Iranian J Publ Health, Vol. 40, No.2, 2011, pp.128-135

Original Article

Determinants of Health Related Quality of Life on People Living in Bandar Abbas, Iran

*T Aghamolaei[1], *S Sadat Tavafian[2], Shahram Zare [3]*

[1]Dept. of Health Services, School of Public Health, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
[2]Dept. of Health Education, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
[3]Dept. of Social Medicine, School of Medicine, Hormozgan University of Medical Sciences, Bandar Abbas, Iran

(Received 9 Feb 2011; accepted 27 Jun 2011)

Abstract

Background: The relationship between socio demographic status and Health Related Quality of Life (HRQOL) has not been well documented in most population of Asian countries including Iran. This study aimed to investigate the determinants of HRQOL in general population living in Bandar Abbas.

Methods: This cross sectional study was conducted among general population living in Bandar Abass , Iran from Jun to Jul, 2007. Using a multistage sampling method, a random sample of individuals aged 15 years and over were interviewed through SF-36 questionnaire .Multiple logistic regression analysis were used to predict determinant factors on health related quality of life.

Results: Overall, 1675 Iranian adults were interviewed. The majority of the participants were female (50.4%), married (70.9%) and employed (36.8%). The range of education years of most participants (56.7%) were from 6 to 12 years. Female participated in this study had significantly poorer HRQOL than male in all aspects of SF-36 except for Role Emotional ($P< 0.001$). Furthermore there were significant differences between different age groups in all individually scales and two summaries ($P< 0.001$). After adjusting for the impacts of other socio demographic factors, variable such as older age, female gender and lower educational level could independently decrease both mental and physical aspect of HRQOL ($P< 0.01$).

Conclusion: Female, older and less educated people are at higher risk of poorer health quality of life in both mental and physical aspects and should be considered as high risk groups in priority health programs.

Keywords: *Quality of life, SF-36, General population, Iran*

Introduction

Health- related quality of life (HRQL) is a subjective overview of health which includes only those aspects of quality of life (QOL) that were affected by individuals' health or his/her perception of health (1, 2). HRQOL is a subdivision of quality of life that refers to people's experience regarding their overall health (3) and has been defined as "a multi dimensional concept that encompasses the physical, emotional and social components associated with an illness or treatment "(4). It has been shown that measuring HRQOL could be a valid and worthwhile outcome in clinical settings as well as among general population (1, 2, 5-8). Previous studies revealed that worse HRQOL is associated with higher mortality, higher morbidity, and a greater use of health care services (1, 9, 10). Most researchers demonstrated different HRQOL among different sub-

***Corresponding author:** Tel: +98 21 8288454, Fax: +98 21 82884555

groups of general populations in terms of their age and gender (10). Additionally, many evidences reported that women compared to men and older people versus younger ones, tend to report poorer HRQOL (1, 11, 12). Using SF-36 questionnaire, the impact of ethnicity and socio- economic status on HRQOL has been assessed in multi- ethnic urban Asian population include 4122 Chinese, Malays and Indians. According to the results of this survey, ethnicity, and socio- economic status independently influenced HRQOL (12). Females and elderly people were associated with impaired HRQOL in all SF-36 scales (13). In contrast, Franzen et al. stated that, although previous studies have investigated how HRQOL is affected by sex and many researchers worldwide indicated than women reported poorer HRQOL than men, but results are still insufficient and somewhat confusing for an exactly conclusion (14).

Different socio economic characteristics could be resulted in different HRQOL (15, 16). In other hands, HRQOL in sub groups of different genders and ages may be affected by the degree of socio-economic development, which may differs between different individuals (1).

Although there are substantial amounts of literature on possible explanatory factors may be resulted in more disability, more morbidity and lower HRQOL of women and elderly people compared to men and younger ones, also many studies documented lower HRQOL of people living in lower socio economic class in comparison with who are in higher status (1), most these studies have been conducted in developed worlds (3,12) that could not be generalized to people who living in developing countries.

In Iran, health related quality of life and its determents are not researched adequately, (3). Up to our knowledge, there is no investigation to address HRQOL and its contributors among general population of Bandar Abass, a southern city of Iran, while understanding these contributing factors to HRQOL, is essential for developing the most appropriate interventions to preserve and improve overall QOL of people living in this area.

In this study, we aimed to examine the association between several demographic variables such as age, sex, education, employment status and marital status with HRQOL.

Materials and Methods

This was a cross sectional survey of a random sample of adult people- aged over 15 yr old- selected from the general population in Bandar Abbas. This city has about 291000 inhabitants who aged over 15 yr old. We considered five percent of this population for our sample in this study, which was calculated as 1455 individuals. To enhance the power of the study, we increased this sample size up to 1675 individuals. Using a multistage sampling method, a random sample of 1675 individuals aged over 15 yr was selected randomly. At the first stage, the city was divided to 11600 sections, in each one about 25 individuals older than 15 yr were living. Secondly, to access 1675 people, 67 sections were selected randomly and at the final stage, all individuals aged 15 yr and over and also were living in the households located in these sections, were recruited for the study. All participants were interviewed at their home during Jun to Jul, 2007. Those who were not available for interview at given time were asked for another appointment. 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 was excluded from the study. This study received approval from the ethics committee of Hormozgan University of Medical Sciences. All participants gave their oral consents for interview. We kept the information of the participants confidential.

Measure of health related quality of life

We used the Short Form Health Survey (SF-36) questionnaire to collect data on HRQOL (5). This is a well known general HRQOL questionnaire that measures QOL in eight subscales: Physical Func-

tioning (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 HRQOL and associated with subscale of GH contribute most to the scoring of Physical Component Summery (PCS) measure (5). The mental aspect of HRQOL 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 (5). This paper also focuses on analyzing and reporting two summary scores including PCS and MCS. The SF-36 reports the patients' perceived QOL by scores ranging from zero to 100, where 100 is the best and zero is the worst score. We used the Iranian version of the SF-3 questionnaire. Validity and reliability of Iranian translation of SF-36 is well-documented (6).

Dependent and Independent variables

Eight subscales of SF-36 questionnaire and two summaries including PCS and MCS as described before were considered as dependent variables. The other data collected were included sex, age, education, marital and employment status as independent variables. The age of participants was represented by four categories of 15-24 yr, 25-44 yr, 45–64 yr and more than 64 yr. Education was categorized into three groups: 0-5 yr of education, 6-12 yr and over 12 yr of education. Employment status was categorized into five categories including employed, housewife, student, unemployed and retired. Marital status was divided into three categories including single, married and widow/divorced.

Data analysis

SPSS version 13 was used to analyze data, using both descriptive and analytical analysis appropriately. To examine the association between participants' characteristics and their HRQOL, univariate statistical test like T-test and one way analysis of variance (ANOVA) were performed. To realize determinant factors of HRQOL, multiple logistic regression analysis was applied. For the purpose of logistic regression analysis Physical Component Summery (PCS) and Mental Component Summery (MCS) were used and relative to mean score the study sample were divided into two groups: those who scored equal or greater than mean as high risk participants and those who scored below mean as low risk participants. Because of this categorizing, logistic regression analysis was used for PCS and MCS score which is basically numerical variables, but in this study analyzed as binary categorical variables. In this study enter model of logistic regression analysis was used for each summery measures (PCS and MCS).

Results

All potential interviewees were willing to take part in the study, additionally, all the questionnaires were filled completely by the interviewers, so totally 1675 questionnaires were analyzed. Thus, the response rate of this study was perfect (100%). Table 1 shows the characteristics of the study sample. The mean age of study sample was 42.1±16.5, ranging from 15 to 100 yr. Of all participants who completed SF-36 questionnaire 49.6% (n= 830) were men, with a mean age of 42.2 (SD= 16.5) and 50.4% (n= 845) were women with a mean age of 41.9 (SD= 16.4) There were no significant difference between them in terms of age.

The mean score of eight dimensions of SF-36 questionnaire for all participants and both men and women separately are presented in Table 2. As this table indicates there were significant differences between men and women on all sub scales of SF-36 and the MCS and PCS scores except for role limitations due to emotional problems (RE), indicating that women reported significantly poorer HRQOL compared with men ($P< 0.01$). Furthermore, the quality of life scores for different age groups are shown in Table 3. According to this table, there were significant differences between four age groups on all the SF-36 and the MCS and PCS scores ($P< 0.001$). Post Hoc tests (LSD) showed that there was no significant difference be-

tween two age groups of 15-24 and 25-44 in all dimensions of HRQOL. Additionally, this test showed these two groups were significantly different from two other groups of 45-60 and > 60, on all HRQOL domains, except RE, indicating that older groups reported worse HRQOL ($P< 0.05$). The results also demonstrated that there were statically significant differences in all HRQOL domains between age groups of 45-64 yr and age more than 64 yr ($P< 0.001$).

To indicate determinants factors of HRQOL multiple logistic regression analysis was performed. As indicated in Table 4, the results showed that for the PCS, factors such as sex, age, education and employment status were significant determinants. However, the results showed no significant results for marital status. According to findings of this table, for the MCS the results showed the factors like sex, age, education, and employment status were significant determinants.

Table 1: The characteristics of the study (n = 1675)

Characteristics	n	%
Gender		
Male	830	49.6
Female	845	50.4
Age		
15-24	318	19
25-44	583	34.8
45-64	643	38.4
>64	131	7.8
Education years		
0-5	583	34.8
6-12	950	56.7
>12	142	8.5
Employment status		
Employed	617	36.8
Housewife	590	35.2
Student	135	8.1
Unemployed	58	5.1
Retired	248	14.8
Marital status		
Single	328	19.6
Married	1183	70.6
Widow/Divorced	164	9.8

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

SF-36 Scale	All	Male	Female	*P* value
	n (1675)	n (830)	n (845)	
PF[1]	80.5±25.4	84.4± 25.1	76.7±25.2	<0.001
RP[2]	87.5±28.5	90.2±24.9	84.8±31.5	<0.001
BP[3]	81.6±26.1	84.5±24.4	78.9±27.5	<0.001
GH[4]	67.4±20.0	69.4±19.5	65.3±20.2	<0.001
MH[5]	80.7±16.7	82.5±17.1	78.9±16.1	<0.001
RE[6]	92.7±21.9	93.1±21.6	92.4±22.3	0.55
VT[7]	83.2±20.4	85.9±20.2	80.6±20.3	<0.001
SF[8]	87.7±18.6	89.2±17.9	86.3±19.2	0.002
MCS[9]	86.2±15.4	87.8±14.7	84.7±15.9	<0.001
PCS[10]	79.3±20.2	82.2±18.5	76.4±21.4	<0.001

* Student's *t*-test

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

Table 3: Comparison of the SF-36 scores among age groups (a higher value indicates a better condition)

SF-36 Scale	15-24 years	25-44 years	45-64 ears	> 64 years	*P* value
	n (318)	n (583)	n (643)	n(131)	
PF[1]	92.2±14.7	91.3± 15.2	74.3 ± 24.7	34.5±23.9	<0.001
RP[2]	93.3±20.9	93.9 ±21.3	88.6 ± 27.2	39.2±33.4	<0.001
BP[3]	88.8±20.8	87.7±21.1	81.5±24.8	38.8±23.4	<0.001
GH[4]	73.1±16.6	73.3±16.6	65.5±18.9	36.4±15.7	<0.001
MH[5]	84.2±15.3	83.1±15.5	80.5±16.7	62.8±14.2	<0.001
RE[6]	95.2±18.7	96.6±17.1	94.8±18.8	59.1±32.5	<0.001
VT[7]	88.7±13.9	89.7±13.9	83.1±18.5	42.1±19.1	<0.001
SF[8]	90.5±15.9	91.1±15.9	87.8±17.4	66.7±26.1	<0.001
MCS[9]	89.7±12.1	90.5±11.2	86.7±13.6	57.6±15.9	<0.001
PCS[10]	86.9±12.1	86.7±12.5	77.4±18.4	37.2±17.8	<0.001

*One-Way ANOVA

Table 4: Results of Logistic Regression Analysis for PCS and MCS

	PCS	*P*. value	MCS	*P*. value
	OR (CI)		OR (CI)	
Gender				
Male	Ref(1)			
Female	1.85(1.25-2.74)	0.002	2.26(1.55-3.30)	0.001
Age				
15-24	Ref(1)			
25-44	1.22(0.68-2.11)	0.38	1.18(0.74- 1.62)	0.35
45-64	1.86(1.31-2.78)	0.001	1.78(1.12- 2.43)	0.001
>64	13.4(6.23-21.24)	0.001	4.56(2.23- 6.85)	0.001
Education years				
>12	Ref(1)			
6-12	2.90(1.69-4.98)	0.001	2.23(1.32-3.76)	0.002
0-5	2.23(1.67-2.97)	0.001	1.85(1.38-2.49)	0.001
Employment status				
Employed	Ref(1)			
Housewife	1.68(1.06-2.64)	0.03	1.21(0.75-1.93)	0.42
Student	1.67(1.00-2.78)	0.05	1.84(1.11-3.10)	0.02
Unemployed	1.98(0.95-4.11)	0.07	1.35(0.67-2.73)	0.39
Retired	1.28(0.63-2.58)	0.48	0.77(0.39-1.55)	0.47
Marital status				
Single	Ref(1)			
Married	1.21(0.79-1.83)	0.37	1.13(0.74-1.72)	0.55
Widow/Divorced	0.85 (0.46-1.57)	0.60	0.95(0.51-1.74)	0.87

Physical Component Summery ** Mental Component Summery

Discussion

The authors could conclude that the HRQOL in participants, was rather poor in elderly people and women. As the sample included five percent of adult population living in Bandar Abbas, so it could be almost generalized to whole people living there, so that we can conclude women and older people of this city perceived poorer HRQOL in comparison with younger ones and men. Therefore these findings might be of interest to clinicians, scientists, policy makers and health planners to consider aging process as well as female sex, as an important risk factor for reducing HRQOL and they should have effective interventions to prevent the effects of aging on HRQOL and proper health programs for females as well. There are much similarity between the results of this study and the study has been conducted in general population of Tehran as metropolitan city of Iran (4) which showed that women and old people had poorer health while compared with men and the younger respondents. Previous studies regarding HRQOL in other countries reported similar results in these regards (1, 8, 12, 17). In consistent with this result, Franzen et al. reported in their study that both being women and being older than 80 yr predicted lower HRQOL in the physical scale of SF-12 (14).

As we compared this finding with what concluded in the study conducted in Tehran, it might be argued that other socio demographic factors of women and older individuals living in Bandar Abbas such as lower level of education, getting married earlier and doing exhausting housework compared to these factors among who living in Tehran, may resulted in their different perception of health rather than their individually factors like gender and age. To answer this question, we investigated the influence of gender and age group differences on HRQOL after adjusting for other socio economic factors like education level, employment status and marital status. The findings from this analysis indicated that female gender apart from other socio economic variables had lower physical component summery score nearly twice and mental component summery score more than twice as much that of men. In addition, being aged over than 65 yr, decreased PCS score 13.4 times and MCS score 4.5 times compared with who were at low risk group as 15-24 age. Therefore the results of this study verified that after controlling other factors like education, marital status and employment, ageing and female sex could be a risk factor for poorer HRQOL. This finding of this study is consistent with other studies conducted in Tehran and elsewhere (1, 2, 6, 8, 15). A study revealed that elderly women reported poorer HRQOL in compared with their encounter men (3).

Other findings of this study indicated that lower education level could decrease HRQOL in both physical and mental aspects. The reason might be due to lower perception of health, lower access to health services and lower income of less educated people could be resulted in poorer HRQOL. This finding was supported by other studies (1, 12, 15). Moreover this study revealed that being as a housewife is a risk factor for worsen HRQOL in physical dimension and being as a student could resulted in lower score in mental dimension of HRQOL These findings seem logical because women who are housewives in Bandar Abbass have to do much labor work which might leading to decreasing their physical function and increasing their pain. In other hand students as adolescents and youth may have involved with more stressful problems without any problem solving skills that could lead to significantly lower mental health. These results are consistent with previous study that was conducted in Tehran in which the data were collected through WHOQOL-BREF. According the results of this study, women had significantly obtained lower scores of the questionnaire on the domains of physical, social, and environmental health. Also, with aging process from age group of lee than 20 yr to that of more than 60 yr old, the mean scores of all domains were decreased (16) Furthermore, According to Tajvar et al (3) female sex, older age, lower education and lower economic status were associated with poorer physical health related of quality of life, in a sam-

ple of Iranian old people while for mental health related of quality of life only gender and economic status were significant determinants of poorer HRQOL.

In contrast to other study, which clarified that married individuals had reported higher HRQOL while comparing to single people (3), this study revealed that marital status could not significantly decrease the scores of SF-36 on both mental and physical aspects. Considering this difference, the authors recommend doing more studies to investigate the influence of marriage factor on HRQOL specifically.

However, there were several limitations in this study may affect on the results. The study designed as a cross sectional study, so it is difficult to establish cause and effect relationship between HRQOL and potentially socio demographic factors. Thus, longitudinal studied are strongly recommended to assess the influence of these variables in future. In other hands, our sampling took into account only general population who were at home, not who were hospitalized or who were institutionalized due to their disease, so this kind of sampling, might have biased our results. Furthermore, the existent of chronic diseases among participants were not assessed in our study. Also factors such as economic status and social supports that were known as influencing factors on HRQOL, were not measured in this research. Therefore, in spite of large sample size of this study, it seems that the results of this study, could not be generalized to whole people living in Bandar Abbas. Therefore, doing more studies considering all target groups of people and also considering the influences of all socio demographic characteristics on HRQOL while adjusting for all other probably variables are strongly recommended.

Ethical Considerations

Ethical issues including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been completely observed by the authors.

Acknowledgments

The authors would like to thank research deputy of Hormozgan University of Medical Sciences for approval and financial support of this study. The authors declare that there is no conflict of interests.

References

1. Guallar- castillon P, Sendino AR, Banegas JR, Lopez-Garica E, Rodriguez-Artalejo F (2005). Differences in quality of life between women and men in the older population in Spain. *Soc Sci Med*, 60: 1229-40.
2. Zack MM, Moriarty DG, Stroup DF, Ford ES, Mokdad AH (2004). Worsening trend in adult health related quality of life and self rated health- united States, 1993-2001. *Public Health Rep*. 119(5): 493–505.
3. Tajvar M, Arab M, Montazeri A (2008). Determinants of health-related quality of life in elderly in Tehran, Iran. *BMC Public Health*, 8: 323. doi: 10.1186/1471-2458-8-323.
4. Revicki DA (1989). Health-related quality of life in the evaluation of medical therapy for chronic illness. *J Fam Pract*, 29(4): 377-80.
5. Ware JE, Gandek B (1998). Overview of SF-36 health survey and the international quality of life assessment project. *J Clin Epidemiol*, 51(11): 903-912.
6. Montazeri A, Goshtasebi A, Vahdaninia M, Gandek B (2005). The Short Form Health Survey (SF-36): translation and validation study of the Iranian version. *Qual Life Res*, 14: 875-82.
7. Lopez-Garcia E, Banegas JR, Graciani Perez-Regdera A, Gutierrez-Fisac JL, Alonso J, Rodriguez-Artalejo F (2003). Population-based reference values for the Spanish version of the SF-36 Health Survey in the elderly. *Med Clin*, 120 (15): 568-573.
8. Stadnyk K, Calder J, Rockwood K (1998). Testing the measurement properties of the short form-36 health survey in a frail elderly population. *J Clin Epidemiol*, 51(10): 827-35.
9. Canbaz S, SunterAT, Dabak S, Peksen Y (2003). The prevalence of chronic diseases and quality of Life in elderly people in Samsun. *Turk J Med Sci*, 33(5): 335-40.

10.Wilson IB, Cleary PD (1995). Linking clinical variables with health related quality of life. A conceptual model of patient outcomes. *JAMA*, 273(1): 59-65.
11.Borglin G, Jakobsson U, Edberg AK, Hallberg I R (2005). Self reported health complaint and their prediction of overall and health related quality of life among elderly people. *Int J Nurs Stud*, 42: 147-158.
12.Thumboo J, Fong KY, Machin D, Chan SP, Soh CH, Leong KH, et al. (2003). Quality of life in an urban Asian population: the impact of ethnicity and socio-economic status. *Soc Sci Med*, 56(8): 1761- 72.
13.Pappa E, Kontodimopoulos N, Papadopoulos AA, Niakas D (2009). Assessing the socio-economic and demographic impact on health-related quality of life: evidence from Greece. *Int J Public Health*, 54(4): 241-49.
14.Franzen K, saveman BI, Blomqvist K (2007). Predictors for health related quality of life in persons 65 years or older with chronic heart failure. European: *Soc Sci Med*, 56(8): 1761-72.
15.Lee TW, Ko II S, Lee KJ (2006). Health promotion behaviors and quality of life among community- dwelling elderly in Korea: A cross sectional survey. *Int J Nurs Stud*, 43: 293-300.
16.Osborne RH, Howthorne G, Lew EA, Gary LC (2003). Quality of life assessment in the community dwelling elderly: validation of the assessment of quality of life instrument and comparison with SF-36. *J Clin Epidemiol*, 56 (2): 138-47.
17.Hopman WM, Towheed T, Anastassiades T (2000). Canadian normative data for the SF-36 health survey. *CMAJ*, 163: 265-71.