

Sense of Coherence as a Predictor of Quality of Life Among Iranian Students Living in Ahvaz

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ABSTRACT

Objectives: There is evidence to support the correlation between a stronger sense of coherence (SOC) and better perceived quality of life (QOL). However, this association has not been described among Iranian students. **Methods:** Students were selected by stratified randomization and demographic data including age, gender, and employment status were collected. SOC was measured using the short-form of the Sense of Coherence Scale (SOC-13). The World Health Organization Quality of Life (WHOQOL)-BREF questionnaire was used to assess the QOL. Data was collected over one year between 2014 and 2015. **Results:** A total of 459 students participated in the study. The Cronbach's alpha score in domains of physical health, psychological health, environmental health, social relationships, and WHOQOL-BREF total score were 0.84, 0.83, 0.84, 0.78, and 0.94, respectively. Measured Cronbach's alpha for domains of meaningfulness, manageability, comprehensibility, and SOC-13 total score were 0.68, 0.67, 0.76, and 0.87, respectively. Marital status was not related to SOC whereas married students had significantly higher scores of QOL in the domains of psychological health, social relationships, and environment health ($p=0.006$, $p<0.0001$ and $p=0.043$, respectively). There were significant strong positive relationships between all components of SOC (meaningfulness, manageability, and comprehensibility) and all domains of WHOQOL-BREF ($p<0.0001$ for all). **Conclusion:** This study shows that SOC and marital status are significant predictors of QOL among Iranian students.

Quality of life (QOL) is known to be closely related to emotional and social functioning to maintain a sense of well-being.¹ There is no universally accepted definition of QOL due to the multidimensional and complex construct of this concept.^{2,3} According to the definition of QOL based on salutogenic theory, four dimensions of global, external, interpersonal, and an individual's personal resources are considered.⁴ QOL is not only affected by emotional and social factors, but many medical conditions can complicate the complex concept of QOL.^{5,6} However, the intrinsic characteristics of an individual that contribute to promote QOL are poorly described. Sense of coherence (SOC) has been defined as an intrinsic orientation expressing the extent to which one is confident to perceive the external environment as structured, explicable, and predictable.^{7,8} In fact, SOC predicts an individual's capability to cope with stressful conditions.⁹ It has been well-documented that a stronger SOC is protective against the depressive state.¹⁰ The relationship between better QOL and a stronger SOC has been demonstrated among patients

with chronic diseases such as heart disease,¹¹ and patients receiving home mechanical ventilation.¹² Although, the influence of SOC in improving QOL has been mostly investigated among people facing physical and medical problems and dealing with daily stressors, there are also evidence supporting the positive effect of a stronger SOC on QOL among the elderly population.¹³ By considering the multifactorial construct of both QOL and SOC, these concepts may be influenced by many variables including community characteristics. Therefore, it is reasonable that the mutual correlation between SOC and QOL be assessed in each nation separately. The predictive value of SOC in determining QOL has not yet been described among the general population in Iran. In this study, the correlation between SOC and QOL has been assessed in a sample of Iranian students living in the Ahvaz city.

QOL is a subjective measure and is dependent on the individual's perception of the physical, psychological, social, and environmental aspects of life.¹⁴ Assessment of QOL is clinically important since poor QOL has been associated with a higher probability of depression and anxiety.^{15,16}

Determining the factors that predict a better QOL may help in the planning of proper therapeutic interventions to improve QOL among susceptible people. A stronger SOC may have beneficial effects on QOL by increasing the capability of coping especially among people experiencing stress. Students are known to be dealing with stressors of the educational system during the sensitive time of early adolescence. Mental preoccupations are better organized by students with a stronger SOC. However, it has not yet been clarified whether a stronger SOC can be predictive of a better QOL among Iranian students. To our knowledge, this is the first study evaluating the predictive value of SOC as a determinant of QOL among students living in Ahvaz, Iran.

METHODS

Among registered students in Islamic Azad University (Ahvaz Branch), a sample population was selected by stratified randomization between April 2014 and April 2015.

The study was designed as a cross-sectional observational investigation based on direct interviews with participants. Adequate information about the study was given to each participant, and informed consent was obtained from each before enrollment. Participation was voluntary and participants were assured of the confidentiality of their information. Participants' age, gender, marital status, and employment were asked during interviews and were recorded. The protocol of the study was approved by the ethics committee of the Islamic Azad University, Ahvaz Branch.

In 1987, Antonovsky⁸ developed a measure to assess SOC based on the extent to which the external stressors could be comprehensible, manageable, and meaningful. In this study, the short-form of the Sense of Coherence Scale (SOC-13) was used to measure SOC. This instrument contains 13 items, and each is scored from one to seven. The total score ranges from 13–91. Higher scores are indicative of a stronger SOC. The validity and reliability of this instrument have been demonstrated in many languages.^{17–19} Rohani et al,²⁰ reported that this questionnaire is also valid and reliable in Farsi language with Cronbach's alpha higher than 0.7.

The World Health Organization Quality of Life (WHOQOL)-BREF consists of 26 items and is

the short-form of the WHOQOL-100, which was initially developed by the World Health Organization (WHO) in 1998.²¹ However, the short form of this questionnaire called the WHOQOL-BREF has been shown to be equally valid and reliable and can be considered as an alternative for assessment of domain profiles used in the WHOQOL-100.²² Numerous investigations have shown that this instrument has the potential for reliable measurement of QOL.^{23–25} The valid psychometric properties of this questionnaire have been widely documented.^{26–30} The 26 items of this instrument are categorized in four domains of health: physical, psychological, environmental, and social relationships. Investigations on the Iranian version of this questionnaire have also proven its acceptable validity and reliability in the Farsi language.^{31–33}

All the statistical analysis was performed using SPSS Statistics (SPSS Inc., Chicago, US) version 21. Descriptive analysis was used to express categorical data as frequency (percentage) and continuous variables as the mean and standard deviation (SD). Cronbach's alpha was measured to assess the reliability of SOC-13 and WHOQOL-BREF in the recruited study population. The chi-square test was used to assess the relationships between categorical variables. Means were compared using the independent t-test and one-way analysis of variance (ANOVA). A *p*-value less than 0.050 was considered statistically significant.

RESULTS

A total of 459 students participated in this observational investigation, the majority of which were female (55.8% vs. 44.2%). The larger proportion of both male and female students were single ($n=197$ (77.0%) women and $n=150$ (73.9%) men). There was no significant difference in the marital status of male and female students ($p=0.160$). The mean age of men and women were 28.5 ± 8.0 and 26.6 ± 6.9 years, respectively. The mean age was significantly older among male students ($p=0.006$). Five men (2.5%) were studying at associate level, and 96 (47.3%) and 102 (50.2%) were studying at bachelor and master levels, respectively. Among the female students, 26 women (10.2%) were studying at the associate level and 139 (54.3%) and 91 (35.5%) were studying at bachelor and master levels, respectively. The educational degree of the field under study was

Table 1: Baseline and demographic characteristics of participants.

Variable	Frequency (percentage)		p-value
	Men (n=203)	Women (n=256)	
Age			
<20 years old	16 (7.9)	43 (16.3)	0.006
21–30 years old	131 (64.5)	159 (16.3)	
31–40 years old	33 (16.3)	39 (15.2)	
41–50 years old	23 (11.3)	15 (5.9)	
Marital status			
Single	150 (73.9)	197 (77.0)	0.160
Married	53 (26.1)	59 (23.0)	
Degree level			
Associate	5 (2.5)	26 (10.2)	<0.0001
Bachelor's	96 (47.3)	139 (54.3)	
Master's	102 (50.2)	91 (35.5)	
Employment			
Employed	102 (50.2)	58 (27.7)	<0.0001
Unemployed	101 (49.8)	198 (77.3)	

p-values stand for comparison of means with one-way analysis of variance (ANOVA).

significantly higher in male students ($p < 0.0001$). Table 1 illustrates the baseline and demographic characteristics of the participants. The proportion of employed and unemployed individuals was relatively similar among men (102 vs. 101) whereas the majority of female students were unemployed ($n=198$, 77.3%). Male students were more likely to be employed compared to female students ($p < 0.0001$).

The measured Cronbach's alpha for the total score of WHOQOL-BREF was 0.94, which is indicative of the acceptable reliability of this instrument among Iranian students. Cronbach's alpha in the domains of physical health, psychological health, environmental health, and social relationships were 0.84, 0.83, 0.84, and 0.78, respectively. The reliability of SOC-13 was also assessed, and the measured Cronbach's

alpha for domains of meaningfulness, manageability, and comprehensibility were 0.68, 0.67, and 0.76, respectively. The Cronbach's alpha for the total score of SOC-13 was 0.87, which indicated that this questionnaire was reliable for use in our population to measure SOC.

Male students had significantly higher comprehensibility compared to females individuals (22.1 ± 6.7 vs. 20.5 ± 6.0 , $p=0.005$) whereas the role of gender as a determinant of other components of SOC (meaningfulness and manageability) was insignificant ($p=0.670$ and $p=0.140$, respectively). The effect of gender on the domains of physical, psychological, and environment health was also not significant ($p=0.800$, $p=0.120$, and $p=0.200$, respectively). On the other hand, men had significantly higher scores in the domain of social

Table 2: The effect of gender and marital status in predicting quality of life (QOL) and sense of coherence (SOC) in Iranian students.

Variable	Domain	Gender		p-value	Marital status		p-value
		Male	Female		Single	Married	
SOC	Meaningfulness	19.2±4.5	19.4±4.3	0.670	19.1±5.1	19.9±3.9	0.130
	Manageability	17.8±5.6	17.1±4.8	0.140	17.3±5.5	17.7±4.0	0.420
	Comprehensibility	22.1±6.7	20.5±6.0	0.005	21.2±6.7	21.2±5.0	0.990
	Total	59.2±16.2	57.0±13.0	0.110	57.6±15.7	58.9±10.2	0.430
WHOQOL	Physical health	25.4±5.9	25.2±5.0	0.800	25.4±5.8	25.1±4.1	0.660
	Psychological health	21.1±4.5	20.5±4.5	0.120	20.4±4.9	21.8±3.2	0.006
	Environment Health	26.8±5.2	27.5±5.7	0.200	26.9±5.8	28.1±4.6	0.043
	Social relationships	10.2±2.5	9.7±2.6	0.042	9.5±2.5	11.0±2.2	<0.0001
	Total	83.4±16.3	82.8±15.9	0.680	82.2±17.1	86.0±12.1	0.029

Data presented as mean±SD.

Table 3: The effects of employment and educational degree on sense of coherence (SOC) and quality of life (QOL) among Iranian students.

Variable	Domain	Degree level			p-value	Employment status		p-value
		Associate	Bachelor's	Master's		Employed	Unemployed	
SOC	Meaningfulness	19.7±4.4	19.2±5.2	19.5±4.5	0.760	19.3±4.6	19.3±5.0	0.960
	Manageability	17.2±4.4	16.8±5.6	18.2±4.7	0.0240	17.7±4.6	17.2±5.4	0.350
	Comprehensibility	20.5±6.3	20.5±6.9	22.2±5.4	0.020	21.6±5.5	21.0±6.8	0.360
	Total	57.4±12.6	56.5±15.9	59.8±12.8	0.060	58.6±12.7	57.6±15.4	0.450
WHOQOL	Physical health	25.5±5.5	25.4±5.8	25.2±4.9	0.890	24.7±5.1	26.6±5.6	0.080
	Psychological health	21.3±4.9	20.3±5.2	21.2±3.4	0.120	21.1±3.5	20.5±5.0	0.230
	Environment health	27.7±6.9	26.9±6.1	27.5±4.5	0.060	26.9±5.0	27.3±5.8	0.050
	Social relationships	10.0±3.1	9.5±2.8	10.3±2.0	0.440	10.2±2.2	9.7±2.7	0.420
	Total	84.6±18.9	82.1±18.0	84.1±12.7	0.370	82.9±13.7	83.2±17.2	0.840

Data presented as mean±SD.

relationships (10.2±2.5 vs. 9.7±2.6, respectively, $p=0.042$). However, there was no significant relationship between gender and total scores of SOC-13 and WHOQOL-BREF ($p=0.110$ and $p=0.680$, respectively).

Marital status was not related to SOC. On the other hand, married students had significantly higher scores of QOL in domains of psychological health, social relationships, and environment health ($p=0.006$, $p<0.0001$, and $p=0.043$, respectively). The physical health domain of WHOQOL was not associated with marital status ($p=0.660$) [Table 2].

Age was not a major determinant of SOC; however, a significant positive correlation was observed between age and scores in the domain of social relationships of the WHOQOL-BREF ($p<0.0001$, $r=0.17$). Similarly, age was positively associated with psychological health ($p=0.008$, $r=0.12$). However, the effect of age on physical health, environment health, and total score of WHOQOL-BREF was insignificant ($p=0.450$, $p=0.100$, and $p=0.110$, respectively).

Students registered to obtain a higher educational degree, had significantly higher scores in the domains of manageability and comprehensibility of SOC ($p=0.024$ and $p=0.020$, respectively). However, the effect of educational degree on the total SOC-13 score was not significant ($p=0.060$). Similarly, no associations between educational degree and the domains of the WHOQOL-BREF were observed ($p=0.89$, $p=0.12$, $p=0.06$, and 0.44 for the domains of physical, psychological, environment health, and social relationships, respectively).

Table 3 illustrates the effect of educational degree and employment status on the SOC and QOL among Iranian students. Employment status was not a determinant of a SOC. Similarly, the influence of employment status on the WHOQOL-BREF total score was not significant ($p=0.840$).

The correlation between SOC and QOL was also assessed. Here, we tried to determine whether a stronger SOC could predict better QOL. Meaningfulness was a significant determinant of higher scores of all domains of WHOQOL-BREF

Table 4: The correlation (r) between sense of coherence (SOC) and quality of life (QOL) domains.

Variables	Physical health	Psychological health	Environment health	Social Relationships	Total WHOQOL-BREF score
Meaningfulness	<0.0001 ($r=0.73$)	<0.0001 ($r=0.70$)	<0.0001 ($r=0.54$)	<0.0001 ($r=0.50$)	<0.0001 ($r=0.71$)
Manageability	<0.0001 ($r=0.60$)	<0.0001 ($r=0.61$)	<0.0001 ($r=0.45$)	<0.0001 ($r=0.46$)	<0.0001 ($r=0.61$)
Comprehensibility	<0.0001 ($r=0.61$)	<0.0001 ($r=0.59$)	<0.0001 ($r=0.43$)	<0.0001 ($r=0.41$)	<0.0001 ($r=0.59$)
Total SOC-13 score	<0.0001 ($r=0.73$)	<0.0001 ($r=0.71$)	<0.0001 ($r=0.52$)	<0.0001 ($r=0.53$)	<0.0001 ($r=0.71$)

Bivariate correlation test used to calculate p-values.

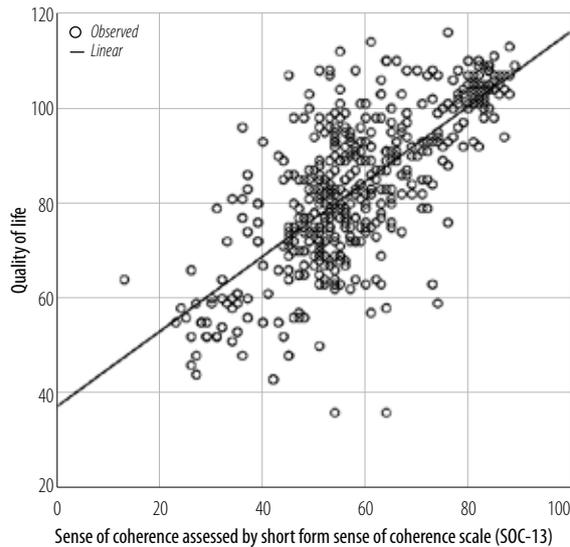


Figure 1: The association between quality of life and sense of coherence among Iranian students living in the Ahvaz district.

($p < 0.0001$ for all, $r = 0.73, 0.70, 0.54,$ and 0.50 for domains of physical, psychological, environment health, and social relationships, respectively). Similarly, manageability was positively correlated with a better QOL in all domains ($p < 0.0001$ for all, $r = 0.60, 0.61, 0.45,$ and 0.46 for physical, psychological, environment health, and social relationships, respectively). The same outcomes were observed on the predictive value of comprehensibility in determining QOL [Table 4].

These results suggest that SOC is a strong predictor of QOL among Iranian students. Figure 1 shows the correlation between total scores of SOC-13 and WHOQOL-BREF.

DISCUSSION

Our study indicates that SOC is a major determinant of perceived QOL and can be considered a strong predictor of QOL. Improvement of SOC may help to attain better-perceived QOL, which suggests that SOC can be considered as a therapeutic target when improvement of health status is the main goal.

Most studies have focused on health-related QOL and have assessed the relationship between SOC and QOL among individuals dealing with medical health problems. For instance, Drageset et al,³⁴ demonstrated a positive association between SOC and perceived health-related QOL among elderly people living in nursing houses. Similar results have been reported by Chumler et al,³⁵ in patients with

chronic musculoskeletal pain. Furthermore, Gison et al,³⁶ showed that SOC is a good predictor of QOL among patients with Parkinson's disease. According to Antonovsky's salutogenic concept, the generalized resistance resources facilitates coping behavior by avoiding or contrasting a range of stressors, which results in improved perceived health on the physical component of QOL.³ In this model, study subjects have one thing in common: a persistent stressor, which is usually a medical condition. The predictive value of SOC to determine QOL is poorly described among healthy populations. Our study confirms that SOC is a strong predictor of QOL in Iranian healthy students. Our results suggest that the extent to which a student feels that the life is more meaningful, comprehensible, and manageable, increases the subjective perception of well-being. In fact, the confidence in the feeling of having control of external and internal stimuli in life directly contributes to a better-perceived QOL. Moreover, positive aspects of health such as coping, resilience, satisfaction, and autonomy have been considered major components of QOL according to the WHO definition.³⁷ Our study supports that the close correlation between SOC and QOL is not only observed among people coping with persistent stressors but can also be detected among healthy individuals.

We found that marital status was a significant determinant of QOL and married individuals were more likely to have better QOL especially in the domains of psychological health, environmental health, and social relationships. The association between QOL and marital status has been widely investigated. Han et al,³⁸ demonstrated the gender difference in the influence of marital status on QOL. Their study found that married men were more likely to have a better QOL whereas there was an adverse effect of being married in women. Our study revealed a positive influence of being married on QOL in both genders among Iranian students. Furthermore, Bierman³⁹ reported a better mental health status among married people compared to single, divorced, or bereaved individuals. Being married may have beneficial protective effects against life stressors and daily distress,^{40,41} which enables married individuals to have better social relationships and, subsequently, a higher level QOL. In line with previous investigations,³⁹⁻⁴¹ our study confirms that marital status can be considered as a major predictor of QOL among Iranian students.

While educational degree of study field was indicator of better manageability and comprehensibility, the relationship between educational degree and QOL remained insignificant. Previously, the association between educational level and SOC has been described.^{42,43} Here, our study agrees that SOC is influenced by educational degree. However, the impact of higher education as a determinant of QOL was too weak to exert a statistically significant difference. A higher education level has been shown to be a determinant of QOL among populations of patients dealing with chronic conditions such as multiple sclerosis (MS).⁴⁴ However, our study on a healthy population of students showed different results.

When comparing the effect of educational level on QOL, the extent of variation in educational level should be considered. For example, when comparing people with primary school education and people with higher education, the difference in educational level is large. But when comparing people within higher education at different levels (associate, bachelor's, and master's) the extent of difference is lower. Our study only recruited students from one university so all the students were at higher educational level but in different subgroups. Therefore, our study population cannot represent the general population and cannot reveal the effect of educational level on QOL among illiterate or people with a primary education only. It is well-known that there is a relationship between illiteracy or very low educational level and low socioeconomic status especially in developing countries.⁴⁵ Here, we compared students who were studying at associate, bachelor's, and master's level. In fact, the extreme difference in educational levels may be a determinant of socioeconomic status and, subsequently, QOL. However, that comparison of academic educational levels, are close to each other does not render educational degree as a major predictor of QOL.

Employment status was not significantly related to SOC and the WHOQOL-BREF total score. The disadvantageous effects of unemployment on the mental and physical components of QOL have been demonstrated.⁴⁶ Bultink et al,⁴⁷ showed a significant reduced health-related quality of life (HRQOL) among unemployed patients with systemic lupus erythematosus. Similar results have been reported by Yoo et al,⁴⁸ in cervical cancer survivors. However, our

study showed an insignificant effect of employment status as a predictor of QOL among healthy student individuals. One reason for this discrepancy is that students do not consider 'being employed' as an obligation because their priority is their educational status. Therefore, unemployment as an external stressor is too weak to exert any significant changes in the QOL of students.

In this study, we did not assess the changes of SOC through time and its impact on QOL. Longitudinal studies are required to investigate this issue. Furthermore, the role of financial status in determining SOC and QOL was not evaluated in this study.

CONCLUSION

Our study identified the major determinants of QOL among Iranian students living in the Ahvaz city and assessed the correlation between SOC and QOL. This study demonstrates that SOC is a significant strong predictor of QOL among Iranian students. Marital status was also a major determinant of QOL whereas the influence of educational degree and employment was not significant.

Disclosure

The authors declared no conflicts of interest. No funding was received for this study.

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