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Research Article

Quality of Life and Social Stigma among Obese University Students

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Abstract

Background and Objective: Obesity is one of the most important reasons for reduced life expectancy in the world and this problem has become more salient in modern societies with adverse effects on physical and psychological health. This study attempts to widen our understanding on how quality of life (QoL) and social stigma interact with other variables like gender and academic field to affect obese university students. **Materials and Methods:** The study employed a descriptive-analytic study design which enrolled 84 students (40 males and 44 females) from 4 private universities in Jordan. Each participant weighs at least 100 kg and hence he/she can be labelled as overweight. QoL was measured through quality of life scale, while social stigma was measured by using stigma scale. **Results:** Results detected low QoL and high stigma levels for obese university students. Time management was the only aspect of QoL to predict stigma. The findings further revealed statistical differences between QoL and stigma in favour of high QoL and low stigma. **Conclusion:** It was concluded that QoL and stigma have a complex relationship which was mediated by other variables. It was further found that having a low QoL would mean having high stigma.

Key words: Quality of life, stigma, obesity, time management, university students

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Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

Quality of life in the current era is a nation wide challenge and an ultimate goal that all economic, political, social, health and educational systems in a society seek to accomplish and maintain. Quality of life is significant and vital because its dimensions can be associated with multiple areas of the individuals' life and thus affect their ability to invest their energy and potential capabilities¹. Quality of life reflects the general structure which consists of a set of variables that aim at satisfying the psychological needs of the individuals, self-awareness of life quality and evaluation of the psychological and physical aspects available in life which are organized according to certain internal mechanisms². Quality of life is a type of a subjective experience formed through one's own perceptions, feelings, assessment of life experiences and expectations which are derived from the values and objectives of the social and cultural context³. The sense of quality of life is relative and can be linked to some subjective social, emotional, health, economic, environmental and other factors affecting the individual⁴. Quality of life is the feeling of psychological happiness through the different stages of life stemming from one's positive efforts in achieving self-sufficiency, personal growth, positive relationships with others, self-acceptance and the pursuit to accomplish life goals⁵.

Social stigma is an important variable that is linked to the quality of life of obese students. It is embodied as a cognitive component that labels the self of the individual which forms one's own plans and interacts with his self-esteem and knowledge⁶. In this context, Shroff⁷, emphasized that social stigma is a psychosocial phenomenon that is incapable of adaptation affecting the individual's behavior, feelings and beliefs. Therefore, obese individuals start to realize that other people treat them differently as a result of an actual or perceived difference between them and the others⁸. Stigma has been found in the ancient times when the Greeks used to burn or cut off some body parts of certain people and then publicly declare that the holder of the mark was a traitor, a criminal, or a slave someone else^{9,10}. Stigmatization as a comprehensive concept indicates that a person is socially undesirable which can be characterized through specific physical, mental, or social features. These features or marks can lead to recurring setbacks that may damage one's feeling of respect^{11,12}.

There have been a number of longitudinal studies investigating quality of life and stigma that need to be

reported. In these studies, social functioning was proposed to be a mediator between self-stigma and QoL. Moreover, negative effects of self-stigma on quality of life were mediated by stress^{13,14}. Male university students were distinguished by having high levels of quality of time management, public and social relationships and family boundaries¹⁵. Another study revealed good levels of students' quality of life in terms of mental and environmental health with superiority in favour of females over males regarding social relations¹⁶. In another study, BMI was related positively to the number of health complaints¹⁷. Similarly, in a recent population-based research, a noticeable difference was observed between obese and non-obese people in their physical quality of life¹⁸.

In the last few years, there has been growing interest in examining obesity in response to efforts of different social and health institutions to curb this phenomenon. The aforementioned issue has become an urgent dilemma and hence hypothesized that obesity negatively affects quality of life. Therefore, the main aim of this study is to investigate the level of quality of life and stigma of university students who are labeled as obese individuals and to identify the possibility of predicting stigma through quality of life among obese university students. Study also aims to find out whether there is a difference in the level of quality of life between high and low social stigma among obese university students and whether gender and academic field interact with the level of quality of life and social stigma of obese university students.

MATERIALS AND METHODS

This study adopted a descriptive and analytical approach for its appropriateness to the topic and objectives of the designed study. Moreover, this approach is assumed to be more reliable for studies that look into multiple variables that mediate quality of life and stigma. This approach has been further recommended and employed in a number of previous similar studies.

Sample of the study: The sample of the study comprised 84 participants (n) (40 males and 44 females) who were chosen intentionally during the second semester of the academic year 2018-2019. The participants who were selected weighed more than 100 kg from both genders from different faculties at the universities of Isra, Zaytouna, Middle East and the German University in Jordan. All the participants were enrolled in the academic year 2018/2019. The characteristics of the sample are shown in Table 1.

Table 1: Characteristics of the sample of the study

	No. of individuals	Educational field		
		Social sciences	Engineering	Medical sciences
Gender				
Male	40	11	19	10
Female	44	10	10	24
Total	84	21	29	34

Instruments of the study

Measurement of quality of life of university students:

After reviewing the literature and previous studies that investigated social intelligence, the researcher adopted the Quality of Life Scale developed by Mansi and Kadhim⁴ to measure the level of quality of life of the participants. The scale includes 60 items divided into six dimensions as follow:

- Quality of public health: 1-10
- Quality of social and family life: 11-20
- Quality of education and study: 21-30
- Quality of the emotional aspect: 31-40
- Quality of mental health: 41-50
- Quality of time management: 51-60

Scale correction key: Positive items with individual numbers were given grades: (1, 2, 3, 4, 5). Negative items with even numbers were given grades: (5, 4, 3, 2, 1).

Original validity and reliability of the scale

Validity: Mansi and Kadhim⁴ calculated the validity of the scale by verifying the content through presenting the scale to 6 experts in the field of psychometric and psychiatry to judge the scale’s validity. The percentage of their agreement ranged between 83-100%, which indicated that the items of the quality of life scale are valid to measure the identified 6 components of quality of life.

The monthly income of the family was adopted as an objective criterion of quality of life. However, income is one of the objective indicators which received different agreement between researchers in the field of psychological measurement. The impact of high income sometimes has an opposite impact on the quality of life, so the significance of the differences in quality of life between low and high income were calculated using the t-test for the two independent groups. By running the t-test, the "t" value was 2.344, with a statistically significant difference (sig. = 0.023) for high-income people, indicating that high-income people feel high quality of life compared to low-income people.

Table 2: Results of method, split-half and cronbach alpha

Dimensions	Items	Cronbach alpha	Split-half
Quality of public health	10	0.62	0.77
Quality of social and family life	10	0.79	0.72
Quality of education and study	10	0.77	0.80
Quality of the emotional aspect	10	0.74	0.81
Quality of mental health	10	0.62	0.83
Quality of time management	10	0.85	0.84
Total	60	0.91	0.91

Table 3: Correlation between the score of each item and the score of its dimension

Dimensions	Correlation coefficient			
	Highest value	Lowest value	$\alpha \leq 0.05$	$\alpha \leq 0.01$
	Quality of public health	0.682	0.299	**
Quality of social and family life	0.676	0.485	**	**
Quality of education and study	0.744	0.513	**	**
Quality of the emotional aspect	0.772	0.600	**	**
Quality of mental health	0.636	0.490	**	**
Quality of time management	0.762	0.522	**	**
Total	0.682	0.299	**	**

**Significant at $\alpha \leq 0.05$ and ≤ 0.01

Reliability: The Cronbach alpha coefficient was calculated for the scores of each of the six items of the scale and the stability coefficients ranged from 0.62-0.85, whereas the stability coefficient for the whole scale was 0.91 as summarized in the Table 2. Cronbach alpha coefficient was used to calculate the validity of the quality of life scale of this study as illustrated in Table 2.

Internal consistency: The internal consistency of the scale was verified through the correlation between the score of each item and the total score, as well as the correlation between the elements of the scale with each other. All correlation coefficients were statistically significant at ($\alpha \leq 0.05$) 0.138, F = 219 and ($\alpha \leq 0.01$) 0.181, indicating that the items of the scale had internal consistency in measuring quality of life.

Validity and reliability in this study: Reliability as shown in the Table 2, Cronbach alpha coefficient for each score of the 6 items of the scale ranged between 0.78-0.88. As for the whole scale, reliability value was 0.96 which indicated that the quality of life scale has an appropriate level of reliability.

Validity

Internal consistency: The correlation coefficient between the score of each item and the score of each item’s dimension is calculated as shown in Table 3.

It is obvious from the previous table that all items of the quality of life scale are statistically significant at the level of $\alpha \leq 0.05$ and $\alpha \leq 0.01$, which indicates that the items of each dimension are statistically significant with their dimensions, which means that all the items are internally consistent.

Discriminant validity: The scores of the participants on the quality of life scale were sorted in a descending order (high-low) to spot the two outlier groups. Then 25% of the highest scores were taken to form the top group and 25% of the lowest scores to form the lowest group and each group comprised 21 participants. Two independent sampling tests were applied to test the difference between the two groups, result indicated that there is a statistical significance between the two outlier groups in favor of the higher group, which shows the discriminatory power of the quality of life scale.

Stigma scale: To measure stigma, the researcher used the stigma scale developed by King *et al.*¹⁹ translated in to Arabic language by a professional translator, the translation was further checked and validated by another expert. The scale consists of 28 items with 9 negative items (3, 4, 7, 10, 14, 15, 19, 23, 24). The correction key for the positive items are (5, 4, 3, 2, 1)¹⁹.

Original validity and reliability of the scale: The psychometric properties of the scale were verified carefully. The most important characteristics that were checked are the validity of the scale translation, external validity and internal consistency. To calculate validity, the researcher used (test-retest) method. The validity value was 0.78 and Cronbach alpha coefficient was 0.76, which means that the scale is valid for the field application.

Validity and reliability of the scale in the current study

Reliability: It was calculated by using Cronbach alpha and half-split, the results revealed that the scale has high level of reliability. The results indicated that the social stigma scale has an appropriate level of reliability.

Validity

Internal consistency: The correlation coefficient between the score of each item and the score of each item’s dimension was calculated and the results showed that all stigma scale items are statistically significant at ($\alpha \leq 0.01$ and $\alpha \leq 0.05$), indicating that the items of the scale are related to the overall score of the scale which means that all the items are internally consistent.

Discriminant validity: The results of the discriminant validity are calculated by t-test output for the two independent samples. Results indicated that there is a statistical significance difference between the two outlier groups in favour of the higher group, which demonstrates the discriminatory power of the stigma scale.

RESULTS

Following running a number of statistical analyses, the answers of the aforementioned research question are presented and described.

Answer to research question one: Paired sample t-test was run for one sample and the actual mean of the study sample was compared with the hypothetical mean for each dimension of the quality of life scale and the stigma scale. The output of the t-test is presented in Table 4.

The above table shows that the average quality of life scores and their six dimensions are below the hypothetical mean and statistically less than 0.05. This revealed that the quality of life was low among obese students. The mean stigma scale was higher than the hypothetical mean and statistically less than 0.05, indicating high stigma among obese students.

Answer to research question two: The analysis of the multiple regression analysis was conducted to examine whether the dimensions of quality of life predict stigma. The results revealed a statistical significance difference at the level of 0.01

Table 4: Level of QoL and stigma of obese university students

Variables	Number	Hypothetical mean	Mean	t-test	Significance
Quality of public health	84	30	16.13	-34.76	0.00*
Quality of social and family life		30	16.51	-27.56	0.00*
Quality of education and study		30	16.40	-25.42	0.00*
Quality of the emotional aspect		30	15.95	-28.15	0.00*
Quality of mental health		30	15.95	-28.15	0.00*
Quality of time management		30	16.39	-24.72	0.00*
Total score of quality of life		180	97.35	-30.18	0.00*
Social stigma		84	123.29	40.13	0.00*

*Significant at $\alpha \leq 0.05$

Table 5: QoL as a predictor of social stigma

DV	Independent variable	Constant	F-value	R	R ²	Beta	Significance
Social stigma	Quality of public health	0.541	81.041	0.741	0.549	0.220	0.137
	Quality of social and family life	-0.571				-0.285	0.122
	Quality of education and study	-0.434				-0.237	0.213
	Quality of mental health	-0.102				-0.052	0.777
	Quality of time management	-0.728				-0.409	0.004*
	Total score of QoL	147.845				81.041	0.497

DV: Dependent variable, R: Correlation coefficient, *Significant at $\alpha \leq 0.01$

Table 6: Difference between the 2 groups

Dimensions	Means		Number	t-test	Significance
	High level of stigma	Low level of stigma			
Quality of life	76.09	116.85	21	-8.26	0.01*

*Significant at $\alpha \leq 0.05$

Table 7: t-test for 2 independent samples of quality of life, stigma and gender

Variables	No. of individuals	Sex	Mean	Standard deviation	df	t-test	Significance
Quality of public health	40	Male	17.27	2.81	82	2.84	0.02*
	44	Female	15.09	4.03			
Quality of social and family life	40	Male	17.67	3.79	82	3.50	0.22
	44	Female	14.38	4.69			
Quality of education and study	40	Male	18.65	4.45	82	4.30	0.74
	44	Female	14.34	4.70			
Quality of the emotional aspect	40	Male	18.55	2.99	82	4.38	0.009*
	44	Female	14.65	4.82			
Quality of mental health	40	Male	18.45	4.03	82	3.95	0.27
	44	Female	14.54	4.91			
Quality of time management	40	Male	17.67	3.79	82	3.50	0.22
	44	Female	14.38	4.69			
Total score of quality of life	40	Male	108.37	17.90	82	4.20	0.01*
	44	Female	87.34	26.62			
Social stigma	40	Male	117.95	7.66	82	-6.38	0.43
	44	Female	128.15	7.16			

*Significant at $\alpha \leq 0.05$

for the quality of time management, while the rest of the dimensions were not statistically significant. Thus, time management dimension is considered a good predictor of stigma. The predictive equation can be summarized as follows:

$$\text{Stigma} = 0.541 + (-0.409) \text{ quality of life}$$

Table 5 below presents the multiple regression analysis.

As shown in the above table, it can be concluded that the total score of quality of life is statistically significant at the level of 0.01, $R^2 = 0.491$. This shows that quality of life accounts for 49% of the total variance in the stigma. The predictive equation can be summarized as follows:

$$\text{Stigma} = 147.845 + (-0.705) \text{ quality of life}$$

Answer to research question three: The scores of the participants in the stigma scale were sorted in descending order (high-low) to get two outlier groups. Then 25% of the highest scores were taken to form the top group and 25% of

the lowest scores to form the lowest group and each group comprised 21 participants. Two independent sampling tests were conducted to test the difference between the 2 groups as shown in Table 6.

The results in the table above indicate that there is a statistically significant difference at $\alpha \leq 0.05$ between the quality of life level between the high and low social stigma groups and in favor of the low stigma level group.

Answer to research question four: T-test was run for two independent samples to determine the differences that are attributed to gender. The one-way variance was also analyzed to determine the differences that are attributed to the monthly income and field of study as shown in the following Table 7 and 8.

The results in the previous table indicate that there is a statistically significant difference in the level of quality of life at ($\alpha \leq 0.05$) in the dimensions of general quality of life, quality of family and social life which are attributed to gender and in

Table 8: Analysis of variance of quality of life and stigma as attributed to the academic field

Variables	Variance	Sum of square	df	Mean squares	F-value	Significance
Quality of public health	Within groups	612.63	2	306.31	35.68	0.00*
	Between groups	496.92	81	6.13		
	Total	1109.56	83	-		
Quality of social and family life	Within groups	946.14	2	473.07	53.01	0.00*
	Between groups	722.84	81	8.92		
	Total	1668.98	83	-		
Quality of education and study	Within groups	1212.59	2		62.82	0.00*
	Between groups	781.64	81			
	Total	1994.23	83	-		
Quality of the emotional aspect	Within groups	1016.89	2	508.44	57.28	0.00*
	Between groups	718.91	81	8.87		
	Total	1735.81	83	-		
Quality of mental health	Within groups	1016.89	2	508.44	57.28	0.00*
	Between groups	718.91	81	8.87		
	Total	1735.81	83	-		
Quality of time management	Within groups	928.44	2	464.22	31.76	0.00*
	Between groups	1183.50	81	14.61		
	Total	2112.03	83	-		
Total score of quality of life	Within groups	33726.01	2	830.91	73.70	0.00*
	Between groups	18531.27	81	61.99		
	Total	52257.28	83	-		
Stigma	Within groups	1661.83	2	830.91	13.40	0.00*
	Between groups	5021.73	81	61.99		
	Total	6683.56	83	-		

*Significant at $\alpha \leq 0.05$

favour of males. However, there is no statistically significant difference in the level of stigma at $\alpha \leq 0.05$ among the participants.

The results in the previous table indicated that there was a statistically significant difference at ($\alpha \leq 0.05$) in the total score of quality of life and all its dimensions and the total stigma score based on field of the study.

DISCUSSION

This study was designed to examine the relationship between the level of quality of life and stigma among obese university students. A key finding of this study revealed that obese students suffered from a low level of quality of life and a high level of stigma. The result of having negative social stigma and low quality of life among obese students can be attributed to the social stereotypes and norms that are related to the phenomenon of excessive obesity which make obese university students feels socially undesirable or unwelcome. Despite all efforts exerted to achieve equality and encourage acceptance of the other, in our societies many threatening and negative behaviours towards obesity can be seen. Such negative attitudes and behaviours can cause social stigma to those who are labelled as obese. The results of the current study were consistent with the results obtained from a number of previous studies which suggested an inverse

relationship between the level of quality of life and the level of social stigma^{13,14}. Our findings were also consistent with studies which indicated that obesity can lead to a low level of quality of life for people who suffer from it and that most of health, psychological and social complaints among obese individuals are positively linked to obesity^{17,18}.

This study also found significant differences in the overall quality of life and the dimensions of the general quality of life. Additionally, there were differences in the quality of family life and in the level of quality of life in favour of males over females. However, the study did not find any differences in the level of stigma between them. The findings regarding the perception of the obese students of the quality of their life through the dimensions of public, family and social life is assumed to reflect their feeling that they lack: appropriate social support, family intimacy, satisfaction with their families and the presence of people who they really trust. However, perception of the obese students may also reflect their sense of pride in belonging to their families and the presence of loyal friends who provide support and assistance to them in times of need, as well as ease of interaction with others. This applies to both males and females within the same social and cultural context, as both genders are assumed to face quite similar challenges, problems, insecurity, nervousness, emotional imbalance, inability to control emotions and a sense of low spirit. However, it can be argued that males enjoy

more opportunities for participation in recreational activities that help them enjoy and raise their quality of life. These results were in harmony with the results that revealed that social activities and the domain of family and social relations are reliable indicators and mediators between the level of quality of life and social stigma among males and females^{13-15,18}.

Another important result of the current study suggested that quality of life among obese students can be predicted through time management dimension. This reflects what the university students feel about the importance of time management in the field of education and study which can assist them achieve their academic ambitions. The relationship between quality of life and time management can be further seen through the students' interest and enthusiasm in engaging into social and recreational activities. This can be maintained by providing leisure activities requirements and equipment such as gyms, sport halls, recreational trips and encouraging forming students' groups and committees that can develop their talents and promote their social and cultural interests apart from their university studies. This result also highlights the importance of time management and good investment of time by allocating sufficient time to study and completion of assignments and homework on time. This result was in agreement with the results of the study which indicated that university students possess high skills in time management¹⁵.

Limitations and implications of the study: The current study is limited to examining the level of quality of life and stigma of university students in Jordan during the second quarter of 2019. It is further limited to exploring interaction between quality of life and stigma of students and other independent variables, i.e., gender and academic level. The obtained results are restricted to the effect of the measurement tools used in this study. The findings of this study should be generalized with caution as it has several limitations. The context of the study was restricted to Jordanian universities and it investigated a limited number of variables. The findings can give new insights on how to deal with the issue of social stigma among obese university students and can further offer implication to help practitioners mitigate the negative effects of low QoL and high stigma. Time management is advocated as a key aspect that can help detect and moderate the influence of social stigma. Moreover, the findings suggest that obese female students need more intensive care and support to help them overcome the consequences of having low QoL and high stigma.

CONCLUSION AND FUTURE RECOMMENDATIONS

This study was set out to investigate the effects of quality of life (QoL) and social stigma on obese university students. The study further aimed at understanding the interaction between QoL and stigma and independent variables like gender and academic field on their effect on obese university students. The results indicate that QoL and stigma have a complex relationship. It was found that having a low QoL would mean having high stigma. Time management as an aspect of QoL appears to predict stigma. Female students are assumed to suffer more from stigma than male students. However, students' academic field does not seem to be a predictor of social stigma.

Future studies are advised to employ a larger sample size and explore other independent variables that might mediate the effect of QoL and stigma. To explore this issue, future studies are urged to investigate this issue more thoroughly by employing different scales and include structured interviews to triangulate the collected data. A mixed-method study design that uses quantitative and qualitative data can guarantee more generalizable results. It is important that future studies recruit participants from a variety of contexts and nationalities. Research on social issues related to obesity and stigma is still a promising research area that requires more studies that can offer implications and solutions to diminish the consequences of these issues.

SIGNIFICANCE STATEMENT

This study presents genuine information which indicates that monitor the level of obese university students' quality of life can be beneficial for reducing social stigma and maintaining their quality of life. This study supports the importance of understanding the complex relationship between QoL and stigma and their interaction with other independent variable and hence branding this complex issue as a promising researcher area that requires more attention which should be a priority in any forthcoming research agenda.

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