

## Research Article



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# **PATIENT'S VIEWPOINT AFTER BARIATRIC SURGERY: A COMPREHENSIVE CLINICAL ASSESSMENT**

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### **ABSTRACT**

**Background:** Obesity has negative effects on several organ systems. It is the cause of metabolic syndrome, sleep apnea, stigma, osteoarthritis (from increased fat mass), diabetes, cardiovascular diseases, cancer (from enlarged fat cells), and mood and anxiety issues. Obese people also have a lower life expectancy by many years, which makes therapy necessary.

**Aim:** After 24 months of bariatric surgery (gastric bypass and duodenal switch), the study's main goals were to evaluate changes in eating behavior and their impact on end-point results, as well as to investigate the significance of bariatric surgery in treating morbid obesity, to evaluate the change process experienced by the subjects undergoing the surgery, and to judge the gastrointestinal system's side effects, changes in quality of life, and changes in eating habits.

**Methods:** Duodenal switch (n = 19) or gastric bypass (n = 19) were used to treat 38 patients, ranging in age from 18 to 60. To assess GI side effects, the Gastrointestinal Symptom Rating Scale (GSRS) was employed. With 15 elements and a scoring system ranging from 1 to 7, the GSRS is an interview-based technique for evaluating GI symptoms. The Osterberg Bowel Function Questionnaire was used to measure bowel functions, and the Three Factor Eating Questionnaire (TFEQ-R21), which has three eating domains, was used to measure eating behaviors. Data was gathered and examined.

**Results:** The patient's control over eating habits appeared to be the primary component that had the biggest influence on the end-point outcomes after bariatric surgery, according to the findings of the current clinical investigation.

According to patient reports, the gastric bypass group showed less disruption of bowel function with diarrhea and anal leakage in 21.05% (n=4) participants, while the duodenal switch group reported worsening bowel function with diarrhea and anal stool leakage in 47.36% (n=9) respondents. Additionally, more patients with duodenal switches (63.15%; n = 12) reported defecating during the day.

**Conclusions:** The medical option of choice for gaining control over growing weight, eating patterns, and physical health is bariatric surgery. Patients who are morbidly obese and decide to get bariatric surgery typically have low energy and low self-esteem. It is undervalued that patients have a greater degree of control over their food habits than does surgery. After surgery, eating control considerably improves for the first 12 months, but then starts to decline for the next 24 months as a result of eating control loss. Regardless of the surgical procedure, HRQoL improved considerably from baseline to recollection after 12 months and 24 months.

**Keywords:** Duodenal switch, gastric bypass, eating control, weight loss, patient perspective, and bariatric surgery

## INTRODUCTION

Being overweight or obese is one of the few issues concerning the world's vast population and its health, as it is the fifth largest cause of mortality. Every year, 2.8 million people die as a result of obesity. Adolescents (40 million) and adults (~1.4 billion) are both heavily impacted by obesity (BMI~ 30 kg/m<sup>2</sup>).<sup>1</sup> Obesity has detrimental effects on several organs. It is the cause of metabolic syndrome, sleep apnea, stigma, osteoarthritis (from increased fat mass), diabetes, cardiovascular diseases, cancer (from enlarged fat cells), and mood and anxiety issues. Additionally, obesity reduces life expectancy by many years in affected individuals.<sup>2, 3, and 4</sup>

Weight in kilograms divided by height in meters square (height = kilos/meter<sup>2</sup>) is the formula used to calculate obesity. The World Health Organization defines overweight as having a BMI of 25 kg/m<sup>2</sup>, obesity class I at 30 kg/m<sup>2</sup>, class II at 35 kg/m<sup>2</sup>, and class III at 40 kg/m<sup>2</sup>.

Treating obesity or preventing overweight is a very brave challenge for the provider as well as the patient because weight loss and maintenance are challenging goals regardless of the kind of treatment chosen.<sup>5</sup> The most widely used therapy approach, dieting, typically has the unintended effect. It is considerably more difficult to consistently sustain weight loss while dieting.

Furthermore, medication is not enough to produce the desired effects. However, losing even a small amount of weight can lower the risk of diabetes and cardiovascular disease.<sup>6</sup> As a result, surgery is recommended to provide positive, long-lasting effects.

Bariatric surgery is the only current treatment that is both successful and produces long-term benefits that can be sustained over an extended length of time. Bariatric surgery offers hope to those who suffer from morbid obesity.<sup>7</sup> The most clinically successful therapy for treating severe obesity paired with additional comorbidities is bariatric surgery along with nutrition management and behavioral modification.<sup>8,9</sup> Furthermore, there is a very low (0.3-0.35%) death rate and complication rate after bariatric surgery.<sup>10</sup> Cases with severe obesity and a BMI of 35 or higher are required to be enrolled as bariatric surgery candidates.

Individuals between the ages of 18 and 60 who have tried unsuccessfully to lose weight more than once via non-surgical treatment are also candidates for bariatric surgery. Additionally, the patients who were eager to comply were always picked. Patients with drug addiction or mental instability are not good candidates for bariatric surgery.<sup>7</sup> Prior to the bariatric surgery, participants follow a very low-calorie diet (VLCD). A very low-calorie diet is initiated in order to achieve the goals of the bariatric surgery, such as decreasing the size of the liver and decreasing abdominal fat.<sup>1</sup>

1. Because they involve less invasion, laparoscopic surgical techniques are preferred over conventional surgical approaches. Ninety percent of bariatric surgery cases are best served by laparoscopic procedures.<sup>12</sup> Gastric banding and gastric bypass, which are performed in 42.3% and 39.7% of cases, respectively, are the most often used laparoscopic procedures in bariatric surgery. After bariatric surgery, patients are often released in three days if everything goes according to plan. Vitamin D, B12, iron, and calcium citrate are among the nutritional supplements that are typically taken for the rest of one's life after surgery.<sup>13</sup>

Bodyweight loss is typically measured after bariatric surgery. Additionally, eating control is lost after bariatric surgery, which means that weight loss after surgery is rarely sustained over an extended period of time (5–30% of patients). Improvement following surgery is also dependent on related comorbidities.<sup>14</sup> These days Restoring function and well-being is the primary goal of bariatric surgery, in addition to enhancing physical health. Health-Related Quality of Life (HRQoL) is one of the most reliable metrics for this purpose. as comparing obese people to non-obese people, HRQoL is typically lower. It is also lower in the surgical group as compared to patients receiving conventional therapies. HRQoL employs the SF-36 survey and a generic questionnaire as its two main techniques of collecting data.<sup>15</sup>

Although bariatric surgery is frequently used to treat morbid obesity, little is known about patients' opinions of the procedure. In order to learn more about the patient's viewpoint on bariatric surgery, the current prospective clinical trial was conducted. The study's primary goals were to: examine the significance of bariatric surgery in treating morbid obesity; evaluate the process of change that bariatric surgery subjects underwent; evaluate gastrointestinal side effects; evaluate changes in quality of life and eating habits following a 24-month period of bariatric surgery (gastric bypass and duodenal switch); and assess the relationship between changes in eating behavior and endpoint results following bariatric surgery.

## MATERIALS AND METHODS

The current prospective clinical experiment was conducted to evaluate the different outcomes in morbidly obese people after bariatric surgery. For this clinical investigation, 40 male and female participants between the ages of 18 and 60 who had morbid obesity were screened. The 40 screened subjects were evaluated to see if they met the following inclusion requirements. Patients with terminal cancer, patients with end-stage renal illness, patients contraindicated for anesthesia or surgery, individuals with life-threatening diseases, and patients with any mental disorder or substance abuse were excluded from the study.

The anesthetist and neurosurgeon conducted a thorough evaluation prior to the procedure, and their consent was still required in order to register the patients.

Data was gathered through interviews in order to examine the significance and function of bariatric surgery in treating morbid obesity. Interviews were conducted with all 38 participants to find out about their eating habits, expectations for the procedure, and the reasons behind selecting bariatric surgery as a treatment option for obesity. Patients were encouraged to speak honestly in order to put them at ease with the interviewer. Once more, the interview method was used to evaluate the process of change that the participants undergoing bariatric surgery experienced. Questions about the rationale behind the bariatric procedure, the impact of the procedure on day-to-day functioning, and the post-surgery diet were asked prior to, during the 12-month mark, and 24 months post-surgery.

The questionnaire method was used to assess eating behaviors following bariatric surgery, obesity-related quality of life issues, and gastrointestinal side effects. To assess GI side effects, the Gastrointestinal Symptom Rating Scale (GSRS) was employed. The GI Symptom Rating Scale (GSRS) is a 15-item interview-based assessment that scores between 1 and 7.17 (Table 1). The Osterberg Bowel Function Questionnaire (Table 1) was used to measure bowel functions, and the three-factor Eating Questionnaire (TFEQ- R21), which has three eating domains, was used to measure eating behaviors. 18 Scale of issues associated to obesity Obesity was assessed using the OP-scale 19 (Table 1)

Before the surgery, a year after the surgery, and 24 months after the surgical procedure—for both the gastric bypass and duodenal switch groups—all research participants were asked to complete a questionnaire. Using the SF-36 Form, post-bariatric surgery endpoint findings were evaluated in terms of HRQoL to measure dietary modifications and their impact (Table 2). All the collected data were analyzed statistically.

## RESULTS

According to the results of this clinical investigation, the patient's ability to regulate their eating habits was the primary factor that most affected the end-point outcomes after bariatric surgery. Prior to bariatric surgery, the patient's questionnaire and interview revealed that, in their opinion, disordered eating patterns were the main factor contributing to their morbid obesity. The majority of the participants thought that eating was a time-consuming behavior that depleted energy. Few study participants cited the various causes of obesity that were previously discussed, such as inherited or environmental factors. The majority of people blamed their eating habits, personalities, and self for being obese.

Surgery was viewed as a last alternative following a number of fruitless attempts at medication therapy and dieting, with the goal of achieving a long-term reduction in weight and controlled eating patterns. It was determined that the patient's self-worth and determination would not allow her to achieve the intended weight loss objectives. When asked what they expected from bariatric surgery, all 38 study participants said they expected to have better personal and social lives, have better general health overall, and have less comorbidities connected to obesity.

The study participants' control over their eating was deemed to have improved at 12 months after the surgical assessment, with a change towards a healthy eating habit. This resulted in a significant decrease in pre-operative body weight, increased hope, and self-assurance in daily life. Additionally, study participants who lost weight had increased involvement in their personal and social lives. Prior to surgery, these participants had low self-esteem because of their decreased energy, larger bodies, and social shame. At the 12-month recall period, the limitations brought on by morbid obesity in a number of areas of life disappeared, and improvements were noted.

The study participants stated that they had adapted well to their personal normal after bariatric surgery at the 24-month recall. This contrasted with the patients' perception at the 12-month recall, when they continued to notice improvements. In the second year following bariatric surgery, the control over eating habits that had been instituted within the first year of the procedure began to wane. This narrowed their focus to the idea that maintaining weight loss following surgery requires self-motivation and control over bad eating. A small percentage of participants reported gaining weight in the second year, which was linked to a loss of control over behavior and eating habits. This weight gain had psychological effects and raised anxiety, which in turn contributed to more weight gain. The study participants worried that their weight gain might result in surgical failure and a decline in their mental state.

Although considered side effects, the patients who underwent bariatric surgery reported that the nausea, vomiting, and diarrhea they experienced following the procedure helped them maintain their weight. Subjects desired for these symptoms to continue aiding in weight loss after they had subsided by the second year following surgery. The majority of participants' post-surgery reliance on medical aid was a drawback. According to patient reports, the gastric bypass group showed less disruption of bowel function with diarrhea and anal leakage in 21.05% (n=4) participants, while the duodenal switch group reported worsening bowel function with diarrhea and anal stool leakage in 47.36% (n=9) respondents. Additionally, more patients with duodenal

switches (63.15%; n = 12) reported defecating during the day. The groups' physical and social statuses were similar. Both groups saw a considerable decrease in their calorie intake. There was no discernible psychological difference between the two study groups (DS and GBS).

Between the two groups, HRQoL as measured by the SF-36 form survey significantly improved from pre-surgery to the 12-month follow-up, and at the 24-month follow-up, there was still a notable improvement in quality of life (Table 5). When the intergroup comparison was performed with the threshold of significance maintained at 0.05, all of the SF form 36 parameters were statistically non-significant for the whole time period. After 24 months, there had been a notable decrease in weight, with both the duodenal surgery and the gastric bypass bariatric surgery showing excellent BMI reductions. At 24 months after surgery, the BMI reduction for the group undergoing duodenal surgery was  $68.76\% \pm 14.8$ , and for the group undergoing gastric bypass, it was  $70.24\% \pm 14.24$ .

## DISCUSSION

The current clinical study set out to explore the significance of bariatric surgery in treating morbid obesity, to evaluate the process of change that the patients underwent, to evaluate the effects of the procedure on their quality of life, eating habits, and gastrointestinal side effects after 24 months of bariatric surgery (gastric bypass and duodenal switch), and to assess how these changes affected endpoint results after the procedure. According to the results of this clinical investigation, the patient's ability to regulate their eating habits was the primary factor that most affected the end-point outcomes after bariatric surgery.

This was in line with the study by Charmaz, where the author claimed that knowing a patient's mindset prior to bariatric surgery can have a positive impact on the outcomes as this does not impose the operator's understanding on the patient. The current study assessed the findings using questionnaire-based responses.

Because bariatric surgery reduces food intake, the current study demonstrates that it has a positive effect on weight loss in cases of severe obesity. Though the exact mechanism is still unknown, this can be linked to physical restriction, changes in hormone control, and malabsorption. These results came after studies by Le Roux CW and Korenkoy M et al, whose authors concluded that gastric bypass and gastric bending bariatric operations result in a considerable reduction in weight.

The current study also indicates that a significant determinant of the success of bariatric surgery is the patient's ability to regulate their eating habits. From the perspective of the research participants, surgery was seen as a substitute for self-control. But this can have unfavorable long-term effects because willpower is required to sustain the gains made as physical replacement wanes. These results have been supported by a study conducted in 2012 by Da Silva et al., which found that individuals found it challenging to regulate and control their eating patterns due to the accessible availability of food. The results were validated by Knutsen et al. in a follow-up research conducted in 2013. These Knutsen et al. findings were consistent with the current investigation, which found that subjects who received positive psychology experienced rapid weight loss a year following bariatric surgery. Subjects undergone gastric bypass and duodenal switch experienced anxiety about increasing weight after two years without diet management.

According to the study, there was poor psychological and physiological control over eating before the surgery, but at the one-year follow-up, this control had much improved; nevertheless, by the second year, it had begun to wane. The new intestinal restriction and their self-control are to blame for the shift in eating habits following surgery. Eating preferences changed to a healthier range. This was consistent with the results of Colles SL et al., who verified the change in eating patterns after bariatric surgery toward healthier ones.

Emotional eating improved from baseline to 12 months and slightly declined from 12 to 24 months, according to the TFEQ-R21 assessment. These findings were consistent with a research by Laenius et al. that found no differences in the pattern of emotional eating and that both gastric bypass and duodenal switch procedures improved patient outcomes.

Patients frequently undervalue their ability to lose weight and heavily rely on surgery. Twelve to twenty-four months following surgery, expectations are not met due to this reliance on surgery. Therefore, efficacy and self-belief significantly lessen the adverse effects of surgery. The study by Karlsson et al, which found that positive participants lost more weight following surgery, was further evidence of this. The study results were influenced by the perception of obese women.

The study respondents' HRQoL was impacted by their lack of control over their eating. At the end of the 24-month recall period, patients with poor eating control had a lower HRQoL than those with better control over their eating habits. Every SF-36 form parameter did not differ significantly between the duodenal switch and gastric bypass groups. HRQoL improved gradually after surgery. Soyik TT et al. and Kolotkin KL et al. who noted improvements in HRQoL following bariatric surgery, cited similar outcomes.

## CONCLUSIONS

The study concluded that bariatric surgery is the therapeutic choice for attaining control over the weight gain, eating habits, and physical health. Morbidly obese patients who chose to undergo bariatric surgery usually suffer low self-esteem and low energy. The patient's role to control eating habits is underestimated and more reliability lies in the surgery. The eating control improves significantly after 12 months of surgery but tends to deteriorate from 12 months to 24 months due to loss in eating control. Bowel functions post-surgery were poorer in duodenal switch patients compared to the gastric bypass group. HRQoL improved significantly from baseline to 12 months and 24 months recall irrespective of surgical technique. This improvement was attributed to better control sense over the eating habit leading to weight loss and improved overall health. The long time clinical prospective studies on the self-efficacy of subjects and its result on long-term outcomes should be evaluated in the future.

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	Measurement domains
The Gastrointestinal Symptom Rating Scale	Diarrhoea Indigestion Constipation Abdominal pain Reflux
Bowel function questionnaire	Frequency and consistency of stool Awareness of stool Discrimination between stool and gas Deferring time Involuntary leakage of gas Anal leakage of stool Use of pads Physical and social effects of bowel function Medications
Three-Factor Eating Questionnaire-R21	Uncontrolled eating Emotional eating Cognitive restraint eating
4-day Food Record	Total calorie intake Fat Protein Carbohydrate
Obesity-related Problem scale	Effect of obesity on psychosocial function

**Table 1: Assessment Tools for obesity**

Name	Domains
The Short-Form 36 Health Survey	Physical Function Role-Physical Bodily Pain General Health Vitality Social Function Role-Emotional Mental-Health

**Table 2: SF-36 Domains.**

Parameters of SF-36	Pre-Surgery			12 months post-surgery			24 months post-surgery		
	Duodenal Surgery	Gastric Bypass	p-value	Duodenal Surgery	Gastric Bypass	p-value	Duodenal Surgery	Gastric Bypass	p-value
	Mean± S.D			Mean± S.D			Mean± S.D		
<b>Physical Function</b>	50.6 ±23.4	53.6 ±17.8	0.6591	78.4 ±16.4	81.7 ±13.3	0.5001	90.8 ±8.2	88.2 ±16.6	0.5443
<b>Role - Physical</b>	53.4 ±32.4	49.6 ±34.8	0.7296	81.7 ±24.4	82.2 ±25.7	0.9513	88.7 ±23.8	82.4 ±30.2	0.4797
<b>Bodily Pain</b>	42.8 ±24.4	46.8 ±28.6	0.6456	71.6 ±28.4	62.8 ±24.1	0.3100	74.9 ±28.8	72.7 ±29.3	0.8168
<b>General Health</b>	46.6 ±18.4	44.7 ±19.8	0.7611	78.2 ±19.7	73.2 ±18.2	0.4218	82.6 ±19.2	84.4 ±26.3	0.8110
<b>Vitality</b>	36.6 ±20.2	32.6 ±20.8	0.5514	59.7 ±24.6	53.8 ±22.4	0.4446	67.4 ±24.8	66.6 ±19.8	0.9131
<b>Social Function</b>	52.4 ±33.7	63.3 ±23.6	0.2558	88.4 ±14.5	89.2 ±18.4	0.8825	88.8 ±22.1	79.7 ±24.8	0.2402
<b>Role - Emotional</b>	72.2 ±36.6	68.8 ±33.2	0.7660	90.4 ±18.7	84.5 ±29.9	0.4706	89.4 ±18.9	83.7 ±33.6	0.5233
<b>Mental Health</b>	64.2 ±18.8	61.3 ±23.7	0.6785	82.4 ±12.2	86.1 ±19.7	0.4909	75.8 ±18.3	74.5 ±21.2	0.8408

**Table 5: Health-Related Quality of Life of study subjects at baseline, 12 months and 24 months**