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ORIGINAL ARTICLE

Assessment of Quality of Life in Morbidly Obese Patients after the Bariatric Surgery

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ABSTRACT

Objective: The global obesity epidemic presents a significant health challenge, particularly morbid obesity, which severely impacts individuals' quality of life (QoL). Bariatric surgery has emerged as a vital intervention for weight loss and improvement in comorbidities, yet its impact on QoL, especially in regions like South Asia, remains understudied.

Methods: This cross-sectional study assessed the QoL of morbidly obese patients in Pakistan post-bariatric surgery, contextualizing it within global and regional obesity scenarios. Ninety-five patients who underwent mini gastric bypass surgery and sleeve gastrectomy were evaluated using validated QoL measures, including the Bariatric Analysis and Reporting Outcome System (BAROS), Modified-A Quality of Life Questionnaire II (M-A-QoLQII), and SF-36 survey. Logistic regression analyses were conducted to identify predictors of post-surgery QoL outcomes.

Results: Significant improvements in QoL were observed post-surgery, with reductions in BMI and comorbid conditions. Logistic regression analyses identified age ($p < 0.05$), initial BMI ($p < 0.05$), and excess weight loss ($p < 0.05$) as predictors of better QoL outcomes. Despite limitations such as the single-center design and self-reported measures, the study underscores the positive impact of bariatric surgery on QoL in severely obese individuals.

Practical Implication: The study highlights the importance of bariatric surgery in improving quality of life for severely obese individuals, with age, initial BMI, and weight loss predictors influencing outcomes. It supports its use for reducing BMI and comorbid conditions.

Conclusion: This research contributes to understanding obesity management in Pakistan and advocates for broader access to bariatric procedures, emphasizing the importance of addressing obesity as a global health priority. Further research is warranted to explore long-term QoL outcomes and disparities in surgical access and outcomes across diverse populations.

Keywords: Quality of life, bariatric surgery, gastric bypass, morbid obesity, sleeve gastrectomy.

INTRODUCTION

The burgeoning epidemic of obesity is a global health crisis, with morbid obesity being one of its most severe manifestations. This condition not only predisposes individuals to a plethora of chronic diseases but also significantly impairs their quality of life. Bariatric surgery has emerged as a critical intervention for morbid obesity, offering substantial weight loss and improvement in obesity-related comorbidities. Beyond these physical health benefits, the surgery's impact on the quality of life (QoL) is profound, affecting psychological, social, and functional aspects of individuals' lives. This research study aims to assess the quality of life in morbidly obese patients in Pakistan following bariatric surgery, situating the local context within the broader global and regional scenarios.[1-5]

Globally, the prevalence of obesity has nearly tripled since 1975, making it a leading risk factor for mortality and morbidity. Bariatric surgery has been recognized for its effectiveness in managing obesity and improving patients' quality of life worldwide. However, the outcomes and accessibility of such interventions vary significantly across different regions due to disparities in healthcare systems, economic factors, and cultural perceptions of obesity.[1-8]

In the regional context of South Asia, and particularly in Pakistan, the obesity epidemic mirrors global trends but is compounded by unique socio-economic and cultural challenges. The region faces a dual burden of malnutrition and rising obesity rates, with rapid urbanization, changes in lifestyle, and dietary habits contributing to the obesity surge. Despite the growing need, access to and the uptake of bariatric surgery are limited, influenced by lack of awareness, availability of specialized care, and economic constraints.[9-10]

Within Pakistan, morbid obesity is an escalating concern, with a notable lack of comprehensive studies on the impact of bariatric surgery on patients' quality of life. The societal stigma attached to obesity, coupled with a nascent bariatric surgery framework, poses significant challenges to addressing this health issue effectively. This study seeks to fill the gap in knowledge by evaluating the outcomes of bariatric surgery on the quality of life of morbidly obese patients in Pakistan. It will explore the physical, psychological, and social dimensions of QoL post-surgery, providing insights into the effectiveness of such interventions in the local context.[11-13]

By situating the local scenario within the global and regional contexts, this study aims to highlight the specific challenges and opportunities in managing morbid obesity in Pakistan. It endeavors to contribute to the global discourse on obesity management, advocating for tailored interventions that consider the unique cultural, economic, and healthcare landscape of Pakistan. Through this research, we aim to underscore the importance of a holistic approach to obesity treatment, one that encompasses not only the physical but also the overall quality of life of the individuals affected.

METHODS

This cross-sectional study was conducted at the Obesity and Bariatric Surgery Outpatient Department at Jinnah Post Graduate Medical Centre, Karachi, which is renowned for their specialized care in obesity treatment in Pakistan. The study received ethical approval from the respective institution's ethics committee, ensuring adherence to the highest ethical standards.

The study targeted individuals with a Body Mass Index (BMI) of 40 kg/m² or above who had undergone sleeve gastrectomy or mini gastric bypass surgery using the Roux-en-Y method, also known as the Fobi-Capella technique, between 2017 and 2023. This period allowed for a comprehensive review of patients at least one year post-operation, providing a broad overview of the post-surgical outcomes on patients' quality of life (QoL).

From a pool of 95 patients who received the surgery within this timeframe, known as the "post-surgery group," 64 consented to participate after providing informed consent. The study also

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included a "pre-surgery group" of 31 patients from the surgery clinics' waiting lists, who were provided with multidisciplinary care involving a psychologist, nutritionist, and endocrinologist both before and after the surgery.

Quality of life changes were meticulously assessed using the Bariatric Analysis and Reporting Outcome System (BAROS) and the Modified-A Quality of Life Questionnaire II (M-A-QoLQII), which evaluated various dimensions of life, including self-esteem, physical activity, social life, work, and eating habits. These measures offer a nuanced understanding of the post-surgical QoL improvements.

Additionally, the SF-36 survey was employed to gauge eight health dimensions, addressing both physical and mental health aspects. Given literacy concerns, the survey was administered by a single examiner to ensure consistency and accuracy.[13-20]

Data collection spanned from July 2017 to October 2023, reflecting a period during which the demographic, social, and clinical characteristics of the patient population remained stable. The study also delved into medical records to document comorbidities, complications, and additional surgeries, providing a holistic view of the health outcomes post-bariatric surgery. This study draws on the expertise and facilities of the hospital of which are pivotal in addressing the obesity epidemic in Pakistan through advanced bariatric procedures and comprehensive care.

The study was conducted following approved by the Institutional Review Board (IRB) of our institution. Informed consent was obtained from all participants. Data was securely stored and managed to protect participant confidentiality. Identifiable information was separated from the main dataset and stored in a secure, password-protected database with access limited to authorized personnel only.

Statistical Analysis:

The analysis was presented using average values and variations. The difference in Quality of Life (QoL) scores before and after surgery was examined using the unpaired Student's t-test, and differences in occurrence rates were assessed with the chi-square test. To evaluate the relationship among the domains of the QoL assessments (M-A-QoLQII and SF-36), Pearson's correlation coefficient was utilized. Logistic regression analyses were conducted to discover the independent determinants of superior QoL following surgery across each SF-36 domain. These analyses considered various independent variables including demographic and clinical factors such as age, gender, pre-operative BMI, and prior co morbidities like hypertension, type 2 diabetes, dyslipidemia, sleep apnea, and joint issues.

RESULTS

The descriptive analysis of the dataset reveals insightful statistics about patients undergoing bariatric surgery. The study includes a total of 95 participants, with a mean age of 41.13 years, showcasing a broad age range from 18 to 65 years. The participants' Body Mass Index (BMI) prior to surgery averaged at 50.11, indicating a severe obesity level among the cohort. Post-surgery, a significant reduction in BMI was observed, with the mean BMI dropping to 32.68. This change highlights the effectiveness of the surgery in reducing obesity levels among participants. Additionally, the average number of comorbid conditions decreased from 2.14 before surgery to 1.13 after, further indicating the positive health outcomes of the procedure. The Quality of Life (QoL) scores saw a noteworthy improvement, increasing from an average of 2.03 before surgery to 4.13 after, alongside an average excess weight loss (EWL) percentage of 61.73%, underscoring the surgery's success in enhancing patients' well-being and health.

Of the participants, 64 were categorized under the post-surgery group, making up 67.37% of the total, while the remaining 31 participants, accounting for 32.63%, were awaiting surgery (pre-surgery group). This distribution showcases a predominant focus on individuals who have already undergone the surgical procedure, aiming to evaluate the surgery's immediate and tangible impacts on patients' health metrics and quality of life.

Regarding gender distribution, the study maintained a relatively balanced composition, with males slightly outnumbering females. Specifically, 50 participants were male (52.63%), and 45 were female (47.37%). This near-equal representation ensures that the study's findings and implications can be considered broadly applicable across genders, providing a comprehensive understanding of the bariatric surgery's outcomes on a diverse patient population. The dataset's detailed analysis not only emphasizes the surgery's positive outcomes on physical health metrics like BMI and comorbid conditions but also highlights its significant impact on improving patients' overall quality of life.

In terms of predictive factors for QoL improvements post-bariatric surgery, logistic regression analyses identified age, initial BMI, and the degree of excess weight loss as key independent variables associated with better QoL outcomes, specifically within the functional capacity domain as measured by the SF-36. Other domains did not show significant predictive variables, underscoring the complexity of factors influencing QoL post-surgery.

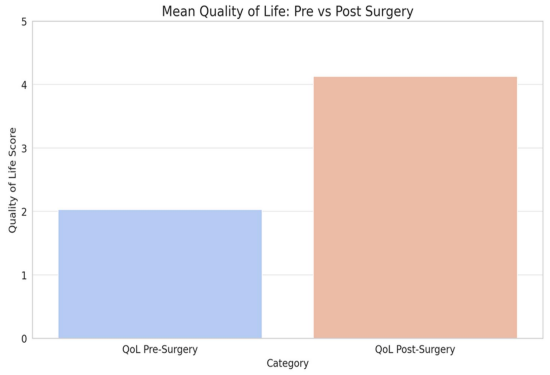

Figure 1: Distribution of Mean Quality of Life Pre and Post Surgery.

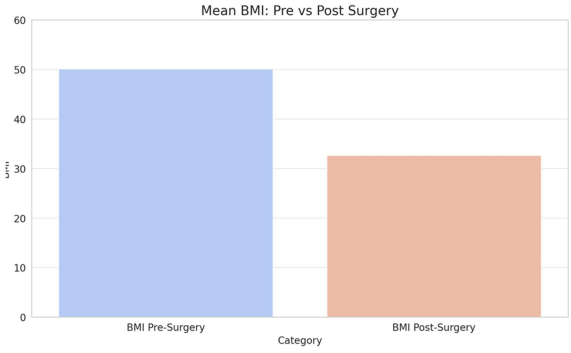

Figure 2: Distribution of Mean BMI Pre and Post Surgery.

Table 1: Distribution of Characteristics of the sample population.

Variable	Count	Mean	Std Dev	Min	25%	Median	75%	Max
Age	95	41.13	13.56	18.00	29.00	41.00	51.50	65.00
BMI_Pre	95	50.11	5.77	40.03	44.76	50.80	54.28	59.94
BMI_Post	64	32.68	1.57	30.07	31.26	33.16	34.04	34.91
QoL_Pre	95	2.03	0.57	1.04	1.53	2.14	2.45	2.99
QoL_Post	64	4.13	0.60	3.03	3.63	4.15	4.64	4.99

DISCUSSION

This study confirms the significant positive impact of bariatric surgery on Quality of Life (QoL) and the reduction of comorbidities in severely obese patients within Pakistan's healthcare system. It echoes other research that observed decreases in diabetes, hypertension, dyslipidemia, joint issues, and sleep disorders post-operation. A notable study highlighted that 80% of related diseases either improved significantly or were fully resolved three years following bariatric surgery. Similar improvements in health conditions, including better management of diabetes and hypertension, reduced lipid abnormalities, and the resolution of sleep apnea, were documented.

Post-surgery, all areas of the SF-36 QoL assessment improved, aligning with or surpassing norms seen in the general population. This aligns with previous studies that also reported significant enhancements across all eight domains of the SF-36 following bariatric surgery.

The quality of life of severely obese patients after bariatric surgery has been the subject of several studies investigating the physical and psychological outcomes of such interventions. Bariatric surgery has been found to have a significant positive influence on quality of life in general, with resolution of specific health conditions associated with obesity. However, the impact on different aspects of quality of life, cost-effectiveness, and the long-term effectiveness of the surgery require further investigation.

Escobar-Morreale et al. [21] found that after bariatric surgery, there was resolution of polycystic ovary syndrome (PCOS) in 96% of affected women and resolution of male obesity-associated secondary hypogonadism (MOSH) in 87% of affected men. This indicates that bariatric surgery not only leads to weight loss but also results in the resolution of obesity-associated health conditions, which can have a significant impact on the quality of life of severely obese patients.

In a study by O'Brien et al. [22], gastric banding was compared with lifestyle intervention among obese adolescent participants. The study found that the use of gastric banding resulted in a greater percentage of participants achieving a loss of 50% of excess weight, with associated benefits to health and quality of life. This suggests that gastric banding may be an effective intervention for severely obese adolescents, leading to improvements in their quality of life.

The impact of bariatric surgery on quality-adjusted life years (QALYs) and cost-effectiveness was also investigated by Rustemeyer and Gregersen [23]. The study found that bariatric surgery increased QALYs and had cost-effectiveness ratios for severely obese patients with newly diagnosed and established diabetes. This suggests that bariatric surgery may not only improve quality of life but also be a cost-effective intervention for severely obese patients with associated health conditions.

Despite the positive findings, there are still knowledge gaps that need to be addressed through future research. For example, the long-term effectiveness of bariatric surgery on the quality of life of severely obese patients needs to be investigated. Additionally, further research is needed to explore the psychological and emotional outcomes of bariatric surgery, as well as the potential disparities in quality of life outcomes based on demographic and socioeconomic factors. Conducting longitudinal studies and randomized clinical trials can provide valuable insights into the long-term impact of bariatric surgery on the quality of life of severely obese patients.[24-27]

Identifying predictors of QoL post-surgery, such as age, BMI, and the extent of weight loss, highlights the complex interplay of factors influencing patient outcomes, with no single factor serving as a universal predictor.

Limitations:

The study's design, which did not involve the same individuals in pre- and post-surgery groups, poses challenges in directly comparing clinical characteristics and QoL changes over time. While efforts were made to ensure similarity in pre-existing conditions between the groups, the absence of longitudinal data for individual patients may limit the robustness of the findings. Assessment of Social Aspects: Despite comprehensive measures of QoL, including the M-A-QoLQII and SF-36 surveys, the study acknowledges challenges in assessing social dimensions of life, such as social interactions and relationships. Factors like severe depressive symptoms, anxiety, and body image issues, prevalent in the study sample, may influence social aspects of QoL and warrant further exploration. The study's reliance on data from a single specialized bariatric surgery outpatient department in Pakistan may limit the generalizability of its findings to broader populations. Variations in healthcare access, socioeconomic status, and cultural factors across different regions within Pakistan could impact the applicability of the study's results beyond the specific setting. While the study employed validated measures like BAROS and SF-36, the interpretation of QoL outcomes may be influenced by cultural nuances and individual perceptions. Additionally, the study acknowledges limitations in certain statistical analyses and emphasizes the need for cautious interpretation of results in light of these methodological considerations.[28-32]

CONCLUSION

Bariatric surgery represents a crucial intervention for severely obese individuals, offering substantial benefits in terms of QoL and health improvements. This study advocates for broader availability of bariatric procedures in public healthcare settings, emphasizing the role of surgery in combating severe obesity and its associated health issues on a global scale.

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