Original Article

Health-Related Quality of life and Associated Factors among Iranian University Students

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Abstract

Introduction: The aims of the study were to investigate the health-related quality of life (HRQoL) in students of Shahid Sadoughi University of Medical Sciences (Iran) and to identify factors that might have associated with their HRQoL.

Materials & Methods: In 2010, 364 students with a cluster sampling method enrolled in the cross- sectional study. HRQoL was assessed by using SF-39 questionnaire. Multiple logistic regression methods were used to examine the association indicators of HRQoL and socioeconomic characteristics.

Results: The highest SF- 36 scale score was obtained for physical functioning. Univariate analysis showed that there were significant differences in the HRQoL scores by faculty, smoking and regular exercise. Total score and seven health dimensions of SF-36 significantly ($P<0.05$) correlated with academic achievement. The logistic regression analysis showed that the physical composite score decreased with family income, smoking habit, marital status and employment. Family income and academic achievement increased the risk of having mental composite scores above the median.

Conclusion: These findings demonstrate that multiple factors were associated with HRQoL in Iranian university students. Appropriate health education programs to largest modifiable risk factors may improve student HRQoL.

***Keywords*:** Quality of Life; Students; Educational Status; Risk Factors

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Introduction

Quality of life (QOL) is defined as individuals' perception of their own position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns; it is a broad ranging concept, incorporating in a complex way the persons' physical health, psychological state, level of independence, social relationships, personal beliefs, and relationship to salient features of the environment [1].

Recently, QOL has become an important target in medical care, especially for assessing treatment outcome and for economic evaluation, and it has become an important outcome criterion for psychiatric interventions in general [2]. In the same vein, QOL measurements are being used increasingly in clinical research to measure improvement in perceived well-being [3].

Lately, it was shown that health-related quality of life (HRQoL) assessments are very important in educational settings [4, 8]. Namely, it is well known that public learning is primarily a social process that has greater impact upon the lives of young adults. Some studies suggested that student perceptions of the quality of their university experience are essentially related to attrition rates and academic achievements [7, 9]. However, assessing HRQoL in faculty students is more comprehensive and depending on several factors such as type of university, students' age, gender, residence, health status, and their economic and social environment. Quality of life of the student population is influenced by a variety of factors. For instance, psychological problems, such as depression, poor social interactions, low self-esteem, have significant implications for students' lives, academic performance, and behavior [4, 5]. Pekmezovic et al. showed the total SF-36 score significantly correlated with average monthly family income, smoking and physical activity [8]. Florence et al. demonstrated an association between diet quality and academic performance[10].

The aim of the present study was to estimate HRQoL among students of University of Iran and its associations with socio-demographic factors (gender, type of faculty, social status, lifetime residence), and habits (smoking and physical activities).

Materials & Methods

Participants

Yazd, one of the large cities of the Islamic Republic of Iran, is the center of Yazd Province. The city is located 750 km south of the capital Tehran. It has a dry climate and a population of 750,000 people. At Shahid Sadoughi University of medical sciences located in Yazd province where the study was conducted, 6000 students were studying, and there were 6 schools (medicine, Para medicine, dentistry, college of nursing and the college of health services).

From previous studies, it is known that the maximum S.D for the scores obtained for each HRQoL domain were 14.8 and with margins of error 1.5. Thus, a total of 364 women was needed. Participants were determined by a cluster sampling method.

Whole 15 classes proportional to size were selected from total schools. In each selected class, all students were selected to participate in this

study. The study was restricted to 364 participants.

Measures

All study participants completed the questionnaire which comprised demographic information, as well as information regarding education, social status, lifetime residence, and habits (smoking and physical activities). Information on smoking was obtained through questions on smoking, including: duration of smoking (years) and average number of cigarettes smoked per day.

Smokers were defined as students who reported everyday smoking during a 60-day period prior to completing the questionnaire. To assess participation in moderate physical activity, students were asked if they do moderate activities for at least 10 min at a time, such as brisk walking, cycling, swimming, or any other activity that causes some increase in breathing or heart rate.

Responders who answered ‘‘yes’’ were asked how frequently they engage in moderate activities, defined as: everyday, weekly (1–6 times per week), occasionally (rarely, less than one time per week), and never. In this cross-sectional study, we utilized a validated Persian sort form of HRQoL SF-36 [11].

The SF-36 is a general quality of life instrument that measures eight health related concepts: physical functioning (PF-10 items), role limitations due to physical problems (RP-4 items), bodily pain (BP-2 items), general health perceptions (GH-5 items)), vitality (VT-4 items), social functioning (SF-2 items), role limitations due to emotional problems (RE-3 items), and perceived mental health (MH-5 items).

In addition a single item that provides an indication of perceived change in general health status over a one-year period (health transition) is also included in the SF-36. Based on these eight scales, two summary scales have been constructed: the Physical Composite Score (PCS) and the Mental Composite Score (MCS). Item responses were transformed using scoring algorithms to yield standardized health scale scores ranging from 0 (worst possible health) to 100 (best possible health).

Scoring and calculation of scales was performed using the Ware’s survey manual [12].

Data analysis

All statistical analyses were performed using SPSS for Windows, version 17. Descriptive statistics were expressed as mean ± standard deviation.

The independent sample test was used to compare two independent groups and ANOVA test plus the Bonferoni adjustment were used to compare more than two independent groups. Spearman's rho correlation coefficient was used to investigate the association between SF-36 domains and the academic performance. A two-tailed P-value of <0.05 was considered statistically significant.

Logistic regression was used to assess the simultaneous influence of different variables in HRQoL; the two summary scales (PCS and MCS) examined in the survey were considered as a dependent variable and sociodemographic variables as independent variables.

To categorize HRQoL, the criterion of the median was used. Students with a score below percentile 50 were defined as a low health status,

and those with a score above it as a good health status. The entry of the variables into the model was considered with a 20% significance level, and the stepwise procedure was applied.

Results

Data were collected from 364 students of Shahid Sadoughi University of medical sciences, 155 (42.6%) males and 209 (57.4%) females. The average age of the participants was 21.7 ± 3.3 years. Most of the students (19.2%) were from the Faculty of Medicine.

According to the residence during high school, 38.2% students reported living with parents at own home, 5.5% living alone in rented apartments, while 55.8% staying in student dormitories. The proportion of the students with a chronic disease diagnosed by a physician was 5.4% (n=20). The demographic characteristics of participants' are presented in Table 1.

The mean scale scores of SF-36 in each domain according to the sex of respondents are presented in Table 2.

The highest values of the SF-36 scales were obtained for Physical Functioning (88.9) and the lowest SF-36 values were obtained from General Health(52.3). The mean SF-36 PCS and MCS scores were 70.1±12.3 and 58.3±11.3, respectively.

There was a statistically significant difference noted between male and female students on any of the eight dimensions of the SF-36 quality of life instrument (Table 2).

Table 1. Demographic characteristics of participants

Variable	Count	Percentage
Gender		
Male	155	42.6
Female	209	57.4
faculty		
Medicine	70	19.2
Dentistry	49	13.5
College of nursing	69	19
College of health services	116	31.9
School of Paramedicine	60	16.5
Residence during high school		
Home (with parents)	203	55.8
Student's dormitory	140	38.5
Rented apartment	21	5.8
Marital status		
Single	302	17
Married	62	83
Family income		
Low	19	5.2
Medium	238	65.6
High	106	29.2
Smoking habit		
Yes	26	7.2
No	336	92.8
Regular exercise		
Yes	174	47.8
No	190	52.2
Employment during academic terms		
Yes	49	13.5
No	315	86.5
Chronic disease		
Hypertension	7	1.9
Cardiovascular	2	0.5
Migraine	9	2.5
Asthma	2	0.5
Other		
Yearly check-up		
Yes	107	30
No	250	40
Father Death		
Yes	336	92.3
No	28	7.7
Mother death		
Yes	355	97.5
No	9	2.5
Academic achievement (mean±S.D)		15.85±1.67

Table 2. Mean and standard deviation of the SF- 36 scales according to sex with the students

Scale of SF-36	Both sexes M±S.D
Physical functioning	88.9 ± 16.9
Physical role	68.9 ± 20.5
Pain	70.6 ± 19.8
General health	52.3 ± 10.1
Social functioning	63.1 ± 23.4
Vitality	54.2 ± 10.5
Emotional role	62.1 ± 23.5
Mental health	53.7 ± 8.9
Physical composite score	70.1 ± 12.3
Mental composite score	58.3 ± 11.3
Total Score	64.2 ± 10.2

Correlations between each SF- 36 dimension and last year university academic achievement are shown in Table 3. The total score and seven health dimensions of SF-36 were positively correlated with academic achievement (correlation coefficients ranged from 0.123 to0.237, $p<0.05$).

Of 364 students, 26 (7.2%) reported smoking daily(Table 1). Smokers and non-daily smokers significantly differed in the total SF-36 score (58.2±9.3 versus 64.6±10; P=0.003).47.8% of students reported weekly practice of regular exercise. There was no statistically significant difference in the total SF-36 score between students who had regular exercise from those who did not have a regular exercise (65.1±9.5 versus 63.3±10.5; P=0. 113), however there was a significant difference in the MCS score between two groups (59.5±11.1 versus 57.1±11.2; P=0. 03).

The logistic regression models were used to determine factors associated with two summary scales of the SF-36, and the results are shown in Table 4.

In the logistic regression (Table 4), the final stepwise model showed that PCS score decreased with family income, smoking habit, marital status, age and employment during academic terms. Family income and academic achievement increased the risk of having a MCS score above the median.

Table 3. Correlation between each SF- 36 dimension and last- year university academic achievement

Scales of SF- 36	r*	P-value
Physical functioning	0.09	0.122
Role physical	0.177	0.002
Pain	0.123	0.035
General health	0.124	0.034
Vitality	-0.006	0.929
Social functioning	0.148	0.011
Role emotional	0.264	0.0001
Mental health	-0.058	0.327
Physical composite score	0.177	0.003
Mental composite score	0.227	0.0001
Total score	0.237	0.0001

Table 4. Risk Factors associated with presenting higher score (above the median) of two summary scales of the QOL

Risk factor	OR	P-value	(95% CI)
Physical composite score (Score> 72)			
Family income		0.009	
Low	1		
Medium	0.25	0.034	(0.07-0.90)
High	0.50	0.310	(0.13-1.91)
Smoking habit			
No	1		
Yes	0.28	0.016	(0.11-0.79)
Age	0.9	0.078	(0.81- 1.1)
Marital status			
Single	1		
Married	0.28	0.016	(0.11-0.79)
Employment during academic terms			
No	1		
Yes	0.41	0.022	(0.19 – 0.88)
Mental composite score (Score >58.5)			
Family income		0.084	
Low	1		
Medium	1.03	0.957	(0.36-2.97)
High	1.90	0.258	(0.62-5.90)
Academic achievement	1.21	0.046	(1.10- 1.38)

Discussion

The results of our study demonstrate an independent association between many scales of HRQoL and academic achievement among university students in Yazd, Iran. Additionally our results show that the highest values of the SF–36 scales were obtained for physical functioning and the lowest one for general health. These findings are consistent with those obtained in quality of life studies of university students performed in Belgrade [8], Turkey [4] and Canada [9].

In this study, higher value was obtained for the physical composite score implying good activities of daily living, enough energy, less pain and better work capacity. Additionally, negative feelings about the future, happiness, balance, hopefulness could be an important part of students' life determining low quality of life scores in each domain included in the Mental Composite Score.

In this study, there was not a statistically significant difference in the dimensions of the SF-36 quality of life instrument between males and females. In the studies of quality of life among university students, conducted in Belgrade [8], and Brazil [13], female students had significantly lower SF-36 scores than males in the physical functioning, pain, vitality, social functioning, and role emotional, as well as in the mental composite score.

The analysis of associations between SF- 36 scales and type of faculty demonstrated that students of medicine had the highest scores in many dominoes, especially in the role physical, general health and physical composite score. Barbist et al [14] emphasized that medical students might have a different perception of health and

therefore value the health status differently compared to the general population [8, 15]. They found the best quality of life scores in students of social sciences and humanities that these students have better personal relationships and stronger social support than students of biomedical and technical facilities.

In our study 7.2% are established daily smokers. We showed statistically significant lower total SF-36 score (P = 0.003) in students who smoked compared to non-daily smokers. A similar result was obtained in the survey conducted in Belgrade [8]. Our study showed that 47.8% students reported regular exercise which is higher than many studies [8, 18].

Moreover, in our study students who did regular exercise had a higher MCS score compared to students who had not regular exercise (P<0.05).

Similar studies showed that regular physical activity improves physical and mental health and total QOL in students [8, 18]. Since physical activity has a positive diversion from stressful thoughts and situations among students, it is essential to promote regular physical activity as a part of strategies to improve the quality of life in students.

Our results indicated that most of SF-36 health dimensions were positively correlated (P<0.05) with academic achievement, though the direction of causation is not known[19]. Chomitz et al. showed statistically significant relationships between fitness and academic achievement [19].

It seems likely that physical health may play a role in influencing important college student outcome variables as well. It is quite plausible that students with a greater degree of health problems would suffer academically and would be less likely to continue their education. Additionally, various mental health issues such as depression and anxiety are common in college students although the impact of perceived mental health on academic achievement is unknown. It is predicted that physical and mental health- related quality of life will be related to academic performance.

Logistic regression analysis determined higher family income, smoking, marital status and employment during academic terms as independent risk factors for lower physical composite scores. Moreover family income and academic achievement increased the risk of having mental composite scores above the median.

Al-Akour et al. showed female gender, age of 16-18 years, fathers' education of high school or less and unemployed fathers (for social functioning and physical functioning) were significantly associated with decreased average scores of all scales and subscales of the Pediatric Quality of Life Inventory[16].

Hirsch et al. found that lower mental HRQoL scores were associated with increased stress and use of maladaptive coping skills in all years of the curriculum [17]. Helena et al. showed that there was no correlation between SF-36 summary scores and family income [13].Several limitations of the present study must be noted. First, concerns of cross- sectional design, thus precluding the association among variables. Second, although the use of generic instruments may have allowed for a multidimensional assessment of HRQoL, we may not have been able to detect differences concerning conditions specific to the student population.

Conclusion

The finding demonstrated that Iranian college students reported a moderate well being and multiple factors consisted: family income, marital status, smoking, employment and academic achievement associated with HRQoL.

We suggest that education and training initiatives in quality of life may improve the quality of studies. Resources for curriculum development of health-related quality of life have been developed by the International Society for Quality of Life Research and may prove a useful tool for educators interested in this area.

References

1. The WHOQOL Group. Development of the World Health Organization WHOQOL-BREF quality of life assessment. Psychol Med. 1998; 28(3):551-8.
2. Aigner M, Förster-Streffleur S, Prause W, et al. What does the WHOQOL—Bref measure?: Measurement overlaps between quality of life and depressive symptomatology in chronic somatoform pain disorder. Soc Psychiatry Psychiatr Epidemiol. 2006; 41(1):81-6.
3. Saxena S, Carlson D, Billington R, et al. The WHO quality of life assessment instrument (WHOQOL—Bref): The important of its items for cross—cultural research. Qual Life Res. 2001; 10(8), 711-21.
4. Arslan G, Ayranci U, Unsal A, et al. Prevalence of depression, its correlates among students, and its effect on health-related quality of life in a Turkish university. Ups J Med Sci. 2009; 114(3): 170-7.
5. Ducinskiene D, Kalediene R, Petrauskiene J. Quality of life among Lithuanian University students. Acta Medica Lituanica, 2003; 10(2), 76-81.
6. Dyrbye LN, Thomas MR, Huschka MM, et al. A multicenter study of burnout, depression, and quality of life in minority and nonminority US medical students. Mayo Clin Proc. 2006; 81(11):1435–42.
7. Goldin SB, Wahi MM, Farooq OS, et al. Student quality of- life declines during third year surgical clerkship. J Surg Res. 2007; 143(1), 151-7.
8. Pekmezovic T, Popovic A, Tepavcevic DK, et al. Factors associated with health-related quality of life among Belgrade University students. Qual Life Res. 2010; 20(3), 391–7.
9. Raj SR, Simpson CS, Hopman WM, et al. Health-related quality of life among final-year medical students. CMAJ. 2000; 162(4):509-10.
10. Florence MD, Asbridge M, Veugelers PJ. Diet quality and academic performance. J Sch Health. 2008; 78 (4):209-15.
11. Montazeri A, Goshtasebi A, Vahdaninia M, et al. The short form health survey (SF-36): Translation and validation study of the Iranian version. Qual Life Res. 2005; 14(3): 875-82.
12. Ware JE, Snow KK, Kosinski M, et al. The SF-36 health survey manual and interpretation guide. Boston: Nimrod Press; 1993.
13. Paro HB, Morales NM, Silva CH, et al. Health-related quality of life of medical students. Med Educ. 2010; 44(3):227-35.
14. Barbist MT, Renn D, Noisternig B et al. How do medical students value health on the EQ-5D?Evaluation of hypothetical health states compared to the general population. Health Qual Life Outcomes. 2008; 11(6):111-6.

15. Ducinskiene D, Kalediene R, Petrauskiene J. Quality of life among Lithuanian University students. Acta Medica Lituanica. 2003; 10(2):76-81.
16. Al-Akour NA, Khader YS, Khassawneh MY et al. Health-related quality of life of adolescents with overweight or obesity in the north of Jordan. Child Care Health Dev. 2012; 38(2):237-43.
17. Hirsch JD, Do AH, Hollenbach KA, et al. Students' health-related quality of life across the preclinical pharmacy curriculum. Am J Pharm Educ. 2009; 73(8):147.
18. Keating XS, Guan J, Pinero JCet al. A meta-analysis of college students' physical activity behaviors. J Am Coll Health. 2005; 54(2):116-25.
19. Chomitz VR, Slining MM, McGowan, RJ, et al. Is there a relationship between physical fitness and academic achievement? Positive results from public school children in the northeastern United States. J Sch Health.2009; 79(1): 30-7.