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### Assessing quality of life and gastro-intestinal problems in post bariatric surgery subjects post 1-month of surgery.

**Dr Kinjal Trivedi\***; **Dr Madhvan Iyengar<sup>2</sup>**; **Mr. Prem Shah<sup>3</sup>**; **Dr Urvashi Kapadia<sup>4</sup>**;

Department of physiotherapy, Parul university, post limda, Waghodia, Gujarat 392760;

Head of the department, Department of General Surgery, Parul university, post limda, Waghodia, Gujarat 392760;

Associate professor, Physiotherapy department, Vikas College of Physiotherapy, Mangalore, Karnataka.

Assistant professor, Department of physiology, Smt Nhl mmc, Ahmedabad, Gujarat 380006;

Address: Dr Kinjal Trivedi (PT)

C-502 Rajeshree Arcade, Jodhpur cross road-jodhpur gam road, Satellite, Ahmedabad – 380015, Gujarat, India

E-mail: [kinjaltrivedi21@gmail.com](mailto:kinjaltrivedi21@gmail.com)

#### Abstract

Bariatric surgery is an indication for obese individuals who find it difficult to lose weight even after trying for years for weight loss with different strategies. Post bariatric surgery (PBS) promises sustainable weight loss but also it comes with its complications. In present study complications of bariatric surgery are recorded.

Method: 120 subjects undergoing bariatric surgery were observed for quality of life (QOL) and gut problems pre- and post-1 month surgery.

Result: results show significant decrease in the GSRs score ( $p < 0.001$ ) while increase in the BDI-II ( $p < 0.001$ ) score contributing to reduce quality of life pre- and post-surgery.

Conclusion: Quality of life and gastro-intestinal problems decreases in subjects undergone bariatric surgery in post- 1 month of surgery.

**Key words:** Depression, bariatric surgery, metabolic surgery, gastro-intestinal problems, obesity, quality of life.

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## Introduction

Obesity is one of the morbid risk factors. Obese and overweight individuals are at higher risk of suffering from other morbid diseases such as hypertension, diabetes mellitus, hypothyroidism and many other metabolic/non-metabolic illnesses (Adil et al., 2019). Gastro-intestinal problems are the commonest amongst obese individuals. The symptoms experienced by obese individual are similar to those experienced by individuals with gut issues such as, diarrhea, constipation, irregular bowel movements, sudden urge to defecate, regurgitation, acid reflux, irregular stool consistency, belching and borborygmus (Thorsen et al., 2021). These problems are faced due to excess adiposity in abdominal region (Glück et al., 2019; Lee et al., 2015). Also, it hampers with normal physiology of the body, dysregulates homeostasis and causes inconsistency in sympathetic and parasympathetic activity (Lopes et al., 2022). The constant inflammation in the gastro-intestinal tract further makes it difficult for an individual to return to normal homeostasis (Costa et al., 2019). When these gastric problems interfere with an individual's routine life its further affects QOL and mental well-being, when individual seeks for permanent solution to these problems, bariatric surgery comes up as well-planned, logical alternative (Boerlage et al., 2019).

Bariatric surgery is so far best alternative for individuals who are tired with non-sustainable weight loss options. As the surgery promises to reverse all or most of the problems faced by the obese individual, it really does provide improvement in morbid diseases such as hypertension and diabetes mellitus (McGrice & Don Paul, 2015). Although, weight recidivism is another problem faced by post-bariatric surgery individuals, it does provide relief in morbid diseases for as short span as 3 years and in long-term for 15 years (McGrice & Don Paul, 2015; Santos et al., 2022). Post bariatric surgery results vary from individual to individual but majorly all the candidates of surgery experiences near identical symptoms in post-surgical phase.

Obese individuals not only encounter with physical and physiological problems but they also face mental health problems, in the form of body image issues, eating disorders, depression, anxiety and suicidal tendencies (Simon et al., 2008; Smith et al., 2020). Wide-range of mental health problems are prevalent in obese individuals, some of which are also result of poor gut health (Smith et al., 2020). Post bariatric surgery these problems may or may not get addressed (Alyahya & Alnujaidi, 2022; Fu et al., 2022). Thus, this study sought to address mental health of the obese individual undergone bariatric surgery.

The post-surgical period is an important phase as it decides the success rate of bariatric surgery. The mental stability and physical ability are important parts of this phase. Thus, study is conducted post- 1 month of the surgery and comparison is made with pre-operative state of the individual.

## Materials and Methodology

In this prospective observational study, cohort of 120 subjects were included for the study. The data was obtained from single study center Hope obesity and multispecialty hospital located in Ahmedabad, Gujarat for 6 months. Inclusion criteria were both gender individuals undergoing bariatric surgery in age group of 18-60 years having BMI  $\geq 30$  and willing to participate. Exclusion criteria were limited but individuals with severe psychological disorders such as drug abuse, attempted suicide, self-induced vomiting (untreated eating disorder), past history of any neurological illness and comprehension disability were excluded. Informed consent was taken form all participants and their care-givers.

### Main Outcome variables

#### Beck's depression inventory (BDI-II)

Beck's depression inventory is self-report questionnaire widely used in different clinical/hospital settings. It has 21 items and ranked on scale of 0-3 for severity, with minimum score 0 and maximum score 63. It takes 5-10 minutes to complete. In those diagnosed with depression, scores of 0-13 indicates minimal depression, 14-19 indicates mild depression, 20-28 indicates moderate depression and 29-63 indicates severe depression. Content validity of the BDI-II has improved following item replacements and rewording to reflect DSM-IV criteria for major depressive disorders. Mean correlation coefficients of 0.72 and 0.60 have been found between clinical ratings of depression and the BDI for psychiatric and non-psychiatric populations. Construct validity is high for the medical symptoms measured by the questionnaire,  $\alpha = 0.92$  for psychiatric outpatients and 0.93 for college students. High concurrent validities have been demonstrated between the questionnaire and other measures of depression such as the Minnesota Multiphasic Personality Inventory-D,  $r = 0.77$ (Jackson-Koku, 2016). Criterion validity of the BDI-II is positively correlated with the Hamilton Depression Rating Scale ( $r = 0.71$ ) with a high 1 week test-retest reliability  $r = 0.93$  (suggesting robustness against daily variations in mood) and an internal consistency of  $\alpha = 91$ (Jackson-Koku, 2016)

#### Gastro-intestinal symptom rating scale (GSRS)

GSRs is a validated questionnaire consisting of 15 gastrointestinal symptom items, scored on a 7-point Likert scale (1= no discomfort and 7= severe discomfort) combined into the following clusters: abdominal pain, reflux, diarrhoea, constipation, and indigestion (Revicki et al., 1997). A cluster score was calculated only when all items in the cluster were answered. The means of the total score and of the scores for each symptom cluster are presented. GSRs has also been used in previous studies of bariatric surgery. The GSRs has good reliability and construct validity and the GSRs scales discriminate by GERD symptom severity and are responsive to treatment. The GSRs is a useful patient-rated symptom scale for evaluating the outcomes of treatment for GERD. The internal consistency reliabilities for the GSRs scales ranged from 0.61 to 0.83 and the intraclass correlation coefficients ranged from 0.42 to 0.60 (Kulich et al., 2008).

### Procedure

The participants were assessed at the baseline pre-surgery and 1-month post-surgery during their follow up period. All the participants were informed about the questionnaires and assistance was provided wherever required.

## Results and Discussion

### Statistical analysis

In this observational study, statistical analysis was done to compare pre and post outcomes of BDI and GSRs. The statistical package SPSS 22.0 was used to analyze the data. The Kolmogorov-Smirnov (KS) test was used to test normality of the data. Paired t-test was used to conduct within group analysis amongst cohort participants and compare them at two different instances which is prior to surgery and post-surgically. Significant difference was considered when  $p < 0.05$ . The data are presented as mean (SD). Baseline characteristics of participants shown in table 1 and results of the study in table 2.

Present study was conducted to know quality of life of subjects undergoing bariatric surgery post 1-month of the surgery. The study results showed decrease score in GSRs post surgically while increased score on BDI-II scale suggesting subject's gastric discomforts related to obesity are decreased after minimum weight loss post 1-month. While subjects had increased score on depression inventory. Although the GSRs score is reduced but detailed analysis of it as shown in table 3, reveals changes in symptoms of regurgitation which is a common symptom after bariatric (Elias et al., 2018). Complaints of diarrhea, constipation, flatulence decreases on the other hand complaints of regurgitation, nausea and heart burn increases which lies in a

subset of scale which has lesser score; thus, it justifies decreased GRS score (Ballem et al., 2009).

BDI-II scale has questions about excess recent weight loss. This question is for a depressed individual as depression leads to eating disorders suggesting changes in weight of an individual but in the present scenario, the significant weight loss is caused by bariatric surgery which leads to increase in severity score. Also, another reason for increased score on this inventory is for questions about fluctuating moods, sex life and overall feel-good factor which are affected because of surgery (Carabotti & Severi, 2017). The subject's physiological system is still adapting the new change brought about by surgery. The restrictive surgery has decreased the size of the stomach and the food volume which it can accommodate, which leads to symptoms of regurgitation and nausea (Søvik et al., 2013). Also, the overall well-being of the individuals gets disturbed leading to thoughts pertaining to life expectancy, death-related thoughts, thoughts about surgery going unsuccessful and thoughts regarding whether they are losing any weight after surgery or not? (Järholm et al., 2021; Martens et al., 2021) This leads to negative performance in BDI-II.

At the end of study when subjects were asked to share their experience post-1 month of the surgery, it was almost similar with all of them. All the subjects receiving counselling pre-surgery were only partially aware about what to expect post-surgery and furthermore they were more excited about long-term effect of surgery rather than seeking information on post-immediate surgery effects.

Conclusion: Individuals undergoing bariatric surgery should be educated with present information and also the concerned rehab team should have this knowledge and treat patients accordingly for at least first month of surgery.

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