

# Assessment of Post Sleeve Gastrectomy patient's satisfaction and their desire for body contouring surgery in Taif City Saudi Arabia

Mohammed A. Alkhatat (1)

Sarah A. Alkashgry (1)

Abdullah N. Thawabeh (1)

Bushra A. Alghamdi (2)

Nouf M. Althobaiti (2)

Walaa N. Alharthi (2)

Samaher A. Alnefaie (2)

Amjad A. Althaqafi (2)

(1) Consultant at Al-Hada military hospital, Taif city, Saudi Arabia

(2) Medical interns, Taif city, Saudi Arabia

## Corresponding author:

Dr. Bushra A. Alghamdi

Affiliation: Medical intern, Taif city, Saudi Arabia

Tel. No.: 0540941191

Email: tiffany44559@hotmail.com

Received: November 2019; Accepted: December 2019; Published: January 1, 2020.

Citation: Mohammed A. Alkhatat, Sarah A. Alkashgry, Abdullah N. Thawabeh, Bushra A. Alghamdi, Nouf M. Althobaiti, Wala N. Alharthi, Samaher A. Alnefaie, Amjad A. Althaqafi. Assessment of Post Sleeve Gastrectomy patient's satisfaction and their desire for body contouring surgery in Taif City, Saudi Arabia. World Family Medicine. 2020; 18(1): 132-138.

DOI: 10.5742MEWFM.2020.93737

## Abstract

**Background:** Bariatric surgery is one of the suggested treatment modalities for obese patients at high risk of morbidity and mortality who have not achieved expected weight reduction through lifestyle changes or medical management.

**Objectives:** The study aimed to assess the satisfaction of patients who have undergone bariatric surgery in the city of Taif.

**Subjects and methods:** An online survey using a Post-Bariatric Satisfaction Questionnaire was used to collect responses from patients who had undergone bariatric surgery at two specialty hospitals in the city of Taif. Responses were recorded using a 5-point Likert scale, which mainly focused on cosmetic and body contouring concerns. Appropriate statistical tests were used to analyze the data obtained. Data were presented mainly as frequencies and percentages.

**Results:** The mean age of the participants was 37±14.5 years and included 54.6% males and 45.4% females. Obesity was the leading reason for opting for bariatric surgery as reported by 66.7% of the participants. The response regarding satisfaction showed that 32.25% and 42.6% of the participants were very satisfied with the general appearance and weight loss respectively. There was also a huge percentage of reduction of co-morbidities like hypertension and Type 2 diabetes mellitus after the surgery.

**Conclusion:** Satisfaction from bariatric surgery showed it was not only effective in a reduction in weight but also was found to affect reduction of co-morbidities which drastically improved the quality of life. Patients should be made aware of the benefits and the limitations of these types of surgeries in morbid obesity management.

**Key words:** bariatric, surgeries, satisfaction, body, contouring, Taif

## Introduction

The prevalence of obesity has increased dramatically over the last few decades and is commonly associated with co-morbidities such as type 2 diabetes mellitus (T2D) and hypertension. Studies show that this has drastically affected the quality of life of many people [1,2]. Bariatric surgery remains the most effective treatment solution to weight loss for the people with a body mass index of 35 kg/m<sup>2</sup> or more [3].

The bariatric surgical procedures are categorized mainly into three by function: restrictive, primarily mal-absorptive and combined (restrictive and mal-absorptive). The restrictive procedures include Laparoscopic adjustable gastric banding (LAGB), Vertical banded gastroplasty, and Laparoscopic sleeve gastrectomy (LSG). The Combined restrictive and malabsorptive procedures include Roux-en-Y gastric bypass (RYGB), Biliopancreatic diversion with or without duodenal switch and Malabsorptive procedures including Jejunioileal bypass [4].

Although these procedures are a permanent solution, the most commonly known types of bariatric surgeries done are Laparoscopic adjustable gastric banding, vertical sleeve gastrectomy, Roux-en-Y gastric bypass, and biliopancreatic diversion with duodenal switch [5].

Following the bariatric surgery, sudden and massive weight loss can lower the skin tone and leads to a failure of the excess soft tissue to retract, resulting in redundant and excess skin which is commonly located on the belly, upper arms, thighs, and buttocks; some patients become less satisfied with their body image and they want to undergo body-contouring surgery to restore a normal body image [6]. Also, some patients show an improvement in their chronic disease, especially diabetes and hypertension following bariatric surgery, which is now considered as metabolic surgery. According to the American Diabetes Association Guidelines of 2009, diabetic patients with BMI  $\geq 35$  kg/m<sup>2</sup> could be considered for bariatric surgery [7].

A marked improvement in hyperglycemia, with the rate of type 2 diabetes remission varies depending on the type of surgery [8]. Studies show that short term results of surgery showed rapid improvement in hepatic insulin sensitivity which could be due to restricted calorie intake or the restoration of first-phase insulin secretion [9,10]. The mid and long-term results are usually evident in skeletal muscle's insulin absorption and also in improvement in survival and decrease in the incidence of cardiovascular events [9-11].

A study done by Sjöström et al. reported a higher remission rate of 73% after metabolic surgery [12]. The definition of remission varies from study to study but is generally defined as normoglycemia without any further use of glucose-lowering medications. Some of the complications that might occur post-surgery are mainly physiological in nature that includes dumping syndrome, vitamins and nutrients deficiency, renal stone formations and decrease of bone density. The mechanical complications include

stenosis, gastric tube stricture or gastroesophageal reflux, etc. [13-15].

The success of Bariatric surgery does not only depend on the efficacy of the treatment and enhancing weight loss but also reflects on the satisfaction of patients.

In the kingdom of Saudi Arabia, the problem of obesity is a major reason for morbidity and is always associated with some co-morbidities. Bariatric surgeries are gaining popularity among the Saudi population. Very little data is available from the kingdom regarding the type of bariatric surgeries performed and also the factors related to patient's satisfaction from those surgeries. Satisfaction from this type of surgery is not only a measure of the quality of life of patients but a multidimensional indicator that could improve the clinical outcomes, increase patient retention, and reduce the risk from medical negligence claims [16]. Hence this study was aimed to assess the impact of bariatric surgery and satisfaction of patients related to its efficiency.

## Methodology

**Study design:** A Cross-sectional study using a web-based survey was conducted.

**Sampling methodology:** The study participants were patients on whom bariatric surgeries were performed at Al-Hada military hospital and Prince Mansour Military hospital.

**Inclusion criteria:** Patients who had undergone sleeve gastrectomy during the period from 2014 to the last 6 months of 2019. Both sexes were between 18 to 60 years old, and those who had sleeve gastrectomy in Al Hada Military hospital and Prince Mansour hospital were included.

**Exclusion criteria:** Patients who had other types of bariatric surgeries, who had completed the operation in less than 6 months and patients, who did not give consent or/and who did not complete the survey, were excluded.

**Study instrument:** We used the Post-Bariatric Satisfaction Questionnaire developed by Kitzinger, et al. for our study. This questionnaire includes data on satisfaction with BI, QOL, and expectations from body contouring surgery [17,18]. This questionnaire usually takes about 5 minutes to complete and focuses mainly on the satisfaction of patients with their appearance after massive weight loss and quantifies patient satisfaction on a five-point Likert scale (strongly satisfied to strongly dissatisfied). Also, it recorded cosmetic and body contouring concerns that originate after sleeve gastrectomy. The questionnaire also includes details about demographic data and expectations from body contouring surgery. The study was explained to the patients, and informed consent was obtained from them. The questionnaire promised confidentiality and a statement of anonymity was explained in the first part of the survey.

The survey link was sent to the phone numbers of these participants that were collected from the operation room log book. 108 patients responded completely to all the questions of the survey and we included the data collected from these patients for our assessment.

### Ethical considerations

The Ethical Review Committee of Taif University and Al-Hada military hospital approved the study. All patients were informed about the purpose and benefits of the study before taking consent.

### Data Analysis

Data collected were analyzed using the SPSS statistical analysis program version 23. Descriptive statistics were expressed as number and percentages.

## Results

Our study included 108 participants who underwent sleeve gastrectomy surgery, of which 49 were females and 59 were males. The mean age was  $37 \pm 14.5$  years old (range from 22-60).

When the reason for or cause of performing bariatric surgery was assessed, obesity 72 (66.7%) alone was the main reason reported by the participants. 15% of the participants also reported obesity with associated comorbidities for choosing the surgery (Figure 2). The majority of our participants 84 (77.8%) were staying at the hospital for 1-3 days and only 10 (9.3%) suffered from postoperative complications.

To rate the satisfaction about general appearance, weight loss and shape of different parts of the body after bariatric surgery the participants were able to select 1 of 5 options from very dissatisfied through to very satisfied. 34.25% of participants were very satisfied with their general appearance and 42.6% were very satisfied with their 'weight loss'. Compared with women, men were more satisfied with their 'general appearance' (18.5%), and 'weight loss' (25.0%). The most common area with which participants were satisfied after surgery was the buttock (25.0%), followed by the arms (24.1%) and the least was belly (13.9%) (Table 1).

The assessment showed that 17 out of 26 who had diabetes mellitus were completely cured after the bariatric surgery, and 9 (8.3%) of them reported decreasing the dose of medication. For hypertensive patients, 14 (13.0%) of them were cured completely after the surgery out of 22 who had the disease, whereas 8 (7.4%) of them had to decrease the dose of medication.

In our study, the mean weight loss was found to be  $41.9 \pm 18.2$  kg and the maximum weight loss recorded was 78 kg. We found that 76.9% (n=83) of participants want to lose additional weight due to not reaching the desired weight after the surgery and most of them were males 43 (39.8%).

When the participants were asked whether they have been informed about the possibility of having excess skin after surgery, 84 (77.8%) have agreed to this. When the problems with excess skin after surgery were assessed, 9.3% of them always had itching on the areas where surgery was performed, whereas 10.2% had difficulty with fitting clothes and 12.0% had a difficulty of doing exercise (Table 3).

We found that the majority of participants who wanted to have a body contouring surgery 76 (70.4%) were females 39 (36.1%) (Figure 3).

In our study 39.8% (n=43) knew about the body contour surgeries and the most commonly reported area of concern of doing body contouring was belly 67.6% (n=73) followed by arms 46.3% (n=59). 32.4% (n=35) of the participants reported having fears of doing body-contouring surgery. The most common expectations among those that were associated with body contouring surgery were 'improvement in appearance' (53.7%) followed by 'easy mobility' (18.5%).

**Table 1: Frequency of satisfaction rate after surgery according to general appearance and body parts**

| Satisfaction      | General Appearance<br>N (%) | Weight loss<br>N (%) | Arms Shape<br>N (%) | Breast Shape<br>N (%) | Belly Shape<br>N (%) | Back Shape<br>N (%) | Buttock<br>N (%) | Thighs<br>N (%) |
|-------------------|-----------------------------|----------------------|---------------------|-----------------------|----------------------|---------------------|------------------|-----------------|
| Very satisfied    | 37<br>(34.24%)              | 46<br>(42.59%)       | 26<br>(24.07%)      | 22<br>(20.37%)        | 15<br>(13.89%)       | 25<br>(23.15%)      | 27<br>(25.0%)    | 22<br>(20.37%)  |
| Satisfied         | 34<br>(31.48%)              | 28<br>(25.93%)       | 34<br>(31.48%)      | 33<br>(30.56%)        | 25<br>(23.15%)       | 34<br>(31.48%)      | 35<br>(32.41%)   | 31<br>(28.7%)   |
| Neutral           | 19<br>(17.6%)               | 12<br>(11.11%)       | 23<br>(21.30%)      | 25<br>(23.15%)        | 24<br>(22.22%)       | 31<br>(28.7%)       | 23<br>(21.3%)    | 25<br>(19.44%)  |
| Dissatisfied      | 11<br>(10.18%)              | 14<br>(12.96%)       | 15<br>(13.89%)      | 23<br>(21.30%)        | 31<br>(28.7%)        | 13<br>(12.04%)      | 15<br>(13.89%)   | 21<br>(19.44%)  |
| Very Dissatisfied | 7<br>(6.5%)                 | 8<br>(7.41%)         | 10<br>(9.26%)       | 5<br>(4.63%)          | 13<br>(12.04%)       | 5<br>(4.63%)        | 8<br>(7.41%)     | 9<br>(8.33%)    |

Figure 1: Gender Distribution of participants

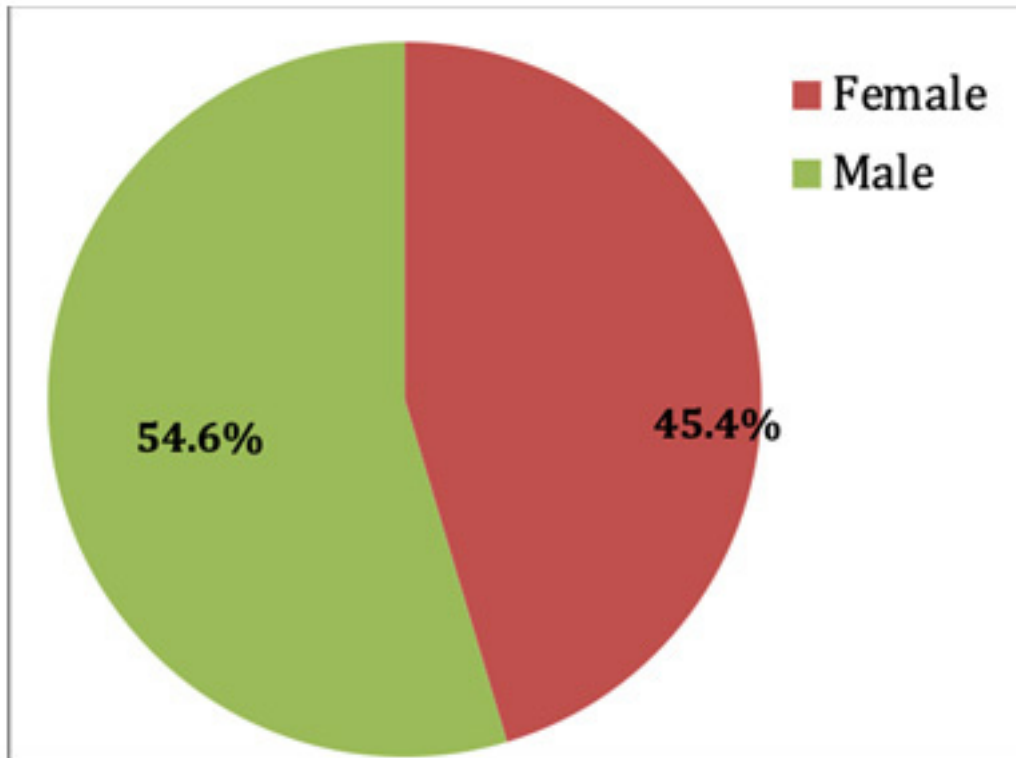
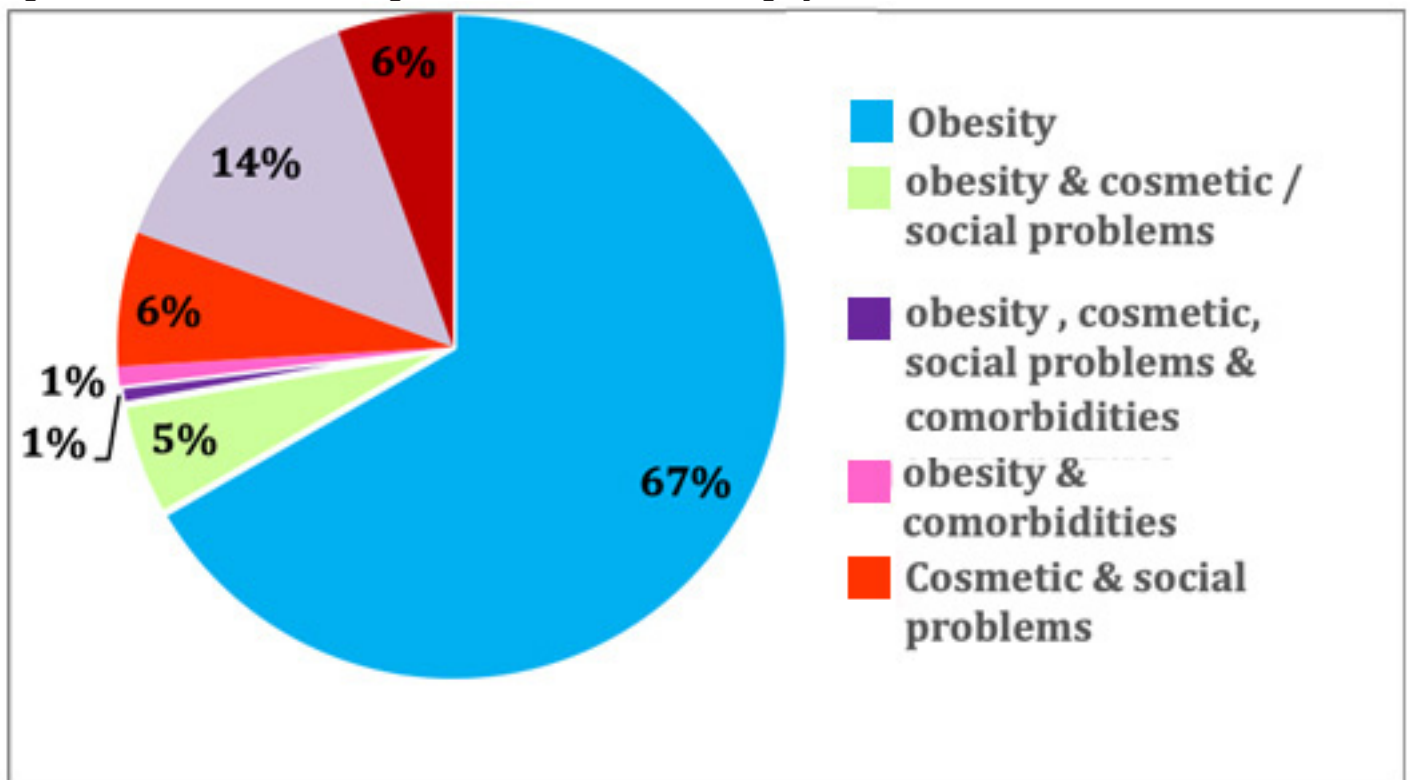


Figure 2: Distribution according to the cause of bariatric surgery





**Table 2: Distribution according to the Effect of Sleeve Bariatric Surgery on Diabetes and Hypertension**

| After effects of bariatric surgery | Diabetes |       | Hypertension |       |
|------------------------------------|----------|-------|--------------|-------|
|                                    | N        | %     | N            | %     |
| Never had the disease              | 82       | 75.9% | 86           | 79.6% |
| Decrease the dose of medication    | 9        | 8.3%  | 8            | 7.4%  |
| Complete the cure                  | 17       | 15.7% | 14           | 13.0% |
| Total                              | 108      | 100%  | 108          | 100%  |

**Table 3: Distribution according to difficulties perceived by participants after surgery**

|            | Itching |       | Difficulty Fitting Clothes |       | Difficulty Doing Exercise |       |
|------------|---------|-------|----------------------------|-------|---------------------------|-------|
| Never      | 72      | 66.7% | 78                         | 72.2% | 69                        | 63.9% |
| Sometimes  | 25      | 23.1% | 19                         | 17.6% | 26                        | 24.1% |
| Frequently | 10      | 9.3%  | 11                         | 10.2% | 13                        | 12.0% |
| Total      | 108     | 100%  | 108                        | 100%  | 108                       | 100%  |

## Discussion

Our study assessed the satisfaction of patients to body parts, length of stay at the hospital and related complications among those who had undergone sleeve gastrectomy. To our knowledge, no other similar studies are being done in the Kingdom of Saudi Arabia assessing the satisfaction of bariatric surgery.

The results showed in our study, that the mean weight loss was found to be  $41.9 \pm 18.2$  Kg and the maximum weight loss recorded was 78 Kg after performing sleeve gastrectomy. This loss of weight was found to be higher when compared to another study done in the USA by Lee JH et al on 162 patients where the reduction was reported to be  $7.9 \pm 7.3$  kg/m<sup>2</sup>. [19] Even though all surgeries led to weight reduction and/or BMI reduction, it was difficult to assess which type of surgery had better efficiency, as all the participants underwent sleeve gastrectomy. There is no clear evidence suggesting which type of surgery is more effective in weight loss as reports from different countries show no comparable weight loss according to the type of surgery performed [20,21].

The factors that predict weight loss or BMI reduction couldn't be limited just to associated co-morbidities such as diabetes, hypertension, age, gender, lifestyles, etc. [22].

The findings of our study showed that most of the participants stayed in the hospital for 1-3 days after surgery (n=84). Only 4 of them reported that they were hospitalized for more than 7 days post-surgery. Colquitt et al. reported that the RGYB procedure resulted in a greater duration of hospitalization out of two RCTs conducted (4/3.1 versus 2/1.5 days) [23].

In our survey only 10 patients had postoperative complications and 98 had none. This finding is similar to the study done by Poелеmeijer YQM, et al., which reported

that two procedures (LSG and RGYB) didn't differ in the rate of severe complications [24].

Bariatric surgery is established as a treatment option for people with obesity and Type 2 Diabetes mellitus [DM], with many people experiencing Type 2 diabetes remission postoperatively [25-27]. The first reported clinical trial regarding the effectiveness of bariatric surgery in the treatment of metabolic syndrome was in 2004 [28].

In our study we found there was a good amount of disease improvement as 9 patients decreased the dose of the anti-diabetic drug and 17 of them showed complete cure of disease. In a recent study done by Almalki OM et al, it was reported that RYGB and Single anastomosis gastric bypass (SAGB) was effective in improving metabolic syndromes such as T2D and SAGB had a higher power of on T2D remission than RYGB [29].

Hypertension has long been associated with obesity, and weight loss continues to be a first-line treatment for hypertension. Lifestyle modification and pharmacologic therapy, however, often meet with treatment failure [30]. The findings of our study show that Hypertension was completely cured in 8 patients while 14 of them had to decrease the doses of antihypertensives. The above findings are in accordance with a Meta-analysis done in 2017 which reported that patients who underwent bariatric surgery experienced remission and improvement of their hypertension (63%), T2D (73%) and Hyperlipidemia (65%) [31]. The improvement in these metabolic markers of disease after surgery could be related to a reduction in macrovascular and microvascular events in the body [32].

Another study reported a 50% reduction in microvascular complications in T2D patients after performing bariatric surgery [12]. The actual mechanisms that helps to maintain substantial reduction in BMI could be attributed to variety of factors such as diet restriction as a result of anatomical remodeling of GI tract, hypothalamic modulation involving energy balance and appetite regulation, change in

eating behaviour and patterns, increased diet-induced thermogenesis (DIT) etc. [33-37]. Also it is reported that bariatric surgery involving intestinal diversion and mainly duodenal-jejunal exclusion, have shown reduction in insulin resistance thereby giving a beneficial effect on glucose homeostasis [38].

### Limitations

Some of the limitations of our research should be addressed before generalizing the findings. There was a lack of patients who had surgeries other than sleeve gastrectomy. Also, our sample size was not big enough to generalize the satisfaction of the patients. There is a need to do wider research, which should include a larger sample size with more randomization procedures. Current research gives us the impression that bariatric surgery had drastically improved the satisfaction of the patients after surgery both mentally and physically. These types of surgeries should not only focus on reducing weight but also give predominant consideration for body contouring.

### Conclusion

Bariatric surgeries are clinical and effective treatment therapies for morbidly obese people. Although the impact of bariatric surgery on mental health is often outweighed by the significant reduction in comorbidities such as T2D and Hypertension, it is important to assess the impact of these surgeries on psychological distress and effect on the quality of life. It is essential to understand what affects the patient's satisfaction in order to understand their behavior or attitudes and optimize our intervention.

**Competing interests:** no competing interests.

**Funding:** none

### Acknowledgement

All authors acknowledge the cooperation of the study participants. Special thanks to Dr. Adnan Ali Al Ghamdi, Dr. Shrooq Homood Alswat, Dr. Albatoul Fayeze Say Althobaiti for their help in data collection and Dr. Suzan Atia Mostafa for her help in data analysis and supervision.

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