



Identification of Determinant Factors of Health-Related Quality of Life in Iranian Urban Population

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Abstract

Background and Objectives: Identification of health-related quality of life (HRQoL) could provide important implications for health policy makers. While quality of life is well addressed in the Iranian context, studies on HRQoL are relatively scarce. This study was therefore designed to explore HRQoL and identify its determinant factors among population of an Iranian metropolis.

Methods: This cross-sectional study was conducted in Shiraz, the capital of the Iranian Fars province. Applying a multistage sampling method, a random sample 1610 of individuals of age >18 years were surveyed, using an adapted and validated version of HRQoL Short-Form 36 questionnaire. Data was summarized by descriptive statistical methods. Mean valued were compared using *t* test and Search Results Image result for Analysis of variance (ANOVA) and logistic regression was used to identify the determinants of HRQoL.

Findings: Age, gender, employment, education level, physical activity, and smoking were identified as significant determinants of physical HRQoL.

Conclusions: Interventions to enhance HRQoL should be focused on females and elderly, primarily. Public educations focused on life style improvement would be an affordable and effective strategy to enhance HRQoL. Our results also encourage further of large-scale studies to enable incorporation of HRQoL concept into national policy-making.

Keywords: Health-related quality of life, Survey, Life style, Public health

Background and Objectives

More than 30 years ago, Alma-Ata Declaration signatories noted that “health for all” would contribute to a better quality of life (QOL) and global peace and security.¹ The ultimate goal of health care is to improve, restore, and maintain the individuals’ health, so that they can enjoy a high-quality life. An important health policy concern in many countries is the extent to which the improvement of QOL is keeping pace with an increased life expectancy.² QOL has been defined by the World Health Organization (WHO) as “an individual’s perception of their posi-

tion in life in the context of the culture and value systems in which they live in relation to their goals, expectations, standards, and concerns.”³

Health is one of the major components of well-being, directly impacting other aspects of life. Given that, the concept of health-related quality of life (HRQoL) has been developed to bring a particular focus on the influence of health on the entire life and its quality. HRQoL, is defined as the perception of an individual or a population group towards their physical and mental health across the time.^{4,5} Being an intrinsically multidimensional construct, HRQoL can reflect many hidden variables influencing health-related outcomes. Therefore, adopting HRQoL as a major index of health would be more informative in police-making than the naive concepts such as mortality

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and morbidity rate.⁴ HRQoL has emerged as an important domain of study and attracted an ever-increasing interest over the past two decades.^{5,6} In Iran, however, the concept is relatively new and few studies have investigated the determinants of HRQoL.⁵ Hence, the present study aimed to explore the socioeconomic determinants of HRQoL among a sample of Iranian Urban population taken from a metropolitan city.

Methods

Study Design and Sample

This cross-sectional study was conducted among population of Shiraz, the capital of Fars province of Iran. All the individuals above 18 years old were considered as the study population. A 4-stage sampling strategy was adopted. First, the municipality areas were regarded as classes and the sample size was determined in proportion to the population of each class. Each municipality areas were then divided into 10 residential blocks. The households were then selected by systematic sampling, and finally 1610 individuals were picked out through KISH grid method.

Study Tool

A translated version of HRQoL Short-Form 36 (SF-36) which was adapted to the Iranian context⁷ was used as the study instrument. The scale account for 8 subscales evaluating the health status of an individual from both physical and mental aspects. The first four subscales; i.e., Physical Functioning (PF), Role-Physical (RP), Bodily Pain (BP), and General Health (GH), are related to physical health and yield the Physical Component Summary (PCS) score. The next four subscales; i.e., Vitality (VT), Social Functioning (SF), Role-Emotional (RE), and Mental Health (MH), are related to mental health and yield the Mental Component Summary (MCS) score. The study participants were asked to respond to the questionnaire items using a numerical scale. These responses were then coded and assigned a score on a scale of 0–100. Higher scores represented a more favorable perception of physical and mental health.

Statistical Analysis

The difference in mean values was tested by *t* test and analysis of variance (ANOVA). Determinants of HRQoL were predicted using multiple logistic regression by dividing the subjects into 2 groups: those with PCS and MCS scores were equal to or higher than the mean and those whose with the same scores below the mean. Socio-demographic factors, such as gender, age, marital status, income, education level, physical activity, and smoking habit

were considered as independent variables. The data were analyzed using the SPSS version 21 software package.

Ethical Issues

The study was approved by the Ethics Committee of the Shiraz University of Medical Sciences. The participants were briefed about the goals of the study and their informed consent was obtained.

Results

Out of 1610 distributed questionnaires 1568 valid completed questionnaires were returned yielding a response rate of 97.3%. Table 1 presents the characteristics of the study subjects. The age of the subjects ranges from 18 to 88 years averaging at 36.88 (SD=15.41) years. While

Table 1. Socio-Demographic Characteristics of the Participants (n = 1568)

Variables	No.	%
Gender		
Male	852	54.3
Female	716	45.7
Age		
18-40	987	62.9
41-60	456	29.1
> 61	125	8
Marital status		
Married	924	58.9
Widowed/divorced	127	8.1
Single	517	33
Income		
First quintile	335	21.4
Second quintile	308	19.6
Third quintile	429	12.7
Fourth quintile	199	27.4
Fifth quintile	297	18.9
Occupation		
Employed	571	36.4
Homemaker	393	25.1
Student	362	23.1
Unemployed	242	15.4
Education (years)		
0-5	197	12.6
6-12	670	42.7
>12	701	44.7
Physical activity		
High	535	34.1
Low	1033	65.9
Smoking		
Yes	223	14.2
No	1345	85.8

54.3% of the participants were male with the mean age of 36.92 (SD= 15.63), 45.7% were female with the mean age of 41.9 (SD= 15.15).

Table 2 shows the HRQoL scores as measured by SF-36. The means (SD) of PCS and MCS were 73.39 (18.27) and 71 (15.92), respectively. *T* test confirmed that the physical status of the participants was significantly more favorable than their mental status ($P < 0.01$).

Table 3 compares the HRQoL dimensions between different demographic and socioeconomic groups. Females and elderly showed significantly lower scores in HRQoL and all subscales compared with males and young groups,

Table 2. The Participants' HRQoL Score Means

Scales	Mean	SD
PF	85.63	22.3
RP	72.95	36.88
BP	73.14	26.42
GH	66.57	18.54
VIT	68.58	17.2
SF	78.88	19.785
RE	72.55	37.8
MH	68.36	16.7
PCS	73.39	18.27
MCS	71	15.92

Abbreviation: HRQoL, health-related quality of life.

Table 3. The Mean (SD) of HRQoL Subscales Among Different Socio-Demographic Groups

Variables (n = 1568)	PF	RP	BP	GH	VIT	SF	RE	MH	
Gender	Male	88.91 (19.98)	77.25 (34.38)	76.45 (25.71)	68.97 (18.46)	70.91 (16.98)	80.37 (19.35)	76.6 (35.77)	69.6 (17.08)
	Female	81.74 (24.23)	67.84 (39.07)	69.19 (26.72)	63.7 (18.25)	65.81 (17.07)	77.11 (20.15)	67.72 (39.65)	66.88 (16.12)
Age	18-40	92.05 (16.64)	81.814 (30.60)	77.99 (25.15)	70.28 (17.56)	71.21 (16.61)	80.85 (19.09)	77.64 (34.23)	70.17 (16.42)
	41-60	78.91 (23.53)	61.67 (40.86)	67.08 (26.67)	61.28 (18.9)	65.42 (17.25)	77.08 (19.97)	65.4 (41.28)	65.94 (16.81)
	> 61	59.56 (29.58)	44.2 (41.16)	56.89 (24.36)	56.48 (16.29)	59.32 (16.59)	69.900 (21.42)	58.4 (43.92)	62.84 (16.27)
Marital status	Married	82.81 (23)	66.77 (38.75)	70.08 (26.94)	64.69 (19.4)	67.65 (17.19)	78.54 (20.09)	71.74 (38.65)	67.87 (17.24)
	Widowed or divorce	75.59 (30.6)	67.91 (38.81)	69.85 (26.62)	61.06 (16.54)	66.25 (18.27)	75.19 (21.47)	67.97 (40.36)	65.51 (16.2)
	Single	93.16 (15.48)	85.25 (29.18)	79.41 (24.29)	71.27 (16.38)	70.81 (16.75)	80.39 (18.65)	75.11 (35.57)	69.94 (15.71)
Income	First quintile	86.48 (22.98)	76.79 (35.25)	71.95 (26.63)	63.39 (16.63)	66.64 (16.52)	74.92 (19.27)	72.71 (38.67)	65.08 (16.78)
	Second quintile	86.27 (21.99)	71.42 (38.91)	74.02 (25.71)	65.69 (18.04)	68.57 (17.18)	77.47 (20.46)	70.77 (39.23)	67.72 (15.82)
	Third quintile	85.06 (22.25)	70.62 (38.59)	72.58 (26.79)	64.67 (19.61)	68.24 (17.13)	79.02 (19.87)	70.7 (38.99)	68 (17.58)
	Fourth quintile	84.95 (22.17)	73.24 (34.4)	71.55 (28.57)	70.79 (18.89)	69.72 (18.11)	80.71 (21.01)	77.5544 (32.63)	71.39 (17.2)
	Fifth quintile	85.34 (22.11)	73.4 (35.46)	75.42 (24.81)	70.95 (18.09)	70.52 (17.32)	83.37 (17.61)	73.51 (36.88)	71.19 (15.09)
Occupation	Employed	90.32 (17.33)	78.06 (32.83)	78.5 (24.61)	70.56 (18.99)	72.27 (17.11)	82.37 (19.05)	77.4 (34.55)	71.1 (17.32)
	Homemaker	76.03 (26.28)	59.98 (41.07)	62.74 (27.25)	59.15 (17.41)	63.24 (16.4)	75.12 (19.94)	63.76 (42.21)	64.49 (15.49)
	Student	93.74 (15.05)	84.59 (30.05)	80.44 (23.09)	72.13 (16.24)	71.98 (16.37)	80.28 (18.09)	75.41 (35)	71.86 (14.9)
	Unemployed	78.08 (26.51)	64.56 (39.86)	66.44 (27.03)	60.85 (16.96)	63.45 (16.45)	74.63 (21.82)	71.07 (39.46)	62.92 (17.07)
Education (y)	0-5	66.68 (29.54)	51.9 (42.4)	57.12 (26.92)	53.83 (16.92)	57.81 (16.45)	70.05 (21.85)	57.19 (44.03)	59.59 (16.19)
	5-12	86 (21.35)	72.35 (37.25)	70.99 (25.63)	64.7 (17.52)	67.75 (16.18)	77.79 (18.68)	71.13 (38.95)	67.08 (16.35)
	5-12	90.62 (17.53)	79.45 (32.38)	79.73 (24.73)	71.92 (17.84)	72.4 (16.99)	82.4 (19.32)	78.22 (33.35)	72.04 (16.08)
Smoking	Yes	84.48 (22.6)	66.031 (37.56)	70.18 (27.62)	63.67 (18.63)	64.95 (17.54)	76.45 (20.63)	65.47 (39.75)	64.46 (16.43)
	No	85.83 (22.25)	74.1 (36.66)	73.63 (26.19)	67.05 (18.49)	69.18 (17.08)	79.28 (19.61)	73.72 (37.4)	69 (16.66)
Physical activity	High	89.11 (19.14)	74.9 (35.15)	77.92 (25.25)	70.09 (18.33)	70.97 (16.47)	81.93 (19.39)	74.76 (35.98)	69.6 (16.28)
	Low	83.84 (23.58)	71.95 (37.73)	70.66 (26.68)	64.74 (18.4)	67.34 (17.45)	77.29 (19.8)	71.4 (38.73)	67.71 (16.89)

respectively. In addition, married individuals expressed lower scores in all HRQoL subscales but RE compared with single subjects. Unemployed subjects showed significantly lower HRQoL compared with employed group as well as students. Significantly higher HRQoL score was observed among fifth quintile income group and individuals with >12 years of education ($P < 0.01$). In addition, smoking individuals expressed significantly lower HRQoL as compared with non-smoking subjects ($P < 0.05$). Ultimately, HRQoL was significantly higher among physically active groups compared with inactive group ($P < 0.05$).

Table 4 presents the results of multiple logistic regression analysis. Accordingly, age, gender, education level, physical activity, and smoking habit are identified as the significant determinants of both PCS and MCS. In addition, while income does shows no significant impact on PCS, low income is associated with MCS.

Discussion

Our results identified a moderate level of HRQoL among the study sample. The SF-36-based HRQoL scores in this study agree with those reported from other studies conducted in Tehran.^{5,7} Females, elderly, widowed or divorced individuals, low income groups, and unemployed, low education level, low physical activity, and smoking individuals were accompanied by lower scores in most of HRQoL subscales. Consistently, previous studies in Iran and

other countries also report relatively low HRQoL among females,^{4,7-12} high age subjects,^{4,5,7,9,10,12-14} widowed or divorced subjects,^{4,12,13} and low income,^{9,12} unemployed,^{4,12} physical inactivity,^{15,16} and smoking^{8,17} groups.

We also used logistic regression to gain a clearer insight into the determinants of HRQoL. The results of logistic regression showed that gender, age, education, occupation, smoking, and physical activity predicts both PCS and MCS.

Aghamolaei et al,⁵ identified age as a direct predictor of HRQoL, especially in terms of PCS. The pattern of age distribution among Iranian population is rapidly changing; it has been forecasted that the elderly population will account for 10.5% of population by 2025 and 21.1% by 2050.¹⁸ Considering this growing trend, our results point towards the urgent need for focused attention to health issues in this age group.

We also found significantly lower HRQoL among females in terms of both PCS and MCS. Thus, women are more vulnerable to the risk factors of low HRQoL. At the same time, less educated subjects displayed poorer HRQoL in both PCS and MCS terms. Also our survey showed relatively low PCS and MCS scores for unemployed individuals and homemakers. Similar results was observed from a previous study in Iran.⁵ These findings are not surprising since the vulnerability of individuals to mental and physical problems increases when unemployed and most home-

Table 4. The Results of Logistic Regression Analysis

Variable		PCS		MCS	
		OR	95% CI	OR	95% CI
Gender	Male	1		1	
	Female	1.51 ^a	1.23-1.83	1.35 ^a	1.1-1.66
Age	18-40	1		1	
	41-60	2.38 ^a	1.82-3.1	1.56 ^a	1.21-2.01
	> 61	5.48 ^a	4.17-7.21	2.17 ^a	1.62-2.91
Marriage	Single	1		1	
	Married	1.34	1.04-1.74	0.91	0.691-1.182
	Widowed or divorced	1.24	1.02-1.51	0.87	0.559-1.347
Education (year)	> 12	1		1	
	6-12	1.26 ^a	1.06-1.51	1.3 ^a	1.15-1.4
	0-5	2.23 ^a	1.69-2.95	2.18 ^a	1.87-2.53
Occupation	Employed	1		1	
	Homemaker	1.76 ^a	1.3-2.39	1.38 ^a	1.11-1.71
	Student	1.39	0.98-1.96	1.16	0.84-1.6
	Unemployed	2.13 ^a	1.64-2.78	1.49 ^a	1.16-1.92
Income	First quintile	0.64	0.403-1.03	1.32 ^a	1.09-1.61
	Second quintile	0.83	0.551-1.26	1.27	0.92-1.74
	Third quintile	0.98	0.67-1.414	1.46 ^b	1.02-2.09
	Fourth quintile	1.16	0.84-1.59	1.12	0.8-1.56
	Fifth quintile	1		1	
Physical activity	Yes	1		1	
	No	1.39 ^a	1.09-1.77	1.39 ^a	1.11-1.73
Smoking habit	Yes	1.58 ^a	1.24-2.03	1.47 ^a	1.15-1.89
	No	1		1	

^a $P < 0.01$; ^b $P < 0.05$.

makers are female which were already shown to have lower HRQoL.

On the other hands, we identified no significant relationship between income level, and PCS; however, low income showed signals of association with lower MCS. Therefore, this may be concluded that high income would not necessarily correlate with high HRQoL, however, low income may negatively influence the mental aspect of QoL. This observation can be explained by the fact that adequate income is important not only to cover and meet the basic needs of life, but it is also a very important to maintain psychological health.¹⁸

Two life-style factors including smoking habit and physical inactivity we found to positively and negatively impact HRQoL, respectively. Similarly, using SF-12 questionnaire, Dey et al identified smoking as a negative predictor of HRQoL in young Swiss men.¹⁹ Others have also reported similar results.^{17,20} Furthermore, there is evidence to show that physical activity could result in better HRQoL,^{19,20} confirming our observations.

In general, our results replicated identification of risk factors of HRQoL reported in previous studies. In particular female and elderly are more prone to low HRQoL and are the prime groups to be focused in intervention programs. The observed impact of education level on HRQoL suggests that promotion of both public and academic education would enhance both public health and HRQoL. Public education focused at improving life style may also yield additional health-related outcomes by encouraging individuals to leave unhealthy habits such as smoking and go through healthy activities such as sport or meditation.

Study Limitations

Cross-sectional studies have limited ability to capture the cause and effect relationship between variable. Therefore further longitudinal studies on the HRQoL are recommended. Also, we did not adjust the existence of possible chronic conditions in our sample. Although our results were based on a relatively large sample and the study was conducted in one of the largest Iranian metropolises, the determinant factors of HRQoL identified may not be representative of Iranian population, particularly the rural areas. Therefore, while our findings have the potential to give a glimpse of HRQoL in Iranian large cities, caution must be exercised in generalization of the results for small cities and villages. At the same time, our results encourage conduction of large-scale studies enabling incorporation of HRQoL concept into national policy-making.

Conclusions

This study explored the HRQoL among population of an

Iranian metropolis, Shiraz, The capital of Fars province. HRQoL was found to be at moderate level. Females, elderly, low income groups, and unemployed, low education level, low physical activity, and smoking individuals showed relatively low scores in some or all of HRQoL dimensions. Our results may be useful in developing provincial-level programs to improve HRQoL and encourages further conduction of large-scale studies enabling incorporation of HRQoL concept into national policy-making.

Abbreviations

(HRQoL): Health-related quality of life.

Authors' Contributions

SV and MA jointly devised the study and made the major contribution in analysis of the data. AR, ZK, and SL took part in data analysis and interpretation of the results. MA drafted and revised the manuscript. All authors read and approved the final manuscript.

Competing Interests

The authors declared no financial disclosure.

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