry and distress (14). Studies showed relationship between hope and distress intolerance (15) and perceived stress (16). The relationship between hope and quality of life has also been confirmed in various studies (11, 17). Evidence review indicates some studies conducted on the relationship between quality of life and perceived stress; however, the studies showed a simple direct relationship in non-elderly communities. No study has been found on the mediating role of variables between distress tolerances or perceived stress and quality of life; therefore, this study aimed to examine the mediating role of hope between quality of life with perceived stress and distress tolerance among elderly of Ilam city.

## Methods

This applicable study was conducted through a descriptive-structural equation modeling. The statistical population of the present study included all male (4437cases) and female (4637cases) elderly in Ilam during 2020 (9496 cases). The sample calculated in Power-G software at the error level of

0.05(384cases). In order to complete the sampling and procedure the researcher referred to the Registry Office, Retirement Center, Farzanegan Zande Del Zagros Foundation, Imam Khomeini Relief Committee, Welfare Organization and Management and Planning Organization in Ilam city. Inclusion criteria in the study were the declaration of consent for participation in the research, literacy to answer the questionnaires, lack of cognitive impairment, and no history of substance abuse, lack of crisis in last six months, such as the death of a loved one, incurable disease, and relocation. In addition, invalid questionnaires were excluded from the study.

Sampling was conducted through available method. The researcher explained the goals and questionnaires were completed by the participants in groups (n=5) considering the ethical requirements. During the completion of questionnaires, the researcher was present at the site and answered questions and ambiguities. After completing the questionnaire, one hour of free counseling services was provided to the participants aimed to quality-of-life enhancement. To complete of 384 valid questionnaires, 1014 people were contacted. Some people did not meet the criteria to participate in the study. Several questionnaires did not have the required validity.

## Materials

Data collection tools in this study were demographic questionnaires (gender, marital status, age, education, type of insurance and disease status), World Health Organization (WHO) standard quality of life questionnaire (18), Cohen, Kamark and Marmalestin Perceived Stress Scale (19), Distress tolerance of Simmons and Gahar(20), and the Life Expectancy Questionnaire of Schneider(21).

**The World Health Organization Quality of Life Scale** includes 26-item with subscales of physical health, mental health, social relationships, and environmental health. Items has five-point Likert scale (0,1,2,3,4). Scores varied between 0-100. Liu et al. (22) in China validated this questionnaire among 1050 people. The results of the construct validity study confirmed the validity of the questionnaire by exploratory factor analysis. Reliability coefficients for the total score and

components calculated between 0.70 and 0.84. Nejat et al. (23) performed validation on 1167 people in the Iran. Participants divided into two groups with chronic and non-chronic diseases. The reliability of the retest- test for the subscales of physical health, mental health, social relations, and environmental health were 0.77, 0.77, 0.75 and 0.84 respectively. Internal adjustment obtained using Cronbach's alpha for physical health 0.72, mental health 0.70, social relations 0.72, and environmental health 0.72. In the present study, the reliability coefficient for the total score and subscales was between 0.76-0.94. The confirmatory factor analysis results showed that this questionnaire has a good construct validity.

#### ***The Perceived Stress Questionnaire (PSS-14)***

This questionnaire was developed by Cohen, Kamark, and Marmelstein(19) and has 14 questions with two subscales of perceived self-efficacy and perceived helplessness. Each item answered on a five-point Likert scale of zero (0), low (1), medium (2), high (3), and very high (4). In the study of Cohen et al.(19) the internal consistency coefficients for the reliability of the perceived stress questionnaire was obtained between 0.84 to 0.86 and its correlation coefficient with cognitive symptoms were between 0.52 to 0.76 (24) . Safaei and Shokri (25), confirmed the validity of questionnaire by exploratory and confirmatory factor analysis. The reliability coefficient of the questionnaire reported to be 0.76. In the present study, the reliability coefficient for the total score and subscales obtained between 0.91-0.94. The use of confirmatory factor analysis showed that this questionnaire has a good construct validity.

#### ***The Distress Tolerance Questionnaire***

This questionnaire was designed by Simmons and Gaher(20) that includes 15 items and 4 subscales including regulation, tolerance, absorption, evaluation. The items of this questionnaire scored on a five-point scale (1- Strongly Agree 2- Slightly Agree 3- Neither Agree nor Disagree 4- Slightly Disagree 5- Strongly Disagree). High scores on this scale indicate high distress tolerance. Simons and Gaher(20) reported Cronbach's alpha coefficients for subscales of regulation, tolerance, absorption, evaluation, 0.72, 0.82, 0.77 and 0.70, respectively, and for score 0.82. They confirmed the validity through confirmatory factor analysis (20). In Iran,

Alavi(26) examined the validity of the questionnaire. The results of reliability showed high internal consistency coefficient ( $\alpha = 0.71$ ) and subscales have moderate reliability (tolerance 0.54, absorption 0.42, evaluation 0.56, adjustment 0.58). In the present study, the reliability coefficient for the total score and subscales was between 0.85-0.94. The confirmatory factor analysis results showed that this questionnaire has a good construct validity.

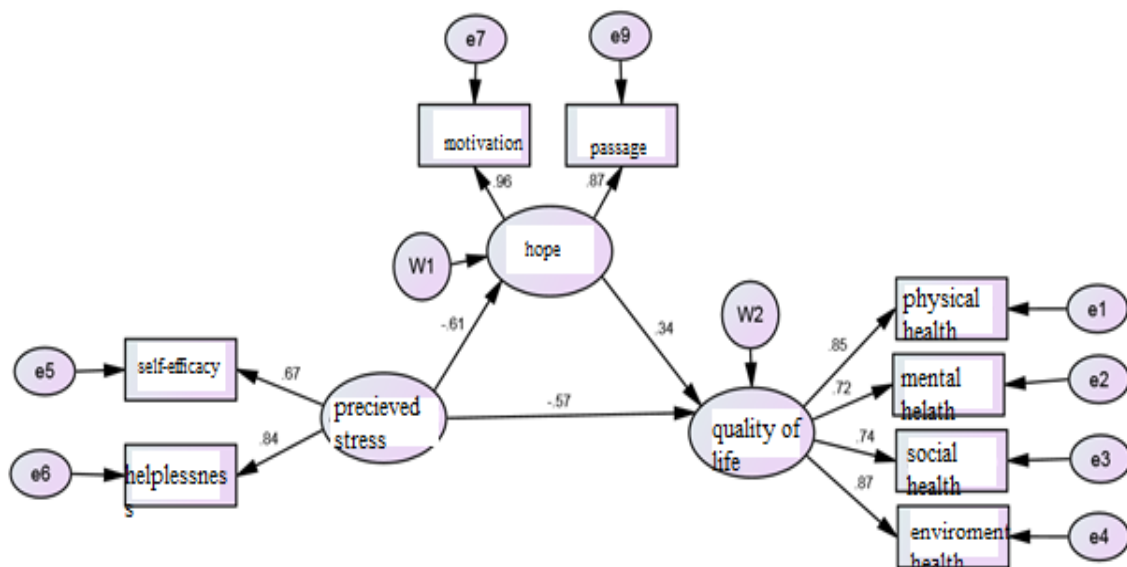
#### ***Adults Hope Questionnaire***

By Schneider(21) includes 12 items and two subscales of passage and motivation. To answer each question options 1-2-3-4 options considered. Questions 3, 5, 7, 11 are not graded and only included for distraction. Questions of 1, 4, 6, 8 are related to the passage subscale and questions 2, 9, 10, 12 are related to the motivation subscale. The hope score is the sum of these two subscales (27). Therefore, the total score can be between 8 and 32. In the study of Babyakand Schneider (28) confirmatory factor analysis was employed to test several psychometric hypotheses regarding the Hope Scale. Across four large samples of college students, a two-factor confirmed. The Cronbach alpha reported as 0.80. In a study conducted by Kermani(29) on 660 female students, Cronbach's alpha coefficient was 0.89. It was highly correlated with scales that measure similar psychological processes such as Hope Scale ( $r = 0.50$ ) Sheer and Cover Optimism Scale ( $r = 0.60$ ). In the present study, the reliability coefficient for the total score and subscales was between 0.89-0.94. The confirmatory factor analysis results showed that this questionnaire has a good construct validity.

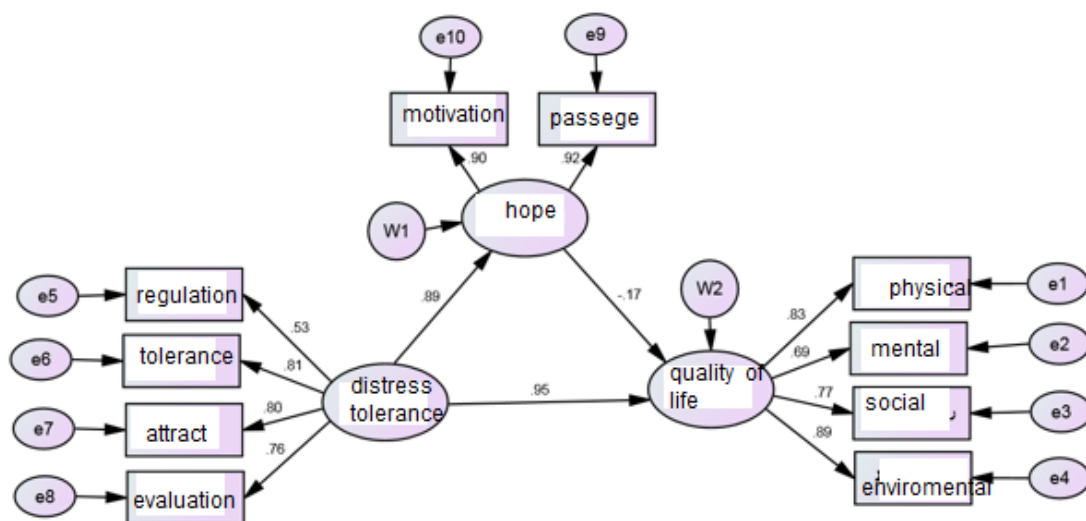
To analyze the collected data descriptive statistics were used (frequency, mean, standard deviation). In order to test the hypotheses, first the normality of the research variables was checked using Kolmogorov-Smirnov test and then Pearson correlation coefficient test and simple and multiple regression model, confirmatory factor analysis, path analysis and structural equation modeling used through SPSS-25 and AMOS software.

## **Results**

Among the 384 people in the study, 214 (55.3%) were male and 170 (44.7%) were female. The average age



**Figure 1.** Results of path coefficients and factor load Structural model of the relationship between perceived stress and quality of life of the elderly in Ilam with a mediating role of hope with *total* effects in the standard estimation mode.



**Figure 2.** Results of path coefficients and factor load Structural model of the relationship between distress tolerance and quality of life of the elderly in Ilam with a mediating role of hope with *total* effects in the standard estimation model.

of the elderly in the study was about 68 years. 254 (66.1%) were married, 1 (0.3%) single, 108 (28.1%) widowed and 21 (5.5%) divorced. 220 people (57.3%) have primary education, 69 people (18.0%)

secondary education, 76 cases (19.8%) high school education and 19 people (4.9%) hold university degree. 266 cases (69.3%) have illness and 118 people (30.7%) were healthy.

Examination of the results of skewness, kurtosis and Kolmogorov-Smirnov test showed that the data

0.90. Therefore, the structural model of the relationship between perceived stress and quality of life of the

**Table 1:** Descriptive indexes of variables.

| Variable               | N   | Min  | Max  | Mean  | SD    |
|------------------------|-----|------|------|-------|-------|
| Physical health        | 384 | 6.0  | 20.0 | 12.36 | 3.04  |
| Mental health          | 384 | 9.0  | 27.0 | 18.31 | 3.72  |
| Social health          | 384 | 4.0  | 12.0 | 7.97  | 2.13  |
| Environmental health   | 384 | 9.0  | 22.0 | 14.86 | 3.13  |
| Quality of life        | 384 | 30.0 | 79.0 | 53.51 | 10.64 |
| Perceived efficacy     | 384 | 2.0  | 16.0 | 9.03  | 3.48  |
| Perceived helplessness | 384 | 2.0  | 14.0 | 7.87  | 2.85  |
| Perceived stress       | 384 | 6.0  | 30.0 | 16.91 | 5.87  |
| Regulation             | 384 | 3.0  | 12.0 | 7.55  | 2.37  |
| Tolerance              | 384 | 3.0  | 12.0 | 7.61  | 2.27  |
| absorption             | 384 | 3.0  | 12.0 | 7.54  | 2.40  |
| Evaluation             | 384 | 6.0  | 25.0 | 15.02 | 4.66  |
| Distress tolerance     | 384 | 16.0 | 60.0 | 37.74 | 9.92  |
| Passage                | 384 | 4.0  | 16.0 | 9.72  | 2.96  |
| Motivation             | 384 | 4.0  | 16.0 | 9.58  | 2.86  |
| Hope                   | 384 | 8.0  | 32.0 | 19.31 | 5.62  |

**Table 2:** Results of the structural model (relationship between perceived stress and quality of life of the elderly in Ilam with the mediating role hope with total, direct, and mediating effects (indirect)).

| Model    | $\chi^2$ | df | $\chi^2/df$ | RMSEA | GFI   | CF   | NFI  |
|----------|----------|----|-------------|-------|-------|------|------|
| Total    | 41.34    | 17 | 2.43        | 0.65  | 0.909 | 0.89 | 0.90 |
| Direct   | 49.98    | 19 | 2.63        | 0.59  | 0.90  | 0.90 | 0.90 |
| Indirect | 45.86    | 18 | 2.54        | 0.61  | 0.89  | 0.90 | 0.90 |

**Table 3:** The results of path coefficients and their test in the structural model of the relationship between perceived stress and quality of life of the elderly in Ilam with the mediating role of life expectancy with total, direct and mediating (indirect) effects.

| Model    | Path                            | $\beta$ | C.R  | P     |
|----------|---------------------------------|---------|------|-------|
| Total    | Qol $\geq$ perceived stress     | 0.78    | 7.60 | 0.001 |
|          | Hope to $\geq$ perceived stress | 0.61    | 8.92 | 0.001 |
|          | Qol to $\geq$ hope              | 0.34    | 5.62 | 0.001 |
| Direct   | Qol $\geq$ perceived stress     | 0.56    | 8.40 | 0.001 |
| Indirect | Hope $\geq$ perceived stress    | 0.66    | 8.92 | 0.001 |
|          | Qol $\geq$ hope                 | 0.71    | 1.00 | 0.001 |

**Table 4:** Results of direct, indirect, and total effects on the structural model of the relationship between perceived stress and quality of life of the elderly in Ilam with the mediating role of hope.

| Path                                                | Value             | Direct effect | Indirect effect | Total effect |
|-----------------------------------------------------|-------------------|---------------|-----------------|--------------|
| <b>Independent-moderate-dependent</b>               |                   |               |                 |              |
| hope $\geq$ perceived stress $\geq$ quality of life | Standard          | -0.57         | -0.21           | -0.78        |
|                                                     | Sig               | 0.047         | 0.004           | 0.001        |
| Result                                              | Partial Mediation |               |                 |              |

distribution was normal.

The results in the Table (2) shows the index of K2 in the structural model is less than 4. In addition, the RMSEA index in the model is significant and lower than 0.08, which indicates a good fitness. Similarly, GFI, CFI and NFI fitness measurement values were acceptable and greater than the value of

elderly in Ilam with the mediating role of hope confirmed. Figure (1) shows all the factor loadings between the subscales and their associated variables were greater than 0.60.

Table (3) shows that the direct, indirect, and total effects in the structural model of the relationship between perceived stress and quality of life of the

**Table 5:** The results of the structural model of the relationship between distress tolerance and quality of life of the elderly in Ilam with the mediating role of hope with total, direct, and mediating effects (indirect).

| Model    | $\chi^2$ | df | $\chi^2/df$ | RMSEA | GFI  | CF   | NFI  |
|----------|----------|----|-------------|-------|------|------|------|
| Total    | 10.78    | 32 | 3.12        | 0.73  | 0.88 | 0.88 | 0.88 |
| Direct   | 11.63    | 34 | 3.41        | 0.76  | 0.89 | 0.90 | 0.89 |
| Indirect | 11.28    | 33 | 3.34        | 0.74  | 0.81 | 0.89 | 0.88 |

**Table 6:** The results of path coefficients and their test in the structural model of the relationship between distress tolerance and quality of life of the elderly in Ilam with the mediating role of hope with total, direct and mediating (indirect) effects.

| Model    | Path                              | $\beta$ | C.R  | P     |
|----------|-----------------------------------|---------|------|-------|
| Total    | Qol $\geq$ distress tolerance     | 0.95    | 5.60 | 0.001 |
|          | Hope to $\geq$ distress tolerance | 0.88    | 1.43 | 0.001 |
|          | Qol to $\geq$ hope                | 0.16    | 1.10 | 0.27  |
| Direct   | Qol $\geq$ distress tolerance     | 0.68    | 8.48 | 0.001 |
| Indirect | Hope $\geq$ distress tolerance    | 0.90    | 1.29 | 0.001 |
|          | Qol $\geq$ hope                   | 0.72    | 1.33 | 0.001 |

**Table 7:** Results of direct, indirect, and total effects on the structural model of the relationship between distress tolerance and quality of life of the elderly in Ilam with the mediating role of hope.

| Path                                                  | Value             | Direct effect | Indirect effect | Total effect |
|-------------------------------------------------------|-------------------|---------------|-----------------|--------------|
| <b>Independent-moderate-dependent</b>                 |                   |               |                 |              |
| Hope $\geq$ distress tolerance $\geq$ quality of life | Standard          | 0.95          | -0.14           | 0.80         |
|                                                       | Sig               | 0.27          | 0.001           | 0.001        |
| Result                                                | Partial Mediation |               |                 |              |

elderly in Ilam with the mediating role of hope are significant. As a result, according to the model path coefficients in Table (4), the mediating role of life expectancy by -0.21 units adds to the overall effects of the relationship between perceived stress and quality of life of the elderly in Ilam. The total effect was -0.781, which in compared to the direct effect of -0.571. In considerably different. It can be concluded that the mediating variable of hope in relation with perceived stress and quality of life of the elderly in Ilam is effective.

The results shown in the table 5 indicates K2 index was less than four. In addition, the RMSEA index in the model is significant and lower than 0.08, which indicates a good fit of the model. Similarly, GFI, CFI and NFI fitness measurement values, were acceptable and greater than the value of 0.90.

Figure (2) shows all the leading factor between the subscales and their associated variables for all the variables were greater than 0.60.

As the Table (6) shows, the values CR outside distance (+2 and -2) and P values are also less than the significance level of 0.05. However, in the overall effect model, the path coefficient between distress tolerance and quality of life of the elderly is not significant since the amount of C.R. was between

the range (+2 and -2) and the value of P is 0.060 greater than the significance level of 0.05. In order to determine the effect and determine the type of mediating role of life expectancy in relation to stress tolerance and quality of life of the elderly in Ilam, the results of Table (7) provided.

Table (7) shows that the direct, indirect, and total effects in the structural model of the relationship between distress tolerance and quality of life with the mediating presence of hope is significant. It is concluded that the mediating variable of hope is not effective in the relationship between stress tolerance and quality of life of the elderly in Ilam. Therefore, the mediating role of hope in the relationship between stress tolerance and quality of life of the elderly in Ilam is not effective and approved.

## Discussion

The aim of this study was to explain the relationship between perceived stress and distress tolerance with the quality of life model of the elderly in Ilam with the mediating role of hope.

The findings showed that hope plays a mediating role between perceived stress and quality of life in the elderly. This finding was consistent with the results of

a study by Save et al., (30) who conducted a study to investigate the relationship between quality of life and perceived stress with the mediating role of lifestyle behavior and depression. The results showed that a healthy lifestyle and depression could play a significant mediating role between quality of life and perceived stress. Samin and AkhlaghiKuhpayeh(31), also conducted a study aimed to predict hope based on quality of life, perceived stress, and fatigue. The results showed that quality of life has a significant positive relationship with hope.

Hope is one of the concepts very close to optimism and means expecting success and a better future, it means a reason to live. When there is hope for life in the heart and mind, there will be longing for life. Seligman (32) has shown with positive emotions, a person can gradually move towards true happiness. Positive emotions can be about the present, the future, and the past. Frustration, on the other hand, puts the person in an inactive state where he or she cannot assess and decide on different situations. Disappointment causes a person to constantly evaluate their experiences in a negative and inaccurate way and to consider worrying consequences for their problems. Hopeless mindset is inflexible which prevents individuals from solving their problems. In fact, when stress exceeds one's ability, frustration becomes apparent if there is hope for improvement. The interaction between perceived stress and hope also enhanced, and low hope, by increasing perceived stress, endangers the quality of life.

Hope also affects the relationship between distress tolerance and quality of life of the elderly in Ilam. Findings related to this hypothesis show that hope is not effective in relation to distress tolerance and quality of life in the elderly. Consistent with the findings of this hypothesis, Afrashteh, Mohammadi, and Tamjidi(15) conducted a study to investigate the mediating role of hope in the relationship between psychological hardiness and distress tolerance. The results showed that the coefficient of death anxiety pathway with all three variables of psychological hardiness, distress tolerance, and hope is negative and significant. However, the coefficient of strength of psychological hardiness and tolerance of distress with hope was not significant. In explaining this

finding, we can point to the importance of hope in human life. Lack or decrease of hope has always been associated with negative variables and psychological problems. Low hope leads to increased anxiety and depression, which in turn can negatively affect the quality of life. People who have low hopes for self-care, especially in old age, feels caregiving is useless and frustrating, which significantly reduces their quality of life.

The theory of hope explicitly emphasizes on the motivation or beliefs that can create the cognitive strategies to achieve the desired results. Accordingly, the dimensions of quality of life cannot be separated from the structure of hope because it includes a positive feeling of self-efficacy, control, and positive expectations of the present and the future. As a result, people with high stress often have difficulty in understanding these pathways, and when they are under stressful situations, they may lose their hope under the influence of stress. Therefore, the relationship between the two variables is inverse.

As a result, the study of successful aging is one of the important research topics of geriatricians. Many elderly men and women are economically unproductive and consuming, socially lonely and isolated, and in terms of health are at risk of chronic diseases and their complications (33). Movement disorders, dementia, accidents, depression, and heart and lung disease are some of their major problems; because of these problems and insufficient social, emotional and financial support, especially among the low-income class of society, the elderly experience a very bad life (34). Providing care for the elderly must go beyond medical care and take full account of their physical, mental, and social well-being needs. The most important factor in meeting emotional mental needs and improving their quality of life is to value by social workers. The health care providers and family members must be educated about mental health status and leisure time of elderly.

Planning for any service requires recognizing the real needs of the elderly. Awareness and achieving their real needs will help planners to plan according to their wants and needs. According to the obtained results, it is suggested that future studies to conduct an in-depth structural study to understand the concept of quality of life and its components in nursing homes or other

places, and its effective results. Considering that quality of life is an important issue for future studies and more research would be done on the variables involved in these areas, such as cultural, social, sports activities, etc. Longitudinal methods suggested studying factors related to the quality of life of the elderly. The results of the present study and research on quality of life and its relationship with other factors, comprehensive models can be proposed that help managers better understand the key factors. The present study showed that mediating factors can also have a positive effect on the quality of life of the elderly, so for better efficiency of this method, it is necessary for the country's authorities to take care of this approach in providing the necessary facilities.

It is suggested that the necessary interventions to increase the quality of life of the elderly be designed and implemented with the consideration of psychological dimensions such as tolerance of anxiety and perceived stress.

There were some limitations to the present study. The first limitation was related to its design, which is cross-sectional. To better understand causal relationships, it is necessary to use a formative or longitudinal approach. Second, this study was conducted only on the elderly of Ilam city, therefore, generalizing the results to other geographical areas should be done with caution.

## Conclusion

The role of few factors were emphasized in this study, but as mentioned earlier, personality, social, economic, and psychological factors also have a significant impact on quality of life. Another limitation was that older people, despite being literate, had difficulty understanding some of the questions, which prolonged the data collection process. Many participants were excluded and in many cases researchers. Author had to answer and explain each question at length. The cognitive problems of the elderly were another limitation of the study, which led to the elimination and replacement of a significant number of participants.

## Acknowledgment

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## Conflict of Interest

The authors declare that they have no conflict of interest.

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