Comparing life adjustment after weight loss surgery with adjustment following other life changes

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Comparing life adjustment after weight loss surgery with adjustment following other life changes

Abstract
The purpose of this study was to examine the usefulness of life events measures for understanding patients’ experience following weight loss surgery. This study investigated patient perceptions of how much accommodation was involved in their adjustment to life after weight loss surgery.

Findings indicated that the participants perceived weight loss surgery as requiring more adjustment than would be expected following a variety of significant life events, including the death of a spouse and being fired. These results suggested that the coping resources that patients used to manage such demands may be high after undergoing weight loss surgery. No significant relationships were identified between adjustment after surgery with time since surgery and satisfaction with surgery. These findings suggested the following: (a) participants reported a fairly consistent perception of the amount of adjustment involved with surgery regardless of when or if they had surgery, and (b) although surgery involved considerable adjustment, the transitioning required after surgery was not related to how satisfied they felt.

Limitations of this study included a small sample size and the use of a modified life events measure to examine overall adjustment. Increasing sample size and investigating other mediating factors and methods of examining patients’ experiences, expectations, outcome, and/or satisfaction with weight loss surgery may be useful in furthering this research. Despite limitations, medical and mental health providers can use the findings from this study to quickly convey the high level of adjustment commonly reported by patients, thereby unifying the treatment team message in an efficient and realistic way.

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Abstract

The purpose of this study was to examine the usefulness of life events measures for understanding patients’ experience following weight loss surgery. This study investigated patient perceptions of how much accommodation was involved in their adjustment to life after weight loss surgery.

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Comparing life adjustment after weight loss surgery with adjustment following other life changes

Approximately 20 to 35 percent of weight loss surgery patients are unable to successfully maintain long-term weight loss (Elder & Wolfe, 2007). Among factors such as emotional dysregulation and active eating disorders, research has indicated that patients who undergo weight loss surgery without realistic expectations about post-surgical changes tend to have poorer outcomes (Grimaldi & Van Etten, 2010) and are less satisfied with surgery outcome (Bauchowitz & Gonder-Frederick, 2007). A lack of understanding of the risks and expectations of surgery has been rated among the top three reasons psychologists withhold weight loss surgery candidates (Walfish, Vance, & Fabricatore, 2007). Along with physical changes, weight loss surgery patients encounter major psychosocial changes that have been well documented in the literature.

Research indicates that major life events involve adjustment as individuals accommodate new lifestyle changes into a new daily routine. Regardless of whether life events are desirable or undesirable, individuals must adjust accordingly. Physical and mental illnesses have been associated with the amount of adjustment encountered within a certain timeframe (i.e., past 12 months). The adjustment necessary before and following weight loss surgery is frequently discussed in the literature and noted by providers and patients alike. Yet, to our knowledge, the specific amount of adjustment experienced by patients undergoing weight loss surgery has not been systematically studied using standardized assessment measures. Research is therefore needed to identify the level of adjustment experienced by weight loss surgery patients.

The purpose of this study was to compare adjustment following weight loss surgery with adjustment after other significant life changes (e.g., marriage, childbirth, death of a spouse, major illness). Specifically, this study aimed to investigate where adjustment to weight loss
surgery ranks amongst adjustment subsequent to other life events, and if the perceived amount of adjustment after surgery differs in patients who are at different time points (e.g., before and after surgery). It was hoped that the data regarding life adjustment from this study might be used by medical and mental health providers to convey this information to patients and better prepare them for weight loss surgery.

**Review of the Literature**

**Life Changes Following Weight loss surgery**

Weight loss surgery can best be described as a tool that aids individuals in managing their weight through controlling hunger sensations, overeating, and changing of caloric absorption (Grimaldi & Van Etten, 2010). However, surgery is not a panacea—many patients regain weight after surgery. Weight loss surgery by itself does not prevent individuals from making poor lifestyle choices, such as eating around surgery restrictions, emotional eating, and a lack of engagement in other health promoting behaviors.

Two of the most widely utilized and researched weight loss surgical options are the Roux-en-Y gastric bypass and adjustable gastric banding surgeries. Greater weight loss is generally seen following Roux-en-Y gastric bypass than after adjustable gastric banding (Grimaldi & Van Etten, 2010). The tendency for greater weight loss with Roux-en-Y gastric bypass has been attributed to malabsorption effects and greater appetite restriction resulting from this method. A study by Fisher & Schauer (as cited in Grimaldi & Van Etten, 2010) reported approximately 65 percent of Roux-en-Y gastric bypass patients and 45 percent of adjustable gastric banding patients maintained long-term weight loss. With weight loss surgery patients in general, between 65 percent and 80 percent represent those who are successful in maintaining...
weight loss long-term (Elder & Wolfe, 2007). About one quarter of patients achieve less than the expected weight loss.

Despite great need, there is a lack of research indicating how effectively surgery candidates receive information about what to expect (Bauchowitz & Gonder-Frederick, 2007). Patients tend to be eager as they begin the process of weight loss surgery, and many have been considering surgery for many years. The presence and intensity of life changes that patients encounter fluctuate through different phases in the weight loss surgery process. Bauchowitz and Gonder-Frederick (2007) describe a pre-operative stage and two post-operative stages.

In the pre-operative phase, patients are eagerly learning about imminent issues related to surgery (Bauchowitz & Gonder-Frederick, 2007). Patients are given a considerable amount of information on insurance coverage of the surgery and plethora of medical appointments, as well as arranging plans for the immediate recovery period after surgery. It is possible that patients place a lesser priority on processing information and anticipating post-surgery adjustments that extend beyond the acute recovery period. Patients who successfully maintain their weight loss long-term tend to be those who understand the long-term commitments, such as continued adherence to nutritional guidelines and the possibility of permanent health complications or suboptimal weight loss. Further, due to a fear of being denied medical treatment, some patients in the pre-operative stage may engage in impression management techniques by withholding information they believe might suggest they are not an appropriate candidate for surgery. A lack of disclosure and trust between patients and their weight loss surgery team presents a barrier for optimal mental and medical care and professionals’ ability to effectively evaluate and support patients through the process of weight loss surgery.
Bauchowitz and Gonder-Frederic (2007) have defined the period following weight loss surgery as the Honeymoon stage. The Honeymoon stage is the period of time (usually 28-24 months long) following the initial recovery from surgery. During this stage, patients report feelings of satiety with less consumption and often note an increased ability to limit food intake significantly. The changes in satiety sensations are hypothesized to occur for several reasons, including limited gastric capacity and in the case of gastric bypass (and other non-banding procedures) also due to endocrinological and hormonal changes that create changes in satiety signals received by the brain (Elder & Wolfe, 2007). This may often lead to more weight loss in this period, which may last up to two years after surgery. In the Honeymoon stage, most patients experience steady weight loss and learn which foods they can tolerate and how to make healthier food choices. Patients are typically able to become more physically active and experience psychosocial changes that include reduced psychological distress and improved quality of life and self-image. As weight loss beings to plateau 12 to 18 months after surgery, anxiety about sustaining weight loss tends to increase (Wadden et al., 2007) and maladaptive eating patterns and coping styles may reemerge. Sullivan, Karlsson, and Sjostrom (as cited in Wadden et al., 2007) found this pattern to be unique to post-surgery patients when their anxiety and depression is compared to individuals who experienced weight loss through non-surgical methods. Additionally, the early satiety produced by limited gastric capacity commonly subsides at this point and a greater emphasis on eating choices, exercise, and coping skills are required for long-term weight management.

In addition to the process of weight loss surgery, patients often experience numerous changes in their quality of life. These include adjustments in the following domains: health and
physical functioning, employment status, interpersonal relationships, psychological and emotional functioning, and eating and behavior patterns (Grimaldi & Van Etten, 2010).

Quality of life generally increases following weight loss surgery, as patients begin to regain physical functioning and health (Batsis et al., 2009; Van Hout et al., 2006). Difficulty with activities of daily living, such as climbing stairs, dressing, and walking, are reported to be the most distressing aspects associated with obesity (Wadden et al., 2007). Many patients see post-operative improvements in mobility and physical functioning, as well as reductions in back, hip, knee, ankle, and neck pain. Frequently, patients who had weight-related medical conditions prior to surgery (e.g. hyperlipidemia, obstructive sleep apnea, hypertension, and type II diabetes) no longer face these problems (Grimaldi & Van Etten, 2010).

Patients who have undergone weight loss surgery frequently experience positive changes in work status, occupational performance, and satisfaction (Wadden et al., 2006). Interpersonal interactions may also be affected within the workplace as a result of a decrease in obesity stigma that may occur when patients lose weight.

Most patients report improved quality of intimate relationships following surgery (Grimaldi & Van Etten, 2010), though some report worsening relationship status. Role changes and shifting relationship dynamics are substantial adjustments couples face when a partner goes through weight loss surgery. Immediately following surgery, much attention is diverted onto the patient through the recovery period. Partners of weight loss surgery patients must take on household duties and the caregiving role that the patient might have previously handled. As patients begin developing skills for asserting their needs, creating boundaries, and establishing time for self-care, partners may become resentful of the new responsibilities placed upon them. Couples also may be required to adjust the types of shared activities they enjoy by replacing
activities such as eating out and watching movies with more active ones. Insecurity is also not uncommon, as partners may become jealous if they perceive their thinner partner as more confident and attractive.

Social changes also occur following weight loss surgery with friends, family members, co-workers, and other relationships (Wadden et al., 2007) that most often involve increased pleasure and participation in social events. Common changes in the social environment can include more frequently eating out at restaurants (albeit with new attention to portion sizes), participating in social events, shopping for clothes, or renewing activities such as swimming. Social activities are forced into transition, as many celebrations, friendships, and relationships that may have involved food must be renegotiated or avoided (Grimaldi & Van Etten, 2010). Responsiveness to social changes may also occur as reactions from others may challenge patients’ self-concept, including identity with prior weight status. Awkwardness may occur when patients choose not to disclose the method of weight loss, sometimes due to fear of being stigmatized for having undergone weight loss surgery.

Mixed findings on psychosocial functioning following surgery have also been reported in the literature. Many studies note improved self-esteem, mood, and psychological functioning, although some do not; in fact, some studies have found psychological problems can worsen among post-operative patients (Sarwer et al., 2008). However, deterioration in mental health functioning typically results as an exacerbation of preexisting mental health conditions (e.g. history of chronic depression or body image issues). Some studies show improvements in depression and anxiety up to one year after surgery (Wadden et al., 2007), while other studies show depression and anxiety remits for the first year and returns (Van Hout et al., 2006). The return of mood and anxiety symptoms 12 months following surgery may be due to a plateau in
weight loss or the beginning of weight regain. Many patients are also experiencing a decrease in positive reinforcement as time passes because obvious changes in body size and shape are no longer evoking consistent attention from others. In addition, some patients may attribute a significant portion of their problems to obesity and therefore find themselves disappointed with the outcome of surgery when problems continue even after weight loss (Grimaldi & Van Etten, 2010). Body image issues may be challenged as body size changes (Van Hout et al., 2006). Excessive weight sometimes plays an adaptive role and can lead to feelings of vulnerability. While getting smaller in size patients might find other reasons to feel dissatisfied; lingering issues with self-criticalness may continue (Van Hout et al., 2006; Sarwer et al., 2008). Some patients seek plastic surgery to remove excess and sagging skin following weight loss surgery. However, body contouring can also result in unwanted side effects, such as scarring, risk of complications, and caring for wounds.

Methods of emotional coping are also challenged following weight loss surgery. For some patients food may have served as a distraction; thus, this subset of patients may find themselves forced to find new ways of coping with painful experiences (Grimaldi & Van Etten, 2010). This is especially relevant given that rates of psychological diagnoses are significantly higher in the bariatric surgery population than in the general population (Wadden et al., 2007). Research on pre-operative weight loss surgery candidates indicates the following rates of psychological disorders: depression (42%), anxiety (37.5%), substance abuse (32.6%), personality disorders (17%, primarily avoidant), and posttraumatic stress (11%; Grimaldi & Van Etten, 2010), and binge eating disorder (up to 25%; Wadden et al., 2007). Some studies indicate that addressing mood and emotional issues related to eating are critical because they can be
related to poor dietary adherence in some patients after surgery (Bauchowitz & Gonder-Frederick, 2007).

A major part of the adjustments following weight loss surgery include changes in eating and behavior patterns. Common but temporary side of effects include vomiting in up to two-thirds of patients and dumping (i.e., malabsorption due to high sugar content) in over half of patients (Wadden et al., 2006). Vomiting may be caused by intolerance for certain foods, incomplete chewing, or overeating. Dumping includes nausea, flushing, bloating, faintness, fatigue, and severe diarrhea, likely due to reduced ability to digest high sugar foods. These extremely unpleasant side effects may result in an aversion to unhealthy food choices (e.g., fatty and sugary foods) that may lead to better food choices and more weight loss. Conversely, soft foods high calories can still be eaten and result in weight gain (Van Hout et al., 2006).

Binge eating often ceases following surgery (White et al., 2006), and several reasons are hypothesized including the difficulty eating large amounts of food due to limited gastric capacity following surgery, changes in endocrinology an hormonal signals that may affect over- and binge eating, and the possibility that obesity (or lack of weight loss) is a maintaining factor in binge eating (Elder & Wolfe, 2007). Limited gastric capacity can prevent binging by creating sensations of fullness and over- or binge eating often results in dumping or vomiting (i.e., prior to surgery; Wadden et al., 2007; Van Hout et al., 2006). While pre-operative binge eating is not necessarily a predictor of poor outcomes, studies have indicated that binge eating that re-emerges post-operatively is associated with less weight loss (White et al., 2006). Though most patients who previously engaged in binge eating cease this behavior after surgery, Bauchowitz and Gonder-Frederick (2007) suggest these unhelpful eating patterns, if unaddressed, may manifest themselves through grazing and eating high-calorie soft foods, as mentioned previously. Thus,
the general recommendation is that pre-operative binge eating not be considered a contraindication for surgery, but that it be considered a risk factor for poorer outcome and that additional support (e.g., referrals for treatment) be provided to patients who report binge eating. If binge eating reemerges, patients should be advised to seek additional treatment to address this problem.

Another example of crucial behavioral change associated with successful outcome is replacing maladaptive behaviors with adaptive ones (Grimaldi & Van Etten, 2010). Patients who are able to cease addictive behaviors (e.g., old eating habits, substance abuse, problematic spending) and replace them with new hobbies, coping strategies, physical exercise, and relaxation and self-care strategies tend to have better long-term weight loss results.

In summary, the first year after surgery provides a time period for retraining eating patterns, where patients learn to inhibit urges and make healthier food choices. Patients must utilize this period to develop awareness of their eating patterns, and may make necessary changes (e.g., reduce portion sizes and/or emotional eating). Van Hout and colleagues note that, “because these dietary changes are not completely facilitated, or forced, by the internal changes that result from the operation, patients have to put an effort into adjusting their eating behavior” (2006, p. 789). Given the multitude of changes patients experience after weight loss surgery, it seems plausible that adjustment following weight loss surgery would be high if compared to adjustment following other significant life events.

Adjustment and Life Events Measures

Several researchers have investigated the effects of major life transitions and physical and psychological stress. Adjustment is an important aspect of accommodating to change. Life events, such as weight loss surgery or getting a new job, inherently require readjustment
regardless of whether they were desired or undesired changes. Rahe and Arthur defined life events as “transitions in a person’s psychosocial life adjustment” that “reflect current environmental demands to which most persons endeavor to adjust” (1978, p. 4). Overloading the amount of changes in a certain time period subsequently results in stress; excessive occurrence of life events places demands on individual’s ability to cope, as “psychological and physiological efforts necessary for such adjustment, if severe, and/or protracted in time, appear to predispose individuals towards the development of illness” (Rahe & Arthur, 1978, p. 4).

Research correlating stressful life events with physical illnesses (Rahe, McKean, & Arthur, 1967; Rahe, 1976) and psychiatric illnesses (Rahe & Arthur, 1978) has been documented as early as the 1950s in several populations. For example, Gorsuch and Key (as cited in Rahe & Arthur, 1978) found higher rates of birth and pregnancy complications in women who reported a greater number life changes occurring six months prior to pregnancy than women who did not report such changes. College samples have demonstrated more frequent illness reporting in students who experienced more life change in the past year than students who encountered less changes. Using Army soldiers’ health records, Rahe, McKean, and Arthur (1967) retrospectively found clusters of life changes in the time preceding onset of major illnesses. Similarly, soldiers disabled for major psychiatric illness had significantly greater life adjustment ratings than those with minor or no psychiatric illnesses (Rahe, 1976).

Rahe and Arthur (1978) developed a linear life change and illness model to help conceptualize life events. In this model, individuals first perceive a new life change based on early life influences, biological vulnerabilities and strengths, and social support. Second, techniques of coping (e.g., psychological defenses) serve a protective function from such environmental threats and physical illnesses. Third, visible (e.g., changes in mood, headaches,
muscle tension) and invisible (e.g., elevated lipids, increased blood pressure, lowered blood sugar) psychophysiological responses occur. Fourth, response management techniques (e.g., coping strategies) are used to counter psychophysiological stress responses and can include the following: relaxation, physical activity, and distracting activities. Fifth, attention may or may not be shifted to the experience of bodily symptoms, and the individual may choose to respond by seeking medical attention. Should medical assistance be sought, the sixth step is receiving or not receiving a medical diagnosis. At each step in this model, individuals can be sensitized or desensitized and/or defend against certain responses.

Due to the correlations noticed between illness and life changes, researchers began developing life events measures meant to explain vulnerability and predict onset of illness. In the 1950s, Holmes and Hawkins created the Schedule of Recent Events (SRE) questionnaire containing the five following categories: health, work, family and home, personal and social, and financial (Rahe, 1976; Rahe & Arthur, 1978). The SRE was created from the retrospective report of life changes experienced ten years prior to illness onset in a sample of tuberculosis patients; results were used to develop a list of 43 life events.

In the 1960s, Holmes and Rahe (as cited in Rahe & Arthur, 1978) created the Social Readjustment Rating Questionnaire (SRRQ; 1967) to gather data on the average degree of adjustment after each of the SRE life events. The SRRQ study involved a sample of healthy subjects who were asked to estimate the average degree of readjustment that would be required following each of the SRE life events. Mean scores (adjustment ratings) for each life event were used to create Life Change Units (LCU) using a ratio scaling method (Rahe, 1976).

In the mid 1970s, the Recent Life Changes Questionnaire (RLCQ) was created using LCU data (scaling weights) gathered from the original SRRQ study (Rahe, 1976). The RLCQ
was a revision of SRE with an additional 13 new events (i.e., items) and subjective scaling weights representative of average amounts of adjustment per event. The RLCQ was designed specifically for prospective studies by calculating a total recent readjustment score for predicting the chance of near-future illness.

**Hypotheses**

This study primarily focused on comparing the amount of adjustment after weight loss surgery to adjustment following other significant life events, as well as investigating whether there is a relationship between the amount of adjustment and when participants provided ratings (i.e., pre-operative, 12-month post-operative, 18+ months post-operative). Additionally, this research examined the potential relationship between satisfaction with surgery outcome and amount of adjustment, as well as other factors that may influence adjustment ratings. Primary and secondary hypotheses are listed below.

- **Hypothesis 1:** Adjustment to surgery will rank within the top 10 life events.
- **Hypothesis 2:** Adjustment to surgery will differ based on time relative to surgery (i.e., preoperative, 0-18 months postoperative, 18+ months postoperative).
- **Hypothesis 2a:** Adjustment to surgery will differ based on time relative to surgery while controlling for the effects of age, gender, education, BMI, and type of surgery.
- **Hypothesis 3:** There is a relationship between life adjustment related to surgery and satisfaction with surgery outcome.

**Method**

**Participants**

Criteria for inclusion in this study required participants to be adults over the age of 18 and either pre- or post-operative weight loss surgery patients. Participants were recruited from a
ADJUSTMENT AFTER WEIGHT LOSS SURGERY

bariatric surgery clinic located in Portland, Oregon. Exclusionary criteria included being under the age of 18, English fluency, and individuals who were not seeking (and did not already have) weight loss surgery. Participants were recruited to complete a voluntary, online survey.
Measure

Demographic information was collected including participants’ age, highest level of education, gender, height, current weight, and current Body Mass Index (BMI; see Appendix A, first six questions). After completion of the first six items, participants were asked to self-select as either pre- or post-surgical; participants who identified as pre-surgical were directed to complete items asking participants to rate the amount of adjustment related to significant life events (see Appendix A), while those who identified as post-surgical proceeded to items asking the following questions about their surgery before proceeding to the survey: type, date, time since surgery, pre-surgical weight, pre-surgical BMI, and overall satisfaction with the outcome. The last of these items (i.e., overall satisfaction with the outcome of surgery) was used as a measure of treatment satisfaction. The study used a measure modeled after the SRRQ (Holmes & Rahe, 1967) with an added item for weight loss surgery. Each life event from the SRRQ, in addition to weight loss surgery, was listed with a 7-point, forced choice Likert scale (1 = least adjustment, 7 = most adjustment; see Appendix A). Although the original format of the SRRQ had respondents provide a 0-100 numerical rating for each item, the SSRQ was modified for this study by utilizing a 7-point Likert scale for adjustment ratings. The purpose for this change was to increase the reliability of adjustment ratings by providing participants with a visual component (i.e., line; see Appendix A) in addition to the numeric rating (i.e., 1-7) resembling the SRRQ items.

The reliability and validity of the SRRQ has been studied repeatedly with generally mixed findings. A two-year test-retest of the SRRQ in male psychiatric outpatients versus control non-patients found adjustment ratings for each event (i.e., LCU) to be reliable in both psychiatric patients and non-patients, but ratings were considerably better for subjects without
psychiatric illness (Gerst, Grand, Yager, & Sweetwood, 1978). Both psychiatric and non-psychiatric patients’ event rank order correlations were high (0.7 and 0.96) after a six-month retest. The top ten “most stressful” events were less reliable at retest in subjects diagnosed with psychiatric illness ($r = .25$ to $.29$) than in non-patients ($r = 0.66$ to $0.8$). Higher correlations have been found in samples of higher educational background (Rahe, 1976) and were described in the following studies: 0.87 and .90 in college samples given a one week test-retest; 0.70 for physicians with test-retest between six and nine months; 0.55 enlisted Navy men. Lei and Skinner (1980) found that the SRRQ scores were highly correlated ($r = .97$) with SRE scores. Spousal agreement of recent life events was found to be between 0.5 and 0.75 (Rahe, 1976).

Research Design and Procedure

Data collection began after the Institutional Review Board (IRB) approved this study. In the initial research procedure, participants were recruited from a local bariatric surgery clinic, where a flyer advertisement (see Appendix B) and paper-and-pencil surveys (see Appendix C) were placed on the waiting room tables. Take-home envelopes pre-addressed to the principal investigator also provided for patients who choose to complete and mail the survey at a more convenient time and location.

Due to an unexpectedly low response to the paper-and-pencil survey ($N = 9$), this researcher developed a nearly identical online survey (see Appendix A) via SurveyGizmo.com and obtained approval for an addendum from the IRB in an attempt to recruit approximately 100 participants. Participants were recruited to take the online survey via a posting on the clinic’s Facebook webpage on January 7, 2013 (see Appendix D).

Upon clicking on the online survey link, participants read the informed consent document. Each participant had the option to either check “Yes, I agree” before proceeding onto
the study or “No, I do not agree” and being routed to a Thank You message before exiting the survey. Participants were informed that they could discontinue the study at any time by exiting the survey. Participants who agreed to the informed consent proceeded to demographic questions; these questions did not ask for any identifying information. Participants who self-selected as having undergone weight loss surgery (e.g., post-operative) were routed to a series of demographic questions regarding their surgery (i.e., type of surgery, date of surgery, duration of time since surgery, satisfaction with surgery outcome), while participants who self-selected as pre-operative proceeded directly to completing the survey. The remaining survey items were identical for both pre-operative and post-operative participants and began with a set of instructions that described the concept and rating of adjustment to stressful life events. The last item (i.e., rating adjustment to weight loss surgery) was preceded by additional instructions that included an explanation of the item. At the conclusion of the survey, participants were thanked for completing the survey before exiting.

After three months of data collection, the online survey was closed and the data were exported from SurveyGizmo.com into an Excel spreadsheet. The data were cleaned in an Excel spreadsheet through the following steps: (a) removing incomplete response data, (b) coding short-answer responses (e.g., BMI, time since surgery), (c) creating variables/datasets for the proposed primary and secondary analyses. Cleaned data were imported into SPSS for statistical analysis. Because of low statistical power and small sample size, a post-hoc analysis was also conducted to reexamine Hypothesis 2.

Results

Participants
A descriptive analysis was conducted on participants’ age, gender, highest level of education, phase relative to surgery, and pre-surgical BMI. Descriptive analysis was also conducted for type of surgery and satisfaction with surgery outcome for post-operative participants. A total of 38 patients participated. Participants ranged in age from 24 to 68 (mean = 48, median = 50, mode = 53). Ninety-two percent (n = 35) of the participants identified as female and 8% (n = 3) identified as male (see Figure 1). Highest level of education was identified in the following frequencies: 0% with 12th grade or less, 5% with high school degree or equivalent, 26% with some college, 11% trade or business college, 11% Associate’s degree, 29% Bachelor’s degree, 18% Master’s degree, 0% Doctoral degree (see Figure 2).

Both pre-surgical and post-surgical patients were represented in the study. When completing the survey, 11% (n = 4) of participants identified as pre-operative, 34% (n = 13) as 0 to 18 months post-operative, and 55% (n = 21) as 18+ months post-operative (see Figure 3). Pre-surgical BMI ranged from 38 to 70 (mean = 49, median = 49, mode = 44). For post-surgical patients, 56% (n = 19) reported undergoing Roux-en-Y gastric bypass, 38% (n = 13) adjustable gastric banding, 6% (n = 2) sleeve gastrectomy, 0% other (n = 0; see Figure 4).
ADJUSTMENT AFTER WEIGHT LOSS SURGERY

Hypotheses

Participants' Highest Level of Education

Figure 2.

Figure 3.

Figure 4.
ADJUSTMENT AFTER WEIGHT LOSS SURGERY

Hypothesis 1. A descriptive analysis was conducted to investigate where the mean adjustment rating for weight loss surgery ranked in comparison to the mean adjustment ratings for other life events.

The descriptive analysis showed that the life event with the highest mean adjustment rating was weight loss surgery ($M = 5.74$, $SD = 1.35$). The results therefore supported the first hypothesis, indicating that adjustment following weight loss surgery ranked within the top ten life event adjustment ratings (see Table 1).
Hypothesis 2. A one-way analysis of variance (ANOVA) was conducted to examine if there were statistically significant differences in the mean adjustment ratings for weight loss surgery between participants who provide rankings during different phases relative to surgery (i.e., pre-operative, 0-18 months post-operative, 18+ months post-operative). The variables used for Hypothesis 2 were a categorical independent variable for patient time point and a continuous dependent variable for mean adjustment rating.

The one-way ANOVA indicated no significant effects, $F(2, 35) = .33, p = .72$, and therefore that there were no significant differences in average weight loss surgery adjustment ratings among the three surgical phases. The strength of relationship between surgery adjustment ratings and phase, assessed by $\eta^2$, was small, with phase accounting for 2% of the variance in the dependent variable.
ADJUSTMENT AFTER WEIGHT LOSS SURGERY

To examine this question further utilizing the benefits of continuous data, a post-hoc Pearson’s product-moment correlation was conducted to examine if mean adjustment ratings for weight loss surgery and months since (or until) surgery were related. Using the Bonferroni approach to control for Type I error, a \( p \) value of less than .005 (.05/10 = .005) was required for significance. Results of the correlational analysis again showed no significant correlation, \( r (36)= .13, p = .48. \)

Hypothesis 2a. It was proposed that a one-way analysis of covariance (ANCOVA) be used to examine if there were statistically significant differences in mean ratings for adjustment following weight loss surgery between participants who provided rankings during different phases relative to surgery (i.e., pre-operative, 0-18 months post-operative, 18+ months post-operative) when controlling for variation due to age, gender, education, BMI, and type of surgery. However, statistical analysis for Hypothesis 2a was not conducted due to the lack of significant findings in Hypothesis 2.

Hypothesis 3. A Pearson’s product-moment correlation in this study investigated if and how (i.e., strength and direction of the relationship) satisfaction with surgery outcome and surgery adjustment was related. The two continuous variables were the mean rating for weight loss surgery outcome/satisfaction and mean rating for weight loss surgery adjustment.

Using a Bonferroni approach to control for Type I error, a \( p \) value of less than .005 (.05/10 = .005), was required for significance. The results of the correlational analysis indicated no significant correlation, \( r (32)= .13, p = .48. \)

Table 2

<table>
<thead>
<tr>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>( M )</td>
</tr>
</tbody>
</table>

21
### Adjustment after Weight Loss Surgery

<table>
<thead>
<tr>
<th>Score</th>
<th>SD</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.74</td>
<td>1.35</td>
<td>Adjustment following weight loss surgery</td>
</tr>
<tr>
<td>5.35</td>
<td>1.72</td>
<td>Satisfaction with weight loss surgery outcome</td>
</tr>
</tbody>
</table>

*Note. M = mean*
Discussion

Purpose

The literature has illustrated that weight loss surgery patients commonly report experiencing certain post-operative life and psychosocial changes (Grimaldi & Van Etten, 2010) that may fluctuate in nature and intensity over time (Bauchowitz & Gonder-Frederick, 2007). To develop greater understanding and awareness of this experience, the current study used an established measure of life adjustment to investigate patients’ perceptions of how much accommodation (e.g., lifestyle, daily routine, coping styles) was involved in their adjustment to life after weight loss surgery when compared with adjustment following other significant life events. For pre-operative participants, the anticipated amount of adjustment following weight loss surgery was examined.

Research on adjustment to significant life events (Rahe, 1976) has been used by some researchers to retrospectively investigate the types of events that precede the onset of illness (e.g., fired at work, death of spouse), as well as to predict the likelihood of illness following these changes (Horowitz et al., 1977). Using a modified life events rating scale (i.e., SRRQ; Holmes & Rahe, 1967), participants in this study were asked to rate their perception of the average amount of adjustment that patients experienced after weight loss surgery in comparison to the average amount of adjustment following other types of life changes (i.e., SRRQ life events).

To our knowledge, use of established life events measures to examine adjustment to weight loss surgery had not been studied previously. Factors that were hypothesized to potentially affect adjustment to weight loss surgery ratings were also examined (i.e., treatment satisfaction). Specifically, data were collected to compare pre-operative participant adjustment
to surgery ratings with post-operative participant ratings. For post-operative participants, data were collected on total satisfaction with the outcome of their surgery. Demographic information was also collected for all participants, focusing on factors that have been hypothesized in previous life events research to affect adjustment ratings (e.g., age, gender, education).

Findings and Conclusions

It was hypothesized that adjustment to weight loss surgery would rank within the top ten adjustment ratings in comparison to other life events. Results showed that the life event with the highest mean adjustment rating was weight loss surgery. The findings therefore supported Hypothesis 1 that adjustment ratings for weight loss surgery would be ranked within the top ten life events.

This finding indicates that the participants in this study perceived weight loss surgery as requiring more adjustment than would be expected following a variety of significant life events, including accommodating to life after the death of a spouse, marriage, and being fired at work. Such findings suggest that both pre-operative and post-operative weight loss surgery patients associated the environmental, physical, and psychosocial demands required to transition to life after weight loss surgery as being greater than the strain involved with adjusting to one’s daily routine after other major life changing events. Thus it appears that using the SRRQ to assess adjustment to bariatric surgery may have captured patients’ experience of the numerous physical, social, occupational, psychological, and lifestyle changes cited in the weight loss surgery literature (Grimaldi & Van Etten, 2010). Additionally, these findings suggest that the need for coping resources that patients use to manage such demands, as well as their potential vulnerabilities to physical and psychological illness noted in life events research (Rahe, McKea,

It was also hypothesized that weight loss surgery adjustment ratings would differ based on when ratings were provided. Results showed no significant differences in the average weight loss surgery adjustment ratings and time since surgery, both when time was examined categorically (i.e., pre-operative, 0-18 months post-operative, 18+ months post-operative) and as a continuous variable (i.e., months prior to or following surgery). These findings therefore did not support the hypothesis that adjustment following weight loss surgery would be rated differently based on when ratings were provided (i.e., prior to or following surgery).

These findings suggest that participants in this sample at various pre- and post-operative stages had a fairly consistent perception of the amount of adjustment involved with weight loss surgery. The reliability of these findings warrant continued investigation in a larger and more equally distributed sample, as the number of participants in each phase varied considerably in the current study.

Discussed above, the proposed analysis for Hypothesis 2a was not conducted. Non-significant findings in Hypothesis 2, as well as small sample size precluded finding significant results for Hypothesis 2a (see Limitations).

It was also hypothesized that there would be a relationship between satisfaction with weight loss surgery outcome and adjustment to weight loss surgery. Results showed no significant correlation between weight loss surgery satisfaction and adjustment ratings.

This finding indicates that participants’ overall satisfaction with weight loss surgery was not associated with the perceived amount of adjustment they had experienced after surgery. These findings suggest that, although weight loss surgery may involve a considerable allocation
of coping resources, the amount of transitioning required after surgery may not be related to how patient satisfaction with surgery outcome. Another explanation for these findings may be related to a lack of variability in participants’ responses regarding amount of adjustment (i.e., the majority of patients rated level of adjustment as “high”). In other words, as participants *uniformly* reported a significant amount of, a statistical association with satisfaction with surgery outcome would be quite difficult to detect without a very large sample size even if it existed.
ADJUSTMENT AFTER WEIGHT LOSS SURGERY

Limitations

Several factors limit the validity of these findings. Discussed below are considerations pertaining to the sample, research design, and application of a life events measure to the experience of weight loss surgery.

The most significant limitation was the small sample size. Challenges with participant recruitment resulted in a substantially lower than expected sample size, even after revising the initial recruitment method and research design from a paper-and-pencil survey placed in the clinic waiting room to an online survey advertised on the clinic Facebook webpage. Analysis of respondents’ demographic data indicated that the results better represented attitudes of college educated females in their 50’s than patients who are male, older or younger adults, or did not attend college. The findings also better represented a sample of patients who were several years post-operative, as the number of pre-operative and recent post-operative participants was relatively low in this sample. Importantly, small sample size and these sample characteristics may have precluded finding significant results from Hypothesis 2, 2a, and 3.

Method of recruitment and the inclusion and exclusion criteria were among the limitations of a quasi-experimental design that should be considered in the generalizability of the results as well. The present study utilized a voluntary, non-random sample of self-selected patients from a single weight loss clinic located in Portland, Oregon. Results thus best represent the attitudes of a cluster of patients whose access to the clinic’s Facebook page during the recruitment period allowed them access to enter the online survey. This restricted sample of participants therefore may be more representative of a sample of patients receiving care from a specific clinic, treatment approach, and set of providers better than the larger population of weight loss surgery patients.
In this study, data for adjustment ratings was collected via self-report survey. As with any self-report measure, it is unknown if adjustment ratings and other responses to test items were an accurate reflection of the actual amount of adjustment experienced.

In addition, adjustment ratings were collected with a modified version of the SRRQ. The SRRQ has respondents provide adjustment ratings by selecting a numerical value from 1 through 100 for each life event. Instead, this study had participants indicate adjustment ratings on 7-point Likert scale lines (see Appendix A), as this added a visual component to the purely numerical SRRQ items. While this modification was incorporated to simplify the measure, this method of collecting adjustment ratings has not been utilized previously to our knowledge. Further psychometric testing is therefore needed to examine the reliability of the modified SRRQ measure.

There have been criticisms in the literature on life events research that quantifying “adjustment” might be oversimplifying complex processes. One argument that has been made is that life events measures may be influenced by a subject’s perception of the undesirability of an event. Some research has found inconclusive results on whether or not desirability really matters (Schroeder & Costa; 1984), while other studies have indicated mixed findings. For example, Vinokur and Selzer (1975) found adjustment only correlated with events rated as undesirable in a sample of males renewing driver’s license and attending traffic safety schools, while Rahe and colleagues (1972) found that illness strongly correlated with limited number of both undesirable and desirable events in U.S. Navy men undergoing Underwater Demolition Training.

If attitudes do in fact negatively influence the results of life adjustment ratings, then the generalizability of the present study should be carefully considered. For example, if participants reflected on weight loss surgery with regret, the rating of surgery may rank differently than those
who felt very positively about the outcome of weight loss surgery. Because it was unknown how perceived adjustment to surgery varies according to attitude toward surgery, it was difficult to anticipate whether or not valence of life events matters. To address this potential concern, the present study analyzed satisfaction with surgery outcome ratings relative to adjustment following surgery ratings. Mentioned above, findings did not indicate differences in adjustment ratings based on satisfaction with surgery. However, small sample size and limited variability in adjustment ratings may have obscured differences.

Mixed findings have been reported on which demographic factors, if any, moderate adjustment ratings. While age and ethnicity have more consistently demonstrated minimal impact (Rahe, 1994) in life events research, findings are inconclusive on the effects of gender, education, and income (McGrath & Burkhart, 1983; Miller & Rahe, 1997). Perception of life events items can also be confusing as the vagueness of life events require subjects to rely heavily on recall and judgment (Shroeder & Costa, 1984), and psychopathology may lower the reliability of life events measures (Gerst et al., 1978). McGrath & Burkhart (1983) found that the most important predictor of illness was perception of the event, and that higher education and income predicted less general psychiatric distress. Shroeder and Costa (1984) also found that actual physical illness had only a low to moderate correlation with life events when adjusting for coping skills and neuroticism; they believed stress-prone people are predisposed to stressful life events and may use external events to interpret or recall reasons for distress. As such, some researchers believe that life events research is inherently too biased by subjectivity and individual characteristics. Conversely, other research indicates coping styles do not significantly impact adjustment ratings (Lei & Skinner, 1980). Some nevertheless suggest that adjustment ratings might represent estimates of the perceived adjustment and resources for coping with
changes associated with life events (Horowitz et al., 1977), and this does not detract from the intended goals of life events research (Rahe & Arthur, 1978).

With these considerations in mind, the present study attempted to address the possibility of moderating variables by including items for level of education and gender, as well as other factors relevant to weight loss surgery (BMI, type of surgery, time since surgery). While the limited sample size in this study precluded analyses of the relevance of these factors, future studies may examine these further.

Another important consideration in interpreting these findings is related to recall and proximity to the life event (i.e., weight loss surgery). Although many participants in this study were several years post-operative, the salience of surgery for the participants who responded to this survey may have affected their responses. Specifically, it was interesting that mean adjustment due to changes related to bariatric surgery (i.e., changes in eating habits, revision of personal habits, changes in recreation) were all ranked very highly and higher than mean adjustment following major life events such as death of a close family member and death of a spouse (see Table 2). A literature review on health outcomes found recency, attributes, complexity, salience, patient experience, and mood to be influential on patient-reported outcomes (i.e., health behaviors, symptoms, and health-related quality of life; Stull, Leidy, Parasuraman, & Chassany, 2009). These authors also suggested that, despite being crucial to measurement validity, optimal measurement timing/proximity (i.e., recall period relative to a phenomenon) depends on the nature and type of phenomena being assessed. Factors such as salience and complexity therefore may have impacted the validity of using a life events measure as a method of investigating adjustment following weight loss surgery.

Future Directions
The primary purpose of the present study was to identify how patients ranked adjustment to bariatric surgery compared to adjustment to other significant life events using an established measure, the SRRQ. A considerable limitation of this study was the small sample size. The reliability and generalizability of these findings should therefore be examined in future studies. In particular, attention may be paid to increasing participant recruitment to include a larger sample that may expand the inclusion criteria to other weight loss surgery clinics or a nationwide weight loss surgery population (e.g., via listserves). A more diversified sample of patients from different backgrounds (e.g., ethnic, age, education, gender), as well as those who are at different phases of surgery, may better capture the experience of weight loss surgery from a broader perspective.

Investigating methods of examining patients’ experiences, expectations, outcome, and/or satisfaction with weight loss surgery, as well as other mediating factors, may be useful in furthering this research. Considering the prevalence of psychopathology and maladaptive coping strategies in a subset of this population (Rosenberger, Henderson, & Grilo, 2006), it may be critical to consider the effects of coping style and psychopathology on adjustment to weight loss surgery ratings. Future studies may incorporate measures of coping resources or psychopathology.

This study represents an early effort at examining patients’ perceptions of the level of adjustment necessary following weight loss surgery. The major finding was that participants ranked the amount of adjustment following weight loss surgery higher than the amount of adjustment expected following all other significant life events on an established measure. A secondary finding was preliminary support for the utility of the SRRQ to capture patient adjustment following bariatric surgery. However, more research is needed to identify the best
method of assessing level of adjustment in a systematic way. In particular salience of bariatric surgery may have affected the results, and this is a consideration in using the SSRQ with bariatric surgery as well as other life events. Further psychometric studies using life events measures may clarify best methods for addressing this issue. Despite the limitations, it is hoped that medical and mental health providers can use information gained from this study to convey the high level of adjustment commonly reported by patients, thereby helping surgery candidates better prepare for the changes necessary prior to and following weight loss surgery.
References


expect before and after surgery. *Medical Clinics of North America, 91*, 451-469. doi:10/1016/j.mcna.2007.01.003


Appendix A: Online Survey

Life adjustment following weight loss surgery

Survey on Life Adjustment Following Weight Loss Surgery changes (IRB # 062-12)

Study personnel:

<table>
<thead>
<tr>
<th>Name</th>
<th>Lauren Kagami, M.S.</th>
<th>Katherine Elder, Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role</td>
<td>Principal Investigator</td>
<td>Faculty Advisor</td>
</tr>
<tr>
<td>Institution</td>
<td>Pacific University</td>
<td>Pacific University</td>
</tr>
<tr>
<td>Program</td>
<td>School of Professional Psychology</td>
<td>School of Professional Psychology</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:kaga8102@pacificu.edu">kaga8102@pacificu.edu</a></td>
<td><a href="mailto:elderk@pacificu.edu">elderk@pacificu.edu</a></td>
</tr>
<tr>
<td>Telephone</td>
<td>808-728-8735</td>
<td>503-352-7321</td>
</tr>
</tbody>
</table>

Study invitation, purpose, location, and dates:
You are invited to participate in a research study investigating life adjustment after bariatric weight loss surgery. The project has been approved by the Pacific University IRB will be completed by December 2012. The study will take place in an online survey that was modified from the Social Readjustment Rating Questionnaire (SRRQ; Rahe, 1975). Medical and mental health providers will use the results of this study to inform patients before surgery about how much change to expect after surgery. This study is being conducted by Lauren Kagami, M.S., and Katherine Elder, Ph.D. Please read this form carefully and ask the researchers listed above about any questions you may have before agreeing to be in this study. You are advised to print or write down the researchers’ names and contact information so that you can contact them if you need to do so.

Participant characteristics and exclusionary criteria:
You are invited to participate in this study if you meet the following criteria: You are an adult over the age of 18 who is seeking OR already had weight loss surgery. Please discontinue this survey at this time if you are under the age of 18, if you did not have and are not interested in seeking weight loss surgery, or if you are unable to read this form and the survey for any reason.

Study materials and procedures:
It is anticipated that approximately 150 patients who have had or are seeking weight loss surgery will participate in this study. This survey will ask about your age, gender, weight loss surgery, and adjustment to various life changes. The survey will take approximately 10 to 20 minutes. It is preferable (but not required) that you complete the survey in a quiet, private place where Internet access is available to you. There is no cost associated with participating.
Risks, risk reduction steps and clinical alternatives:
The risk in this study is low. However, it is possible that participation in this study may expose you to currently unforeseeable risks. If this should occur, you are encouraged to contact a friend or family member for support or seek out appropriate mental health resources. This is an anonymous and voluntary survey, as no identifying information that could link your name to your responses will be collected. Despite this, there is always a minimal amount of risk when using the Internet. To minimize this risk, all data collected will be stored electronically into a password-protected document and will only be available to the researcher and her advisor (see Study Personnel). The survey takes about 10 to 20 minutes to complete. It is possible that you may experience fatigue, boredom, or emotional discomfort while completing the survey. You are allowed to discontinue the survey at any time, without penalty or repercussions. This study does not involve experimental clinical trials.

Adverse event handling and reporting plan:
If the investigators are made aware of an adverse event, the IRB office will be notified by the next normal business day if minor adverse events occur (e.g. emotional upset, mild anxiety, temporary sadness) and will be handled as follows: You will be encouraged to seek social support from friends and family. The IRB office will be notified within 24 hours if major adverse events occur (e.g. sustained anxiety/depression, severe emotional distress) and will be handled as follows: You will be encouraged to seek social support and will be provided with the contacts for mental health services that are appropriate for your needs and location of residence. Please contact the advisor of this study, Dr. Katherine Elder, at the number listed on the first page if you would like to inform the study researchers of a negative reaction you experienced from the survey. She will refer you to a mental health service that is appropriate for your concerns. Additional concerns regarding this study may be addressed by contacting the Pacific University’s Institutional Review Board, at 503-352-2112.

Direct benefits and/or payment to participants:
There is no direct benefit to you as a study participant. Participants will not be paid for their participation. All responses provided in this survey will remain strictly anonymous. You will not be asked to provide your name or any other identifying information that can be connected to your responses in this survey. Records of your answers will be stored in a secure, password-protected electronic file and will be accessible only to the primary researchers and her advisor. During your participation in this project it is important to understand that you are not a Pacific University clinic patient or client, nor will you be receiving complete medical or mental health care as a result of your participation in this study. If you are injured during your participation in this study and it is not due to negligence by Pacific University, the researchers, or any organization associated with the research, you should not expect to receive compensation or medical care from Pacific University, the researchers, or any organization associated with the study.

Voluntary nature of the study:
Your decision whether or not to participate will neither affect your current or future relations with Pacific University. If you decide to participate, you are free to not answer any question or withdraw at any time without prejudice or negative consequences. If you choose to withdraw after beginning the study, there will be no consequence; simply discontinue the survey.
However, after you begin taking the survey, because it is anonymous, there will be no way for us to remove your data.

Contacts and questions:
The researcher(s) will be happy to answer any questions you may have at any time during the course of the study. If you are not satisfied with the answers you receive, please call Pacific University’s Institutional Review Board, at (503) 352-1478 to discuss your questions or concerns further. If you become injured in some way and feel it is related to your participation in this study, please contact the investigators and/or the IRB office. All concerns and questions will be kept in confidence.

Statement of consent:
I have read and understand the above. All my questions have been answered. I am 18 years of age or over and agree to participate in the study. By clicking “YES, I AGREE” options below, I understand that my continued participation in the survey denotes my consent. If I choose not to participate or to withdraw from participation, I can choose to discontinue and discard this survey at any time.

*( ) YES, I AGREE. I have read and understand the above informed consent form. All my questions have been answered and I agree to participate in this study.
( ) NO, I DO NOT AGREE. I do not wish to participate in this study or do not meet the qualification criteria listed in the informed consent.

Demographic Information
Age*
( ) 18
( ) 19
…
( ) 80+

Highest level of education*
( ) 12th grade or less
( ) Graduated high school or equivalent
( ) Some college, no degree
( ) Trade or business school
( ) Associate degree
( ) Bachelor's degree
( ) Master's degree
( ) Doctoral degree

Gender*
( ) Male
( ) Female

Height*
( ) 4'8"
ADJUSTMENT AFTER WEIGHT LOSS SURGERY

( ) 4'9"

... 

( ) 6'6"

Current weight*

____________________________________________

Current BMI (Body Mass index)

____________________________________________

Please select which option best describes you.*
( ) I had weight loss surgery.
( ) I am considering or will have weight loss surgery.

____________________________________________

Weight loss surgery information
Type of surgery*
( ) Gastric bypass (Roux en y)
( ) Adjustable gastric banding (e.g. LapBand)
( ) Sleeve gastrectomy
( ) Other

Date of surgery*
month: _________________________
year: _________________________

How long ago you had surgery
months: _________________________
years: _________________________

Weight at the time of surgery

____________________________________________

BMI at the time of surgery

____________________________________________

What is your overall attitude about the outcome of your weight loss surgery?*
Very Dissatisfied
( ) 1
( ) 2
( ) 3
( ) 4
( ) 5
( ) 6
( ) 7

Very Satisfied
Survey: Life Event Adjustment Rating & Comparison

New experiences bring change to an individual's daily routine. These experiences can cause stress and affect how people feel about themselves and others. People respond differently to certain changes. Adjustments are needed for both positive and negative experiences.

Instructions:

1. Rate the events on the following pages based on your experiences AND what you have observed from others.
2. Estimate the AVERAGE degree of adjustment necessary for each event, rather than the extreme.
3. Your responses should be based on how difficult and/or how long it would take you/others to feel comfortable adjusting into a new routine after each event.
4. Do NOT skip any events. If you have not experienced one of the events, take a guess as to how much it would take for OTHERS (in general) to adjust.
5. Change in responsibilities at work*
   Least Adjustment
   ( ) 1
   …
   ( ) 7
   Most Adjustment

Outstanding personal achievements*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Change in religious activities*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Change in school*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Marriage*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Mortgage over $50,000*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Change in school activities*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Divorce*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment
Change in recreation*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Marital separation*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Change in number of family get-togethers*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Jail term*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Death of a close family member*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Change to different line of work*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Death of a spouse*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Gain of a new family member*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Marital reconciliation*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Personal injury or illness*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Fired at work*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Retirement*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Change in sleeping habits*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Change in health of a family member*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Pregnancy*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Business readjustments*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Change in eating habits*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Change in residence*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Change in financial state*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Death of a close friend*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Change in number of arguments with a spouse*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Foreclosure of mortgage*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Minor violation of laws*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Son or daughter leaving home*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Trouble with in-laws*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Spouse begins or stops work*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Begin or end school*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Change in living conditions*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Revision of personal habits*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Sex difficulties*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment
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Trouble with boss*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Change in work hours or conditions*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Loan less than $50,000*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Vacation*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Rate the next event (weight loss surgery) just as you did for the previous life events. If you have NOT had surgery, consider the changes you might expect. If you had weight loss surgery, you might have experienced the following changes:

- Eating differently
- Making time for physical exercise
- Dealing with problems and emotions
- Mood or self-esteem
- Relationships with your spouse, family, friends, co-workers, etc.
- Quality of life (e.g. walking more easily, taking the stairs, dressing, sitting in a restaurant or airplane, participating in social events)

Weight loss surgery*
( ) 1 Least Adjustment … ( ) 7 Most Adjustment

Thank you for taking our survey. Your response is very important to us.
Appendix B: Online Survey Facebook Posting

Considering bariatric weight loss surgery? Already had surgery? We want to learn from your experience! You can help others know what to expect from life after surgery.

Click here if you would like to participate in our quick, 10-minute survey!
If you have not already completed a survey, your response would be greatly appreciated.

Thank you,
Lauren Kagami, M.S.
Legacy Weight Management Institute Psychology Practicum Student, 2011-2012