Quality of Life and its predictors among Qatari Elderly Attending Primary Health Care Centers in Qatar

Maha Hammam Alshamali (1)
Mohamed M. Makhlouf (2)
Mervat Rady (3)
Nagah Abdel Aziz Selim (4)
Mansoura Fawaz Salem Ismail (5)

(1) Supervisor of Disease Control Program, Ministry of Health, Qatar
(2) Professor of Geriatric Health, High Institute of Public Health, Alexandria University, Egypt
(3) Professor of Public Health, Faculty of Medicine, Ain Shams University, Egypt
(4) Consultant Physician of Public Health and Preventive Medicine, Asst. Director of Community Medicine residency program, Primary Health Care Corporation, Qatar, Asst. Professor of Public Health and Preventive Medicine, Faculty of Medicine, Cairo University
(5) Asst. Professor of Family Medicine, Faculty of medicine, Suez Canal University Egypt , Family Medicine Dept.

Corresponding Author
Dr Mansoura Fawaz Salem
Assistant Professor of Family Medicine, Faculty of Medicine,
Suez Canal University, Egypt
Family Medicine Consultant at Primary Health Care Corporation,
Qatar
Mobile number: 0097450013135
Email: mansoura70@hotmail.com

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Abstract

A cross-sectional study was conducted at 14 randomly selected Primary Health Care Centers in Qatar to assess QOL and some of its determinants among 672 Qataris aged 60 years or more. Convenience cluster sampling technique, and an Arabic structured interviewing questionnaire were used. QOL was assessed using an Arabic version of the WHO-BREF questionnaire with a tested specific QOL-old add-on module; the higher the domains and total scores, the better the QOL.

Results: Around three quarters of males had good to very good QOL, while nearly the same percentage of females had fair to poor QOL. All the elderly had from fair to very good ADL% and most of them were in the fair/good level for the IADL%. Social activity was significantly correlated with QOL. Gender, educational level, income sufficiency, number of chronic diseases, perceived general health and IADL% were the significant predictors for the total QOL.

Conclusion: QOL among the participants was average. Physical domain had the highest mean score, while the social domain had the lowest. Gender and chronic co-morbidities, were significant predictors of elderly QOL.

Key words: elderly, quality of life, Qatar

Introduction

Aging populations have become a leading demographic issue in the new millennium. There has been a rapid increase in the elderly population all over the world. By 2050, the world's population aged 60 years and older is expected to total 2 billion, up from 841 million today, and it will be the first time in history where the number of people aged 60 years and older, outnumber children younger than 5 years [1]. The challenge for aging studies is to understand the conditions associated with aging as a positive process and old age as a stage of life in which health, well-being, pleasure and quality of life (QOL) can be increased [2]- [4]. While population aging in the Arab region is not currently of the order of magnitude witnessed in some developed countries such as Japan or Korea, it has already started in a number of Arab countries and is expected to gather momentum in the next 50 years. Despite this fact, most Arab countries appear to underestimate the importance of this issue and are not anticipating the future repercussions on national economies caused by this demographic transition.

In Qatar, the number of people aged 60 years or more is expected to increase from 17,500 (3.1%) in 2000 to 172,000 (20.7 %) in 2050, a 10-fold increase [5]. Despite the support that medical and social systems provide to the elderly, many older people still experience discomfort because of loneliness, depression, social isolation, or constrained quality of life [6]. The QOL of older adults could be good, or at least preserved, provided they have autonomy, independence and good physical health and provided they fulfill social roles, remain active and enjoy a sense of personal meaning [7]. QOL as a person's sense of well-being is not homogeneous but is multidimensional, with many components that range from health indicators to individual habits, culture and ethics [8]. Personal opinions should therefore be taken into account when assessing elderly QOL [9]. Health interventions, welfare programs, health care and the well-being of the elderly can be improved and evaluated through studies of their QOL. The World Health Organization (WHO) defines QOL as an individual's perception of his/her status in life in the context of the individual's environment, belief systems, and goals [10]. Several studies have shown that younger elderly, being married or females with adequate income are likely to have better QOL in comparison to older elderly, males, divorced or widows with inadequate income [11-15]. Moreover elderly people with higher education were found to have a better QOL than those with lower education [16]. Furthermore, an active lifestyle preserves physical function in older adults which may possibly contribute to higher levels of QOL scores in domains related to physical health [17].

Evaluating elderly QOL should be done from a different perspective to QOL assessments for the general population [18]. In spite of this, there is still a lack of studies directed towards aging in general and elderly QOL in particular, for the population of Qatar. This study assesses QOL and its different domains among a group of elderly Qataris visiting primary health care (PHC) centers in Qatar and seeks to identify determinants of QOL.

Methodology

Study design: A cross-sectional study

Setting: The study was conducted in 14 health centers out of 21 PHC centers distributed throughout Qatar.

Sample Size & Technique: Subjects included male and female elderly Qataris aged 60 years or more who visited the PHC centers during the 3 month's field work duration from March 15 to June 15, 2015. Consent was gained to participate in the study. Convenience cluster sampling technique with proportional allocation was used. The estimated sample size was 672 elderly individuals based on prevalence of bad QOL = 24% (from pilot study results), 95 confidence interval, precision = 5%, design effect = 2, and inflation rate = 20%. Data collection in each center was carried out on a daily basis until the required quota from each center was reached.

Inclusion criteria: All Qatari elderly aged 60 years or more, males and females who visited the health centers during the study field work, were invited to participate.

Exclusion criteria: Individuals below 60 years of age or with communication problems or with a score < 7 as screened by the Short Portable Mental Status Questionnaire (SPMSQ), indicating severe cognitive affection, were excluded [19].

Method of data Collection tool: The study tool was an Arabic structured interview questionnaire including the following items:
(a) Socio-demographic data such as age, sex, income level, educational level and marital status.
(b) Health measures such as types of chronic diseases, hospital admissions, current medications and screening questions for depression.
(c) Assessment of QOL by the WHOQOL-BREF standard questionnaire (Arabic version) [20], with an add-on old module for elderly populations. The questionnaire has 26 items on a 5-point scale, ranging from totally absent/totally disagree/very bad to totally present/totally agree/excellent; it also included 2 subjective overall items allowing the subject's self-evaluation of his/her overall QOL and overall health, as well as 24 items relating to 4 domains: physical health, psychological well-being, social and environmental domains. From those questions, 2 were excluded; this included questions about working capacity, since all elderly were retired and jobless, and that relating to sexual activity, as it was totally missing in the responses. The scoring rules for the questionnaire assessment were followed according to the WHOQOL group; questions 3, 4, and 26 were reversed, as they were negative questions. The add-on old module is a short form of the original 24-question WHOQOL-OLD questionnaire [21]; it includes only 6 questions, 1 from each of the 6 facets. Each question was rated on a Likert scale ranging

from 1–5, where 1 represents never and 5 represents always. The sum of its scores ranges from 6–30, and the total number of questions was 2 (global) + 22 WHOQOL + 6 Old domain = 30 questions. The total QOL score was calculated by the sum of all the domain scores, giving a range from 30–150. In each domain and in the total QOL, higher scores indicated better QOL. The raw score for each domain and the total score were converted into percentages for international comparisons, because the add-on module prevented direct score comparison with the WHOQOL-100. The three percentiles (25th = 91, 50th = 100, 75th = 108) were used to categorize total QOL scores as poor QOL (< 91), fair (91–99), good (100–107), and very good (> 107). Each domain was analyzed separately, as was the total QOL against the independent variables.

(d) Social activities were assessing elderly weekly participation in social activities including going to pray, social gathering and playing games. The responses were coded as (1-never / 2- 1-2 times per week / 3- 3-6 times per week/ 4-daily). Also the frequency of attending other social activities such as marriage parties, funerals and ceremonies was also inquired about and the responses were coded as (1- never 2- rarely 3- sometimes 4-usually). Answers of these 5 questions were given a score (1) for never response to (4) for daily/usually response. The scores transformed into percent on the scale from 0-100% [22].

e) Functional abilities were assessed by a validated Arabic version of Katz index for activities of daily living (ADL) [23] and Lawton scale for instrumental activities of daily living (IADL) [24]. For ADL, 6 functions were enquired about: bathing, dressing, toileting, transporting, continence and feeding. Three weighted categories were used to evaluate the elderly's response: (1) totally independent, (2) partially independent (3) totally dependent. For IADL, 8 functions were enquired about: 6 common for both males and females and including : the ability of using a telephone, going out more than walking distance, shopping, managing money, preparing meals, housekeeping, laundry and taking medications without assistance. Three weighted categories were also used to evaluate the elderly's response: (1) totally independent, (2) partially independent and (3) totally dependent. A pilot study was conducted among 30 elderly Qataris in order to make adjustments before the actual study commenced.

Data analysis: The data were analyzed using Statistical Package of Social Science [SPSS] version 20. Data normality was tested using the K–S test and histograms. Descriptive analysis was calculated in the form of mean with SD for parametric quantitative variables, median and IQR for non-parametric variables, and frequency and % for qualitative data. Chi-square and Fisher's exact tests were used to examine the relationship between qualitative variables, while Student's t-test and ANOVA with post-hoc LSD were used for normally distributed quantitative variables. The Mann–Whitney U test was used for non-parametric quantitative variables. Pearson or Spearman correlations were used for bivariate correlations according to data normality. Multiple regression analysis was done.

All the predictive risk factors significantly associated with each domain of QOL were entered into the final total QOL multiple linear regression model. This model was used to identify the QOL predictors, and $p < 0.05$ was considered statistically significant.

Ethical Consideration: Institutional Review Board (IRB) was obtained from Hamad Medical Corporation. Informed consent was obtained from each participant. Voluntary participation and confidentiality were assured.

Results

Among the 672 elderly included in the study, 54.2% were male. There was no significant difference in the mean age between males and females. The majority of the subjects were currently married (78.9%), 71% were illiterate; most participants were retired and 99% were on a pension and 78% reported that their income was not sufficient , all participants had a history of chronic disease. About 70% of the female elderly had 3 diseases or more compared to only 60.4% among males. Hospital admissions in the year prior to the study period were reported by 11.8%, with no significant difference between males and females. It was reported that 63% of females were using 3 or more medications compared to 47% among males; this was a highly significant difference ($p < 0.001$). The most prevalent reported disease was diabetes mellitus (88.8%), which was more common among females (94.5%) than males (84.1%); followed by hypertension (69.3%), which was more common among males (74.5%) than females (63.3%), and then raised blood lipids (66.5%), which was more common among females (70.5%) than males (63.2%); these differences were all statistically significant (Table 1).

Table 2 shows that the mean score of social activity was equal to 38.7 ± 18.1 for the whole study participants with higher mean score % among males being 49.0 ± 15.9 while that of the females was 26.5 ± 11.9 and the difference was highly significant since $p< 0.001$. The total mean score % of functional abilities ADL; was 4.2 ± 12.1 while that of the IADL was 44.3 ± 17.2. The mean % score for both the ADL and IADL highly significantly differed between males and females. Males were more independent with lower mean scores % being 1.05 ± 4.95 and 34.68 ± 13.5 respectively while females were more dependent with higher mean scores % being 7.98 ± 16.27 and 55.69 ± 13.92 respectively. As shown in Table 3, the highest domain percentages were for the environmental and social domains (71% each), followed by the physical health (65%) and the psychological domain (64%). The lowest score was for the QOL-old domain sum items (47.5%). A combined 51% of the elderly enjoyed a very good or good QOL (24.9% and 26.1%, respectively), while 49% had a fair or poor QOL (24.1% and 24.9%, respectively; Figure 1).

All the domain scores were tested in a multiple regression analysis model to predict the solo contribution of each domain (Table 4). It revealed that the physical health domain had the highest significant impact on the total

QOL (36.1%), and the social domain contributed the least to total QOL (8%). The perceived overall QOL score was significantly correlated with all domain scores and with the total calculated QOL score. All the correlations were statistically significant at $p < 0.001$. The strongest correlation with perceived overall QOL was with the physical health domain ($r = 0.72$), while the weakest was with the social domain ($r = 0.45$).

Table 5 shows the statistically significant predictors of the total QOL score using the enter model for multiple linear regression analysis. The prediction model was statistically significant, $F = 84.88$, $p < 0.001$, and accounted for approximately 72% of the variance in the total QOL score ($R2 = 0.73$, adjusted $R2 = 0.72$). Other than the gender, educational level and income sufficiency, all the other demographic factors such as age and smoking, were found to be insignificant predictors of total elderly QOL. Gender was the main socio-demographic QOL predictor, contributing 11% of the model variance. Among health factors, the remaining significant factors in the model were the number of chronic diseases, self-reported overall health, osteoarthritis, and osteoporosis by 29.3%, 27.2%, 8.3%, and 6.8%, respectively. As a group, health factors were the strongest determinants of total QOL. Social activity is a predictor of the total QOL, IADL% was also a significant predictor in the three models. As a group, health factors were the strongest determinants of the total QOL for the three models followed by the social one.

Table 6 shows the Spearman correlations between the QOL domains and total QOL% scores with both the ADL% and the IADL% scores. It is clear from the table, the significant negative correlation between the increase in inactivity (higher scores) and the decrease in the QOL domains % scores and the total QOL% score with $P<0.001$. The highest negative correlation as expected was observed with the physical health domain % score ($r=-0.66$ with IADL and $r=-0.44$ with ADL). For the total QOL % score, the IADL% score was found to be more correlated negatively with it than with the ADL% score ($r= -64$, $r= -0.44$ respectively) and the same result was observed with all domains % scores. As regard the social activity and its effect on the QOL, it was found to be correlated positively with all domain % scores especially the physical health ($r=0.51$) and the total QOL % score ($r=0.51$). All the correlations were statistically significant at $p < 0.001$.

Table 1: Socio-demographic characteristics and self-reported medical history among the elderly Qataris attending Primary Health Care Centers in Qatar, (n = 672)

Character	Males (n = 364) N (%)	Females (n = 308) N (%)	Total (n = 672) N (%)	X^2	P
1-Age Group*:					
60–64	147 (40.4)	132 (42.9)	279 (41.5)		
65–69	87 (23.9)	67 (21.8)	154 22.9)	3.36	> 0.05
70–74	112 (30.8)	83 (26.9)	195 (29.0)		
75 +	18 (4.9)	26 (8.4)	44 (6.6)		
2-Residency:					
Inside Doha (capital city)	271 (74.5)	262 (85.1)	533 (79.3)	11.46	< 0.001
Outside Doha	93 (25.5)	46 (14.9)	139 (20.7)		
3-Marital Status:					
Married & has children	316 (86.9)	210 (68.2)	526 (78.3)	41.4	< 0.001
Married only	3 (0.8)	1 (0.3)	4 (0.6)	1	
Widowed	43 (11.8)	79 (25.7)	122 (18.1)		
Divorced	2 (0.5)	18 (5.8)	20 (3.0)		
4-Educational level:					
Illiterate (can't read or write)	204 (56.0)	273 (88.6)	477 (71.0)	91.88	< 0.001
Read & write	70 (19.2)	24 (7.8)	94 (14.0)		
Completed primary	38 (10.4)	4 (1.3)	42 (6.3)		
Completed preparatory & above.	52 (14.4)	7 (2.3)	59 (8.7)		
5-Income sufficiency to elderly needs:					
More than enough	22 (6.0)	9 (2.9)	31 (4.6)		
Enough	85 (23.4)	32 (10.4)	117 (17.4.0)	25.13	< 0.001
Not Enough	257 (70.6)	267 (86.7)	524 (78.0)		
Positive history of Chronic diseases	362 (100)	308 (100)	672 (100)		
History of :					
Hypertension	271 (74.5)	195 (63.3)	466 (69.3)	9.74	< 0.01
Diabetes mellitus	306 (84.1)	291 (94.5)	597 (88.8)	19.25	< 0.001
Raised blood lipid	230 (63.2)	217 (70.5)	447 (66.5)	3.96	< 0.05
Heart diseases	79 (21.7)	51 (16.6)	130 (19.3)	2.83	> 0.05
Asthma & COPD	29 (8.0)	15 (4.9)	44 (6.5)	2.16	> 0.05
Osteoporosis	0 (0.0)	34 (11.0)	34 (5.1)	42.32	< 0.001
Thyroid affection	6 (1.6)	81 (26.3)	87 (12.9)	89.95	< 0.001
Colon affection	63 (17.3)	97 (31.5)	160 (23.8)	18.51	< 0.001
Osteoarthritis	143 (39.3)	131 (42.5)	274 (40.8)	0.73	> 0.05
Depression	8 (2.2)	25 (8.13)	33 (4.91)	0.12	> 0.05
No. of hospital admissions in previous year:					
0	311 (85.4)	282 (91.6)	593 (88.2)		
1	48 (13.2)	25 (8.1)	73 (10.9)	7.05	> 0.05
2	3 (0.8)	1 (0.3)	4 (0.6)		
3 and above	2 (0.6)	0 (0.0)	2 (0.3)		
No. of hospital admissions in previous year:					
0	311 (85.4)	282 (91.6)	593 (88.2)		
1	48 (13.2)	25 (8.1)	73 (10.9)	7.05	> 0.05
2	3 (0.8)	1 (0.3)	4 (0.6)		
3 and above	2 (0.6)	0 (0.0)	2 (0.3)		
No. of medications:					
1	63 (17.3)	25 (8.1)	88 (13.1)	36.21	< 0.001
2	130 (35.7)	89 (28.9)	219 (32.5)		
3	94 (25.8)	96 (31.2)	190 (28.3)		
4	51 (14.0)	45 (14.6)	96 (14.3)		
5 and above	26 (7.2)	53 (17.2)	79 (11.8)		

* Mean age among males = 67.61 ±5.93, among females = 67.77 ±5.5; *(Vision and hearing impairments, anemia, etc.)

Table 2: Social activity and functional abilities of the elderly attending Primary Health Care Centers in Qatar, (n = 672)

Variable	Males (n-364) Mean% ± SD	Females (n=308) Mean% ± SD	Total (n=672) Mean% ± SD	p@
Social activity *:	49.03 ± 15.91	26.51 ± 11.99	38.71 ± 18.13	<0.001
Functional abilities:				
ADL** :	1.05 ± 4.95	7.98 ± 16.27	4.23 ± 12.1	<0.001
IADL **:	34.68 ± 13.50	55.69 ± 13.92	44.31 ± 17.23	<0.001

* The higher the mean %, the higher the Social activity
** The higher the mean %, the lower function and higher dependency
@ Using Mann Whitney U test

Table 3: Description of total QOL, its domains, perceived overall QOL, and perceived overall health among elderly visiting Primary Health Care Centers in Qatar (n = 672)

Domain (no of questions)	Min. score	Max. score	X ± SD	Mean % ± SD
Global items:				
Perceived overall QOL (1)	1	5	3.33 ± 0.9	
Perceived overall health (1)	1	5	3.96 ± 0.7	
Physical health (6)*	10 (16.7)	30 (100)	21.56 ± 4.82	65% ± 20.08
Psychological (6)	12 (25)	28 (91.7)	21.27 ± 2.91	64% ± 12.13
Social (2)**	4 (25)	10 (100)	7.71 ± 1.07	71% ± 13.46
Environmental (8)	22 (43.8)	37 (90.6)	30.6 ± 3.54	71% ± 11.06
QOL-Old domain (6)	9 (12.5)	24 (75)	17.4 ± 3.28	47.5% ± 13.67
Total QOL (28)	61 (29.5)	124 (85.7)	98.55 ± 13.52	63% ± 12.07

* Work capacity question is not included
** Sexual activity question is not included

Table 4: Linear regression analysis for predicting the total QOL score using its domains' scores as independent variables for the elderly visiting Primary Health Care Centers in Qatar (n = 672)

	B**	Standardized Beta coefficient	p
Physical	1	0.361	< 0.001
QOL-Old domain	1	0.262	< 0.001
Environmental	1	0.243	< 0.001
Psychological	1	0.213	< 0.001
Social	1	0.08	< 0.001
Constant	−8.779E14		

Dependent variable: total QOL R=1 R2=1 Adjusted R2=1 ** 100% perfect fit model

Table 5: Statistically significant predictors of total QOL score by gender using the enter model of multiple linear regression analysis among the elderly visiting Primary Health Care Centers in Qatar

Predictors	Total QOL model (n=632)#		QOL-Male model (n=337)#		QOL-Female model (n= 295)#	
	B	Standardized Beta coefficient	B	Standardized Beta coefficient	B	Standardized Beta Coefficient
Socio-demographic						
- Gender	-2.42	**-0.11****	-	-	-	-
- Educational Level	0.57	0.066*	-	-	1.46	0.089*
- Income sufficiency	1.25	0.057*	2.24	0.097*	-	-
Social activity						
- Social activity%	0.06	0.099**	0.07	0.099*	0.09	0.091*
Health related :						
- Osteoporosis	3.29	0.068*	-	-	3.02	0.075*
- Osteoarthritis	2.03	0.083**	3.20	0.148**	-	-
- No. of chronic diseases	-2.19	**-0.293*****	-1.08	**-0.157*****	-2.69	**-0.322*****
- Depression	-	-	-	-	8.18	0.083*
- Perceived overall Health	4.68	**0.272*****	5.17	**0.317*****	4.27	**0.281*****
Functional abilities:						
-IADL%	-0.18	**- 0.24*****	-0.20	**-0.204*****	-0.14	**-0.175****
Constant	44.7		49.59		39.03	
F of the model	84.88***		39.09***		32.60***	
R	0.86		0.80		0.82	
R^2	0.73		0.71		0.72	
Adjusted R^2	0.72		0.69		0.70	

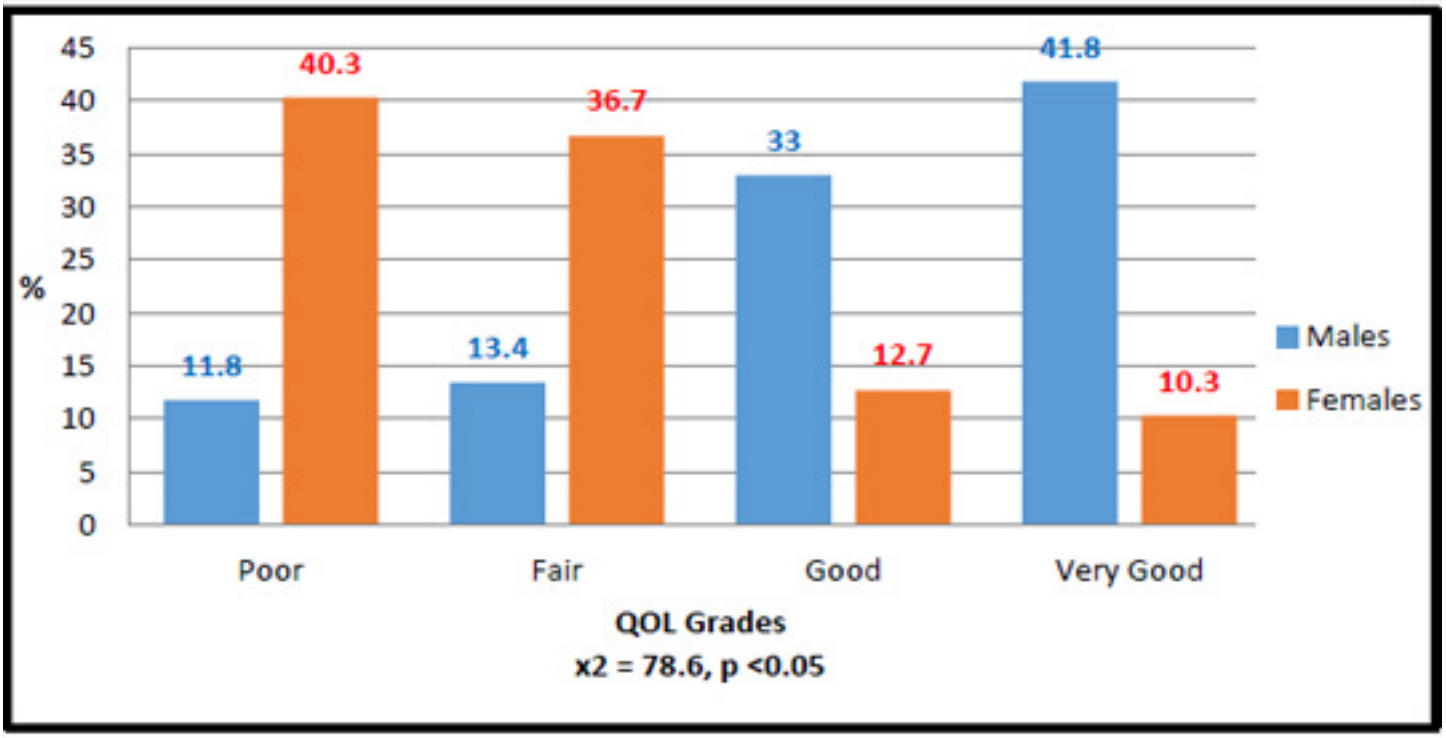
* P<0.05 **P<0.01 ***P<0.001
# 40 cases were excluded as outliers; 27 males and 13 females

Table 6: Spearman correlation between Social activities score %, ADL score %, ADL score % and QOL domains among elderly attending Primary Health Care Centers in Qatar, (n = 672)

	IADL % "r"	ADL % "r"	Social activity % "r"
Physical	-0.66	-0.44	0.51
Psychological	-0.45	-0.32	0.31
Social	-0.44	-0.24	0.46
Environmental	-0.51	-0.36	0.40
Old	-0.59	-0.41	0.47
Total	-0.64	-0.44	0.51

*All correlations are statistically significant at p < 0.001
NB: there is a significant positive correlation between IADL % score and ADL % score ; r= 0.65 & p<0.001

Figure 1: Distribution of participants according to QOL grades by sex (n = 672)



Discussion

International interest in measurement and enhancement of QOL for the elderly is growing due to higher expectations of a "good life" within societies experiencing increasing numbers of older people [9]. There is no data about this important aspect in Qatar, as this is the first study in Qatar to assess quality of life and its determinants among elderly Qataris, aiming to provide evidence for establishing effective policies and tailored interventions to improve elderly QOL in Qatar. The study aims to fill the huge gap in the scientific literature and database about elderly Qatari's characteristics; including their QOL and their health status. Results from the current study will help in developing the seed for geriatric care and research. The present study reveals that more than half of the elderly (51%) had good or excellent QOL. This is similar to that found in India [25], where 46.2% of the elderly had good or very good QOL. Another study done in Myanmar in 2010 [17] showed that most elderly people (80.9%) had a moderate QOL, 17.2% had a high QOL and only 1.9% showed a low QOL. Much higher QOL was found in a rural area in northern India [26], where most elderly individuals (85%) enjoyed excellent or good QOL, with only 15% having a fair or poor QOL.

The present study shows that the younger age group (60–69) had significantly higher scores for total QOL and all the domains compared to older groups; this is supported by results of other studies [25 , 27]. The present study also found gender to be an important determinant of total QOL, although around three quarters of males had a good or excellent QOL, the same percentage of females had a fair or poor QOL. Moreover, females had significantly lower scores than males for total QOL and all its domains, which is supported by the findings of previous studies [28]. The present study also reveals that the married elderly were found to have significantly higher scores for QOL and all its domains, as shown in a previous study [29]. However, marital status was not found to be a significant predictor

of total QOL. The subjects of the present study had high levels of illiteracy and low educational attainment, and this was especially true of the female subjects. Subjects with higher educational attainment had significantly higher scores in total QOL and all its domains, a finding supported by prior studies [30&31]. Literate individuals often have a better understanding of their ageing process and are better able to adjust to lifestyle changes. Also, they usually have greater opportunities for career attainment, higher economic resources, more health-seeking behavior and better control of their life, all of which may have a positive impact on their QOL [32, 33]. Economic status was one of the most consistent factors associated with elderly QOL [33]. Most of the elderly in the present study reported that they have insufficient income to meet their needs. The present study reveals that income sufficiency was a significant predictor for the total QOL among males. All participants of the present study had a history of chronic disease; about 70.2 % of the female elderly had 3 diseases and more, compared to only 60.4% among males. The number of chronic diseases was an independent predictor for total QOL in this and prior studies [34&35]. In addition to showing that the number of chronic diseases has a significant negative impact on elderly QOL, the present study also found that only two diseases were independent predictors for total QOL: osteoporosis and osteoarthritis. Although the present study found that the most prevalent reported diseases among the elderly were diabetes mellitus and hypertension and that patients with these diseases had significantly lower scores for total QOL in all of the domains, neither of these 2 diseases was found to be an independent predictor of total QOL. This could be explained by psychological adaptations to chronic diseases with longer duration [36&37], although absence of chronic pain or marked psychological disturbance could be another explanation. The present study reveals that elderly subjects with osteoporosis had significantly lower scores for QOL and in all of the domains. Osteoarticular disease was the principal cause of chronic pain for 63.4% of the elderly in Portugal [38] and 40% of those 75 years or older in Sweden, where low QOL was found among the elderly with chronic pain in several dimensions, including general health perception, bodily pain, vitality, emotional functioning, physical functioning and physical activity [39].

The present study also demonstrated that one of the consistent independent predictors of the total QOL and all of its domains is the functional abilities in the form of IADL (and ADL in social domain only). The ability to carry out daily activities without limitation or dependence on others has been found to be a powerful determinant of self-perceived health and QOL in a previous study [40]; the same was observed from another study which showed that QOL was affected by daily activities, mobility and overall health [41].

Strengths of this study are that it included a large number of Qatari elderly attending different primary health care centers. Also it is the first time to assess health profile, functional abilities and QOL of a huge number of Qatari elderly using validated tools. However one of the limitations of this study is that, as a cross sectional study, it can't determine risk factors affecting QOL; instead it can identify factors associated with QOL.

Conclusion and Recommendations

QOL among the sampled Qatari elderly was average, with the physical health and social domains being the biggest contributors. Gender, income sufficiency and educational level were the most consistent correlates of QOL. Strategies for prevention and control of chronic diseases specific to the elderly could improve QOL among the elderly population. Health professionals should pay attention to elderly individuals, assessing their QOL, health education and maintaining healthy lifestyle especially physical activity and social integration, which will assure better QOL in old age. Further, research through national surveys on a large scale and on a community basis to include different categories of elderly population as healthy elderly, home-bound, institutionalized and long term care elderly for assessment of elderly QOL, their functional abilities, physical activity and social support are recommended.

Strengths and limitations of this study

- To the best of our knowledge, however, the study was the first in Qatar to measure QOL among the elderly and QOL association with different risk factors.
- This study was conducted with a relatively reasonable sample size and can be used as a platform for future studies,
- Selection bias could be expected, as selection of elderly was based solely on those visiting the PHC centers.
- Recall bias may also be expected due to self-reporting of disease, medications, and hospital admission, especially as the elderly undergo memory changes that can decrease memory accuracy.
- A cross sectional study cannot determine risk factors affecting QOL; instead it can identify factors associated with QOL.
- Taking into consideration the above-mentioned limitations this may make it difficult to generalize the results to all Qatari elderly in the community.

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List of abbreviation

ADL: Activities of Daily Living
COPD: Chronic Obstructive Pulmonary Disease
DALYs: Disability Adjusted Life Years
GNP: Gross National Product
HRQOL: Health-Related Quality of Life
IADL: Instrumental Activities of Daily Living
PHCC: Primary Health Care Centers
QOL: Quality of Life
SPMSQ: Short Portable Mental Status Questionnaire
SPSS: Statistical Package for Social Sciences
WHO: World Health Organization
WHOQOL: World Health Organization Quality Of Life

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