Assessment of health-related quality of life among obese patients in Abha, Saudi Arabia

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ABSTRACT

Context: Numerous studies have demonstrated that obese individuals experience significant impairments in quality of life as a result of their obesity, with greater impairments associated with greater degrees of obesity. Aims: To assess the quality of life (QOL) and its clinical and sociodemographic determinants among adolescents and adult obese patients (>12 years old) attending obesity and/or nutritional clinics at Aseer Central Hospital, Abha, KSA. Setting and Study Design: This cross-sectional study was conducted in Aseer central hospital. Subjects and Methods: A cross-sectional study was carried out among a representative sample of all obese patients attending nutrition and obesity clinic at Aseer central hospital for a period of 2 months. A self-administered questionnaire was used to collect data. Statistical Analyses: Statistical Package for the Social Sciences (SPSS) ver. 20 was used to do the statistical analyses. Results: Overall, 198 obese patients completed the questionnaire and measurements gave a response rate of 84.3%. Their age ranged between 19 and 56 years with a mean age of 31.6 years and standard deviation of 6 years. In total, 56.1% were females. Conclusions: The study showed that the severe obese individuals (grade 3) suffer from poorer health-related QOL (HRQOL) compared to those of grades 1 and 2, as the increase in body mass index (BMI) lowers the HRQOL domains.

Keywords: Health-related Quality of Life, Body mass index, life, quality

Background

Obesity is a major public health issue in developed countries and is emerging as a cause for concern in developing countries.[1] It has become a global epidemic over the last few decades. This epidemic causes other diseases like heart-related disease, diabetes, and numerous types of malignancy. This will produce an impact on the human lifestyle and day-to-day workings. Real changes in lifestyle habits are required to fight with obesity. The increase in obesity rate and frequency are related to many causes like socioeconomic status, married life, and other lifestyle factors.[2-7]

Obesity and overweight affect more than 75% of the adult population in Saudi Arabia.[8,9] Morbid obesity is a lifelong, progressive disease of fat storage manifested by medical, physical, psychological, social, and economic comorbidities and increases the risk of developing life-threatening diseases.[10] These aspects of morbid obesity and its related comorbidities justify surgical treatment, which is widely recognized as the treatment of choice for morbid obesity.[11,12] Health-related Quality of Life (HRQOL) has become a buzz word in medicine, psychology, and society

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Almojarthe, et al.: Assessment of health in obese patients

The adverse effects of obesity on life have been described. Impairments have been reported in physical functioning, including general health and bodily pain, as well as in psychosocial status. In the latter domain, as many as 20% to 30% of individuals who seek weight reduction have been found to suffer from binge eating or depression.

Numerous studies have demonstrated that obese persons experience significant impairments in QOL as a result of their obesity, with greater impairments associated with greater degrees of obesity. Loss in weight has been proved to improve the QOL of obese patients.

Thus, there is an increasing need for the primary care physician to address the HRQOL among obese patients in KSA. Due to this reason, this topic is solely related to the practices of primary care physicians. The aim of the study is to investigate the impact of obesity on different domains of QOL among obese patients attending obesity and/or nutritional clinics in Abha.

Subjects and Methods

This is a cross-sectional study. This study was conducted in Abha City.

The estimated total number of obese patients followed up in the Aseer Central Hospital at nutrition and obesity clinics was about 600. At 95% confidence interval and 5% worst acceptable limit, the estimated sample size was 235 using Epi-Info software version 7. The number was increased to 255 to compensate for dropouts.

The formula used in sample size calculation is as follows:

\[ n = \frac{Z^2 \times P \times Q}{D^2} \]

Where:

- \( n \): Calculated sample size
- \( Z \): The z-value for the selected level of confidence (1-\( \alpha \)) = 1.96.
- \( P \): Estimated prevalence in the population = 50%, i.e., 0.5.
- \( Q \): (1 - \( P \)) = 50%, i.e., 0.5
- \( D \): The maximum acceptable error = 0.05.

A self-administered pencil-and-paper questionnaire was used to collect data. The part of the questionnaire consisted of questions about sociodemographic characteristics (age, gender, education, marital status, job, income, residence), medical history of obesity treatment and chronic diseases, and finally weight and height measurements.

- Obesity grade 1: BMI >30 – <34.9
- Obesity grade 2: BMI >35 – <39.9
- Obesity grade 3: BMI ≥40.

The authors certify that they have obtained all appropriate patient consent forms. In the -form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

All the necessary official permissions were fully secured before data collection. Voluntary consent was obtained from participants. They were informed that their responses would be kept confidential and that all results would be presented as an aggregate. Ethical approval was obtained from the medical institute to do this study.

Statistical entry and analysis were performed using the Statistical Package for Social Science (SPSS), version 20. Mann–Whitney, Kruskal–Wallis, and Multiple linear regression tests were used.

Results

As illustrated in Figure 1, almost one third (36.4%) of the participants had a history of chronic diseases. Diabetes mellitus and hypertension were reported among 15.7% and 12.1% of them, respectively whereas hyperlipidemia was reported among 8.6% of the participants. According to Figure 2 in total, 59.1% of the participants did not go for anti obesity treatment. Diet regimen and medicine were reported by 31.8% and 15.2% of the participants, respectively.

As obvious from Figure 3, obesity grade 3 was reported among almost half of the participants (49.5%) whereas obesity grade 1 and grade 2 were reported among 20.2% and 30.3% of the participants, respectively.

The 36-Item Short Form Survey (SF-36) responses were transformed to a 0.00–100 scale. The resulting frequency distribution of the SF-36 score is presented in Figure 4. The mean score was 36.19 ± 23.08.

Table 1 showed that the physical functioning score was lowest among obese patients aged between 31–40 years (median = 32.5) and highest among those aged 30 years or less (median = 45). A \( P < 0.05 \) was considered statistically significant.
Table 1: Distribution of quality of life score among obese patients, according to their age

| QOL domains                        | Age in years      | P*  |
|------------------------------------|-------------------|-----|
|                                    | ≤30 Median (range)| 31-40 Median (range) | >40 Median (range) |
| Physical functioning               | 45 (0-100)        | 32.5 (0-100)          | 35 (5-45)          | 0.001 |
| Role limited due to physical health| 25 (0-100)        | 0 (0-100)             | 0 (0-50)           | 0.021 |
| Role limited due to mental health  | 33.3 (0-100)      | 0 (0-100)             | 0 (0-100)          | 0.137 |
| Energy and vitality                | 25 (0-80)         | 20 (0-90)             | 25 (4-45)          | 0.129 |
| Mental health                      | 48 (4-84)         | 44 (8-92)             | 44 (16-72)         | 0.934 |
| Social functioning                 | 50 (0-100)        | 37.5 (0-100)          | 37.5 (6-25)        | 0.056 |
| Pain                               | 35 (0-100)        | 32.5 (0-100)          | 30 (5-77.5)        | 0.092 |
| General health                     | 15 (0-95)         | 5 (0-100)             | 10 (0-45)          | 0.226 |
| Overall                            | 35.7 (0.5-94.7)   | 26.7 (1-98.8)         | 28.7 (3.9-51.5)    | 0.035 |

*p value <0.05 considered as a significant. QOL: Quality of life.

Table 2 showed that the physical functioning score was lowest among intermediate school graduate (median = 30) obese patients and highest among those who were secondary school graduates (median = 40). A P < 0.05 was considered statistically significant.

Table 3 showed that the social functioning score was lowest among obese patients whose income exceeded 15000 SR/month (median = 25) and highest among those whose income ranged between 5000 and 15000 SR/month (median = 50). The difference was statistically significant, P = 0.045.

Discussion

World Health Organization has identified HRQOL as a fundamental goal for all people across all life stages.[21,22]

Figures reflect the seriousness of the situation especially that obesity leads to varieties of chronic health problems. Therefore, this study was conducted to assess the QOL among obese patients attending Aseer Central Hospital, Abha and identify determinants of poor QOL among them.[28]
To assess the impact of obesity on general QOL, SF-36 was recommended because of its brevity, ease of administration, and coverage of both physical and psychosocial domains. In addition, it provides norms for numerous age groups and patient populations.[28]

The results of this study showed a negative relationship between body mass index (BMI) and QOL score Table 5, i.e., with increase in BMI the score of QOL was deteriorating. So, individuals with obesity grade 3 suffered from poorer HRQOL and had lower significant scores in all domains of QOL than those of grades 2 and those of grade 2 had poorer QOL scores compared to those of obesity grade 1. These findings were similar to those reported by others.[25,26]

In this study, QOL score was lowest among patients treated medically and highest among those not treated or treated by diet regimen. The highest mental health and general health scores were reported among those treated through diet regimen. These findings indicate an urgent need for developing and implementing a clear policy explaining the importance and role of dietitians in the health services in our area and finding ways to overcome their possible limited involvement in managing obesity. It seems too that more effort is required to develop policies and care pathways whereby physicians and other health professionals refer obese patients to dietitians more routinely, and the role of the multidisciplinary team including dietitians and physicians in the management of obesity need to be clearly identified.

Key points: In this study, evidence of a deficit in the general health, role limitation due to physical health and energy and vitality domains of HRQOL among obese patients was reported, but not for the mental health domain.[19]

New findings: The main highlights of the study are that this is the first study investigating the QOL among obese adult patients in the Southern Region, Saudi Arabia. Further, this study showed

### Table 2: Distribution of quality of life score among obese patients, according to their gender

| QOL domains                  | Males Median       | Females Median     | p*   |
|------------------------------|--------------------|--------------------|------|
| Physical functioning         | 40 (0-100)         | 40 (0-100)         | 0.803|
| Role limited due to physical Health | 0 (0-100)        | 0 (0-100)          | 0.957|
| Role limited due to mental health | 33.3 (0-100)     | 33.3 (0-100)       | 0.146|
| Energy and vitality          | 25 (0-90)          | 25 (0-80)          | 0.174|
| Mental health                | 44 (4-92)          | 48 (8-92)          | 0.146|
| Social functioning           | 50 (0-100)         | 37.5 (0-100)       | 0.959|
| Pain                         | 32.5 (0-100)       | 32.5 (0-100)       | 0.553|
| General health               | 10 (0-100)         | 10 (0-100)         | 0.691|
| Overall                      | 31.6 (0.5-95.7)    | 31.5 (1.6-98.8)    | 0.584|

* Mann-Whitney test QOL: Quality of life

### Table 3: Distribution of quality of life score among obese patients, according to their income

| QOL domains                  | <5000 Median (range) | 5000-10000 Median (range) | 10000-15000 Median (range) | >15000 Median (range) | p*   |
|------------------------------|----------------------|---------------------------|-----------------------------|-----------------------|------|
| Physical functioning         | 35 (0-100)           | 40 (10-85)                | 40 (0-95)                   | 45 (5-100)            | 0.623|
| Role limited due to physical health | 25 (0-100)        | 0 (0-100)                 | 25 (0-100)                  | 25 (0-100)            | 0.702|
| Role limited due to mental health | 33.3 (0-100)     | 33.3 (0-100)              | 33.3 (0-100)                | 33.3 (0-100)          | 0.937|
| Energy and vitality          | 25 (0-80)            | 25 (0-75)                 | 25 (0-70)                   | 25 (5-90)             | 0.889|
| Mental health                | 44 (4-88)            | 48 (24-80)                | 44 (20-76)                  | 52 (16-92)            | 0.771|
| Social functioning           | 37.5 (0-100)         | 50 (0-100)                | 50 (0-100)                  | 25 (0-100)            | 0.045|
| Pain                         | 32.5 (0-100)         | 32.5 (0-100)              | 32.5 (10-100)               | 30 (0-100)            | 0.715|
| General health               | 10 (0-95)            | 20 (0-75)                 | 10 (0-95)                   | 5 (0-100)             | 0.792|
| Overall                      | 31.0 (0.5-94.7)      | 34.6 (5.5-91.0)           | 32.1 (5-89.3)               | 29 (5.8-98.8)         | 0.803|

*p < 0.05 considered as significant. QOL: Quality of life

### Table 4: Distribution of quality of life score among obese patients, according to their marital status

| QOL domains                  | Single Median (range) | Married Median (range) | Divorced/widowed Median (range) | p*   |
|------------------------------|-----------------------|------------------------|--------------------------------|------|
| Physical functioning         | 40 (0-100)            | 40 (0-100)             | 40 (10-100)                    | 0.967|
| Role limited due to physical Health | 0 (0-100)        | 0 (0-100)              | 12.5 (0-100)                  | 0.799|
| Role limited due to mental health | 33.3 (0-100)     | 33.3 (0-100)           | 50 (0-100)                    | 0.426|
| Energy and vitality          | 25 (0-80)             | 20 (0-90)              | 25 (5-70)                     | 0.397|
| Mental health                | 44 (4-88)             | 44 (16-92)             | 48 (20-80)                    | 0.419|
| Social functioning           | 50 (0-100)            | 37.5 (0-100)           | 43.8 (0-100)                  | 0.767|
| Pain                         | 35 (0-100)            | 32.5 (0-100)           | 32.5 (0-100)                  | 0.596|
| General health               | 15 (0-95)             | 10 (0-100)             | 7.5 (0-55)                    | 0.805|
| Overall                      | 32.8 (0.5-94.7)       | 29.2 (3.5-98.8)        | 38.3 (6.3-84.0)               | 0.763|

*p < 0.05 considered as significant. QOL: Quality of life
Table 5: Determinates of overall QOL score: Multiple linear regression analysis

| Predictors          | Slope value | P    | F-statistic | Correlation coefficient | R  | R²     |
|---------------------|-------------|------|-------------|-------------------------|----|--------|
| Constant            | 88.061      | <0.001 | 26.058      | 0.589                   | 0.377 |        |
| History of chronic  | -10.731     | <0.001 |             |                         |     |        |
| diseases            | -1.250      | <0.001 |             |                         |     |        |
| BMI                 |             |       |             |                         |     |        |

BMD: Body mass index; QOL: Quality of life

that higher educated patients were less affected while those with comorbid chronic diseases were more affected.

Conclusions

The general health, role limitation due to physical health and energy and vitality domains were more severely affected by obesity while the least affected was the mental health domain. Higher educated patients were less affected while those with comorbid chronic diseases were more affected.

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Conflicts of interest

There are no conflicts of interest.

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