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Original Article

Quality of life in the community-dwelling elderly and associated factors: A Cross-Sectional study

Tayebeh Rakhshani[1], Hamid Salehiniya[2], Monire Azizi[3], Alireza Ansari-moghaddam[3], Hassan okati Aliaba, seydeh Zeinab Almasi[3,4*]

[1]Nutrition Research Center, Department of Public Health, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran.
[2]Social Determinants of Health Research Center, Birjand University of Medical Sciences, Birjand, Iran.
[3]Health Promotion Research Center, Zahedan University of Medical Sciences, Zahedan, Iran.
[4]Department of Epidemiology and Biostatistics, Tehran University of Medical Sciences, Tehran, Iran.

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ABSTRACT

Introduction: Recent medical and health advances have reduced mortality, consequently a relative increase in life expectancy and aging of population. One of the indices that properly indicate the status of elderly is the quality of life. Identifying the factors affecting the quality of life of the elderly in Zahedan, Iran.
Methods: This cross-sectional study was performed on 600 elderly people referring to the Zahedan health centers. Sampling method was two-stage clustering, the data were collected in the check list by using quality of life (QOL) questionnaire SF12 through interview and then were analyzed using independent t-test, one-way ANOVA, Pearson correlation coefficient and multiple linear regression.
Results: Of the 600 elderly men and women over 60 years, 472 subjects participated in the study, of whom 291 (61%) were male and 182 (39%) were female. The mean age of the study subjects was 66.2(4.04), and the mean overall quality of life scores in males and females were 28.4(3.7) and 29.07(3.7), respectively. The mean and standard deviation of physical component summary (PCS) and mental component summary (MCS) scores in males and females were 12.3(2.2) and 16.6(2.5), respectively. Age had inverse correlation with QOL and MS and had a direct and significant relationship with PCS. In multiple linear regression, significant relation was observed between chronic illness, hypertension, skeletal disease, diabetes, gastrointestinal disease, marital status, hookah using and smoking with PCS and also between marital status, hypertension and mental illness with MCS.
Conclusion: What is obtained from this study and the other relevant studies indicate that QOL is a multifactorial phenomenon that is influenced by demographic, clinical and behavioral factors, but the role of chronic diseases is more obvious. Therefore, it seems necessary to adopt health policies to correct the lifestyle of society.

*.Corresponding Author: Almasy2011@yahoo.com

Introduction

Aging of population due to the reduction of fertility and mortality is a worldwide phenomenon. According to the UN report, the world's elderly population in 2017 was 962 million, which is predicted to reach around 2 billion by 2050. Although the aging trend in Europe and North America is more (more than one in five people) in 2017. Though, growing of the elderly is observed in other parts of the world. Two third of the elderly people live in the developing countries and it is expected that 24% of the world's elderly belong to the Asian in 2050.[1]

The case is with Iran, as one of the developing countries, with increasing of aging population.[2] According to the latest general census of Iran, which was conducted in 2016, more than 9% of the population, ie about 7.5 million people over the age of 60 were identified.[3] The consequences of this phenomenon are clearly seen in various domains of health, society, economy and epidemiology.[4] Consequences of increasing numbers of elderly people are observed in almost all sectors of society, including the labor and financial markets, demand for goods and services such as housing, transportation and social protection, as well as family structures and intergenerational relationships.[1]

This rapid population transition is accompanied by epidemiological changes too. Complex changes in disease-health models have shifted from the prevalence of communicable diseases to the high prevalence of chronic diseases.[5] Chronic illnesses that cause 41 million deaths annually or 71% of the world's total mortality rate.[6] Unfortunately, Iran, while experiencing a major challenge related to the elderly population and its consequences, faces many challenges in other areas of the health system.[7] Despite the elderly population growth, addressing the needs of the elderly in all dimensions is not considered.[8]

The first step in improving the health of the elderly, and their preventing and reducing the disease is to identify the status of the elderly. One of the indices that properly indicate the status of the elderly is the QOL index.[2] QOL is an internal assessment of one's ability affected by the physical, psychological, and social potentials. QOL can represent general well-being, which includes happiness and overall life satisfaction.[9] This criterion can help meet community needs and improve clinical decision making, resource allocation, and policy making.[10]

QOL is influenced by various factors, such as personal, social and economic characteristics and personal health.[2] Adequate and scientific understanding of the factors affecting the QOL in any society enables appropriate interventions of authorities and administrators in different areas of society, especially of the health care providers, to improve the QOL of the elderly at the minimum cost.[11] Researchers have identified various factors influencing the QOL of elderly. In the study of Sun (2015), these factors were marital status, life composition (that is living alone or with spouse/children) and all factors related to health status, behavioral and socio-psychological factors. The most powerful link to QOL has been attributed to the chronic illness.[9]

Van (2017) in Vietnam, stated that the age, religiosity (Buddhism and Christianity), socioeconomic status, and no past illness, are the QOL influencing factors.[12] Hajian (2017) found QOL lower, especially in older women with lower education and no spouse.[13] A study

in Yazd (2015) indicated a direct relationship between QOL and lifestyle.[14]

Though, numerous studies have been conducted on the QOL of elderly people in different countries,[11] but yet, awareness of the status of planning and social services is important,[2] thus present study was designed to identify factors affecting QOL of the elderly in Zahedan (Iran).

Methods

In this cross-sectional study, 600 elderly people referring to the Zahedan health centers were entered for investigation.

Inclusion and exclusion criteria

Inclusion criteria were being 60 years or over, speaking ability, hearing ability, previous consent. Exclusion criteria included: having diseases, such as neurological deficits (stroke, Parkinson's) severe cardiovascular disorders, unstable chronic diseases (diabetes and malignancy), severe congenital defects.

Sample selection method

In this two-stage random sampling method, list of all health centers in Zahedan city was prepared. Then, 10 centers were selected by simple random sampling method and from each center 50 elderly persons were selected based on the age and gender ratios, according to the latest census of Iran in 2016 and according to inclusion criteria for each center. Subsequently, in the comprehensive health centers, a code was assigned to each case file, and then subjects were systematically selected and enrolled in the study. Data were collected through telephone calls and face-to-face interviews with patients at home (the researchers explained the purpose of the interview and the confidentiality of data and results). If it was impossible to contact a subject, the next subject was selected. The number of participants was determined based on age and gender ratio and according to the census of Iran in 2016.But 128 subjects were excluded due to inability to respond, and eventually, 472 subjects participated in the study.

Data collection method

The method of data collection was based on interview, but in some cases, it was done by telephone. If the study subject was not at home, some data (demographic data) were obtained from the other household members. Public health undergraduate students who had received the necessary training took interview to prevent any possible mistake. For data collection the check list of the demographic characteristics and health habits and the QOL questionnaire, the 12-item Short Form Health Survey (SF12), was used. Validity of the data collection tool was assessed by content validity method and the re-test was used to determine the validity of the tool (T = 90%).[15] This questionnaire was also validated in Iranian elderly community.[16, 17]

Demographic characteristics of the elderly included age (60-65, 65-70 and above 70), sex (female / male), marital status (married / never married / divorced), educational status (illiterate, elementary and guidance school, high secondary school and university), income status (totally independent, somewhat dependent and dependent), lipidemia (yes, no), glycemia (yes, no), Smoking (never smoked, current smoker, quitted), Hookah (using, not

using), History of endoscopy (yes, no), lifestyle (living alone, with spouse and children, with relatives, with friends, etc.), history of illness (yes, no), Skeletal disease (yes, no), mental illness (yes, no) and chronic illness (yes, no). SF12 questionnaire was used to assess QOL. The overall QOL score (D1) and its components included overall understanding of self-health (D2), physical functioning (D3), physical health (D4), emotional problems (D5), bodily pain (D6), social functioning (D7), Vitality (D8) and mental health (D9).

The physical component summary (PSC) also included the components of physical functioning (PF), role limitation due to physical problems (RP), bodily pain (BP) and general health perceptions (GH), and mental component summary (MCS) included vitality (VT), social functioning (SF), role limitation due to emotional problems (RE) and mental health (MH). The SF12 questionnaire was assessed with a Likert-type multiple choice scale, (”yes” or “no”) and the total score of the questionnaire was calculated from the sum of 12 questions and the scores range varied from 12 to 48. In other words, high score indicates higher quality of life.

Data analysis

The collected data were entered in SPSS version 21. The frequency, mean, and standard deviation indices were used to describe the data. For data analysis, first the normal data distribution was determined and after confirming, the independent single variable tests and one-way ANOVA were used. Pearson correlation of coefficient was used to determine coefficient of the variables and the multivariate linear regression to determine the predictive effects.

Results

In this study, of 600 subjects over 60 years old referring to Zahedan Health Centers 473 (291 male and 182 female) entered for investigation. The mean age of the subjects was 66.26(4.26). Mean scores of the different QOL levels are shown in Table 1. The mental health components with a mean of 7.09(1.9) were separately noticed in men and women with the value of 7.2(1.9) and 6.8(2.02), respectively.

The distribution of QOL scores in the elderly population of Zahedan as well as the mean PCS and MCS levels are shown in Table1.

Table 1. The QOL score elderly populations in Zahedan, Iran (based on sex)

	Male	Female	Total
	Mean(SD)	Mean(SD)	Mean(SD)
Physical functioning	3.5(1.0)	3.7(0.9)	3.5(1.0)*
Role limitation due to physical problems	3.0(0.5)	3.0(0.6)	3.0(0.5)
Bodily pain	2.8(0.8)	2.7(0.7)	2.8(0.8)*
General health perceptions	2.8(0.7)	2.7(0.7)	2.8(0.7)*
Vitality	3.8(1.2)	3.7(1.0)	3.8(1.1)
Social functioning	2.8(1.8)	3.1(1.2)	2.9(1.2)**
Role limitation due to emotional problems	2.6(0.7)	2.8(0.7)	2.7(0.7)**
Mental health	7.2(1.9)	6.8(2.0)	7.09(1.9)*

*P< 0.05. **P< 0.01: Student’s t-test was used for data analysis

Table 2. The QOL distributions of the community-dwelling elderly in urban areas

	N	PCS Mean(SD)	MCS Mean(SD)		N	PCS Mean(SD)	MCS Mean(SD)
Sex				Marital status			
Male	291	12.2(2.2)	16.6(2.4)	Married	175	12.4(1.9)	16.8(2.5)
Female	182	12.3(2.1)	16.6(2.6)	single	116	12.5(2.1)	16.5(2.2)
Life style				widower	122	12.1(2.4)	16.4(2.6)
Single	171	11.7(1.6)**	16.5(2)	divorced	60	11.7(2.2)	16.6(2.5)
Spouse/ Child	174	13.4(2.5)	16.7(2.5)	Financial situation			
Relatives	40	11.5(1.7)	17.1(2.7)	Completely independent	36	12.5(1.6)	16.5(2.5)
Friends	18	11.3(1.4)	16.0(2.0)	Relatively in dependent	171	12.4(2.0)	16.6(2.6)
Others	70	11.6(1.4)	16.6(2.6)	dependent	266	12.2(2.3)	16.7(2.4)
hypertension				Age			
No	148	13.6(2.5)***	16.4(2.8)	60-65	235	12.2(2.1)**	16.6(2.3)
Yes	325	11.7(1.7)	16.7(2.3)	65-70	122	11.9(1.4)	16.9(2.4)
Lipidemia				>=70	116	12.7(2.8)	16.3(2.8)
No	341	12.5(2.3)***	16.7(2.5)	Education			
Yes	132	11.6(1.5)	16.4(2.3)	primary / secondary school	339	12.2(2.25)	16.7(2.4)
Cardiovascular disease				Below high school/high school	86	12.5(2.4)	16.5(2.9)
No	403	12.3(2.2)	16.6(2.4)	Academic degrees	48	12.1(1.6)	16.3(2.1)
Yes	70	12.3(2.1)	16.9(2.6)	Smoking			
Skeletal disease				Never	339	12.5(2.3)**	16.5(2.5)
No	435	12.2(2.2)	16.6(2.5)	Now user	124	11.6(1.6)	16.9(2.3)
Yes	38	12.7(2.0)	16.6(2.3)	Continuous use	5	13.3(2.5)	17.0(1.0)
Chronic Mental Illness				Quit smoking	5	10.8(1.6)	15.8(1.6)
No	318	12.4(2.3)*	16.9(2.4)**	Hookah			
Yes	155	11.9(1.6)	16.0(2.5)	no	334	12.6(2.3)	16.8(2.5)
Chronic disease				yes	139	11.6(1.7)	16.2(2.3)
No	57	14.9(2.6)**	17.0(2.9)				
Yes	416	11.9(1.8)	16.6(2.4)				

*P< 0.05. ** <0.01

As it is indicated in the table, the mean and standard deviation of PCS and MCS scores are 12.3(2.2) and 16.6(2.5), respectively. Table 2 shows the results of univariate analysis and the relationship of variables associated with PCS, MCS. Lifestyle variables, blood pressure, lipid profile, chronic mental illness, endoscopic history, smoking and age, have significant relationship with PCS (P <0.05). Only the mental illness variable had a significant relationship with MCS. The relation between age and QOL was assessed using Pearson correlation test. The mean age of the study subjects was 66.26 (4.2) and age had inverse relationship with QOL (r = -0.14, p <0.05), but age had a direct and significant relationship with PCS (r = 0.04, p <0.05) and a significant inverse relationship was noticed between age and MSC (r = 0.25, p <0.05).

Data analysis was performed separately for

PCS and MCS. Student's t-test was used for detecting the significance differences between different levels of each variable. Multiple linear regression results for determining the factors affecting QOL in the elderly are presented in Table 3.

Standardized Coefficients showed a significant relationship between the variables of chronic disease (B = 0.276, P <0.001), hypertension (B = 0.205, P <0.001), skeletal disease (B = 0.086, P <0.03), marital status (B = -.116, P <0.01), hookah smoking (B = 0.142, P <0.001) and cigarette smoking (B = 0.149, P <0.001). Also, MCS was related to variables of lipidemia (B = 0.142, P <0.001), mental illness (B = 0.142 P <0.001), and marital status (B = 0.142 P <0.001), but PCS did not have relation with glycemia and fat variables, previous illness, mental illness, history of endoscopy, sex and income. Also, there was insignificant relationship between MCS with lifestyle variables, chronic disease, hypertension, previous disease, and skeletal

Table 3. The Multivariate Regression liner analysis for identifying the factors associated with QOL of the elderly

physical component summary (PCS)	Unstandardized Coefficients B	Standardized Coefficients Beta	Sig	R Square	Adjusted R Square
(Constant)	16.47	-	0.001		
Life style	-0.03	-0.02	0.568		
Chronic disease	-1.85	-0.27	0.001		
hypertension	-0.97	-0.20	0.001		
Blood sugar	-0.31	-0.05	0.190		
Lipidemia	-0.35	-0.07	0.105		
Cardiovascular disease	-0.12	-0.01	0.659		
Skeletal disease	0.69	0.08	0.033	0.343	0.32**
chronic mental illness	-0.32	-0.06	0.140		
Endoscopic history	-0.03	-0.00	0.871		
Sex	0.06	0.01	0.701		
Marital status	-0.24	-0.11	0.008		
Financial situation	-0.13	-0.03	0.376		
Hookah	-0.68	-0.14	0.001		
Smoking	-0.60	-0.14	0.001		
MCS					
(Constant)	16.68	-	0.000		
Life style	0.02	0.01	0.815		
Chronic disease	-0.28	-0.03	0.557		
Hypertension	0.21	0.04	0.493		
Blood sugar	-0.48	-0.07	0.138		
Lipidemia	-0.58	-0.10	0.049	0.05	0.027*
Cardiovascular disease	-0.18	-0.02	0.616	1	
Skeletal disease	-0.10	-0.01	0.809		
chronic mental illness	-0.83	-0.15	0.006		
Endoscopic history	0.19	0.03	0.442		
Sex	0.05	0.01	0.820		
Marital	-0.25	-0.10	0.041		

*P< 0.05. **<0.01

disease, heart disease, history of gastrointestinal disorders with the degree relatives, gender, income, hookah and cigarette smoking.

Discussion

According to our findings, elderly subjects of Zahedan had a moderate QOL, which is consistent with the results of Darvishpour,[11] Hajian,[13] and Heydari Fard.[18] Rezaee[14] and Hongthong[19] showed that majority of people enjoy good quality of life, whereas Sun[9] reported that the elderly subjects had a low level of QOL. Elderly people in western countries have higher QOL,[20] while review of Kazemi on 92% of 70 Iranian articles indicated a moderate QOL in the Iranian elderly.[2] Given that the developed countries have long experience in dealing with population problems, it is expected they will have better programs to improve QOL in older people.[20] Nevertheless, how to maintain and improve the QOL of urban elderly should be one of the focal points of medical cares.[9]

Our findings correspond to the Darwishpur's[11] reports, indicating that scores on the psychological component of QOL were higher than scores on the physical component, and in both studies the highest score belonged to the mental health dimension. The level of mental health in these studies may be related to the religious culture of Iranian society. Religion and spirituality play an important role in all stages of life, including old age. Because religious beliefs cause less attention to be paid to the material aspects of life and increase the tendency to spiritual life and communication with others.[21]

Studies have shown that religious beliefs and practices have a positive impact on the prevention and improvement of physical and mental illnesses which increase QOL and satisfaction.[8, 18] But in the study of Hajian, the highest score of QOL attributed to social performance.[13] Different levels of QOL in different studies may be due to differences in social, economic, lifestyle, and living conditions of the study subjects.[13]

In the present study, mean scores of bodily pain, general health and mental health of men were higher than that of women, and physical function, social functioning and emotional role of women were higher than in men. In the study of Hajian[13] with 750 sample size, Sun[9] with 3714 sample size and the other studies the mean scores of men in all fields were higher than in women.[12, 22] Studies show that women's expectations of health and living conditions are higher than men's, and as a result, women are more dissatisfied with their QOL.[14, 23] This can be a reason why men enjoy more general health (24). Higher rates of mental disorders in women than in men have been reported,[13] which may be a possible explanation for lower levels of women's mental health than men. The cause of more pain in women can be attributed to their menstrual periods, multiple abortions, pregnancies and menopause, compared to men of the same age. The data given by Salar,[23] indicate that older women (71.9%) more experience physical disabilities.

Heidari Fard concluded that differences in the quality of scores in different studies are attributed to the sample size.[18] Therefore, it could be the reason of the higher mean scores obtained in some women and its difference with the other studies. From this perspective, the reason of lower scores of men's physical and social performance to women may be that, the older men get retired, in addition they have less contact with community, less physical activity

and experience more leisure time. But women are often involved in housekeeping. Men compare their physical and social performance with their past, that is why their score is lower in these dimensions. Fajem showed that older women are involved in many activities, such as housekeeping, and cooking that lead to their engagement. While the men by the same age are often involved in relationships with their peers.[25]

The difference in the role limitation score among older men and women is that, women have less mental health than men and have a more gentle temperament due to hormonal changes; for the housekeeping, they often have to deal with these emotions in any way, to perform their duties.

Among demographic variables, there was a significant relationship between marital status and life composition with Pcs, which are in line with the findings of Beata[26] and Chruściel.[27] In contrast to the findings of Imami Moghaddam[28] and Borhani Nejad,[29] the family can have a positive impact on the physical and mental health of the elderly and thus improve their QOL.[30] Loneliness in the elderly is an important factor that reduces their QOL which is agreed by Taube's finding: elderly people living alone face physical and mental health risks. A person who lives with others can ask their help for simple activities and daily tasks that lead to increasing the QOL.[26]

Among the other variables under study, chronic disease showed the strongest association with Pcs. In the study of Sun, this relationship was observed in PCs and MCS too,[9] which correspond with the findings of Bernfort and Beata.[26, 31] Recent studies show that more than 80% of the elderly suffer a chronic illness[32, 5] and their average QOL scores are lower in all eight dimensions than healthy adults.[33] Khamar nya found the health status of the elderly in Zahedan at a low level.[24] The illness has adverse effects on QOL.[34] Outbreaks of chronic diseases can lead to lowering of the mean physical dimension than the mental dimensions of QOL.[29] Because, these diseases are long-term and often life-long, the patient may be ill for the rest of life, but will need care in the long run and this condition leads to a decrease in QOL.[20, 11] In the study of Imami Moghaddam, in addition to chronic illness, there was also a correlation between QOL and hypertension, which is consistent with our study.[28] In the study of Miranda, there was a significant relationship between QOL and skeletal disease, heart disease and blood pressure,[5] Which was not observed in the present study. In the study of Zahmatkashan, the relationship between illness and the physical and mental dimensions with QOL was found.[35] It is logical to find a link between chronic diseases, such as bone and heart diseases the blood pressure and lipidemia with the physical aspect of QOL, as most chronic diseases are associated with problems of mobility and the daily activities. Due to the lower fitness of the elderly, the more inactivity and physical functioning decreases, the sooner individual becomes more likely to develop long-term disability and loss of independence.[26] Increasing of age naturally affects the degradation of physical functioning, which is a key component of PCs and gradually reduces the ability in performing the daily activities independently.[26] This study found no association with heart disease, as only 15% of people had heart disease. Since cigarette and hookah smoking is one of the risk factors for chronic diseases, it is certain that, smokers are more likely to develop these diseases than

the non-smokers that reduce their QOL. The relationship between smoking and QOL was also found in the study of Sun.[9] There was also a significant relationship between mental illness, and MCS. In this regard, Olfson also points out to the 13% decrease in the QOL due to depression and anxiety disorders in the United States in 2013 compared to 2001.[36]

Conclusion

What emerges from this study and other relevant investigations is that QOL is a multifactorial phenomenon, that is influenced by demographic (age), Life style (Single)), clinical disease such as (hypertension, Lipidemia, chronic mental illness and Chronic disease) and behavioral factors (Smoking) and the role of chronic diseases is well noticed. Therefore, it seems necessary to adopt health policies to correct the lifestyle and to improve the QOL in this people.

Limitation

This study was conducted only in Zahedan and its results cannot be generalized to all elderly people in Iran. In addition, this study was conducted on the elderly people and due to various diseases in this age group, cooperation was not desirable, because a large number of them died during the study period.

Suggestion

To identify the factors affecting the QOL of the elderly, it is suggested that mixed studies followed by MIXED METHOD be performed on a larger sample size.

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