Are the quality of life and self-rated health the same construct from the perspective of students at Tehran university of medical sciences?

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Abstract

Objectives: The two constructs of self-rated health (SRH) and quality of life (QOL) sometimes overlap with each other. It is not clear to what extent participants consider QOL different from SRH. The objective of the study was to compare the concepts of QOL and SRH from the perspective of Tehran University of Medical Sciences (TUMS) students.

Study design: Cross- sectional study

Methods: A cross sectional study was conducted on 801 students from the schools of public health, nursing and midwifery, medicine, dentistry, paramedical sciences, and pharmacology at TUMS through proportional to size random sampling. The validity and reliability of the tool was approved. QOL, SRH and their differences were entered in the multiple logistic regression analysis as dependent variables to examine their associated factors.

Results: Seven hundred and seventy-four (97.1%) students had appropriate SRH and 736 (93.2%) had appropriate QOL. According to the multiple logistic regression results, the definitions of SRH and QOL differed between students with intermediate (OR=0.31; 95% CI=0.13–0.77) and good socio-economic status (SES) (OR=0.24; 95% CI=0.09–0.64) compared to students with bad SES and between those whose parents had high school or associate degrees (OR=2.49; 95% CI=1.03 – 6.03) compared to students whose parents had undergraduate certificates. The students described 'physical', 'psychological' and 'familial' factors as determinant factors of SRH and 'psychological', 'familial' and 'economic' factors as determinant factors of QOL.

Conclusions: The students reported QOL as a more generalized concept than SRH. The 'psychological' and 'familial' factors were believed to be significant determinant factors of both constructs. However, the 'economic' factor was recognized as a determinant factor of QOL. On the other hand, the 'physical' factor was believed to be an important determinant factor of SRH. Students with intermediate and good socioeconomic status and parents with average educational status believed the two constructs of SRH and QOL to be different.

Introduction

Nowadays, quality of life is considered an important health outcome [1] and also a measure of societies' rate of development [2]. This important construct is one of those concepts that lack a uniform and clear-cut definition [1]. Some scientists believe that the concept of QOL has different meanings and determinants among ordinary people and students of different cultures [3-13]. What matters in QOL research studies is the information gained from individuals' own perspectives, their mental framework, their priority-setting of different dimensions of QOL, and which groups the individuals fall in terms of culture, age and gender [14]. Although the tools for assessing QOL are standardized for different cultures, but what individuals consider as QOL at the time of answering the questions regarding it, and whether the people of different countries have similar definitions of QOL are all important questions.

Self-rated health (SRH) is a commonly used health assessment indicator, used for monitoring changes and measuring the overall health of different communities [15,16]. The SRH question that deals with individuals' self-assessment of their health status is a single one [17]. Studies have shown that different racial groups with equal objective health statuses have given different responses to this question [18].

The two constructs of SRH and QOL sometimes overlap with each other. It is not clear to what extent the Iranian people consider SRH different from QOL; how they assess their health status or QOL, and how these two constructs differ from each other and what concepts they hold. It is not clear which factors are related to both of these constructs and which are related to either one alone.

To our best knowledge, there is no quantitative research in this field in Iran or elsewhere. One qualitative study has thoroughly investigated the differences and definitions of these two constructs among Iranians [19]. The current study compares the concepts of QOL and SRH and the differences and their determinant factors among students of Tehran University of Medical Sciences (TUMS). The

TUMS student population seems to be a good sample for the study; given their availability and active participation, admission from all over Iran and the presence of various ethnicities among them, the inclusion of various opinions becomes possible. Moreover, there is a close association between medical course and the concepts of health and QOL among these students. The findings of this study can offer a better analysis and interpretation of SRH and QOL in Iran –as an example of a developing country.

Methods

The populations under study were TUMS students from six schools of medicine, dentistry, public health, nursing & midwifery, pharmacology and paramedical sciences. The sample size was determined at 801 persons through sample size formula.

$$n = \frac{(Z_{1-\alpha/2})^2 \times (S^2)}{d^2} \times \frac{1}{1-f} \times Deff$$

A list of the students of each school was prepared. In the next step, the weight was calculated based on the number of students from each school. Thereafter based on these probabilities, weighting was done, and the determined sample size was selected and from that group the number of students required was included as samples; the students were selected through convenience sampling. If the number of students from a school was fewer than that desired, another student would be chosen similar, and further samples would be collected.

The numbers of students included in the study from different schools were as follows: 114 from the school of public health, 64 from the school of nursing & midwifery, 369 from the school of medicine, 98 from the school of pharmacology, 76 from the school of paramedical sciences, and 80 from the school of dentistry.

The participants could leave the study at any stage they did not want to continue further. Informed consent was taken from the participants to complete the questionnaire.

The tool used contained 17 specialized questions (QOL & SRH assessment of the participant, the first thing that comes to mind when they are asked about each construct, the person's impression and definition of each construct, three factors affecting each construct, the significance and difference of SRH and QOL); ten questions on the demographic status (self-reported socioeconomic status, educational level, school, age, sex, marital status, current location of residence, ethnicity, status of being affected with a disease –upon a physician's diagnosis- in the past 6 months, and the highest educational degree obtained by either parent).

To assess the content validity of the questionnaire, relevancy and clarity were used and to assess reliability, test-retest was used. Intra class correlation (ICC) and Kappa were the indicators used to measure reliability. For both the QOL and the SRH, scaling was done from 'very bad' (1) to 'very good' (5). For both constructs, the options of 'very bad' and 'bad' were combined to create the 'inappropriate' group and the 'average', 'good 'and 'very good' options were combined to create the 'appropriate' group.

During data analysis, descriptive statistics were used for all the items of the questionnaire and bi-variate analytical tests (Chi[2], Fisher's, Mann Whitney) were applied between demographic variables and three dependent variables of QOL (appropriate and inappropriate), SRH (appropriate and inappropriate), and the difference between QOL and SRH. To build the dichotomized variable of QOL-SRH, the absolute difference between SRH (five-point scale) and QOL (five-point scale) was coded. In this item, code '1' was designated to all responses greater than 1 (indicating a difference in understanding between the two constructs), and responses equal to or smaller than 1 were designated the code '0' (indicating a lack of difference in understanding between the two constructs).

Then, three multiple logistic regression tests were performed for all three dependent variables (QOL, SRH and QOL-SRH) separately, using independent demographic variables, with p-value < 0.2 from bivariate analyses.

The reference level for the variables were considered as follows: 'bad socioeconomic status' in the variable of socioeconomic status group, 'male' in the sex, 'single' in the marital status, 'living with a first-degree relative' in the current location of residence variable, 'Fars' in the ethnicity, 'patient' in the being affected with a disease variable, and 'undergraduate' in the highest educational degree of either parent variable.

Results

The tool's reliability and validity

Upon examining content validity, the mean relevancy and clarity were both estimated at 90.59. Upon reliability of the tool, the mean ICC was 0.86 and the kappa was 0.77.

The participants' characteristics

The response rate of the participants was 76%. As seen in table 1, the mean age of the students was 21.38 ± 2.9 years. The youngest and oldest participants were, 18 and 45 years, respectively. Most of the participating students were female (58.3%), single (94.8%), living in the dorm (53.7%), of Fars ethnicity (51.4%), and had not been affected with a disease (which was diagnosed by physician) in the past 6 months (90.1%). The highest educational degrees obtained by either parent were Bachelors and masters (40.4%). Students from the school of medicine and students of master's degree constituted the majority of the participants, at 46.1% and 79.0%, respectively. Most students reported their socioeconomic status as good (49.1%) (Table 1).

Seven hundred and seventy-four (97.1%) students had appropriate SRH and 736 (93.2%) had appropriate QOL.

The first topics that crossed the participants' minds during the assessment of SRH were physical factors; those that came to mind during the assessment of QOL was a combination of physical, psychological, social, economic, environmental and familial factors.

The participants described physical, psychological and familial factors as the most important determinant factors of SRH, and recognized psychological, familial and economic factors as important determinant factors of QOL. The students' definition and impression of the concept of SRH was to have a healthy psyche, physical health and environmental health. However, they described having a healthy psyche, familial support and good income in the definition of QOL.

When responding to the SRH question, most students compared their health with an 'ideal and complete' status of health. When asked about the difference between the concepts of the two constructs, they believed they were somewhat different (45.5%). Nevertheless, they thought that QOL and SRH were equally important (64.5%).

Upon performing Spearman's correlation test, we observed a positive correlation (R = 0.46; p < 0.001) to exist between QOL and SRH (five-point scale).

Table 1. Demographic characteristics of participating students and their relationship with QOL& SRH (N = 801)

Variables	Number (percent)	Mean (SD) QOL	Mean (SD) SRH	Variables	Number (percent)	Mean (SD) QOL	Mean (SD) SRH
Sex				**Being affected with a disease in the past 6 months**			
Male	334 (41.7)	3.65 (0.26)	4.00 (0.75)	Yes	79 (9.9)	**3.54 (0.79)***	**3.68 (0.72)**
Female	467 (58.3)	3.77 (0.24)	3.98 (0.73)	No	722 (90.1)	**3.74 (0.86)**	**4.02 (0.73)**
Marital status				**Highest degree obtained by either parent**			
Single	759 (94.8)	3.72 (0.86)	**4.00 (0.73)**	Undergraduate	127 (15.9)	3.53 (0.93)	3.89 (0.80)
Married	42 (5.2)	3.80 (0.74)	**3.80 (0.80)**	High school diploma and associate degree	224 (28.1)	3.56 (0.88)	4.03 (0.73)
Current situation of residence				Bachelors and masters	322 (40.4)	**3.76 (0.80)**	3.95 (0.73)
				PhD and higher	125 (15.7)	**4.40 (0.70)**	4.16 (0.68)
Living with a first degree relative	228 (28.6)	3.84 (0.84)	3.89 (0.81)	**Ethnicity**			
Not living in the dorm	140 (17.5)	3.72 (0.86)	3.90 (0.73)	Fars	404 (51.4)	3.76 (0.83)	4.00 (0.71)
Living in the dorm	430 (53.9)	3.66 (0.85)	**4.07 (0.70)**	Turk	159 (20.2)	3.68 (0.84)	3.86 (0.78)
				Kurd & Lor	119 (15.1)	3.70 (0.79)	4.09 (0.70)
Socioeconomic status				Gilaki & Mazandarani	87 (11.1)	**3.60 (1.00)**	4.02 (0.76)
				Baloch, Arab & other ethnicities	17 (2.2)	3.94 (1.14)	4.29 (1.04)
Bad	41 (5.1)	3.02 (1.12)	3.63 (1.08)	**School**			
intermediate	367 (45.8)	**3.47 (0.75)**	**3.82 (0.69)**	Public health	114 (14.2)	3.42 (0.88)	3.90 (0.70)
Good	393 (49.1)	**4.04 (0.78)**	**4.19 (0.69)**	Nursing & Midwifery	64 (8.0)	3.58 (0.89)	3.58 (0.89)
Educational level				Medicine	369 (46.1)	3.74 (0.85)	4.11 (0.70)
Bachelors	166 (20.7)	3.62 (0.84)	3.75 (0.83)	Dentistry	80 (10.0)	**4.14 (0.69)**	4.10 (0.58)
Masters	629 (79.0)	3.82 (0.86)	4.07 (0.70)	Paramedical sciences	76 (9.5)	3.69 (0.80)	3.88 (0.74)
PhD	6 (0.3)	4.07 (0.90)	4.34 (0.89)	Pharmacology	98 (12.2)	3.79 (0.84)	3.90 (0.83)
Age	Mean= 21.38			**Minimum - Maximum**	18 – 45		

*Bold indicates *P* < 0.001

Table 2. The association between QOL (appropriate and inappropriate) & SRH (appropriate and inappropriate) and their difference with the variables under study through bivariate tests and final logistic regression models

Variable	OR crude QOL (95% confidence interval)	OR adjusted QOL (95% confidence interval)	OR crude SRH (95% confidence interval)	OR adjusted SRH (95% confidence interval)	OR crude QOL –SRH (95% confidence interval)	OR adjusted QOL –SRH (95% confidence interval)
Socioeconomic status						
Bad	1	1	1	1	1	1
intermediate	**6.08 (2.82-13.14)**	**5.72 (2.53-12.94)**	**2.93 (0.91-9.46)**	3.25 (0.93-11.31)	**0.32 (0.14-0.75)**	**0.31 (0.13-0.77)**
Good	**11.36 (4.92-26.21)**	**11.97 (4.54-31.59)**	**6.91 (1.86-25.62)**	8.20 (2.05-32.75)	**0.18 (0.07-0.44)**	**0.24 (0.09-0.64)**
Highest degree obtained by either parent						
Undergraduate	1	1	1	1**	1	1
High school diploma and associate degree	1.10 (0.53-2.28)	1.23 (0.54-2.79)	2.18 (0.65-7.29)	-	1.73 (0.78-3.82)	**2.49 (1.03-6.03)**
Bachelors and masters	**2.01 (0.94-4.27)**	2.16 (0.87-5.35)	1.55 (0.55-4.35)	-	0.93 (0.41-2.09)	1.73 (0.68-4.40)
PhD and higher	**4.67 (1.29-16.84)**	2.74 (0.68-11.03)	3.07 (0.60-15.53)	-	0.32 (0.08-1.21)	0.89 (0.20-3.82)
Ethnicity						
Fars	1	1	1	1	1	1
Turk	0.87 (0.42-1.82)	0.97 (0.43-2.17)	0.55 (0.20-1.47)	-	0.81 (0.34-1.94)	0.66 (0.27-1.63)
Kurd & Lor	1.07 (0.45-2.54)	1.28 (0.50-3.29)	3.01 (0.38-23.81)	-	**2.46 (1.23-4.92)**	1.62 (0.76-3.47)
Gilaki & Mazandarani	0.50 (0.23-1.10)	**0.40 (0.16-0.95)**	0.53 (0.16-1.73)	-	**2.77 (1.31-5.84)**	1.94 (0.88-4.26)
Baloch, Arab & other ethnicities	1.07 (0.13-8.41)	1.39 (0.14-13.10)	0.40 (0.04-3.39)	-	2.27 (0.49-10.59)	1.58 (0.30-8.13)
Age	**0.94 (0.86-1.02)**	1.00 (0.90-1.10)	1.10 (0.93-1.31)	-	**1.11 (1.03-1.19)**	1.06 (0.96-1.16)
Being affected with a disease in the past 6 months	**2.51 (1.23-5.10)**	**2.72 (1.25-5.92)**	**4.26 (1.69-10.71)**	**3.67 (1.42-9.52)**	1.21 (0.47-3.14)	-
Current situation of residence						
Living with a first degree relative	1	1	1	1	1	1
Not living in the dorm	0.75 (0.33-1.70)	-	1.87 (0.59-5.91)	1.90 (0.58-6.20)	1.11 (0.38-3.19)	1.06 (0.35-3.25)
Living in the dorm	0.90 (0.46-1.74)	-	**3.36 (1.30-8.67)**	**3.60 (1.33-9.73)**	**2.79 (1.33-5.82)**	2.08 (0.91-4.73)
Marital status (married/single)	3.04 (0.41-22.59)	-	**0.35 (0.10-1.24)**	0.57 (0.14-2.24)	0.62 (0.14-2.64)	-
Sex	1.29 (0.74-2.25)	-	1.54 (0.67-3.53)	-	**0.58 (0.34-1.00)**	0.82 (0.46-1.47)

*Bold indicates *P* < 0.001
**Variables that had *p* < 0.2 in the bivariate test were entered into the logistic regression model

Table 2 presents the multiple logistic regression analyses with the three dependent variables of the study. As shown in table 2, that the QOL status was significantly associated with intermediate and good SES compared to bad SES, not having been affected with a disease compared patient, and the Gilaki & Mazandarani ethnicity compared to Fars. The better the SES, the higher the chance of having an appropriate QOL. Students who had not been affected with a disease in the past 6 months were 2.72 times more chance to have an appropriate QOL compared to those students who had been sick. Students of Gilaki & Mazandarani origin were less chance to have an appropriate QOL compared to those of Fars origin (OR = 0.4).

As shown in the table 2, the variables of 'not having any disease in the past 6 months', 'living in the dorm' and 'good SES' were significantly associated with an appropriate SRH. Students who had good SES were 8.20 times more chance to have an appropriate SRH compared to those students who had bad SES. Students who had not been affected with a disease in the past 6 months were 3.67 times more chance to have an appropriate SRH compared to those students who had been sick. Students living in the dorm were 3.60 times more chance than those who lived with a first-degree relative to have an appropriate SRH.

As seen in table 2, the results of multiple logistic regressions indicated that students with intermediate ($P = 0.011$) & good ($p = 0.004$) SES and parents with high school diplomas & associate degrees ($p = 0.042$) defined QOL and SRH differently.

Discussion

From the students' perspectives, the concepts of QOL and SRH were somewhat different, but equally important. The psychological and familial factors were recognized as important determinant factors of both constructs. The economic factor was considered more important than the other factors affecting QOL. However, in SRH, the physical factor was considered the important determinant factor. Having a healthy psyche was common in the participants' impression and definition of both constructs. In defining QOL, having familial support and a good income were also mentioned. Though, having physical health and environmental health were mentioned in the definition of SRH as well.

The factors related to SRH differ in different populations [20]. Lorem et al. cross-sectional study in 2017 which was conducted on a sample of 39150 people in Norway from the Tromso (TS) cohort study, have shown that physical diseases were significantly associated with psychological diseases and affected SRH strongly. We too found that psychological factors are amongst the most important affecting health [21]. In 2002, Vingilis et al used data from the national health studies conducted in Canada and studied 493 youth aged 12–19 years old. The participants reported SRH to be affected by physical, psychological, social, environmental and behavioral health [22]. The latter are consistent with our findings. Elsewhere, in 2001, Undén et al conducted a descriptive–cross-sectional study on 407 people aged over 20 years. Based on their results, psychological health affects one's SRH [23].

Regarding the role of familial factors on QOL, Cheraghi et al is qualitative study in 2016 in Tehran have shown that the participants specially emphasized the impact of familial factors on QOL. In the participants' view, the family environment, familial relations, and the role of the spouse were among the most important familial factors affecting QOL [24]. In another cross-sectional study conducted by Thumboo et al (2003) in Singapore on 4122 participants from China, Malaysia and India, the QOL score was directly associated with familial support, while it was inversely related to disease [11].

In our study, the students expressed a combination of physical, psychological, social, economic, environmental and familial factors in response to the first thing that crossed their minds when assessing QOL. While, they consider the physical factors for SRH. The results of Cheraghi et al.(2016) [24] and Salehi et al. (2017) [25] qualitative studies were consistent with our findings as well. These studies indicate that the participants viewed QOL as a more general term than SRH and recognized SRH as a subset of QOL.

Singh-Manoux et al. [26] cross-sectional study was conducted on data from the British Whitehall II and France's Gazel cohort studies, on 27988 samples from the city of London. Approximately 34.7% have described SRH in terms of physical status. In our study, 69.3% stated that physical health was more significant in the SRH concept.

Most of the current study's participants had compared their health to a complete and ideal status of health when responding to the SRH question. In Salehi et al qualitative study (2017), the participants had compared their physical status with the ideal status of health in their peers and with their own health in the past [25]. However, in Singh-Manoux et al (2006) study, the participants had compared their health with their past health status during self-assessment [26]. One reason behind this difference may be the younger age of the participants in our study. These findings indicate that participants of various age groups consider different age groups as their reference and comparison group.

Sixty-four and a half percent (64.5%) of students considered the SRH and QOL constructs as equally important, while, in Nedjat et al qualitative study (2017) through qualitative interviews in Tehran, most participants believed health to be more important than QOL and as the foundation. Most of these individuals or their relatives had been affected with a chronic or debilitating disease [19].

In the current study, the participants believed SRH and QOL to be somewhat different. The results of the qualitative study (2017) also indicated a reciprocal association to exist between health and QOL [19].

According to our results, there was no significant association between sex and SRH. However, Ghalichi et al cross-sectional study (2015) that was conducted on 1982 participants aged over 18 years in Tehran found that women reported their SRH worse than men [27]. On the other hand, in El-Ansri et al (2016) cross-sectional study conducted on a sample size of 3706 students from the Universities of England, Wales and Northern Ireland, women reported a better SRH than men. This study recommends that in order to prevent the over-estimation of the effect of sex on SRH, a large number of potential confounding factors must be controlled [28].

Based on the current study's results, QOL is not associated with sex. However, Vaez et al (2003) performed a cross-sectional study on all the first-year students of a university in Sweden and observed that men had a lower QOL than women [3]. Soltani et al (2009) conducted a descriptive – analytic study on 226 students from Gilan University and found that girls' QOL was worse than boys [8]. Part of these differences in results may be attributed to the reason that, men and women score QOL's different domains differently, such as, environmental, psychological, physical and social health. In our study, the QOL question has been mentioned as a single and general question, thus, the participants have given a summarized score to the combination of all the domains. However, we may have obtained different results if the domains had been questioned separately.

In the current study, there was a significant association between the students' SES and SRH and QOL. Our results are consistent with those observed by Cheraghi et al.(2016) [24]. It may be said that people of different SES have different lifestyles. For example, the better the SES of individuals, the greater their inclination to participate in bodybuilding activities [29]. Most probably, psychological difficulties are seen more often in people of lower SES [30]. Ghalichi et al (2015) also found an inverse relationship between bad SES and SRH [27]. SES had the greatest impact on health related QOL in Thumboo et al (2003) study too [11].

Here, we did not observe a significant association between SRH and ethnicity. According to Seo et al (2014) cross-sectional study that used California's national health interviews which were conducted in 5 languages, whites were most likely to score their health as excellent or very good [31]. Also, Benjamins et al (2012) conducted a cross-sectional study on a population of 1311 from 6 neighborhoods of Chicago and observed that Americans of Mexican and Red Indian origin were at least three times more likely than whites to have weak or average SRH [18].

The multiple logistic regression analysis indicated that the QOL of students of Gilaki and Mazandarani ethnic origin was lower than the other ethnicities. Thumboo et al (2003) also stated that different ethnic groups had different health related QOL. Upon standardizing the variables of this study, ethnicity and socioeconomic status had the greatest impact on QOL [11].

Although we did not observe any association between the students' QOL and location of residence, but the mean QOL of the students living with first-degree relatives was higher than the other groups. A cross-sectional study conducted by Seraji et al (2016) on 356 girl students Islamic Azad University's Medical Branch in Tehran found that the QOL of those living in the dorm was lower than those not living in the dorm [10]. Moreover, in another descriptive – analytical study undertaken by Macvandi et al (2010) on 400 students of Islamic Azad University's Ahvaz Branch, those living in dorms had lower QOL [4]. Amiri et al (2014) examined 525 students from different disciplines in Shahroud University of Medical Sciences through the cross-sectional approach and observed that the QOL of local students was significantly higher than the non-local ones [6].

We observed a statistically significant association between QOL and the status of being affected with a disease in our study. Klemenc-Ketis et al (2011) investigated 141 Slovenian students in a cross-sectional study and noted that their QOL was affected by their mental disorders and chronic pain (lack of well-being) [9].

In the raw data analysis, we observed a statistically significant association between QOL and discipline (dentistry). However, no association was detected in the adjusted analysis. Amiri et al (2016) also noted results consistent with ours. In this study, the QOL of medical students was higher than the other public health and paramedical sciences students [6]. In another cross-sectional study, Labbafinejad et al (2016) examined 308 students of medicine and veterinary medicine in Tehran and observed that the veterinary students had lower QOL than the medical students [5].

Limitations of this study

Among the limitations of this study are the student population under study, and the non-random method of their selection. Upon generalizing the study's results to the general public, we come across certain issues. Furthermore, the participants were young (mean age = 21 years); due to the absence of all age groups, we cannot generalize our findings.

Conclusions

Students believed QOL to be a more general and inclusive term than SRH. Although psychological and familial factors played an important role in QOL and SRH. Economic factors were only reported for QOL and physical factors were only reported for SRH. Nevertheless, students considered both constructs to be equally important. The results of this study can prove beneficial to the interpretation and analysis of SRH and QOL, which are important public health indices of any given country.

Recommendations

We recommend selecting a population more similar to the general public, with a combination of different age and educational groups for future studies.

Acknowledgments

Ethical approval

This research study has been approved by the Ethics Committee of TUMS under ethical.

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