Quality of life and self-esteem of patients 10 years post-bariatric surgery in Riyadh, Saudi Arabia

Abdulmajeed Ibrahim Alhaidari1*, Abdullah Saad Alsalamah1, Muhammad Mohammed Alobaid1, Abdulrahman Khalid Almisfer1, Saud Abdulrahman Alhatim1, Hamad Mohammed Alghanim1, Abdullah Nassar Alsalamah1, Mohammed Nasser Aldosari1,2, Bader Abdulaziz Alhatim1,2

ABSTRACT

Background: Bariatric surgery is a frequently used treatment method of obesity. The comorbidities of obesity are well known. Evidence of the short-term effects on the quality of life (QoL) and self-esteem (SE) is established; however, there is limited literature available related to the long-term effects. The aim of this study was to investigate the effect of bariatric surgery on QoL and SE 10 years after the surgery, and to identify the associated factors. In addition, the postoperative prevalence of diabetes, hypertension, and dyslipidemia was assessed.

Subjects and Methods: The design was a quantitative cross-sectional study carried out at the Surgery Department at King Abdulaziz Medical City in Riyadh. All the patients who had surgery in 2011 were reviewed. Patients with gastric malignancies or without a telephone number were excluded. The sample was interviewed telephonically, guided by a QoL and SE questionnaire.

Results: The majority (n = 39, 73.6%) were female and the mean age was 41.9 ± 11.0 years. The mean QoL score was 1.4 ± 1.2 (good QoL) and the mean SE score was 21.4 ± 5.0 (normal SE). The majority (74%) of the sample had a good or very good QoL. Only 12% had a low SE. The majority (83.3%) of the low SE group had a fair or low QoL (p = 0.003). The 10-year postoperative prevalence of diabetes was 18.9%, hypertension was 15%, and dyslipidemia was 28.3%.

Conclusion: The findings of the study indicate that even after 10 years post-bariatric surgery, the majority of the sample had a very good QoL and normal to high SE. Hypertensive patients and patients with low SE were associated with a fair or low QoL.

Keywords: Bariatric, quality of life, self-esteem.

Introduction

Globally, the number of obese patients has tripled since 1975 [1]. In 2016, it was estimated that 39% of adults aged 18 years and over were overweight (39% were male and 40% were female) [1]. Additionally, about 13% of the adults were obese (11% male and 15% female) [1]. Globally, it is expected that by 2030, the majority of adults will be overweight or obese [2]. A local study conducted in the southwestern region of Saudi Arabia...
on adult patients attending primary care clinics reported
the prevalence of overweight and obesity as 38.3% and
27.6% of the population, respectively [3]. Obesity results
in an increased risk for cardiovascular disease [4,5],
chronic kidney disease [4], various cancers [6], and
osteoarthritis [7,8].

Recognizing obesity as the principal precursor to many
diseases resulted in many methods of treatments to
alleviate the health burden. In the past decade, bariatric
surgery emerged as a frequent solution to the morbid
obesity epidemic and the related comorbidities.

Bariatric surgery is a general term including various
procedures such as the Roux-en-y gastric bypass,
laparoscopic adjustable gastric banding, sleeve
gastrectomy, or duodenal switch with biliopancreatic
diversion. In total, 196,000 bariatric surgeries were
carried out in the US in 2015 [9]. Over time, the confidence
that the surgery will treat obesity and its complications
increased as the number of surgeries exceeded 250,000
in 2019 [9]. More than half of these procedures were a
sleeve gastrectomy.

Three expected outcomes of bariatric surgery are a
significant reduction in weight, blood pressure, and
treatment of type 2 diabetes [10,11]. In addition to the
positive biological outcomes, studies also investigated
the effect of bariatric surgery on the psychological
health of patients [12,13]. The studies reported positive
outcomes and some postoperative challenges. However,
the majority of the literature assessed the short-term
consequences of surgery. For example, a prospective
study with 175 bariatric patients in the US evaluated
self-esteem (SE), body image, and quality of life (QoL)
at 6, 12, and 24 months after the surgery [14]. The study
reported notable improvements in patients' SE, body
image, and QoL.

In Saudi Arabia, a prospective study compared the QoL
and SE of 32 morbidly obese adolescents presenting
for laparoscopic sleeve gastrectomy with 32 non-obese
healthy adolescents [15]. The data were gathered before
and 1 year after the laparoscopic sleeve gastrectomy. The
results indicated a significant improvement in the QoL
and SE, 1 year after the procedure.

The literature frequently evaluated patients' QoL, SE,
and body image only months to a few years after the
bariatric surgery [12-14], with limited research available
focusing on the long-term psychological effects, both
internationally and locally. A Norwegian study assessed
the long-term outcomes of bariatric surgery, using
qualitative in-depth interviews with 10 bariatric patients
5 years after the surgery [16]. The study concluded that
the patients experienced significant daily life and social
changes 5 years after the surgery.

The need for more research exploring the long-term effect
of bariatric surgery on SE and QoL is clear, since most
of the literature written about the subject was focused
on the short-term effects on SE and QoL. The aim of
the current study was to evaluate and assess the SE and
QoL of bariatric patients 10 years after the surgery, and
the factors associated with QoL and SE. In addition, the
prevalence of diabetes, hypertension, and dyslipidemia
in the sample more than 10 years after the surgery was
evaluated.

**Subjects and Methods**

The study was a quantitative cross-sectional study,
conducted at the Surgery Department of King Abdulaziz
Medical City, Riyadh, Saudi Arabia (KAMC-R), via
telephonic interviews. The sample consisted of patients
who had bariatric surgery in 2011. The interview was
in Arabic or English, and focused on their QoL and
SE. Ethical approval of the study was obtained from
the Institutional Review Board at King Abdullah
International Medical Research Center via reference
number IRBC/0132/19 dated 27 January 2019. All
information obtained were kept strictly confidential and
anonymous.

KAMC-R is a 1,000-bed facility with 25 inpatient medical
and surgical wards. It is a tertiary care hospital and
academic center affiliated with King Saud bin Abdulaziz
University for Health Sciences. The academic center
has more than 20 different residency and fellowship
programs. The center is a non-profit organization, within
the Ministry of National Guard-Health Affairs in the
Kingdom of Saudi Arabia. A sleeve gastrectomy is the
most frequently performed bariatric surgery at KAMC-R.
Patients are followed-up for 6 months after the surgery.

All patients \((n = 81)\) who had bariatric surgery at
KAMC-R in 2011 were reviewed. Patients with gastric
malignancies, without a phone number, or deceased
were excluded from the study. The data gathering
instruments were two questionnaires, the Moorehead-
Ardelt Quality of Life questionnaire II (MA QoLQII)
[17] and the Rosenberg Self-Esteem (RSE) Scale [18].
The MA QoLQII assesses five main aspects: SE, social
relationships, physical well-being, sexuality, and work.
The questionnaire's validity has been established in
several studies and clinical trials [17]. The RSE Scale is
a widely used instrument to assess positive and negative
feelings about self. It consists of 10 items, with a 4-point
Likert scale format, ranging from strongly disagree to
strongly agree.

Both questionnaires were translated to Arabic and
translated back to English by a professional linguist
to ensure the meaning of the questions was conveyed
credibly. The MA QoLQII score ranges from -3.0 and
+3.0. The score is categorized as follows: -3 to -2.1 very
poor, -2 to -1.1 poor, -1.0 to +1.0 fair, +1.1 to +2.0 good,
and +2.1 to +3.0 very good. The RSE Scale score ranges
from 0 to 30, based on a Likert scale. Items 2, 5, 6, 8, 9
are scored in reverse. A score of <15 is categorized as
low SE, 15-25 normal SE, and >25 high SE.

The predictors assessed were gender, age groups \((\leq 30,\ 31-40, 41-50,\ and\ 51+\ years)\), diabetes, hypertension, and
dyslipidemia. To present the data, the QoL and SE were
used as outcome variables. The co-investigators did the data collection.

The data were collected, reviewed, checked for errors and incomplete data, and entered using Microsoft Excel. Data analysis was carried out with SPSS version 23. The categorical data are presented as frequency, and the continuous data as a mean and standard deviation (SD). Fisher’s exact test was used to compare the categorical variables. A p-value ≤0.05 was considered a significant association.

**Results**

In total, 53 patients were interviewed. The majority \(n = 39, 73.6\%\) were female, and the mean age was 41.9 ± 11.0 years, with a minimum of 24 years and a maximum of 68 years. The comorbidities in the sample were hypertension (18.9%), diabetes (15%), and dyslipidemia (28.3%) (Table 1). The mean QoL score 10 years after the surgery was 1.4 ± 1.2, considered a good QoL (score range from -3.0 to +3.0), and the mean SE score was 21.4 ± 5.0, considered a normal SE (score range from 0 to 30).

The responses to the MA QoLQII are displayed in Table 2. Generally, the responses were positive. Within each subscale, more than 75% of the sample responded with good or very good QoL. The responses to the RSE scale are shown in Figure 1. The majority of the sample agreed with most of the statements, except for statements two and eight, which are negatively phrased and the scores are reversed. The majority (74%) of the sample had good or very good QoL scores, and only 12% had a poor SE (Table 3).

<table>
<thead>
<tr>
<th>Table 1. Baseline characteristics of the sample.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number: 53</td>
</tr>
<tr>
<td>Age, years (mean ± SD): (41.9 ± 11.0)</td>
</tr>
<tr>
<td>Age group (years)</td>
</tr>
<tr>
<td>≤30</td>
</tr>
<tr>
<td>n (%)</td>
</tr>
<tr>
<td>8 (15.1%)</td>
</tr>
<tr>
<td>31-40</td>
</tr>
<tr>
<td>19 (35.8%)</td>
</tr>
<tr>
<td>41-50</td>
</tr>
<tr>
<td>15 (28.3%)</td>
</tr>
<tr>
<td>51+</td>
</tr>
<tr>
<td>11 (20.8%)</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>14 (26.4%)</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>39 (73.6%)</td>
</tr>
<tr>
<td>Diabetes</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>8 (15.1%)</td>
</tr>
<tr>
<td>Hypertension</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>10 (18.9%)</td>
</tr>
<tr>
<td>Dyslipidemia</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>15 (28.3%)</td>
</tr>
</tbody>
</table>

**Figure 1. Responses to the RSE Scale.**

**These items are scored in reverse.
There was a rise in the QoL scores in the older age groups, which was not statistically significant. There was no significant association between hypertension and QoL (Table 4). 83.3% of the low SE group had a fair or low QoL \((p = 0.003)\) (Figure 2). The bivariate analysis for SE and any of the predictors did not indicate a significant finding.

**Discussion**

As the burden of obesity is increasing in Saudi Arabia, it is important to identify both the short- and long-term outcomes of bariatric surgery. Literature related to the long-term psychological effects of bariatric surgery is limited, both internationally and locally. Sufficient evidence exists regarding the effectiveness and reliability of the surgery, and the physiological and short-term psychological benefits have been investigated. The importance of the current study is in presenting the long-term effects of bariatric surgery on QoL and SE, and identifying the associated factors.

The current findings regarding QoL were similar to the literature, although the postoperative periods were
Quality of life and self-esteem of patients 10 years post-bariatric surgery

Table 4. QoL association with possible predictors.

<table>
<thead>
<tr>
<th></th>
<th>Fair or less N (%)</th>
<th>Good or very good (%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male n = 14</td>
<td>4 (29%)</td>
<td>10 (71%)</td>
<td>&gt;0.999</td>
</tr>
<tr>
<td>Female n = 36</td>
<td>9 (25%)</td>
<td>27 (75%)</td>
<td></td>
</tr>
<tr>
<td>Age group (years)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤30 n = 7</td>
<td>4 (57%)</td>
<td>3 (43%)</td>
<td>0.62</td>
</tr>
<tr>
<td>31-40 n = 18</td>
<td>4 (22%)</td>
<td>14 (78%)</td>
<td></td>
</tr>
<tr>
<td>41-50 n = 14</td>
<td>2 (14%)</td>
<td>12 (86%)</td>
<td></td>
</tr>
<tr>
<td>51+ n = 11</td>
<td>3 (27%)</td>
<td>8 (73%)</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes n = 8</td>
<td>2 (25%)</td>
<td>6 (75%)</td>
<td>&gt;0.999</td>
</tr>
<tr>
<td>No n = 42</td>
<td>11 (26%)</td>
<td>31 (74%)</td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes n = 9</td>
<td>5 (56%)</td>
<td>4 (44%)</td>
<td>0.054</td>
</tr>
<tr>
<td>No n = 41</td>
<td>8 (19%)</td>
<td>33 (81%)</td>
<td></td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes n = 14</td>
<td>5 (36%)</td>
<td>9 (64%)</td>
<td>0.67</td>
</tr>
<tr>
<td>No n = 36</td>
<td>8 (22%)</td>
<td>28 (78%)</td>
<td></td>
</tr>
</tbody>
</table>

Of the QoL subscales, the highest mean was the ability to work and the lowest mean was the approach to food. According to the literature, the highest mean was in the feeling subscale and the lowest in sexual pleasure [19,20]. This discrepancy could be due to the time difference of the assessment, 18 months compared to 10 years in the current study.

Although not statistically significant, the older age groups had a better QoL score, which may be due to a better self-image and emotional stability. The current results indicated that only a minority of the hypertensive group had a good or very good QoL. This may be due to the patients being in a hypertensive state, or to the psychological demand of the adherence to anti-hypertensive medication.

SE is an essential element of QoL, and the current study predictably identified a statistical significant association between low SE and “fair or less” QoL. The findings are in accordance with Aldaqal et al. [15] and may be attributed to the sustainability of weight loss after bariatric surgery.

The prevalence of diabetes 10 years postoperative was 15.1%; however, there is no consistency in literature. A study carried out in Brazil stated that the prevalence of diabetes 7 ± 3 years after the surgery was 19% [21]. A US study indicated the prevalence of diabetes 5 years after the surgery as 6.1% [22]. In the current study, the prevalence of hypertension was 18.9%, which is much lower than reported in literature (40%, 52.7%) [21,22]. Despite having a low prevalence of postoperative hypertension, it appears to be associated with fair or less QoL. The postoperative prevalence of dyslipidemia was 28.3%, compared to the literature, citing 6% and 9.9% [21,22]. This may be due to lack of physical exercise, lifestyle, or local dietary habits.

The limitations of this study include that it was carried out in a single institution, and the results are not generalizable.
An income variable could play an important role in determining QoL, but this was not included in the study. There are still important questions to answer about the long-term psychological outcomes of bariatric surgery, and the findings of this study are only a step to thoroughly understand the effects of bariatric surgery.

Conclusion

In conclusion, the findings of the study indicate that even after 10 years of undergoing bariatric surgery, the majority of the sample had a very good QoL and a normal to high SE. A higher proportion of the hypertensive group and the group with low SE were associated with fair or less QoL. Patients can be counseled confidently that the effect of the surgery on QoL and SE will likely be enduring and not limited to the initial postoperative period. The results add to the current local literature regarding bariatric surgery follow-up. Further research on QoL and SE improvements after bariatric surgery with a larger sample is required in our geographical region to achieve a complete understanding of the consequences of bariatric surgery on QoL and SE.

List of abbreviations

- KAMC-R: King Abdulaziz Medical City, Riyadh
- MA QoLQII: Moorehead-Ardelt Quality of Life questionnaire II
- QoL: Quality of life
- RSE: Rosenberg Self-Esteem
- SE: Self-esteem

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding

None.

Consent to participate

Written Informed consent was obtained from all the participants.

Ethical approval

This study was approved by the Institutional review board (IRB) of King Abdullah International Medical Research Center (KAIMRC).

Author details

- Abdulmajeed Ibrahim Alhaidari1, Abdullah Saad Alsalamah1, Muhammad Mohammed Alobad2, Abdulrahman Khalid Almisfer3, Saud Abdulrahman Alhatim4, Hamad Mohammed Alghanim5, Abdullah Nasser Alsaleam6, Mohammed Nasser Aldosari1, Bader Abdulaziz Altulaihi1,2
- 1. College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia
- 2. Department of Family Medicine, King Abdulaziz Medical City, Riyadh, Saudi Arabia

References


Available from: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight


Quality of life and self-esteem of patients 10 years post-bariatric surgery


