

Quality of life and its relation to insomnia among a sample of Lebanese undergraduates

Abstract

This study sought to investigate the sex-related differences on both quality of life (QOL) and insomnia, and estimate the correlations and the factorial structure of the study variables.¹ Participants were Lebanese university students (N=215:125 men & 90 women).² They responded to the Arabic short version of the WHO Quality of Life Scale, and the Arabic Scale of Insomnia developed by the study showed no significant differences between men and women on the mean scores on either the QOL or the insomnia scales.³ All the correlations between the insomnia scale and the QOL subscales and the total scale were statistically significant and negative. Principal components analysis identified one bipolar factor, labeled “Quality of life vs. insomnia” in men, women and the whole sample. It was concluded that insomnia may have an impact on the quality of life in university students. Based upon the findings of the present study, it was recommended to develop a guidance program aimed to raise students’ awareness of the importance of the self-management of insomnia problem because of its impact on quality of life.

Keywords: quality of life; insomnia; university students; lebanon

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Introduction

The generic objective of the present study was to investigate the association between quality of life (QOL) and insomnia. Many research papers, review articles and books have documented the deleterious impact of insomnia on QOL. The vast majority of published literature in this field was carried out on English-speaking participants. Arab samples are under-studied and under-represented population in this domain. Cross-cultural investigations on this subject are important, however, they are scarce. To the best of our knowledge, there are no published research studies with Lebanese Arab participants on this topic, notwithstanding its importance, particularly among college students.

Quality of life

Quality of life (QOL) is a basic concept in a number of disciplines, including social sciences, politics, economics, the environment, psychology, and medicine. Although the term comprises primarily psychological components, it remains a multi-dimensional concept that has been derived from various fields, the most important of which are biology, medicine, psychology, and sociology.⁴

Recent decades have witnessed an increase in research focusing on the exploration of QOL, particularly due to the difficulty in establishing consensus on a definition of the term. Some studies refer to QOL using other terms, such happiness, satisfaction with life and well-being. Whereas these terms apply to highly healthy cases, there are other terms, such as functional ability and treatment outcome, which are usually related to cases of physical or psychological illness (Weise, 1996). At the same time, some researchers argue that quality of life consists of at least three components:

- i. Personal well-being or satisfaction with actual life situations (while bliss or happiness relate to emotions, satisfaction relates to cognition)

- ii. Self-care or social roles

- iii. The ability to attain environmental facilities in all social aspects (social support) and financial aspects (living standards).⁵

QOL has an objective and a subjective indicator. The objective indicators include personal wealth and possessions, level of safety, health facilities, among others. Subjective indicators are manifested in happiness, satisfaction with life, positive social relations, awareness of other people’s feelings, emotional control, internal behavioral control, personal and social responsibility, allegiance to family and homeland, personal and social compatibility, and optimism.⁶

Several studies indicated the positive association between QOL and health. In this respect, many authors used the term health-related QOL. The terms: health, health-related QOL, and QOL are used interchangeably. However, stated that there are differences between these terms.⁷ By and large, there is a relationship between QOL and health. For example, found positive correlations between the self-rating scale of physical health and all the subscales of the World Health Organization QOL (WHOQOL) scale in Arab participants. The correlations ranged from .309 to .634 (N=224; p<.01).⁶

The WHO developed its own assessment tool for the QOL, simultaneously working in 15 countries, based upon the following definition of QOL: “individuals’ perception of their 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 affected in complex ways by the person’s physical health, psychological state, level of independence, social relationships, and their relationship to salient features of their environment.⁸” This definition states that QOL is based on self-reporting, including the cultural, social, and environmental aspects. Since QOL is a subjective mental state, self-report questionnaires are the ideal means to measure quality of life.⁹

Insomnia

Insomnia is considered as one of the most prevalent sleep disorders that many people suffer from. It extends across different age-groups, and has been observed in every country where sleep problems have been measured. During recent years, there has been an increasing focus on defining insomnia, not only because it is a main complaint, but also because it is deemed as a qualitative disorder with recurrent regular and severe symptoms. It also poses an obstacle to many of an individual's daily functions.¹⁰

The definition of insomnia remains somewhat controversial. For example, the estimates for a complaint of difficulty sleeping ranged from 26.3% to 35.4%. The estimates of occasional insomnia or insomnia with no duration restriction, on the other hand, ranged from 21.0% to 27.0%. However, as the restrictiveness of chronicity increased, the estimates decreased to a range of 9.0% to 10.2%, and when patients were asked about insomnia, it was reported at 5% as a primary problem and 28.0% as a secondary one. While primary care patients reported insomnia at 10% to 19% of the time, physicians have estimated that 17% of their general population, 72% of psychiatric consults, and 93% of psychiatric inpatients suffer insomnia.¹¹

The fifth edition of the Diagnostic and Statistical Manual (DSM-5) of mental disorders has dedicated a full chapter on sleep-wake disorders (pp. 361-422).¹² This category encompasses 10 disorders or disorder group, in which insomnia is the first disorder. The main diagnostic criteria of insomnia are as follows: a prevalent dissatisfaction with the quantity or quality of sleep, which is usually accompanied by one of the following symptoms:

- i. Difficulty initiating sleep
- ii. Difficulty of maintaining sleep
- iii. Early morning awakening with inability to return to sleep
- iv. (4)The sleep disturbance causes clinically significant distress or impairment in social, occupational, educational, academic or behavioral areas.

Studies conducted on general populations report that about a third of adults suffer from insomnia symptoms, of which about 10%-15% reported accompanying daytime impairments and 6%-10% experience symptoms of insomnia disorder, which is the most common of all sleep disorders. Although insomnia may be categorized as either a symptom or an independent disorder, it is most frequently considered a co-morbid condition in relation with another medical condition or mental disorder.¹³

It has been observed that insomnia has an adverse impact upon an individual's health, functioning and QOL, which in turn leads to great social drawbacks and economic burdens reported that insomnia tends to cause stress,¹⁴ pain and a general sense of dissatisfaction with one's health found that insomnia had adverse social and professional ramifications and was associated with a decrease in general health.¹⁵

A further effect of a restless night or insomnia can be observed in excessive daytime sleepiness, attention and memory problems, moodiness, and an overall lower quality of life. In addition, it has become evident that sleep disturbances result in harmful changes in the proper functioning of certain body systems.¹⁶

QOL and insomnia

Iliescu et al.¹⁷ found that insomnia is associated with lower health-related QOL in hemodialysis patients.¹⁸ Reported that symptoms of insomnia are associated with a decrease in health-related QOL.¹⁹ Insomnia is commonly linked to a worse QOL status found that insomnia is related to a significant decrease in both an individual's physical and mental healthiness, loss of their professional productivity, and reduced activity impairment.²⁰ concluded that insomnia impacts on diverse areas of health-related QOL, and that both pharmacological and- pharmacological interventions can produce, to varying degrees, improvements in domains spanning physical, social, and emotional functioning.²¹

Based on a sample of nursing students,²² reported that sleep disorders, in general, negatively impact upon QOL and on health, and may, indeed, raise the rates of depression examined the relation between QOL and insomnia in patients suffering from insomnia.²³ It was found that insomnia had a negative effect on an individual's QOL found that diagnosed insomnia was associated with consistent decreases in both physical and mental health-related QOL scores, regardless of whether prescription hypnotics were used.²⁴

The aims of the present study

The three-fold objectives of this study are:

- i. To estimate the descriptive statistics of and the sex differences on the QOL and insomnia scales
- ii. To determine the relations between QOL and insomnia
- iii. To explore the main factor(s) or components(s) in the correlation matrix of these variables. It is hypothesized that-
 - a. There are significant differences between men and women in the scales of the study.
 - b. There are significant correlations between QOL subscales (positive) and between QOL and insomnia
 - c. (Negative)
 - d. One factor could be extracted from the correlations.

Methods

Participants

A convenience sample of 215 Lebanese university undergraduates from several majors in different faculties at Beirut Arab University was recruited (125 men, 90 women). All of them were Lebanese citizens. Their ages ranged between 18 and 20 years; for men, the $M_{age}=19.30$ years, $SD=1.15$; for women, $M_{age}=19.26$ years, $SD=1.18$, $t=0.21$ n.s.

Measures

The QOL Scale: This study used the Arabic version of the World Health Organization Quality of Life-Brief (WHOQOL-Bref) scale. Derived from the original 100-item WHOQOL-100 scale, it is a 26-item questionnaire that covers four domains related to QOL: physical health, psychological health, social relationships, and environment. An additional two items from the overall QOL and general health facet were included.⁹ Each of the 26 items is rated on a 5-point Likert scale, in which higher scores represent a higher QOL.

Example items from the WHOQOL-Bref scale are as follows: “How much do you need any medical treatment to function in your daily life?” (Physical health-recoded), “How often do you have negative feelings such as blue mood, despair, anxiety, depression?” (Psychological domain-recoded), “How satisfied are you with the support you get from your friends?” (Social relationships), and “How satisfied are you with the conditions of your living place?” (Environment domain).

The WHOQOL-Bref Scale was translated by Abdel-Khalek AM⁶ into Arabic, upon the prior permission of the WHO authorities in Geneva. The translated scale uses simple, concise and unambiguous Arabic, in accordance with the WHO international standards.^{8,25,26} The first draft was, then, revised by a professional translator and was, then, analyzed by a bilingual panel of seven psychologists and linguists. The examination of the translation resulted in a number of corrections to result in a second draft, which was presented to two focus groups. This was followed by a professional back-translation of the Arabic draft into English, by a professional translator who had no access to the original scale.^{27,28} The back-translated English version was compared with the original English one, resulting in a further set of corrections that were made. The Arabic version of the WHOQOL scale has good psychometric properties.⁶ It enjoys widespread use in Arabic unpublished theses.

The Arabic Scale of Insomnia: The Arabic Scale of Insomnia (ASI) was developed by to Identify the symptoms of insomnia.³ The structure of the scale depended upon the theoretical frameworks that have dealt with insomnia, in addition to two diagnostic criteria: the 4th edition of the Diagnostic and Statistical Manual of mental disorders (DSM IV) and the International Classification of Sleep Disorders (ICSD).²⁹ The ASI consists of 12 items, which are answered in accordance with a 5-point Likert scale as follows: 0=No; 1=A little; 2=Moderate; 3=Much; and 4=Very much. Possible scores ranged from zero to 48, where the higher score signifies symptoms of insomnia. The ASI was translated into English and carefully revised. It has good psychometric characteristics when applied to Kuwaiti high-school and university students and employees as well as Egyptian college students and

employees.³⁰ Test and retest coefficients ranged between .70 and .83, while the alpha coefficients ranged from .84 to .87. Criterion-related validity ranged between .56 and .64. Two factors were extracted and labeled: Insomnia consequences and Difficulty to initiate and continue sleep.³ The alpha coefficient was estimated in the present study for men, women and the total sample, i.e., .89, .87 and .85 respectively. These coefficients were deemed high and agreed with what has been reported in some references on psychological testing,^{31,32} which maintained that the reliability coefficient which approaches or exceeds .7 is adequate for research. Thus, the ASI enjoyed adequate reliability as it exceeded the proposed level.

Procedure

The Arabic versions of the WHOQOL-Bref Scale, along with the Arabic Scale of Insomnia, were administered anonymously to students during class-hours. The tester briefly explained the purpose of the study, assuring the students of full confidentiality of the collected data. Participating students took part on a volunteer-basis, and were allowed to leave at any time they chose. Verbal consent was obtained from participants. This study was approved by an institutional research board (IRB) in Beirut Arab University.

Statistical analysis

SPSS (2009) was used for the statistical analysis of the data. Descriptive statistics, t-test and Pearson correlations were computed.³³ The correlation matrices were subjected to a principal component factor analysis. The Kaiser test, (i.e., eigen value >1.0) and the Cattell’s screen test were followed to determine the number of factors to be retained. The salient factorial loading was considered to be $\geq .50$.

Results

Table 1 shows the descriptive statistics of the two scales in men and women as well as the *t* values. Reference to this table indicates that there were no significant sex-related differences on the QOL and insomnia scales.

Table 1 Cronbach alpha (α), mean (*M*), standard deviation (*SD*), and *t* value among Lebanese men (*n*=125) and women (*n*=90)

Scales	α	Men		Women		<i>t</i>
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
WHO QOL-Bref						
General QOL	---	3.69	0.76	3.63	0.77	0.97
General Health	---	3.81	1.02	3.73	0.92	0.15
Physical	0.78	24.39	4.76	23.46	4.87	0.93
Psychological	0.74	21.32	4.16	20.95	4.21	0.96
Social	0.82	11.06	2.4	11.01	2.28	0.08
Environmental	0.79	25.05	5.41	24.57	5.26	0.61
Total QOL	0.89	81.83	13.6	80.01	12.83	0.51
Insomnia	0.85	12.83	8.62	13.3	7.45	0.41

Note: all the differences between men and women were not statistically significant.

Table 2 sets out the correlations between the scales among the combined samples of men and women. The two samples were combined because the differences between the mean scores were not statistically significant and the differences between the correlation matrices were minimal.

The data in Table 3 indicate that all the correlations between the total score and the six subscales of the WHOQOL-Bref Scale were significant ($p < .001$) and ranged between .259 and .850. Further, the correlations between WHOQOL-Bref Scale and insomnia were significant and negative. They ranged between -.164 and -.458.³⁴

The Pearson correlation matrices were factored using principal components analysis (PCA), employing the Cattell's screen test and the Kaiser Unity Test, i.e., the Eigen value ≥ 1.0 to select the number of factors to retain. Based on both criteria, one bipolar factor was extracted for men, women, and the total sample. Inspection of Table 3 indicates that all the three factors could be labeled "Quality of life versus insomnia". It is important to refer to the exclusion of the QOL total score from the correlation matrices when computing the PCA to avoid redundancy.

Table 2 Pearson correlation coefficients among men and women (N=215)

	General QOL	Health	Physical	Psychological	Social	Environmental	Total QOL	Insomnia
General QOL	----							
Health	0.649**	----						
Physical	0.323**	0.353**	----					
Psychological	0.512**	0.442**	0.507**	----				
Social	0.340**	0.259**	0.368**	0.470**	----			
Environmental	0.463**	0.381**	0.507**	0.609**	0.412**	----		
Total QOL	0.525**	0.434**	0.791**	0.827**	0.624**	0.850**	----	
Insomnia	-0.232**	-0.224**	-0.458**	-0.315**	0.164**	-0.290**	0.411**	----

$P < 0.001$

Table 3 Principal components analysis of the correlation matrix among Lebanese men (n=125), women (n=90), and the total sample (N=215)

Scales	Men 1	Women 1	Total 1
WHO QOL-Bref			
General QOL	0.653	0.771	0.677
General Health	0.619	0.583	0.609
Physical	0.778	0.691	0.745
Psychological	0.826	0.814	0.82
Social	0.617	0.601	0.607
Environmental	0.789	0.749	0.775
Insomnia	-0.555	-0.54	-0.55
Eigen value	3.4	3.19	3.32
% of variance	48.5	45.7	47.5

Discussion

The three-fold objectives of the present study have been fully addressed using participants from Lebanon. The Lebanese population was under-represented in the psychological literature in this domain. It is worth noting that the sample size recruited in this study was suitable (N=215). Furthermore, the alpha reliabilities of the study questionnaires ranged from 0.74 to 0.89, indicating acceptable to good internal consistency. Previous studies used Arabic samples of college students indicated good criterion-related validity of the

Arabic versions of the WHOQOL-Bref and the ASI.^{2,3,6,30,35}

With reference to the first hypothesis, the sex-related differences in QOL and insomnia were not statistically significant. Consistent with this result was the non-significant sex-related differences in anxiety and depression among a sample of Lebanese college students.¹ This finding may suggest the similarity between men and women in this liberal society. On the basis of our personal observation and general impression, Lebanon is the most liberal and individualistic society among all the Arab countries. The discrimination based on gender is quite minimal in Lebanon. Thus, the first hypothesis was refuted.

The second hypothesis was verified. That is, the significant and positive correlations between the WHOQOL-Bref subscales as well as the total scale score indicated the internal consistency of this scale in assessing QOL with this sample. The highest correlations with the QOL total scale score were with the environment, psychological, and physical subscales respectively (Table 2). It seems that these three domains were the most important components of QOL in the present sample. On the other hand, all the correlations between the QOL and insomnia scales were statistically significant and negative.

The last result suggested the negative association and co-variation of QOL and insomnia. That is, a high score on insomnia scale most probably became proportional to a low score on QOL and vice versa. In a similar vein, participants with low scores on insomnia perceive themselves as enjoying good QOL. This finding related to the QOL-insomnia negative association was congruent with several studies using Western normal and abnormal samples (see the introduction). The highest insomnia associations (negative) were with the physical and psychological subscales of QOL, respectively. This finding was expected inasmuch as insomnia is a physical and psychological complaint, symptom, and disorder.

The third hypothesis regarding the extraction of one component was verified. Based on both the screen test and the Kaiser criterion, one component was retained in men, women, and the whole sample. This component was a bipolar one labeled “Quality of life versus insomnia”. This single component suggested the negative interference between insomnia and QOL, and it was consistent with previous studies.^{16,17,21,22,36}

In summary, a sample of Lebanese college students, an under-represented population in the psychological studies, showed the salient findings as follows: the non-significant sex-related differences in QOL and insomnia, the significantly negative association between insomnia and QOL scales, and the extraction of a bipolar component: “Quality of life versus insomnia.”³⁷

Conclusion

Despite some strengths of the present study, namely recruiting a sample in an understudied population, and the good psychometric characteristics of the scales, there are a number of limitations that need to be stated. The most important limitation is the small age range of the present sample. Further, student samples only represent a small sector of any population. They always consist of young, healthy, and intelligent persons. Therefore, an important next step in this domain would be to replicate the present study using other age groups such as young and old participants as well as insomniacs. As far as the present study is concerned, it is recommended to develop a guidance program aimed to raise students’ awareness of the importance of the self-management of insomnia problem because of its impact on quality of life.

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Ethical approval

The procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964

Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

Informed consent was obtained from all individual participants included in this study.

Conflict of interest

The author declares no conflict of interest.

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