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Changes in Relationships after Weight Loss Surgery

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Abstract – Weight loss surgery has potential costs and benefits both physically and psychologically for the patient and their romantic relationships. This study examines the changes in relationship maintenance behaviors as perceived prior to weight loss surgery and again after weight loss surgery. Questionnaires containing quantitative and qualitative questions were distributed via a local bariatric surgery group. Thirteen couples in which the female had had WLS completed the questionnaires. Symbolic interactionism and the exchange paradigm were utilized to detect emerging themes. For the women, six relationship maintenance behaviors showed statistical increase – openness, sharing tasks, small talk, social networking, joint activities and focus on self. In addition, engaging in positive thought processes improved. For the males, small talk showed statistical improvement. Emerging themes in the qualitative section were: joint activity and positivity, changes in strategic behavior regarding food, stigma of obesity, confidence and health, policing and surveillance and changes in sexuality. Although mostly positive outcomes were reported some negative outcomes were also reported. Results indicate that couples are able to modify their relationship maintenance behaviors to successfully navigate the changes brought on by WLS.

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Introduction

The prevalence of obesity in many countries continues to rise despite the increasing knowledge, awareness and education about obesity and its risk for health problems (Egger, 1997). Over the last 20 years it has retained high attention in the media, the medical profession and the government. The Center for Disease Control and Prevention (CDC) estimates that 33% of adults over aged 20 are obese and 5.7% are extremely obese (Ogden & Carroll, 2010). Many are familiar with the CDC's definition of obesity. Although limitations with the Body Mass Index (BMI) exist, it is one measure of the ratio of height and weight and is found to correlate with the amount of body fat (CDC, 2012). A BMI of 18.5- 24.9 is considered a healthy weight, 25.0 to 29.9 is overweight, 30.0 to 39.9 is obese and greater than 39.9 is considered morbidly obese (CDC, 2012).

Most health care providers are aware of the multitude of obesity-related diseases: coronary heart disease, type 2 diabetes, cancers, hypertension, dyslipidemia, stroke, liver and gallbladder disease, sleep apnea and respiratory problems, osteoarthritis and gynecological problems (CDC, 2012). Many are also familiar with the socio-psychological impact of obesity. To be obese in our society carries a strong stigma or severe social disapproval (Ebneter, Latner, & O'Brien, 2011, p. 618). This stigma frequently leads to depression, poor self-image, anxiety, feelings of worthlessness, social isolation and lower social self-confidence (Ebneter et al., 2011). Despite the significant negative impact on health and social interaction, the prevalence of obesity keeps increasing.

Even though there is great alarm realized in regards to obesity statistics, we still lack effective treatment options for those who need to lose large amounts of weight. The traditional treatment is to encourage patients to reduce caloric intake, avoid high calorie, high sugar foods and to increase their activity level to include 30-60 minutes of aerobic exercise every day. Public health has changed its focus from seeing obesity as an individual problem to ideas encompassing other factors which many contribute to the increasing obesity statistics: environmental issues, behavioral factors, socio-economic issues. There have been movements to increase the number of parks for recreation, to increase supermarkets in low socio economic areas with affordable vegetables, fruits, etc. (Black & Macinko, 2010). Further, to combat obesity, more people are turning to bariatric or weight loss surgery (WLS).

The number of bariatric surgery nationally is approximately 113,000 cases per year (Livingston, 2010). Bariatric surgery is an effective intervention but comes with significant risks. Researchers have studied the risks and benefits of bariatric surgery from a medical and psycho-social perspective (Applegate & Friedman, 2008; Brethauer, Chand, & Schauer, 2006). Medically, most report a reduction in diabetes, hypertension, dyslipidemia, depression, obstructive sleep apnea, cardiovascular disease and orthopedic problems (Brethauer, Chand, & Schauer, 2006).

Studies have also examined quality of life measures before and after bariatric surgery. For example, Mamplekou, Komesidou, Bissias, Papakonstantinou, & Melissas (2005) studied several parameters before and after WLS including depression, fearful anxiety, oppression, interpersonal sensitivity, anxiety, hostility and found an

improvement in general mental health (Mamplekou et al., 2005). Specifically, they discussed the sensitivity in interpersonal relations and anxiety, finding that with increased weight loss, feelings of insecurity and inferiority were reduced along with weight. In our society, obese individuals often feel they are the object of criticism or rejection because of their appearance (Mamplekou et al., 2005). After bariatric surgery, the majority of patients improved with these emotional and psychological issues (Mamplekou et al., 2005).

The present study seeks to build on previous research by examining how relationship maintenance behaviors change for obese females as they were perceived prior to weight loss surgery and at present, as weight loss has occurred. In addition, the open-ended qualitative questions hope to explore in depth how WLS has impacted the interaction between the female and her partner.

Conceptual Framework

The patterns of social interaction within a marriage are in a state of dynamic balance influenced by variations in the individual's life, the partner's life and the couple's life. To assist in understanding these changes, social psychological theories are applied to capture these variations within the context of interaction. Relationships are not permanent destinations, but rather are continuous processes requiring frequent balancing (Duck, 1990).

In any long term relationship, much time is spent in its maintenance and repair (Dindia & Baxter, 1987). For a relationship to be maintained partners must discover

behaviors, strategies or techniques that can help to stabilize, repair, enhance, improve, and maintain the unit (Dindia & Baxter, 1987). Davis (1973) and later Dindia and Baxter (1987) developed maintenance strategy typologies to examine these relationships (Davis, 1973; Dindia & Baxter, 1987). These typological categories include: general communication strategies, pro-social strategies, anti-ritualization and spontaneity, togetherness, autonomy seeking/granting strategies and seeking outside assistance (Dindia & Baxter, 1987, p. 155). Partners use these strategies in various ways to maintain the relationship.

From a social psychological perspective, symbolic interactionism (Blumer, 1969; Mead, 1934) and social exchange/equity theory (Homans, 1958, 1961) will ground this study of relationship maintenance activities.

Symbolic interactionism describes how people construct meaning, use symbols and enact behavior within their social world (Crooks, 2001). People create meaning during social interaction and interpret situations based on these interactions and past experience (Rosenbaum, 2008). Patterns of communication, both verbal and non-verbal, contribute to this defining process. Herbert Blumer (1969) defined the three basic principles of symbolic interactionism. First, is that "human beings act towards things on the basis of the meanings that the things have for them. The second premise is that the meaning of things is "derived from, or arises out of, the social interaction that one has with one's fellows" … and thirdly, "these meanings are handled in, and modified by, an interpretative process used by the person in dealing with the things he encounters" (Blumer, 2008, p.102-103). These meanings, which we assign, are not fixed. Other's

actions define objects and through our interaction with others, we create our meanings (Blumer, 2008). People define objects: friends, partners, enemies, ex-wives, step-children, schools, government, integrity, honesty, marriage, etc. through interaction with others; these definitions are revised and altered. These definitions and the meanings associated with them, which are created, have a role in the formation of behavior (Blumer, 2008). Thus, as relationship partners experience disruption, the meaning of these interactions and maintenance behaviors, change and require updating. In essence, the actions of one partner influences the actions and responses of the other partner (Blumer, 2008).

A change in health, a social crisis, or a loss creates both upheaval and opportunity. Major life events interrupt routine (Crooks, 2001). As life presents these expected and unexpected disruptions, couples must communicate and make adjustments in order to regain balance within their relationship (Stafford, 2010). Significant changes in weight, like illness, represents changes in self-image related to the personal, social, and meaning of disease which impacts interpersonal relationships (Crooks, 2001). People then have the opportunity to adjust their views and behaviors to develop healthier relationships. To change one's beliefs about themselves, both members of the marriage need to be aware of the changes occurring and the impact it may have on the individual and on the marriage.

Social behavior as an exchange paradigm, posited by Homans (1950), states that relationships are a negotiated exchange of goods – material and non-material. Factors by which we measure equity include: effort, beauty, education, intelligence, sex, financial

success, power and contributions on a day to day basis (Hatfield & Rapson, 2011). This process of input-output attempts to balance out at equilibrium by using rewards, costs and resources (Homans, 1958; Rosenbaum, 2008; Pritchard, 1969). Behavior is modified and changed to obtain profit and minimize loss for oneself. Most partners believe that contributions to their relationship will eventually be rewarded. When this does not occur, when partners are left feeling "unloved", "disliked" or "unappreciated", they may begin to feel resentment (Hatfield & Rapson, 2011). Consciously or unconsciously, relationships are maintained on a "subjective cost-benefit analysis" (Rosenbaum, 2008, p. 39). Relationships are perceived as positive and satisfying when they are seen as equitable; when they are viewed as unequal, there is associated distress, fault, irritation and anxiety (Hatfield & Rapson, 2011). Long term close intimate relationships may glide along with minor inequalities. However, when stressful events – like illness, including weight loss surgery- occur, awareness of these inequalities may surface (Hatfield & Rapson, 2011).

Weight loss surgery affects not just the patients but their relationships in positive and negative ways (Bocchieri, Meana, & Fisher, 2002; Kinzl et al., 2001). In accordance with symbolic interactionism and social exchange/equity theories, couples may struggle with this interruption in their usual flow of activities and plans, and this may be reflected in relationship associated activities. In order to successfully navigate this new terrain, couples must adjust their activities as they assist each other in attaining the new goals and plans (Attridge & Berscheid, 1994). Examining these activities is key to observing and understanding how new meanings and shared understandings are constructed within a

relationship to create an ongoing process of "fitting together." Relationship maintenance activities reflect the investment couple partners put into their relationship and the meaning of those actions (Blumer, 2008). Consistent with this conceptual framework, this study compares the relationship maintenance activities as they were perceived as having been enacted before the WLS to the activities as they are enacted after WLS.

Literature Review

The dynamic nature of a relationship flows between periods of negativity and conflict and positivity and satisfaction (Sahlstein, 2004). On the negative side, relationships can be influenced by illness, job loss, financial concerns, conflicts in child rearing and other stresses of daily life. Positive influences include strong family and friendships, mutual respect, enjoyment of leisure activities, affectionate language and working towards goals. Thus, relationships are always changing, influenced by internal and external events –improving or deteriorating and couples must make adjustments accordingly (Lyons & Meade, 1995).

Researchers have focused on relationship maintenance behaviors as a topic of interest in studying relations (Masuda & Duck, 2002; Canary & Stafford, 1991; Stafford, 2010). Stafford and Canary (1994) defined maintenance behaviors as "actions and activities used to sustain desired relational definitions", including both routine and strategic behaviors (Canary &Stafford, 1994, p.5). These maintenance behaviors are those actions/words couples use to sustain desired relational features such as love, commitment, liking and satisfaction (Stafford, 2010). Canary & Stafford (1991)

developed a typology of relationship maintenance behaviors which consisted of five categories:

1. Positivity: behaving in a cheerful and optimistic manner
2. Openness: self-disclosure and direct discussion of the relationship
3. Assurances: messages stressing commitment to the partner and the relationship
4. Social networks: relying upon common friends and affiliations
5. Sharing tasks: equal responsibility for accomplishing tasks that face the couple

This five factor relational maintenance strategies measure (RMSM; Stafford & Canary, 1991; Canary & Stafford, 1992) was later expanded. Dainton and Stafford (1993) expanded the typology to 12 items to include both routine and strategic behaviors. In addition to the five categories of behaviors identified by Stafford and Canary (1991), the authors identified the following behavioral categories employed by heterosexual couples: (i) joint activities (spending time together); (ii) talk (small talk, not as deep as openness); (iii) mediated communication (communication that is not face to face, for example, phone calls); (iv) avoidance (evasion of issues); (v) antisocial behaviors (direct and indirect); an example of a direct antisocial behavior would be "I act jealous to get attention." An example of an indirect antisocial behavior would be "I don't always tell the whole truth"; (vi) affection (displays of fondness), and (vii) focus on self (improvement of self). Positivity includes items referring to cheerfulness, being upbeat and optimistic; Assurances include planning for the future, verbalizing the importance of the other; relationship talk requires discussing the quality of the relationship; self-disclosure comprises revealing one's fears & feelings; understanding consists of forgiving and

apologizing behavior; networks encompass friends and family activities; and tasks involve sharing in the daily responsibilities of household maintenance. These measures sought to include behaviors that were thought to be strategic, that is, consciously performed to maintain the relationship; and routine behaviors, which take place at a subconscious level, that is, regular behaviors that don't require much thought, those actions that may be "taken for granted" (Dainton & Stafford, 1993). It is proposed that by engaging in these behaviors, relationships will be enhanced and solidified.

Partners constantly negotiate their relationship maintaining behaviors either consciously or unconsciously to adapt to their relationship environment (Lyons & Meade, 1995). Within normal, stable relationships, many of these maintaining behaviors are performed on a subconscious level. With any disruption of the relationship, such as illness or other significant events, these behaviors are brought to the forefront of cognition and coping strategies and adaptations are discovered. Change which can be initiated by one, can be seen as threatening by another, affects both (Lyons & Meade, 1995). Adaptations are thus developed by both partners.

Weight Loss Surgery, with the resultant significant weight loss, change in appearance, increased energy, and change in eating behavior may impact relationship maintenance behaviors for the patient and his/her partner.

Applegate and Friedman (2008) studied the impact of WLS on romantic relationships. They reported that patients need to be educated regarding the potential changes that have been known to occur within existing relationships following WLS. Understanding the role that weight and eating behavior plays within a relationship is an

important issue. Although there can be many positive results from bariatric surgery, there may be many stresses as well. If the patient was obese prior to marriage, relational norms may have included the partner preferring large women, eating together as a shared past-time, or engaging in sedentary behavior (Applegate & Friedman, 2008). Hence, WLS can be emotionally challenging for partners. They may be threatened by their partners' new attractiveness, new self-confidence, new assertiveness, changes in their eating habits and desire to be more active. Most patients report feeling more attractive after surgery but sagging breasts or hanging skin can be problematic for some (Applegate & Friedman, 2008).

Regarding sexual intimacy, most patients report increased comfort during sex, increased libido, better ability to maintain good hygiene and greater enjoyment. However this too, can be stressful for some (Applegate & Friedman, 2008; Kinzl, Trefalt, Fiala, Hotter, Bieble, & Aigner, 2001). Kinzl et al. (2001) concluded that many sexual problems are the result of continued low self-image, poor relationships, or the residual stigmatization of obese individuals. Other earlier studies have reported improvement in marriage quality and improved sexual function (Rand, Kowalske, & Kuldau, 1984). Bocchieri, Meana and Fisher (2002) conducted a qualitative study to explore in depth the changes that occur after WLS. They concluded that although there are many positive changes, physically and socially, the surgery also "poses some challenges that generate tension in the patient's lives" (Bocchieri, Meana, & Fisher, 2002, p. 787).

These studies demonstrate that WLS can indeed impact relationships. The present study builds on existing research through its examination of relationship maintenance

activities of couples in which one partner has experienced WLS. By illuminating activities that may be modified following WLS, the findings may be helpful to clinicians who work with bariatric patients and their significant others enabling them to teach their patients

It is worthwhile to ask: What are the changes of relationship maintenance behaviors before weight loss surgery compared to these same relationship maintenance behaviors after weight loss surgery?

Relationship maintenance behaviors are one component that can contribute to success when changes in behavior and lifestyle are desirable or necessary. In order to understand the various influences on successful adjustment, primary care providers need to be aware of the effects that change has on relationships. Whether it is weight loss or chronic illness, change affects not only the patient but also the dyad and the family. Awareness of how these changes impact relationships assist PCP's in exploring these vagaries openly and directly while assisting with modifications as needed.

Methodology

This study focuses on relationship maintenance behaviors that couples use to re-stabilize and maintain their relationship following weight loss surgery. Behaviors used prior to and following WLS are compared. Secondary data is utilized and taken from a larger study examining identity and relationship maintenance activities in couples following WLS (Aramburu Alegría, 2010). To recruit participants for the original study, information was

posted in the newsletter of a local bariatric practice. As well, network sampling was utilized.

Inclusion criteria for the study (Aramburu Alegría, 2010) included:

1. Participants must be at least 18 years of age and in a heterosexual relationship.
2. Participants must be self-identified as being in a committed relationship with each other.
3. The duration of the relationship prior to WLS must have been a minimum of one year.
4. Time since WLS must be at least three months.
5. The female member of the couple must have had WLS.
6. Both couple members must be willing to participate.
7. Participants may be of any race, ethnic background, or socioeconomic status.

Exclusion criteria included:

1. Pregnant women may not participate.

Rationale for criteria:

1. For consistency in the data, only heterosexual couples in which the female partner had WLS are eligible to participate. Females outnumber males as recipients of WLS and account for approximately 84 percent of all surgeries (Encinosa, Bernard, Steiner, & Chen, 2005). Further, weight –related

discrimination and bias is more prevalent for women (Azarbad & Gonder-Frederick, 2010).

2. A one –year minimum requirement prior to WLS is included to ensure that couples were established prior to WLS.

3. A three month requirement since WLS is included to help ensure that physical recovery from the surgery is complete.

Instrument

The demographic information sheet asked participants if they were in a relationship now and at least for one year prior to the WLS, if it had been at least three months since the WLS, how long they were in the relationship at the time of surgery, and how long has it been since the WLS. It requested their height and weight prior to WLS and weight after WLS. They were asked how old they were when they developed obesity, side effects experienced after WLS and to list their health conditions.

The next section includes the 12 item typology based on the relationship maintenance behavior scale (RMBS) created by Stafford and Canary (1991), later expanded by Dainton and Stafford (1993), and further modified by Aramburu Alegría (2008). The additional question added by Aramburu Alegría reflects the self-talk that is often used to enhance relationships (Murray, Holmes, & Griffin, 1996), and behaviors that stigmatized persons may enact to ameliorate marginalization (Goffman, 1963). The participants were asked to rate the importance of relationship maintenance activities as they perceive they were prior to weight loss and now after weight loss. Each item was

associated with a five-interval Likert scale ("not important at all" to "extremely important"). Although the survey was not completed prior to weight loss surgery, it nonetheless examines how the participants *perceive* their activities have changed following weight loss. It also examines what the participants believe are the more important activities following weight loss surgery. The second section contained qualitative, open-ended questions allowing for specific responses regarding relationship maintenance activities that were engaged in prior to WLS and after WLS. This allows for a more in depth discussion of routine and strategic maintenance behaviors.

See instrument in Appendix A.

Participants

Thirteen couples completed the questionnaires. In each couple, the female had experienced WLS. All females (n=13; 100%) and the majority of males were Caucasian/White (n=11). Most of the couples were married (n=12; 92.3%) with one reported as living together (7.7%). The men ranged in age from 33 to 68 years (mean = 48) with most reporting some college (n= 6; 46%) a Baccalaureate degree, (n= 5; 38%) an associate level, and (n=4; 30%) at some college, (n=3; 23%) reported high school graduation and 1(7%) reported middle school completion. Most of the females had graduated from college or reported "some college" (n=11; 84.7 %); only a few reported being high school graduates only (n=2; 15.4%). The age of female participants ranged

from 23 to 65 (mean of 43.69 years; SD= 11.89). The age when obesity developed ranged from 2 years old to 23 years (mean = 11.15 years; SD = 7.85). The mean number of years of obesity was 32.54 years (SD = 14.13). Length of relationships extended from 2.5 years to 45.17 years (mean of 16.9; SD = 13.29). Months since surgery varied from 3 to 119 months (9 years 11months) (mean = 27.00; SD = 31.49). Original weight varied from 250 pounds to 350 pounds (mean = 294.54; SD = 35.19) and ending weight was reported from 125.00 to 250.00 pounds (mean = 183.96; SD = 36.52). Original BMI's were 41.8 to 55.8 (mean = 47.94; SD = 4.44) and the ending BMI's were 21.9 to 40.3 (mean = 29.92; SD = 5.36). The percentage of weight lost ranged from 17.39% to 56.23% (mean= 37.02; SD = 12.70). Table 1 depicts length of couple relationships, females' weight loss, length of time since WLS, and pre and post BMI.

Table 1

Female participant' demographics

Subject ID	Age	Length of relationship	Months since WLS	# pounds lost	Pre WLS BMI	Post WLS BMI
Female 1	62	39 years	38	107.5	44.9	27.04
Female 2	34	10.10 yrs.	15	140	51.7	24.41
Female 3	23	2.6 yrs.	3	40	43.5	35.90
Female 4	45	10 yrs.	12	66	41.8	31.48
Female 5	65	45 yrs.	9	87	48.4	34.77
Female 9	33	3.3 yrs.	5	79	44.4	31.09
Female 10	42	11.7 yrs.	47	190	48.81	22.31
Female 12	36	8.4 yrs.	119	132	55.85	30.07
Female 13	52	20 yrs.	6	83	53.74	40.35
Female 14	48	15 yrs.	22	130	50.46	28.15
Female 16	36	13.3 yrs.	6	104	47.63	32.71
Female 17	41	9.6 yrs.	26	185	50.02	21.89
Female 18	51	30.5 yrs.	43	94	41.98	28.87

Analysis

A descriptive analysis of the quantitative data and a thematic analysis of the qualitative comments were performed. Two researchers served as separate coders on the qualitative analysis. Independently, they reviewed the first five surveys, identifying categories and emerging themes. After comparing their results, similarities and differences were discussed. The remaining surveys were reviewed and again themes discussed, reaching consensus.

For the quantitative questions, the Statistical Package for Social Sciences (SPSS) was used to analyze the data recorded using Likert style questions. SPSS compared the items that were identified as being not important at all to extremely important before and after WLS. The alpha level was specified at 0.05 and Pearson's correlation was used to answer the research questions. Paired sample t-tests were run on the specific survey questions results for the females and the males regarding before and after WLS relationship behaviors.

Results and Discussion

The participants were asked to report side effects experienced since WLS. Of the 13 respondents, 38% reported some gastrointestinal disturbance, e.g. constipation, nausea, vomiting, gas and heartburn. Other issues described were hair loss (30%), dumping syndrome (15%), excessive skin (15%), and emotional issues (15%). Vitamin deficiency, hypoglycemia and anemia were reported by less than 1 percent. Twenty-three percent reported no side effects at all.

These side effects were reported in the literature and were frequently associated with diet adaptation problems or vitamin or nutritional deficiencies (Shuster & Vazquez, 2005).Specific prevalence rates for GI symptoms (most included under the term dumping syndrome) are not known (Shuster & Vazquez, 2005). Shuster and Vasquez reported on numerous vitamin and mineral deficiencies. Alopecia has been attributed to protein-calorie malnutrition (PCM) or deficiencies of iron and zinc and has been reported to occur in 5-90 % of patients after WLS (Shuster & Vazquez, 2005).

Although thirty percent acknowledged that specific health issues had resolved after WLS, some co-morbid conditions continued .Ongoing health problems were emotional problems (30%) and hypertension (23%). Diabetes, asthma, seizures, migraines, sciatica, Hashimoto's disease, May Thurner Syndrome, and gallstone pancreatitis were each recounted by less than 1 % of the females. A dramatic difference was reported by one female.

> "I had been "truly debilitated by my weight – numerous co-morbidities including being on full time oxygen." For ongoing health conditions, she stated "not anymore!" (Female 14)

These remarks support previous studies that health improvement, both physical and emotional, was recognized by the recipients of WLS (Brethauer et al., 2006; Mamplekou et al., 2005). Indeed, 61 % of the females when asked "What has been best about WLS?" replied with remarks concerning health.

Quantitative Data

The 15 Likert style questions were specifically designed to reflect the typologies of relationship maintenance behaviors developed by Canary and Stafford (1991,1992) and elaborated on by Dainton and Stafford (1993). In addition, a question reflecting "self-talk" by Aramburu Alegría (2008) was introduced. Increases in seven behaviors, as reported by the women were found to be statistically significant. These behaviors include: openness, social network, sharing tasks, joint activities, small talk, and focus on self. Engaging in thought processes to view the relationship as positive was also significantly increased among the females' behaviors pre and post bariatric surgery. For the men, question #7, related to small talk was the only answer that had statistical significance for the behaviors pre and post WLS for their mates. Table 2 depicts the mean of RMB for pre- and post- WLS for female participants.

Table 2

RMB Mean Answers for Pre and Post WLS of Female Participants

RMB questions	Pre WLS	Post WLS
1. Positivity	3.77	4.00
2. Openness	4.00	4.54 *
3. Assurances	4.08	4.31
4. Social Network	3.54	4.23 *
5. Sharing Tasks	3.23	3.85 *
6. Joint Activities	3.38	3.69 *
7. Small Talk	3.23	3.62 *
8. Mediated Communication	2.92	3.08
9. Avoidance	2.83	3.08
10. Antisocial Behavior	2.33	2.92
11. Assurances	3.15	3.69
12. Affection	3.62	3.54
13. Focus on Self	2.33	3.42 **
14. Self-Talk	3.15	3.85 *
15. Avoidance	3.25	2.75

Note. Significance - $p < 0.05$ (*); $p < 0.01$ (**)

The most significant change ($p < 0.01$) for these answers was the question regarding *Focus on Self*. This was an anticipated result of WLS in that those feelings of

insecurity, anxiety, and depression often decrease with weight loss, allowing the female to feel more worthy of spending time on her own needs (Mamplekou et al., 2005).

An interesting finding was that the women in this study identified seven areas of change after WLS whereas the males reported only one area. Most of the literature reviewed did support the notion that women do perform more maintenance behaviors than men (Canary & Wahba, 2006). These authors used the five-factor typology and identified two typologies which are typically maintained by women, openness and sharing tasks (Canary & Wahba, 2006). Canary and Wahba also used equity theory as a theoretical construct to explain how maintenance behaviors are perceived by women and their partners. They found that in satisfactory relationships, in which the female feels equitably treated, the females perform more maintenance behaviors (Canary & Wahba, 2006). Consistent with the study by Canary and Wahba (2006), the females in this study did report attributing more importance to these seven factors and did report increases in performance of these behaviors as reported in the qualitative section.

Qualitative Data

The second part of this study included a qualitative investigation with 13 open ended questions and two additional opportunities for patients to expound upon their relationship maintenance activities by asking if there was "*anything else they would like to say*."

Relationship maintenance activities were again reported via the qualitative questions. Specifically, joint activities and positivity were paramount, as illustrated by these respondents:

> "I am happy about my health… and enjoy doing things…" (Female 2)
>
> "I am happier, therefore I am a lot more willing to compromise and do activities like dancing without such fear of embarrassment." (Female 9)

For many couples food was a central issue surrounding their social lives before and after WLS. Most couples adopted strategic behaviors to support the female in healthy eating and in removing temptation. We identified numerous adjustments of relationship maintenance behaviors as couples negotiated the change brought on by the WLS. This demonstrates how both partners were able to adapt to the new challenges of navigating food choices. The following respondent illustrates the limitations imposed in order to achieve healthy eating and weight loss goals.

> "We used to go out to dinner once a week or stop by the pastry shop for some special pastry. Now, we just go out, except not to all of the many restaurants. Don't have that much soda in the house, no sweets." (Male 13)

Similarly, Male 3 reported, "I can't have bad foods in the house anymore." Another male participant, Male 1, reported the benefits afforded him as well with the dietary changes in the home: "I have been trying to lose weight too." Joint activities and collaboration are illustrated by Female 14: "What we cook and how we cook it has changed quite a bit." Limiting "bad food" consumption for those times when the woman

was not in the vicinity was reported as one method for removing temptation. Female 1 explains this by stating, “He eats his ice cream after I go to bed.”

In addition the following themes emerged: 1) Stigma of obesity, 2) Confidence and health, 3) Policing/surveillance, 4) Changes in sexuality.

Stigma of obesity

A few women reported feelings that demonstrate the social stigma of obesity. As illuminated by symbolic interactionism, the “meaning” that obesity had for some of these women was that they were less desirable, less worthy of a relationship unless they worked harder to “give” in their relationship. The exchange paradigm also explains these negative emotions. If a female judges herself to be less attractive than her mate, she must contribute “more” to the relationship in another manner, in order to balance the “rewards, costs and resources (Homans, 1958; Rosenbaum, 2008; Pritchard, 1969). Sometimes she exhausts herself by her efforts, perhaps never believing that she can measure up.

> “I felt self-conscious, like I had to prove myself every day that I was a good and caring wife. [I am] hard on myself. [I was] in so much pain. It was a constant let-down. [I] tried to be sensual and sexy but felt big and undesirable.” (Female 2)

Following weight loss, a few women could not overcome the schema of themselves as obese. Some schemas, or preconceived ideas that we hold about ourselves, are too strong despite the new interactions one may experience. These women continued to define themselves in a negative image.

> "I have never been considered skinny and now people see me this way. But the funny thing is I still feel fat. I used to think I was a skinny person in a fat body, now I truly feel like a fat person in a skinny body." (Female 10)
>
> "I still think of myself as obese and behave like am obese person. I don't like to look in the mirror even after all these years. I don't like the image there. I don't see myself. I still look ugly to myself and will never wear a bikini" (Female 12)

Adami, Meneghelli, Bressani, and Scopinaro studied the role of body image prior to and after WLS and discovered that following WLS many subjects improve their self-image of physical attractiveness. However, for others displeasure and disparagement with oneself persists and does not improve with the reduction of body size and weight. They concluded that some aspects of body image may reflect some inner feelings not related to actual body size (Adami, Meneghelli, Bressani, & Scopinaro, 1998).

Confidence and health

Several women voiced increased independence, increased happiness and improved self- image. Symbolic interactionism and exchange paradigm are appreciated here with the females changing the "meaning" of themselves based on their new interactions with those around them. They interpret behavior from others: compliments, opening door, smiling, as reinforcement that their status in society has increased. They may feel they have more to offer: attractiveness, positivity, energy or efforts which are all valued in our society.

"I've found I don't need his approval to feel good and positive about myself." (Female 1)

"Now that I had WLS, I am happy about my health, my new found freedom. I feel great and enjoy doing thing. I feel closer to my husband now more than ever" (Female 2)

"I think for the first time he is seeing me as pretty. He has always loved me unconditionally, but I think he sees me a little differently now." (Female 5)

"I am happier therefore I am more willing to compromise to do activities like dancing without fear of embarrassment." (Female 9)

"The way "strangers" treat you… so many men looking, opening doors, saying hello… I have been surprised …by their reactions." (Female 17)

Policing/Surveillance

Policing/Surveillance behavior by spouse was described and seems to be viewed in a positive manner. This again illustrates how adaptations following WLS were developed successfully by both partners.

"He is always trying to make sure I am eating healthy, taking vitamins; I think it is difficult for him to try and stay on top of it." (Female 3)

"I supported her in her weight loss and watched that she did not cheat. If she tried to fudge, I reminded her to not cheat. I remind her to eat or not eat that to keep her good and on track; to eat smaller meals more often." (Male 1)

Changes in sexuality

Although not specifically asked, many respondents commented on sexual intimacy. The results in this study support Bocchieri, Meana and Fishers' (2002) findings that recognized positive and negative outcomes. Three couples report increased and better sex. The following statements clarify:

> "I do find that I spend a bit more time focusing on our sex lives more-picking sexy lingerie, etc. because I enjoy looking better physically and sharing new sexual interests with my husband " (Female 12) Similarly, Female 18 acknowledged,
>
> "[We are] closer in the bedroom," and Female 2 remarked: "My husband touches me more and holds hands in public more"

Two women reported increased stress with regards to intimacy, including loss of libido. Female 4 explains: "I don't want to be intimate with my husband. I love him very much but I don't want an intimate relationship" One female described how her husband had lost interest years ago, but she finds it easier to cope now, given her new confidence, stating: "the loss of sex doesn't bother me so much." (Female 1)

Lastly, two females reported adverse behaviors/outcomes following WLS. Female 13 reported sabotage behavior, as describes by her statement. "He still tries to give me before-surgery portions." Another acknowledged that "WLS had "me focusing on myself more. This put additional strain on an already strained relationship." (Female 16) Interestingly, no one identified any spousal insecurity, competition, jealousy or changes in power or status after weight loss.

Strengths and Limitations

The study was successful in sampling patients who were at various stages of their weight loss experience and various durations of relationships. It is further strengthened by involving two researchers evaluating the categories and emerging themes.

Limitations of this study are: the sample size was small, a control group of normal weight couples was not used, and the surveys used recall of *perceived* relationship maintenance behaviors compared with the present. Relying on memory is not as accurate.

Conclusions

Relationship maintenance is a complex process in which partners must adjust their strategies to sustain equanimity in their relationship in the face of tension brought on by events in their lives. These couples demonstrate ongoing negotiations as they modify their habitual approaches to preserve the relationship. This supports previous research that couples, who update their maintenance behaviors as life shifts, report high satisfaction and commitment (Dainton & Stafford, 1993). This study found that most of these couples were willing to make the demanding lifestyle changes.

There are benefits and costs that occur after WLS. It is not a "cure all." It does not solve marital or social problems. Patients need to develop new skills to interact in a positive manner. Even after surgery, there is no guarantee of maintaining successful weight loss. Couples must adapt and change their behaviors concerning food and physical activity.

The qualitative part of this study confirms the importance of joint activities, working together and it serves to shed additional light on the impact of WLS. For example, we learned that partner surveillance is common after WLS. Future studies may consider looking into this.

Recommendations for Clinicians

It is necessary that the health care team understands how bariatric surgery impacts the new life experiences of women. It impacts more than weight and physical health. It impacts identity and relationships. Somewhat irrationally, many believe that all or many problems are solved with weight loss. Although the benefits of WLS are many, the stresses may be just as prevalent in the patients' lives. Clinicians need to reinforce realistic expectations for the patient and their family.

Recommendations for Future Studies

Replication of this study using a larger, more comprehensive population (e.g. Hispanic, African American, Native American, etc.) is needed to determine the difference by race, culture, age and socio-economic status. Increased accuracy would be determined if the surveys were distributed prior to WLS and then again post-WLS. Added information may be gleaned if height and weight of the males was included. Another study may be interested in the relationship changes among friends. It may be helpful to specifically ask if emotions such as insecurity, jealousy, competition or a power change

had been identified. A larger study may be able to find a link between RMB's and weight loss outcome. The theme of surveillance warrants further investigation.

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Appendix A

WEIGHT LOSS SURGERY AND CLOSE RELATIONSHIPS

This survey explores the close and committed relationships of couples in which the female partner has had weight loss surgery (WLS). The following questions are about relationships. If the female member of your partnership or marriage had WLS, and you and your partner meet the criteria below, your help is needed. Please be assured that your answers will remain confidential. You may skip any question you prefer not to answer.

1. You and your partner are at least 18 years of age and in a heterosexual relationship.

2. You and your partner were in a relationship at least one year before the weight loss surgery.

3. Time since weight loss surgery has been at least three months.

4. Both you and your partner are willing to participate in the study survey and interview.

(Please note – pregnant women may not participate in the study.)

Please read each question carefully. Your thoughtful answers are very important.

Please circle the appropriate response.

Generally, couples committed to a relationship intend to continue the relationship.

1. Are you presently in a committed relationship?

1. Yes ----------CONTINUE TO QUESTION #2

2. No ------STOP-DO NOT CONTINUE THANK YOU

2. If Yes, have you been in this relationship at least one year prior to weight loss surgery?

1. Yes ----------CONTINUE TO QUESTION #3

2. No ---- STOP-DO NOT CONTINUE THANK YOU

3. How long have you been in this relationship (in years and months)?

_____

4. Has it been at least three months since the weight loss surgery?

1. Yes ----------CONTINUE TO QUESTION # 5

2. NO ----STOP-DO NOT CONTINUE THANK YOU

5. How long were you in the relationship at the time of the WLS? (in years and months)? _____

6. How long has it been since the WLS (in years and months)? _____

FEMALE PARTICIPANT --------CONTINUE WITH QUESTION # 7

MALE PARTICIPANT ---------- CONTINUE WITH QUESTION # 12

7. What was your height and weight prior to the WLS?

Height _____

Weight _____

8. What is your weight now?

Weight _____

9. How old were you when you developed obesity? _____

10. What side effects, if any, have you experienced, or are experiencing since WLS?

11. Do you have any health conditions, such as heart disease, diabetes, depression, etc?

THE REMAINDER OF THE SURVEY IS TO BE COMPLETED BY BOTH MEMBERS OF THE COUPLE

The following questions seek information on relationship maintenance activities. Please provide your thoughtful responses in the spaces provided. Feel free to respond as fully as you would like. You may also respond on the back of this sheet, or add extra sheets of paper if you would like to do so.

12. Please describe activities that you used prior to WLS to maintain your relationship. These may have included activities that show you care for your partner or that you are committed to the relationship. Going out with friends together might be one example of such an activity. Or it can include having positive thoughts about the relationship, such as, "I think about my partner's good qualities."

13. Please describe activities that you currently use to maintain your relationship. These can include activities that are similar to those above, or they may include new and different activities.

14. Have these activities changed since WLS? If so, how?

15. Relationships require many routine activities during day-to-day life. These are things you may not have thought of above (Questions 11-13) because they might seem

too trivial. Please try to describe the routine things that you do for the relationship. Sharing chores might be one example of a routine activity.

16. Have these activities changed since WLS? If so, how?

17. Are there activities that you and your partner engage in to strengthen your commitment to the relationship? These might be activities similar to those activities listed above, or they might be different activities.

18. Have these activities changed since WLS? If so, how?

19. What has been most difficult about WLS for you?

20. What has been most difficult about WLS for your partner?

21. What has been best about WLS for you?

22. What has been best about WLS for your partner?

23. What has been most surprising about WLS, if anything, for you?

24. What has been most surprising about WLS, if anything, for your partner?

The following section asks about your relationship BEFORE WLS

The following are activities that couples may or may not engage in.

For each activity, please indicate how important the activity was PRIOR to WLS. If you did not engage in this activity with your partner BEFORE WLS, leave the activity blank.

1. Interacting in a positive, upbeat manner

Not important at all Neutral Extremely important

0 1 2 3 4 5

2. Communicating openly and honestly

Not important at all Neutral Extremely important

0 1 2 3 4 5

3. Providing comfort and support

Not important at all Neutral Extremely important

0 1 2 3 4 5

4. Socializing with family and friends

Not important at all Neutral Extremely important

0 1 2 3 4 5

5. Sharing tasks and household chores

Not important at all Neutral Extremely important

0 1 2 3 4 5

6. Sharing time together, such as going to the movies or dinner

Not important at all Neutral Extremely important

0 1 2 3 4 5

7. Sharing small talk

Not important at all Neutral Extremely important

0 1 2 3 4 5

8. Making phone calls or writing emails during the day

Not important at all Neutral Extremely important

0 1 2 3 4 5

9. Avoiding topics or each other when tensions are high

Not important at all Neutral Extremely important

0 1 2 3 4 5

10. Giving criticism that is intended to be constructive, for example, “You shouldn’t eat that.”

Not important at all Neutral Extremely important

0 1 2 3 4 5

11. Compromising and exercising patience when disagreements arise

Not important at all Neutral Extremely important

0 1 2 3 4 5

12. Engaging in sexual and non-sexual affection

Not important at all Neutral Extremely important

0 1 2 3 4 5

13. Engaging in activities that enable you and your partner to grow, such as attending education classes, going to support groups, etc.

Not important at all Neutral Extremely important

0 1 2 3 4 5

14. Engaging in thought processes that are intended to help you view your partner and your relationship positively.

Not important at all Neutral Extremely important

0 1 2 3 4 5

15. Using activities that can help decrease any embarrassment that might occur when in public.

Not important at all Neutral Extremely important

0 1 2 3 4 5

Is there anything else you would like to say regarding your relationship before WLS?

The following section asks about your relationship AFTER WLS

The following are activities that couples may or may not engage in.

For each activity, please indicate how important the activity is FOLLOWING WLS. If you do not engage in this activity with your partner AFTER WLS, leave the activity blank.

1. Interacting in a positive, upbeat manner

Not important at all Neutral Extremely important

0 1 2 3 4 5

2. Communicating openly and honestly

Not important at all Neutral Extremely important

0 1 2 3 4 5

3. Providing comfort and support

Not important at all Neutral Extremely important

0 1 2 3 4 5

4. Socializing with family and friends

Not important at all Neutral Extremely important

0 1 2 3 4 5

5. Sharing tasks and household chores

Not important at all Neutral Extremely important

0 1 2 3 4 5

6. Sharing time together, such as going to the movies or dinner

Not important at all Neutral Extremely important

0 1 2 3 4 5

7. Sharing small talk

Not important at all Neutral Extremely important

0 1 2 3 4 5

8. Making phone calls or writing emails during the day

Not important at all Neutral Extremely important

0 1 2 3 4 5

9. Avoiding topics or each other when tensions are high

Not important at all Neutral Extremely important

0 1 2 3 4 5

10. Giving criticism that is intended to be constructive, for example, "You shouldn't eat that."

Not important at all Neutral Extremely important

0 1 2 3 4 5

11. Compromising and exercising patience when disagreements arise

Not important at all Neutral Extremely important

0 1 2 3 4 5

12. Engaging in sexual and non-sexual affection

Not important at all Neutral Extremely important

0 1 2 3 4 5

13. Engaging in activities that enable you and your partner to grow, such as attending education classes, going to support groups, etc.

Not important at all Neutral Extremely important

0 1 2 3 4 5

14. Engaging in thought processes that are intended to help you view your partner and your relationship positively.

Not important at all Neutral Extremely important

0 1 2 3 4 5

15. Using activities that can help decrease any embarrassment that might occur when in public.

Not important at all Neutral Extremely important

0 1 2 3 4 5

Is there anything else you would like to say about your relationship activities after WLS?

The following questions are for demographic purposes only.

25. What is the status of your relationship? _____ Dating

_____ Living together

_____ Legally married

26. How do you describe yourself?

_____Caucasian/White

_____African American/Black

_____Latino/Hispanic

_____Native American

_____Asian American

_____Multi-ethnic/Multi-racial

_____Other (Please specify)

27. In what year were you born? 19____

28. What is the highest grade level (level of education) you have completed?

Please check one.

_____Elementary school

_____Middle school

_____High school

_____Some college

_____Associate degree

_____Bachelor's Degree

_____Master's degree

_____Doctorate degree

THANK YOU FOR YOUR HELP!

PLEASE CONTINUE TO THE NEXT PAGE

FOR INFORMATION ON INDIVIDUAL INTERVIEWS

A second part of this study includes an individual interview. Each member of the couple will be interviewed separately at a location and time that is mutually agreeable for

the interviewer and the interviewee. It is anticipated that interviews will take 1 to 1.5 hours per person.

The interviews may take place either in-person or on the phone. The decision is yours.

This page will be separated from the other pages of the questionnaire and therefore there will be no identifying information linking this page with the completed questionnaire.

I will contact you to set up the interview. Please indicate the best way to contact you.

Name: _____

Address: _____

_____

_____

Phone: _____

Email: _____

Interviews will be audiotaped. The interviews will be stored in a locked cabinet and will not be used for further purposes without your written consent. Every precaution will be taken to preserve confidentiality and you may choose to end the interview at any time. Interview materials will be destroyed three years after the completion of the study.

THANK YOU!