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Outcomes of Partnered Individuals Undergoing Bariatric Surgery Together: A Single Institution Case Series

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Abstract

There exists marked variation in weight loss among the 200,000 annual bariatric patients, and many of these patients struggle with weight regain. Several studies have suggested that positive social support may significantly impact bariatric surgery outcomes, leading to more excess weight loss and maintenance of this weight loss through appropriate lifestyle changes. We sought to understand this by assessing clinical and behavioral outcomes among married couples whereby both spouses underwent bariatric surgery at our institution. In our case series, we found evidence that married couples meet or exceed postoperative weight loss milestones at 12, 18, and 24 months and did not show signs of weight regain as a group at 18 or 24 months. Among partners who underwent the same clinical pathway at our single institution, women tended to lose more weight than men at 12 months. Additionally, while there was significant variation in postoperative follow-up among patients, we found that partners within couples typically exhibited the same behavior with respect to postoperative visits when they had their surgeries within a year of each other. This

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Drafting of the manuscript: Mehta.

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Administrative, technical, or material support: Magnuson and Nasatka.

Study supervision: Nguyen and Hutfless.

Compliance with Ethical Standards

Conflict of Interest Author 1 received a medical student summer research award from the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) for this study. All other authors have no disclosures or conflicts of interest.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors. For this retrospective study, formal consent is not required.

Informed Consent Does not apply.

case series suggests that partnered patients undergoing bariatric surgery can meet or exceed weight loss outcomes and may practice similar follow-up adherence.

Keywords

Bariatricsurgery; Married; Couples; Outcomes; Weight loss

Introduction

More than 20 million people in the US meet body mass index (BMI) criteria for morbid obesity [1]. A highly effective intervention, bariatric surgery is indicated for patients with a BMI ≥ 40 kg/m² or patients with a BMI ≥ 35 kg/m² who have at least one obesity-related comorbidity [2]. Depending on the surgical technique, patients are expected to lose more than 50% of their excess weight within 1 year [2]. However, among the 200,000 annual bariatric patients, there exists marked variation in weight loss, and many of these patients struggle with weight regain [2, 3].

Several studies have suggested that positive social support may significantly impact bariatric surgery outcomes, leading to more excess weight loss and maintenance of this weight loss through appropriate lifestyle changes [4]. Furthermore, individuals with in social support environments are more likely to adhere to postoperative clinic visits, which have been associated with favorable bariatric surgery outcomes [5]. Most of these studies, however, have evaluated the impact of social support within the context of hospital-organized support groups or a patient's familial relationships. Few studies have assessed outcomes when bariatric patients receive support from someone who has recently or concurrently undergone bariatric surgery [6, 7].

We sought to assess clinical and behavioral outcomes among married couples whereby both spouses underwent bariatric surgery at our institution, where the clinical pathway and surgical technique are standardized among the surgeons. These couples can represent partnered patients who likely have similar social support environments. Studied outcomes included weight loss over time, by gender and partner order of surgery, as well as patterns of postoperative follow-up visits. We hypothesize that married couples would show concordant outcomes, where both spouses exhibit similar weight loss characteristics and postoperative patterns of behavior.

Methods

The Johns Hopkins Institutional Review Board approved this study.

Study Population

In this retrospective case series, we utilized the prospectively maintained Johns Hopkins Center for Bariatric Surgery institutional database to identify married couples where both partners underwent bariatric surgery from 2001 to 2015. As the database contained more than 4000 patients, we used matching patient last names to narrow the dataset to potential married couples. We then defined couples as two patients who both had the same last name

and listed each other as their *spouse* in their respective medical records at the time of the procedure.

Patient Characteristics and Postoperative Visits

We obtained the following demographic and operative information: race, age, height, preoperative weight, bariatric procedure (i.e., Roux-en-Y gastric bypass [RYGB], vertical sleeve gastrectomy [VSG]), surgical approach (laparoscopic, open), and date of surgery. Patient order refers to the order in which partners of every couple underwent bariatric surgery (first or second).

We recorded patient weight during each postoperative clinic visit up to 3 years after surgery. To capture follow-up postoperative visits specifically related to the bariatric surgery, we excluded visits for other procedures. We defined visits using the following windows: 3 months (30 to 120 days), 6 months (121 to 240 days), 12 months (241 to 420 days), 18 months (421 to 600 days), and 24 months (601 to 840 days).

Data Analysis

We used chi-squared tests to assess differences in both patient demographics and surgical characteristics by gender. Next, we determined excess weight loss (EWL) during the five postoperative visits for all patients. We calculated EWL by dividing the difference between the patient's weight at the postoperative visit and ideal weight by the difference between the patient's preoperative weight and ideal weight. *The Hamwi method* determined each patient's ideal weight (males: 106 lbs. for the first 60 in. + 6 lbs. for each additional inch; females: 100 lbs. for the first 60 in. + 5 lbs. for each additional inch).

Next, we assessed gender differences in EWL at the 1-year postoperative visit using Student's two-sided t tests only among couples where both partners underwent the same type of surgery. Finally, we examined whether the time between surgeries affected the couples' postoperative visits within 3 years of bariatric surgery. All analysis and tabulations occurred in STATA 13.1 (StataCorp, College Station, TX).

Results

Among the 35 identified couples, patients on average age were 44 years old, female (50%), white (87%), had a BMI of 49 (range 35–70), underwent Roux-en-Y gastric bypass (79%) and obtained a laparoscopic procedure (77%). One third (33%) had either diabetes mellitus (DM) 1 or 2. No statistical differences were identified by gender, and partners in 34 couples (97%) had the same residential address.

Partners in 27 of the 35 couples (77%) had their surgeries within a year of each other, and partners in 30 couples (86%) underwent the same type of bariatric surgery (RYGB verse LSG). Among these 30 couples, partners in 27 couples (90%) had the same surgeon, and partners in 26 couples (87%) underwent the same operative technique (laparoscopic versus open). Spousal order of surgery was not associated with any of the measured demographics (gender, age, race, age, preoperative BMI, bariatric surgery, operative technique, or year).

Among all 70 patients, 35 (50%) attended a 3-month postoperative visit, and 34 (49%) attended a 6-month postoperative visit, followed by 27 (39%) attending a 12-month visit, 12 (17%) attending an 18-month visit, and 9 (13%) attending a 24-month visit. The EWL of these patients increased steadily during the five postoperative visits: 3 months (mean $32\% \pm \text{S.D. } 12\%$), 6 months ($49 \pm 14\%$), 12 months ($59 \pm 17\%$), 18 months ($64 \pm 13\%$), and 24 months ($70 \pm 14\%$). While the first spouse undergoing surgery lost more excess weight at 12 months, (first patient: $65.9 \pm 14.1\%$, second patient $50.7 \pm 16.2\%$, $P = 0.02$), there was no statistical difference at 24 months (first patient: $72.3 \pm 8.4\%$, second patient $77.2 \pm 18.0\%$, $P = 0.62$). We identified nine couples in our study (Fig. 1) where both partners had attended a 12-month postoperative visit and had also undergone the same type of bariatric surgery as each other (eight couples RYGB, one couple VSG). At this visit, female partners lost significantly more excess weight than their male counterparts ($71 \pm 13\%$ vs $41 \pm 12\%$, $P < 0.001$), and the r^2 correlation coefficient among spouses was 0.39.

Partners were more likely to exhibit concordant behavior towards attending postoperative visits when their surgeries were within a year of each other ($P < 0.01$) (Fig. 2). In these 27 of 35 couples (77%), there were 18 couples (51%) where both partners had 3+ visits and 11 couples (31%) where neither partner had 3+ visits. Patients with DM relative to those without DM were more likely to attend at least three postoperative visits ($P = 0.03$).

Discussion

In our case series, we found evidence that married couples, where both partners underwent bariatric surgery, meet or exceed postoperative weight loss milestones at 12, 18, and 24 months [8, 9] and did not show signs of weight regain as a group at 18 or 24 months. Among partners who underwent the same clinical pathway at our single institution, women tended to lose more weight than men at 12 months. Additionally, while there was significant variation in postoperative follow-up among patients, we found that partners within couples typically exhibited the same behavior with respect to postoperative visits when they had their surgeries within a year of each other. These findings warrant further consideration to evaluate how social support may impact bariatric surgery outcomes.

Previous studies have shown that for patients undergoing RYGB, EWL ranges between 60 and 70% by postoperative year two [8, 9]. While one-fifth (20%) of our patients underwent VSG (vs RYGB), which is associated with lower 1- and 2-year weight loss [8, 9], the patients in this study as a whole still lost on average 64% of their excess weight by 18 months and 70% by 24 months postoperatively. Slotman found that family members who underwent RYGB lost more weight at 12 months compared to matched controls [7]. Rebibo et al. also found that family members undergoing VSG lost more weight relative to nonfamily members [6]. Our findings build upon the limited number of studies that have evaluated weight loss in patients with familial relations and increase the growing understanding that stronger avenues for social support may benefit bariatric surgery outcomes.

Previous studies have described conflicting results regarding whether women lose more weight than men [2, 10]. As partners in 34 of 35 couples reported the same residential

address and likely had similar support networks associated with being married, our study offered a unique opportunity to assess weight loss by gender. Once we stratified for couples where both partners underwent the same type of bariatric surgery, we found that women consistently lost significantly more weight than men 1 year after surgery. Assuming that both spouses within couples' benefited equally from clinical and non-clinical social support services, the greater weight loss seen in females may be due to other physiologic factors, such as differences in metabolic changes.

Adherence to postoperative visits after bariatric surgery has been associated with improved surgical outcomes [5]. While we observed marked variation in postoperative follow-up in our study population, we found that partners within most couples exhibited concordant behavior with regard to postoperative visits. If partners within a couple had their bariatric operations within 1 year of each other, they were both even more likely to attend the same number of postoperative visits. The potential role of social support on postoperative visits may carry over to behavioral changes in diet and exercise, thereby further aligning social support to long-term weight loss success after bariatric surgery.

This study identified challenges to assessing outcomes among partnered individuals and included several limitations. First, a retrospective study of medical records limits identification of partnered individuals, and we could therefore only identify partnered couples within the context of marriage and where both individuals had their procedure at our institution. A prospective study could both evaluate more granular outcomes and include other partnered relationships such as siblings, parents, or friends. Second, our subsequent small sample size did not allow for in-depth analysis such as logistic regressions. Third, the marked variation in follow-up care, common to hospitals serving lower socioeconomic patient populations, prevented data collection at each postoperative visit for every patient and may introduce some response bias in our study. Fourth, as a case series, we did not match patients with others to create a comparison group. Finally, as the medical records did not consistently report lifestyle modifications (i.e., diet and physical activity), we could not evaluate these important weight loss factors.

Despite these limitations, we conducted one of the first studies to look exclusively at clinical and behavioral outcomes of married couples where both partners underwent surgery. This case series suggests that partnered patients undergoing bariatric surgery can meet or exceed weight loss outcomes and may practice similar follow-up adherence. Even though social support is one of the many factors that can impact postoperative outcomes, the impact of having a life partner and friend undergo a similar lifechanging operation deserves further attention. The findings from our case series underscore the need for prospective studies with matched cohorts of partnered or groups of individuals. These larger-scale studies should also assess in greater detail how social support specifically influences outcomes.

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Fig. 1. Excess weight loss among nine couples by gender at the 1year postoperative visit. Among the nine couples where both partners underwent the same type of bariatric surgery, women lost significantly more excess weight than men at the 1-year mark

Fig. 2. Postoperative visits of couples by duration between partners' surgeries. Partners in the vast majority of couples exhibited the same adherence to postoperative visits, especially when they had their surgeries within a year apart of each other