Health Related Quality of Life in Elderly People Living in Bandar Abbas, Iran: A Population-Based Study

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Abstract- Measuring health related quality of life of old people has become an important public health issue with the aging of population in developing countries. The aim of this study was to examine the health related quality of life of old people living in Bandar Abbas, Iran. This was a population–based study in which a random sample of 1000 individuals of the community aged over 60 years were interviewed using SF-36 questionnaire. Overall health related quality of life and relative differences between men and women and also between different age groups (60-75 years vs. >75 years) was assessed in this study. A total of 1000 elderly individuals completed the SF-36 questionnaire. Of all participants 499 (49.9%) were men, 501(50.01%) women, 789 (78.9%) aged 60-75 years, and 211 (21.1) aged over 75 years. The logistic regression analysis showed the age over 75 years could increase the risk of lower score of physical [OR: 2.69, CI; (1.96-3.73] and mental [OR: 1.58, CI (1.16-2.15)] component summaries of SF-36 regardless other factors. Additionally, suffering from chronic diseases could decrease physical and mental scores of health related quality of life separately [OR: 8.6, CI; (4.37-16.94) and OR: 1.8, CI (1.1-2.99) respectively]. Women compared to men and illiterate old people compared to literate ones are more likely to perceive worse health related quality of life especially in physical component [OR: 1.35, CI; (1.01-1.81) and OR: 1.59, CI (1.12-2.24) respectively]. The findings of this study suggest that health related quality of life in old people is not only decreased by aging, but each of other factors such as female gender, illiteracy, and chronic diseases could decrease health related quality of life of old people.

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Introduction

The world population is aging. with the aging of the world population, more than one quarter of the world population will be over the age of 60 by the year of 2010 (1). From 1965 to 2025, the percentage of people 65 years and older is expected to increase by 17 to 82% in European countries and by about 200% in some developing countries (2). By July 2007, the population of Iran was 65,397,521, of whom 5.4% (male 1,701,727 / female 1,800,462) were 65 years and over (3). As in most other countries, life expectancy in Iran has increased over the last decades such that it has been measured as 70.3 years in 2005 while it has been 47.2 years in 1960, 52.5 years in 1970, 57.7 years in 1980, 63 years in 1990 and 68.6 years in 2000 (4). Aging causes a higher probability of suffering from multiple health complaints. Additionally in most cases aged individuals (75-84 years) specially, those over 85 years live with one or more chronic diseases that can not be cured completely. However, the consequences of these diseases might be prevented by focusing on health care and quality of life of these old people (5). Chronic diseases such as diabetes mellitus, coronary heart disorders, cerebrovascular disease and osteoporosis are more prevalent among old people and cause medical, social and psychological problems that could limit elderly people activities and consequently result in decreased health related quality of life (HRQOL) (2). Therefore, the HRQOL of elderly people has become an important public health issue with the aging of population in developed and developing countries (6).

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Different dimensions of social, physical and mental function are considered in health related quality of life. (7). Since HRQOL provides a subjective overview of the state of health of old individuals and worse HRQOL is associated with higher mortality and morbidity rates and also a greater use of health care services, measuring existent HRQOL of old people could be helpful for heath program planning in future (8).

Bandar Abbas is one of southern cities of Iran located in Hormozgan province. To our knowledge, there is no study regarding the status of health related quality of life of elderly people who reside in this city, whereas it is a need for health program planners. This study aimed to examine health related quality of life among old people living in Bandar Abbas.

Patients and Methods

A population-based study was conducted to investigate the quality of life of elderly people living in Bandar Abbas, South of Iran. Using a cluster sampling method, a random sample of 1000 individuals, accounting for about 5% of whole old population - aged over 60 years - were interviewed from April to May, 2007. To select a representative sample of the general old population, 50 different geographical districts as clusters were randomly selected through the map of Bandar Abbas. Then in each cluster, 20 eligible participants who aged more than 60 yrs, took part in the study. To start sampling, the first household was considered as the first point of sampling and then all eligible elderly people were asked to answer the questions. If there were no elderly individuals in each household, the next neighborhood was selected. This approach of sampling continued until 20 participants recruited in each cluster.

Two questionnaires were used to collect data. The first one included questions regarding basic demographic data such as age, gender, level of education, living status (live alone or with family), smoking status and having chronic diseases or health conditions such as diabetes, cardiovascular diseases, stroke, hypertension, arthritis, back pain, hearing impairment and visual impairment. It was developed based on literature review. The second one was Short Form Health Survey (SF-36).This is a well known general HRQOL questionnaire that measures QOL in eight subscales: Physical Functioning (PF), Role Limitations due to Physical Problems (RP), Bodily Pain (BP), Vitality (VT), General Health(GH), Social Functioning (SF), Role Limitations due to Emotional Problems (RE) and Mental Health (MH). Three subscales (PF, RP, BP) correlate most highly with the physical aspect of QOL and associated with subscale of GH contribute most to the scoring of Physical Component Summery (PCS) measure. The mental aspect of QOL correlates most highly with the subscales including MH, RE, and SF which associated with VT contributes most to the scoring of Mental Component Summery (MCS) measure (9). The SF-36 reports the subjects' perceived QOL by scores ranging from zero to 100, where 100 is the best and zero is the worst score (10). We used the Iranian version of the SF-36 questionnaire. The validity and reliability of the Iranian translation of the SF-36 is well documented (11).

The information for the study was collected by a group of trained interviewers in face to face interviews. If any individual was unable to answer the questions or was unsatisfied to take part in the study, then she/he excluded from the study. This study was approved by the Medical Ethics Committee of HUMS. The procedures of the study were explained to all subjects, and all provided and signed informed consent form if they were satisfied to take part in the study.

Data were entered to SPSS 13 software and analyzed in a descriptive- analytic fashion. Independent t-tests were used to compare differences of SF-36 subscales scores between gender group and age group. To assess the interaction between independent variables and to estimate the risk of being lower than standard mean score (50±1) in physical and mental component summary (PCS and MCS) logistic regression analysis was performed. The significance level was set at $P<0.05$.

Results

Totally 1058 elderly individuals were living in selected households, from them 58 individuals refused to participate in the study, so the study conducted with 1000 participants who completed the questionnaires. Thus, the response rate of the study was 94.5%. The mean age of participants was 69.02(SD=7.8), ranging from 60 to 105 years. Of all participants who completed SF-36 questionnaire 499 (49.9%) were men, with mean age of 69.01(SD= 8.3) and 501(50.01%) were women with mean age of 69.03(SD=7.2). Furthermore among all participants 789(78.9%) individuals aged between 60 to 75 years with mean age of 65.7(SD= 4.1) and 211(21.1%) individuals aged over 75 years with mean age of 81.8(SD=6.3).

Table 1 shows the characteristics of the study sample by gender and age group. As this table indicates there

were statistically significant differences between men and women in all sociodemographic variables except age group (all *P* Value <0.005). This finding shows that the higher proportion of participated women compared to men were illiterate, living alone, were hookah smoker not cigarette smoker and suffering from at least one chronic disease or health condition.

The quality of life scores in eight subscales of SF-36 questionnaire for all participants, men and women and also two age groups separately are presented in table 2. As this table indicates there are significant differences between men and women in terms of Physical Function, Vitality, and General Health, (*P*<0.05). Moreover, there were significant differences between two age groups of participants in terms of all subscales of health related quality of life except for Role Limitations due to Emotional Problems subscale (*P*< 0.05).These findings indicate that gender and age group differences could affect on both physical and mental component of quality of life.

Of all, four hundred and twenty participants (42%) were suffering from hypertension, 293 individuals (29.3%) from cardiovascular disease, 251 ones (25.1%) from arthritis and 179 participants (17.9%) suffering from diabetes. These diseases were most prevalent among studied participants.

Table 1. The characteristics of the study sample by gender and age group(n=1000)

Variables	All No (%)	Gender group			Age group		
		Female N(%)	Male N(%)	P*	60-75 N(%)	> 75 N(%)	P*
Age (all)							
60-75	789(78.9)	391(78)	398(79.8)	0.51			
>75	211(21.1)	110(22)	101(20.2)				
Education							
Literate	232(23.2)	45(9)	187(37.5)	0.001	200(25.3)	32(15.2)	0.002
Illiterate	768(76.8)	456(91)	312(62.5)	589(74.7)	179(84.8)		
Living status							
With Family	946(94.6)	458(91.4)	488(97.8)	0.001	752(95.3)	194(91.9)	0.06
Alone	54(5.4)	43(8.6)	11(2.2)	37(4.7)	17(8.1)		
Smoking status							
No smoking	803(80.3)	410(81.8)	393(78.8)	0.001	625(79.2)	178(84.4)	0.80
Cigarette smoker	81(8.1)	6(1.2)	75(15)	73(9.3)	8(3.8)		
Hookah smoker	116(11.6)	85(17)	31(6.2)	91(11.5)	25(11.8)		
Chronic disease							
Yes	684(68.4)	234(46.7)	186(37.3)	0.003	330(41.8)	90(42.7)	0.82
No	316(31.6)	267(53.3)	313(62.7)	459(58.2)	121(57.3)		

*Chi-square test

Table 2. Comparison of the SF-36 scores between men and women and the two age groups (a higher value indicates a better condition)

HRQOL	All	Gender group			Age group		
		Male n=499	Female n=501	P*	60-75 n=789	>75 n=211	P*
PF[1]	41.8±23.5	47.1± 24.1	36.6 ± 21.7	<0.001*	45.8±22.3	27.2± 22.2	<0.001*
RP[2]	55.4±30.2	55.6 ±29.5	55.2 ± 30.1	0.84	58.1±28.6	45.8±34.1	<0.001*
BP[3]	43.7±23.9	45.1± 24.5	42.4±23.4	0.08	44.5±23.9	40.9±23.8	<0.05*
GH[4]	42.8±16.5	44.1±16.6	41.8±16.5	0.03*	44.2±16.8	37.7±14.3	<0.001*
MH[5]	65.6±13.9	65.7±14.1	65.5±13.8	0.83	66.6±13.9	62.1±13.7	<0.001*
RE[6]	66.5±28.4	67.5±28.6	65.7±28.2	0.30	67.1±27.6	64.6±31.4	0.25
VT[7]	48.3±17.3	49.8±17.4	46.8±17.1	<0.007*	50.4±16.9	40.6±16.4	<0.001*
SF[8]	73.1±25.6	73.2±25.6	72.9±25.8	0.85	74.1±25.5	69.5±26.1	<0.03*
MCS[9]	63.3±13.3	64.01±12.9	62.7±13.7	0.14	64.5±12.7	59.1±14.7	<0.001
PCS[10]	45.9±16.3	*47.9±16.8	44.01±15.5	<0.001	48.1±15.4	37.9±16.9	<0.001

*Independent t-test

1-Physical Function 2-Role Limitation due to Physical Function 3- Bodily Pain 4-General Health 5-Mental health 6-Role Limitation due to Emotional Function 7-Vitality 8-Social Function 9-Mental Component Summary10-Physical Component Summary

Table 3. Comparison of the SF-36 among participants with different chronic disease (a higher value indicates a better condition

	Hypertension			Cardiovascular Disease			Arthritis			Diabetes		
	Yes	No	P*	Yes	No	P*	Yes	No	P*	Yes	No	P*
	M (SD)	M (SD)		M (SD)	M (SD)		M (SD)	M (SD)		M (SD)	M (SD)	
PF [1]	38.4 (22.5)	44.3 (24.1)	S	38.4 (21.6)	43.2 (24.1)	S	35.1 (22.1)	44.1 (23.6)	S	40.2 (22.5)	42.1 (23.7)	NS
RP [2]	53.6 (30.4)	56.7 (30.1)	NS	54.4 (30.5)	55.8 (30.1)	NS	53.6 (30.5)	56.1 (30.1)	NS	57.5 (28.1)	54.9 (30.7)	NS
RE [3]	64.5 (29.2)	68.1 (27.8)	S	65.8 (28.5)	66.8 (28.4)	NS	64.1 (30.6)	67.3 (27.4)	NS	65.1 (27.4)	66.8 (28.6)	NS
VT [4]	46.6 (17.4)	49.5 (17.2)	S	47.1 (16.4)	48.7 (17.6)	NS	46.7 (17.8)	48.8 (17.1)	NS	48.6 (17.9)	48.2 (17.2)	NS
MH [5]	65.3 (13.8)	65.9 (14.1)	NS	65.5 (13.9)	65.6 (13.9)	NS	65.7 (13.6)	65.6 (14.1)	NS	64.6 (13.8)	65.8 (13.9)	NS
SF [6]	71.6 (24.9)	74.1 (26.2)	NS	72.8 (24.4)	73.1 (26.2)	NS	73 (24.2)	73.1 (26.1)	NS	71.3 (26.1)	73.4 (25.5)	NS
BP [7]	43.1 (23.1)	44.1 (24.7)	NS	43.4 (22.8)	43.8 (24.4)	NS	40.6 (21.9)	44.7 (24.5)	S	45.1 (23.4)	43.4 (24.1)	NS
GH [8]	40.7 (16.1)	44.3 (16.7)	S	39.8 (15.6)	44.1 (16.7)	S	41.2 (16.3)	43.4 (16.6)	NS	41.4 (16.2)	43.1 (16.6)	NS

* S means Significant , NS means non significant through t test analysis

** 1- Physical Function 2- Role Limitation due to Physical Function 3-Role Limitation due to Emotional Function 4-Vitality 5-Mental health 6-Social Function 7-Bodily Pain 8-General Health

Table 4. Result of Logistic Regression Analysis for PCS and MCS

Variables	PCS		MCS	
	OR (CI)	P	OR (CI)	P
Age				
60 -75	1 (Ref)			
>75	2.69(1.96-3.73)	<0.001	1.58(1.16-2.15)	<0.004
Gender				
Male	1 (Ref)			
Female	1.35(1.01-1.81)	<0.04	0.99(0.75-1.31)	0.97
Education				
Literate	1 (Ref)			
Illiterate	1.59(1.12-2.24)	<0.008	0.84(0.61-1.16)	0.29
Living Status				
With Family	1 (Ref)			
Alone	1.29(0.72-2.31)	0.37	1.36(0.77-2.39)	0.27
Smoking Status				
No smoking	1 (Ref)			
Cigarette Smoker	0.82(0.48-1.39)	0.47	0.81(0.50-1.32)	0.40
Hookah Smoker	0.85(0.56-1.30)	0.47	0.90(0.60-1.34)	0.60
Having chronic disease				
No	1 (Ref)			
Yes	8.6(4.37-16.94)	<0.001	1.80(1.1-2.99)	<0.03

Table 3 shows the comparison of SF-36 scores between participants who were suffering from these disease and who were not.

To assess the interaction between all independent variables rather than age and gender and their effect on Physical Component Summary (PCS) and Mental Component Summary (MCS) of QOL and to estimate the risk of being lower than standard mean score (50±1), multivariate logistic regression analysis was performed. The findings of this analysis are presented in table 4. According to the findings shown in this table, age group of >75 years could increase the risk of decreasing both physical (PCS) and mental (MCS) aspect of HRQOL regardless other factors [OR: 2.69, CI; (1.96-3.73) and OR: 1.58, CI; (1.16-2.15) respectively]. Additionally, suffering from chronic disease, could decrease both physical (PCS) and mental (MCS) aspect of HRQOL singly [OR: 8.6, CI; (4.37-16.94) and OR: 1.8, CI (1.1-2.99) respectively]. Furthermore the findings from this table indicate women compared to men and illiterate old people compared to literate ones are more likely to perceived worse quality of life especially in physical component [OR: 1.35, CI; (1.01-1.81) and OR: 1.59, CI (1.12-2.24) respectively].

Discussion

The health related quality of life of older people has become an important public health issue with the aging of population in developed and developing countries (6). This study examined the HRQOL scores in eight subscales of SF-36 questionnaire and also compared these scores in different genders and age group of old people living in Bandar Abbas, Iran. Additionally the contribution of some socio demographic and lifestyle factors to affect on quality of life in this group of people assessed in present study. According to the findings of this study, the highest scores of subscales were belonged to social function, role emotional, mental health and role physical respectively. All of these scores were higher than standard mean score (50±10) while the other four subscales like vitality, bodily pain, general health and physical function obtained lower scores than mean. These results are similar in some subscales and different in others to the study conducted in Tehran by Montazeri and co-workers (11). In this study, old people living in Tehran - the metropolitan city of Iran – had the highest score and the most optimal condition in mental health followed by social function , bodily pain and vitality (higher than 50±10) but the lowest score and worst condition in role physical followed by role emotional and general health (lower than 50±10) (11). As the comparison of these results of two studies indicates, the old people living in Bandar Abbas suffering from much more pain and less vitality while they compare with who living in Tehran. In contrast people living in Tehran evaluated themselves as more physically and mentally disabled individuals and consequently having worse general health. Although these similarities and differences of two communities may have their own rational explanations but further researches recommended confirming these conditions. However, one reason that might be argued for more perceived disability of old people living in Tehran is that people living in Bandar Abbas used to work hard throughout their life and subsequently they had more physically trained bodies when they reached to aging stage means 60 years and over. The results of present study are consistent with the study conducted by Stadnyk and co-workers (12). In current study like Stadnyk study social function, role emotional and mental health respectively has shown more optimal condition. In addition physical function, general health and bodily pain had lower and worse scores. In Stadnyk study physical function , role physical and vitality had lowest scores and worst situations that is almost in consistent with our study but whatever might be highlighted in comparison of these two studies is that the mean scores of physical function and role physical of our study is more than Stadnyk study (12). The rational reason of these differences might be due to mean differences of the two samples age so that in Stadnyk study 57% of participants were more than 80 years old and the mean age of these participants were higher than other study (12). Lopez- Garica et al (2003) conducted a similar study regarding QOL of elderly people in Spain using SF-36 instrument and identified that Role Emotional and Social Function scales had the highest scores respectively that is in consistent to our study in some extent. In contrast with our study, Lopez- Garica did not report physical role limitation for Spanish old people (13). This difference may be due to different life styles of two communities. However further researches recommended to compare old people living in western developed countries with who living in developing courtiers to confirm this kind of findings.

The findings of this study showed, among the older people living in Bandar Abbas, women had a substantially worse HRQL than men on PCS (P<0.001). In this physical component the subscales of Physical Function and Vitality showed a high statically significant difference (P< 0.001 and P< 0.007

respectively) while the subscale of General Health showed lower significant difference ($P<$ 0.03). Therefore it might be concluded that women living in Bandar Abbas, Iran are more physically disabled than men so that this disability could lead to this situation in which they felt lower Vitality and General Health in comparison with men. However differences in sociodemographic factors such as age group, education, living status, smoking status and suffering from chronic diseases may partly explain the worse score registered by women on the physical aspect of HRQL. To assess these potential effects, more advanced analysis (regression analysis) performed, in which all above sociodemographic factors considered as independent variables may affect HRQOL. The results of this analysis showed that regardless of other variables, just gender differences could significantly increase the risk of lower score of physical aspect of HRQOL while it could not change the mental aspect of HRQL. Because in this study we adjusted the participants for most important variables like age, gender, education, social support (living alone or with others), smoking and chronic diseases which have been shown as effective variables on HRQL in other studies (1, 2, 5, 6, 8, 11), So it should be more paid attention that there might be something different between men and women that caused such differences in physical aspect of HRQL. However more researches recommended clarifying these differences. This result in present study is similar to the results have been reported by many other studies with regard to differences in QOL between men and women in older population (1, 2, 5, 8, 13, 14)

Our findings showed the older people (>75 years old) with significantly lower scores and so more problem in all subscales of SF-36 except for Role Emotional compared with other age group. In other words being older could affect on both Mental and Physical Component Summary of SF-36 questionnaire. Additionally this study showed when adjusted participants for all sociodemographic variables, age group could singly affect both two mental and physical component of HRQOL regardless other factors. Lopez-Garcia et al (2003) reported that older people had lower scores in all scales of HRQOL except mental health which is most similar to our findings (13). Moreover this finding of our study is supported by other researches (5, 6, 8, 11). Therefore our study suggests older people should be paid more attention and provided them with more health cares.

According the findings of this study, chronic disease such as hypertension, cardiovascular disorders, arthritis and diabetes were the commonest disease among participants which affects on HRQOL of old people. This result is consistent with previous study (2). There for health care of old people by health system should be paid more attention. In general the findings of this study suggest that HRQOL in old people is not only decreased by aging of people but each of other factors such as being female, illiterate, and suffering from chronic diseases could decrease HRQOL of old people regardless aging.

Results of this research could be applied by health policy makers and health program planners for considering old and elder people as a high risk group to be paid special attention. Furthermore, among this group, there are some factors which could decrease health related quality of life of them, so health care system should be coped with the needs of different subgroups of old people.

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