HEALTH-RELATED QUALITY OF LIFE IN TREATMENT-SEEKING ARAB PATIENTSWITH OBESITY

Dima Kreidieh
Beirut Arab University, d.kraydeyeh@bau.edu.lb

DANA EL MASRI Department of Nutrition and Dietetics, Faculty of Health Sciences
Beirut Arab University, Lebanon, dana.masri@bau.edu.lb

HANA TANNIR Department of Nutrition and Dietetics, Faculty of Health Sciences
Beirut Arab University, Lebanon, h.tannir@bau.edu.lb

LEILA ITANI Lecturer, Department of Nutrition and Dietetics, Faculty of Health Sciences
Beirut Arab University, Lebanon, l.itani@bau.edu.lb

MARWAN EL GHOCH
Villa Garda Hospital, Italy, m.ghoch@bau.edu.lb

Follow this and additional works at: https://digitalcommons.bau.edu.lb/hwbjournal

Part of the Architecture Commons, Business Commons, Life Sciences Commons, and the Medicine and Health Sciences Commons

HEALTH-RELATED QUALITY OF LIFE IN TREATMENT-SEEKING ARAB PATIENTSWITH OBESITY

Abstract

Background & Aim: Health-Related Quality of Life (HRQoL) is an important outcome that reflectsthe impact of chronic diseases on patients' wellbeing. There is a paucity of studies on HRQoL and obesity in Arab-speaking countries. Therefore we aimed to investigate this outcome in this population. METHODS: The HRQoL was assessed by the validated Arabic version of the ORWELL 97 questionnaire in 116 seeking-treatment patients with obesity referred to the Nutritional and Weight management outpatient clinic of Beirut Arab University (BAU) in Lebanon, matched by age and gender to 116 normal-weight participants. RESULTS: Patients with obesity displayed higher total ORWELL 97 scores when compared with normal-weight controls (52.16 ± 33.34 vs. 13.04 ± 11.36, $p < 0.001$), and linear regression analysis showed that the increase of Body Mass Index (BMI) among patients with obesity is associated with an increase of ORWELL 97 scores (β= 1.790, 95% CI= 0.808 - 2.772, $p < 0.001$). Moreover, the logistic regression analysis showed that regardless the class of obesity, the only one-unit increase in BMI may increase the odds of scoring above 71.75 increased by nearly 11% (OR, 95% CI= 1.110, 1.003 - 1.229, p=0.04), which is considered indicative of a clinically significant impairment of HRQoL, especially in those with lower social status (i.e. lower education and unemployed). CONCLUSIONS: Our findings are considered new in an Arab population, and showed that obesity impairs HRQoL in treatment-seeking patients, where higher BMI is associated with more impairment in HRQoL. Moreover, interestingly an only one-unit increase in BMI dramatically increases the risk of HRQoL impairment to become clinically significant. Future studies are needed on larger scale in different Arab countries, to identify factors that are mostly associated with HRQoL, and to detect also changes in the latter in association with obesity treatment.

HEALTH-RELATED QUALITY OF LIFE IN TREATMENT-SEEKING ARAB PATIENTS WITH OBESITY

DIMA KREIDIEH[1], DANA EL MASRI[2], HANA TANNIR[3], LEILA ITANI[4], and MARWAN EL GHOCH[5]

[1] Lecturer, Department of Nutrition and Dietetics, Faculty of Health Sciences, Beirut Arab University, Lebanon
[2] Department of Nutrition and Dietetics, Faculty of Health Sciences, Beirut Arab University, Lebanon
[3] Department of Nutrition and Dietetics, Faculty of Health Sciences, Beirut Arab University, Lebanon
[4] Lecturer, Department of Nutrition and Dietetics, Faculty of Health Sciences, Beirut Arab University, Lebanon
[5] Villa Garda Hospital, Italy

ABSTRACT: *Background & Aim: Health-Related Quality of Life (HRQoL) is an important outcome that reflectsthe impact of chronic diseases on patients' wellbeing. There is a paucity of studies on HRQoL and obesity in Arab-speaking countries. Therefore we aimed to investigate this outcome in this population.*

METHODS: The HRQoL was assessed by the validated Arabic version of the ORWELL 97 questionnaire in 116 seeking-treatment patients with obesity referred to the Nutritional and Weight management outpatient clinic of Beirut Arab University (BAU) in Lebanon, matched by age and gender to 116 normal-weight participants.

RESULTS: Patients with obesity displayed higher total ORWELL 97 scores when compared with normal-weight controls (52.16±33.34 vs. 13.04±11.36, p<0.001), and linear regression analysis showed that the increase of Body Mass Index (BMI) among patients with obesity is associated with an increase of ORWELL 97 scores (β= 1.790, 95% CI= 0.808-2.772, p<0.001). Moreover, the logistic regression analysis showed that regardless the class of obesity, the only one-unit increase in BMI may increase the odds of scoring above 71.75 increased by nearly 11% (OR, 95% CI= 1.110, 1.003- 1.229, p=0.04), which is considered indicative of a clinically significant impairment of HRQoL, especially in those with lower social status (i.e. lower education and unemployed).

CONCLUSIONS: Our findings are considered new in an Arab population, and showed that obesity impairs HRQoL in treatment-seeking patients, where higher BMI is associated with more impairment in HRQoL. Moreover, interestingly an only one-unit increase in BMI dramatically increases the risk of HRQoL impairment to become clinically significant. Future studies are needed on larger scale in different Arab countries, to identify factors that are mostly associated with HRQoL, and to detect also changes in the latter in association with obesity treatment.

KEYWORDS: BMI; obesity; overweight; Arab states; Middle East; quality of life; ORWELL 97

1. INTRODUCTION

Obesity is a worldwide increasing health problem (1), associated with medical and psychosoci comorbidities (1, 2). Moreover people with obesity are also expected to live a much higher proportion of their life in sub-optimal health (3). This leads unavoidable impairment of Health- Related Quality of Life (HRQoL) impairment (4), as shown by several studies conducted in Western countries (4). In fact in the last three decades the research on HRQoL increased significantly in obesity (4), and revealed more information on the impact of this condition on the individual functioning and well-being, and that helped to evaluate and improve the effects of treatments (5).

The scenario seems not different in Arabic-speaking countries, where obesity prevalence is dramatically growing, especially in the Gulf Cooperation Council countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE) (1, 6). Despite this

fact, very little is known about HRQoL in Arab adults with obesity, where the few available studies that assessed the HRQoL, relied on general health-related measures known in their inability

to assess in specific way the impact of excess of body weight on quality of life (7), due to the unavailability of a validated weight-related instruments in Arabic language (8, 9). However, a recent study validated the Arabic version of the ORWELL 97, a specific questionnaire designed to assess the obesity-related quality of life, and found it of good properties to use in Arabic adult patients with obesity (10).

In the light of these considerations the current study aims to investigate, the impact of obesity on HRQoL, and its relationship with body mass index (BMI) in a group of Arabic-speaking treatment-seeking patients with obesity, as a preliminary step to assess the clinical usefulness to design a larger multicentre trans Arabic observation longitudinal study on this topic.

2. METHODS

2.1 Participants

A random sample of 232 participants with a ratio of 1:1 between cases and controls was calculated, assuming a power of 80%, and 95% confidence interval and a difference of 27 ORWELL units between cases and controls (Mannuci, 1997). Quota sampling was used and data collection was stopped when the desired number of participants was achieved in each group. Between April and December 2017, 116 participants of both genders with obesity seeking weight-loss treatment referred by general practitioners to the Nutritional and Weight management Clinic situated in the

Department of Nutrition and Dietetics of Beirut Arab University (BAU), Lebanon. The inclusion Criteria were (i) the ability to follow instructions to fill out the questionnaires; (ii) BMI ≥ 30 Kg/m2; (iii) age ≥18 years and iv) Arab Nationality. The only exclusion criterion was that the participant was not undergoing current weight-loss treatment or had not achieved a significant weight-loss (≥ 10%) in the last six months.

One hundred sixteen normal-weight participants with a BMI≥18.5 and ≤24.9 Kg/m2 were recruited from the general population in various community settings, through a simple randomized community email-based survey, obtained from the BAU and other mailing list, and with similar age and gender as the participants with obesity. The study design was reviewed and approved by the Institutional Review Board of Beirut Arab University, and all participants gave informed written consent for the use of their anonymous personal data.

2.2 Demographics and clinical states

A questionnaire was administered that retrieved information about the medical history, demographic and social conditions (age, gender, geographical regions, occupational position, highest educational level, and marital status).

2.3 Measures

The body weight in clinical sample was measured using a scale (SECA 2730-ASTRA) to the nearest 0.1 Kg; height was measured using a stadiometer to the nearest 0.5 cm, and self-reported in the community sample. The body mass index (BMI) was then determined according to the standard formula of body weight (Kg) divided by height (m) squared.

The Arabic validated version of the Orwell 97 questionnaire (10), composed of 18 items, was used to assess the participants' obesity-related quality of life; for each item the patient is asked to score on a 4-point Likert scale the occurrence and/or severity of the symptom (occurrence) and the subjective relevance of the symptom-related impairment in one's own life (relevance) (11). A total score on the ORWELL 97 questionnaire ≥ 71.75, corresponding to 75th percentile of the population, was considered indicative of a clinically significant burden of obesity-related quality of life (12).

2.4 Statistical analysis

The body weight in clinical sample was measured using a scale (SECA 2730-ASTRA) to the nearest 0.1 Kg; height was measured using a stadiometer to the nearest 0.5 cm, and self-reported in the community sample. The body mass index (BMI Frequencies, means and standard deviations were used to describe socio-demographic and anthropometric characteristics of seeking-treatment patient with obesity and normal-weigh s. Means and frequencies were compared using independent sample student's t-test and Chi-squared analysis respectively.

Multiple linear regression analysis was used to assess the variation in ORWELL 97 score with BMI while adjusting for confounders including age, gender, and marital status, place of residence, education and diseases status. For this purpose, BMI was use as continuous variable and categorical confounders were used as dummy variables. Simple and multiple binary logistic regression models were used to assess the association between BMI and obesity-related quality of life were the outcome measure was scoring above the 75th percentile of the population.

Multiple logistic models were adjusted for all confounders used in the linear regression analysis. All analysis was conducted using the Statistical package for Social Sciences (IBM Corp. Released 2015. IBM SPSS Statistics for Windows.

Version 23 Armonk, NY: IBM Corp). Tests were considered statistically significant at p<0.05. Frequencies, means and standard deviations were used to describe socio-demographic and anthropometric characteristics of seeking-treatment patient with obesity and normal-weigh s. Means and frequencies were compared using independent sample student's t-test and Chi-squared analysis respectively. Multiple linear regression analysis was used to assess the variation in ORWELL 97 score with BMI while adjusting for confounders including age, gender, and marital status, place of residence, education and diseases status. For this purpose, BMI was used as continuous variable and categorical confounders were used as dummy variables. Simple and multiple binary logistic regression models were used to assess the association between BMI and obesity-related quality of life were the outcome measure was scoring above the 75th percentile of the population. Multiple logistic models were adjusted for all confounders used in the linear regression analysis. All analysis was conducted using the Statistical package for Social Sciences (IBM Corp. Released 2015. IB

SPSS Statistics for Windows. Version 23 Armonk, NY: IBM Corp). Tests were considered statistically significant at p<0.05.

3. RESULTS

Table 1 presents the socio-demographic and anthropometric characteristics of the study sample. The mean age (36.27±7.92 vs. 36.16±12.79 years) and gender were comparable in seeking-treatment patient with obesity and normal-weight controls with the majority of cases (63.8%) and controls (65.5%) being females. Participants with obesity had a significantly higher BMI as compared to normal-weight controls (37.19±5.19 Kg/m2 vs. 22.45±1.84 Kg/m2). Compared to normal-weight controls, seeking-treatment participants with obesity had a significantly higher mean total ORWELL 97 scores (52.16±33.34 vs. 13.04±11.36) (Table 2), and the linear regression analysis showed that among participants with obesity, the increase of BMI was associated with increase in the ORWELL 97 scores (β= 1.790, 95% confidence interval = 0.808- 2.772, p<0.001).

Moreover, the logistic regression analysis showed that regardless the class of obesity, the only one-unit increase in BMI may increase the odds ratio of ORWELL 97 to score ≥71.75 by nearly 11% (OR, 95% CI= 1.110, 1.003-1.229, p=0.04), considered indicative of a clinically significant impairment of obesity-related quality of life.

4. DISCUSSION

The ORWELL 97 questionnaire is an 18-item measure of obesity-related quality of life, developed and validated in Italian, English, Portuguese (11, 13, 14), and recently in Arabic (10). This permitted us to assess HRQoL in Arabic-speaking seeking-treatment in patients with obesity and led to two major findings. The first finding revealed that seeking-treatment Arab adults with obesity showed lower health-related quality of life, when compared with normal-weight controls. In addition a significant association was found between higher BMI and major impairment in obesity-related quality of life measured by ORWELL 97. To date our study is the first to report such finding in Arabs, hence, it is difficult to compare with previous ones conducted in this population. Very few studies assessed quality of life in Arab adults with obesity, but findings were unclear, misleading and inconclusive due to various methodological limitations (i.e. uncontrolled design and where quality of life was a secondary outcome not studied clearly) (8, 9). However our finding is in line with data from the Italian QUOVADIS study that enrolled a representative sample of 1,886 adult seeking-treatment patients with obesity attending 25 hospital-based clinics for weight loss in Italy (15), that reported greater impairment of quality of life assessed by ORWELL 97 in relation to increasing BMI class (12). On the other hand our finding contrast with that derived from a study conducted in a non-clinical sample of adolescents recruited from public schools in Arab countries (i.e. Kuwait), and found that obesity was not significantly associated with marked impairment of HRQoL in adolescents. The authors in this study speculated that this may be due to cultural differences in attitudes towards obesity in Arabs (16). However, our study clearly show that this is not the case in adult seeking-treatment patients with obesity, where the negative impact of obesity on quality of life appears similar to those reported in Western countries. The second finding from this study revealed that regardless the class of obesity, even a small increase of 1-BMI-unit increases the odds of clinically significant impairment of quality of life (≥ 71.5 units =75th percentile of the population) by around 11%, especially in those from lower social classes (i.e. lower educated and unemployed).

Our study has certain strengths. Principally, to our knowledge, it is one of the few studies. Our study has certain strengths. Principally, to our knowledge, it is one of the few studies (if not the first), to assess obesity-related quality of life as a primary outcome in a clinical setting, and its relationship with BMI in treatment-seeking Arab patients with obesity. Furthermore, it is the first to use ORWELL 97, a specific weight-related instrument recently validated by our group in

Arabic language. However, our study did have some limitations. First, our sample included only patients seeking outpatient weight-management program hence our finding is not extendable to patients with obesity seeking other

treatment modalities (i.e. bariatric surgery, pharmacological etc.). Second the cross-sectional design of the study and the relatively small sample-size make our results as preliminary, and preclude any meaningful conclusions about the association of obesity and quality of life in treatment seeking patients with obesity. Third, data were collected in a single unit, an external validation in other contexts is therefore required.

Future observational longitudinal studies are needed on larger scales in seeking-treatment populations with obesity in clinical setting in other Arab countries to assess HRQoL and obesity-related quality of life, to identify factors that are mostly associated with HRQoL (i.e. psychological, eating behaviours etc.), and to detect its modification (i.e. improvement/deterioration) in relation to the weight changes (i.e. loss, regain) during weight management programs. It will be also important to compare these data with those of treatment-seeking patients with obesity in Western countries to assess if cultural factors have a role in mediating the effect of obesity in HRQoL and obesity-related quality of life.

In conclusion, the study showed that obesity does impair obesity-related quality of life treatment-seeking patients, and higher BMI is associated with more impairment in the latter. A small increase of body weight even by only 1-unit BMI may dramatically increase the risk that obesity-related quality of life impairment to become clinically important. If confirmed, these results should stimulate clinicians of Arab countries to encourage patients with obesity to initiate and persevere in weight-loss programs as soon as possible.

REFERENCES

- Collaborators GBDO. Health Effects of Overweight and Obesity in 195 Countries over 25 Years. N Engl J Med. 2017.
- Gregg EW, Shaw JE. Global Health Effects of Overweight and Obesity. N Engl J Med. 2017.
- Stenholm S, Head J, Aalto V, Kivimaki M, Kawachi I, Zins M, Goldberg M, Platts LG, Zaninotto P, Magnusson Hanson LL, Westerlund H, Vahtera J. Body mass index as a predictor of healthy and disease-free life expectancy between ages 50 and 75: a multicohort study. Int J Obes (Lond).
- 2017;41:769-775.
- Kroes M, Osei-Assibey G, Baker-Searle R, Huang J. Impact of weight change on quality of life in adults with overweight/obesity in the United States: a systematic review. Curr Med Res Opin.
- 2016;32:485-508.
- Ghosh RK, Ghosh SM, Ganguly G. Health-related quality of life and its growing importance in clinical practice. N Z Med J. 2010;123:99-101.
- Kreidieh D, Itani L, El Kassas G, El Masri D, Calugi S, Dalle Grave R, El Ghoch M. Long-term
- Lifestyle-modification Programs for Overweight and Obesity Management in the Arab States: Systematic Review and Meta-analysis. Curr Diabetes Rev. 2017.
- Al Sayah F, Ishaque S, Lau D, Johnson JA. Health related quality of life measures in Arabic
- speaking populations: a systematic review on cross-cultural adaptation and measurement properties. Qual Life Res. 2013;22:213-229.
- Ghroubi S, Elleuch H, Chikh T, Kaffel N, Abid M, Elleuch MH. Physical training combined with dietary measures in the treatment of adult obesity. A comparison of two protocols. Ann Phys Rehabil Med. 2009;52:394-413.
- Al Kadi A, Siddiqui ZR, Malik AM, Al Naami M. Comparison of the efficacy of standard bariatric surgical procedures on Saudi population using the bariatric analysis and reporting outcome system. Saudi Med J. 2017;38:251-256.
- Itani L, Calugi S, Kreidieh D, El Kassas G, El Masri D, Tannir H, Dalle Grave R, Harfoush A, El Ghoch M. Validation of an Arabic Version of the Obesity-Related Wellbeing (ORWELL 97) Questionnaire in Adults with Obesity Curr Diabetes Rev. 2017.
- Mannucci E, Ricca V, Barciulli E, Di Bernardo M, Travaglini R, Cabras PL, Rotella CM. Quality of life and overweight: the obesity related well-being (Orwell 97) questionnaire. Addict Behav.
- 1999;24:345-357.
- Mannucci E, Petroni ML, Villanova N, Rotella CM, Apolone G, Marchesini G, Group QS. Clinical and psychological correlates of health-related quality of life in obese patients. Health Qual Life Outcomes. 2010;8:90.
- Camolas J, Ferreira A, Mannucci E, Mascarenhas M, Carvalho M, Moreira P, do Carmo I, Santos O. Assessing quality of life in severe obesity: development and psychometric properties of the ORWELL-R. Eat Weight Disord. 2016;21:277-288.
- Mannucci E, Ricca V, Barciulli E, Di Bernardo M, Travaglini R, Cabras PL, Rotella CM: Obesity- Related WELL-being questionnaire (ORWELL 97). in Clinica psicologica dell'obesità, Springer, Milano; 2012. pp. 293-297.
- Melchionda N, Marchesini G, Apolone G, Cuzzolaro M, Mannucci E, Grossi E, Group QS. The QUOVADIS Study: features of obese Italian patients seeking treatment at specialist centers. Diabetes Nutr Metab. 2003;16:115-124.
- Boodai SA, Reilly JJ. Health related quality of life of obese adolescents in Kuwait. BMC Pediatr.
- 2013;13:105.

Table 1. Socio demographic characteristic and Body mass index of the study population (n=232)

Variables	Total study sample			Cases		
	Controls (N=116)	Cases (N=116)	P-values	<75th percentile of ORWELL score (N=87)	≥75th percentile of ORWELL score (N=29)	P-values
Age (Years)	36.27 (7.92)	36.16 (12.79)	0.93	36.48 (13.04)	35.17 (12.18)	0.64
Gender			0.78			0.27
Male	40 (34.5)	42 (36.2)		34 (39.1)	8 (27.6)	
Female	76 (65.5)	74 (63.8)		53 (60.9)	21 (72.4)	
Level of education			<0.001			<0.001
Lower education	8 (6.9)	57 (49.1)		36 (41.4)	21 (72.4)	
Higher education	108 (93.1)	59 (50.9)		51 (58.6)	8 (27.6)	
Marital status			0.08			0.20
Single	39 (33.6)	52 (44.8)		42 (48.3)	10 (34.5)	
Married	77 (66.4)	64 (55.2)		45 (51.7)	19 (65.5)	
Employment			0.001			0.008
Unemployed	12 (10.3)	57 (49.6)		37 (42.5)	20 (71.4)	
Employed	104 (89.7)	58 (50.4)		50 (75.7)	8 (28.6)	
Presence of chronic disease			0.001			0.39
No	102(87.9)	64(55.2)		50 (57.5)	14 (48.3)	
Yes	14 (12.1)	52 (44.8)		37 (42.5)	15 (51.7)	
Residence			0.55			0.86
Urban	102 (87.9)	98 (85.2)		73 (84.9)	25 (86.2)	
Rural	14 (12.1)	17 (14.8)		13 (15.1)	4 (13.8)	
Crowding index	0.85 (0.65)	1.01 (0.65)	0.07	0.89 (0.43)	1.37 (1.01)	0.02
BMI (Kg/m^2)	22.45 (1.84)	37.19 (5.19)	<0.001	36.62 (4.60)	38.92 (6.43)	0.0

Table 2. Mean ORWELL 97 total and subscale scores **in** cases and controls (n=232)

ORWELL97 score	Cases (N=116)	Controls (N=116)	P-value
Total score	52.16±31.57	13.04±11.36	<0.0001
Occurrence	26.85±10.77	10.97±5.15	<0.0001
Relevance	28.74±7.97	21.80±5.24	<0.0001