2020

Online Social Support and Biopsychosocial Implications for Bariatric Patients

Jamie Kathryn Schofell-Williams
Walden University

Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

Jamie Kathryn Schofell

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Silvia Bigatti, Committee Chairperson, Psychology Faculty
Dr. Rachel Piferi, Committee Member, Psychology Faculty
Dr. Ann Romosz, University Reviewer, Psychology Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2020

Abstract

Online Social Support and Biopsychosocial Implications for Bariatric Patients

by

Jamie Kathryn Schofell

MS, Walden University, 2008

BS, Pfeiffer University, 2003

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

Walden University

November 2020

Abstract

Obesity has grown to epidemic proportions in the United States with approximately 40% of women and 30% of men having a body mass index greater than 35. Bariatric surgery is an effective form of weight loss. However, weight regain is a problem, with 50% of persons undergoing bariatric surgery experiencing a weight regain of 5% within 2 years of surgery and only 40% maintaining a loss of 30% or more long-term. Potential biological, psychological, and social issues can negatively impact the long-term success of weight management for many bariatric surgery patients. Research is significantly limited within this area and it is not clear what the effects of biopsychosocial issues are on successful long-term weight maintenance. Therefore, the current research sought to gain a robust understanding of the medical/biological, psychological, and social issues that are experienced following surgery as presented within an anonymous online bariatric forum. Generic qualitative methodology used for thematic data analysis of archival information collected from an online support forum identified 10 thematic biopsychosocial issues that gastric sleeve patients experience: continued poor habits, seeking therapy, hiding bariatric surgery, factors in weight loss, comorbidities of gastric sleeve surgery, revision from prior surgery to gastric sleeve, essential support needs, feeling increased emotional presence, social treatment within the weight loss journey, and self-harm and suicidal presence. These findings could assist practitioners within the area of bariatric surgery to integrate a comprehensive treatment for bariatric surgery patients, and as a result improve weight loss and maintenance for these patients.

Online Social Support and Biopsychosocial Implications for Bariatric Patients

by

Jamie Kathryn Schofell

MS, Walden University 2008

BS, Pfeiffer University 2003

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

Walden University

November 2020

Dedication

To my mom, Kathy, for all your unconditional love and support throughout my educational journey. I hope I continue to make you eternally proud and strive to be a reflection of your faith and love for others.

Acknowledgments

I would like to acknowledge my dissertation chair, Dr. Silvia Bigatti, for her direction, guidance, and support throughout both my masters and doctoral research. Thank you to Dr. Rachel L. Piferi for your assistance and guidance throughout the methodology for this research.

Table of Contents

List of Figures

Chapter 1: Introduction to the Study

Introduction

Two-thirds of Americans are overweight, and 30% of those are obese (National Institute on Health, 2017). Bariatric surgery is increasing in popularity as an effective form of weight loss. Many studies have shown the success of this surgery in significant initial weight loss. However, current research has shown that bariatric patients regain approximately 50% of initial weight lost (Bosworth, 2017). Long-term weight recidivism for the bariatric patient could be addressed by knowing what areas patients are identifying as problematic postsurgery.

In this research, I identified potential issues that are experienced following surgery that may be related to weight regain. The identification of issues mentioned by bariatric patients could aid physicians and mental health professionals in addressing these issues. Prior to and following surgery, it is important to identify areas that encourage or inhibit weight maintenance across the long-term in bariatric surgery patients.

Postsurgery challenges experienced by bariatric patients can be identified within online social support settings that provide easy access to patients' experiences over time, reported typically at the time they are being experienced. This is a benefit of online forums compared to face-to-face interactions where patients are asked to remember past experiences and to report these directly to the researcher. Online forums can identify presenting issues and problems in relative anonymity, which may result in more frank and open sharing.

In this study, I focused on identifying issues that may affect the long-term success rates of bariatric surgery. There is currently a gap in literature that addresses issues that arise as challenges for bariatric patients postsurgery. The biopsychosocial model of health provided the framework that guided the study. The biopsychosocial model of health addresses the treatment of the biological, psychological, and social issues that contribute to a patient's overall quality of health (Kaslow et al., 2007).

Background of the Problem

The United States Department of Health and Human Services (2017) reported that 78 million adults and 12 million children are currently categorized as obese. Obesity is diagnosed based on a person's body mass index (BMI), which is a measure of weight by height. Adults are classified as obese when their BMI is measured at 30 or higher. (United States Department of Health and Human Services, 2017). The Centers for Disease Control and Prevention (2017) has classified obesity as Class 1: BMI of 30 to < 35, Class 2: BMI of 35 to < 40, and Class 3: BMI of 40 or higher. Class 3 obesity is also known as morbid obesity. Obesity can have long-term effects on physical, psychological, and social health outcomes. Comorbidities often exist when a patient is seeking bariatric surgical intervention. Comorbidity is defined as the presence of two chronic diseases or conditions in a patient and is associated with worsened health care outcomes, increased need for targeted clinical management, and increased cost of healthcare (Valderas, Starfield, Sibbald, Salisbury, & Martin, 2009). Obese individuals are at risk for numerous comorbid chronic conditions, including hypertension, osteoarthritis, high cholesterol, Type 2 diabetes, heart disease, stroke, gallbladder disease, sleep apnea, and various types

of cancers (United States Department of Health and Human Services, 2017). Understanding obesity, comorbidities, and bariatric surgery can assist in developing individualized health care modalities for patients with multilevel diagnoses.

There are many approaches that individuals take to lose weight, most of which are not successful in the long term. They include popular weight loss programs, interactive phone applications that assist in tracking calories and weight loss, dietitians, vegetarianism, clinical trials, fad diets, prescribed medication, and supplements. These result in billions of dollars spent on health interventions that can fall short in assisting people in achieving healthy weight loss (National Institute of Health, 2017).

Bariatric surgery can result in immediate and significant weight loss. The American Society for Metabolic and Bariatric Surgery (2018) defined successful bariatric surgery as equal to or greater than 50% of excess body weight loss and is determined by the patient and their perceived increase in quality of life. Benefits of bariatric surgery are known to reduce medical complications, such as hypertension, high cholesterol, sleep apnea, and diabetes (Spittal & Fruhbeck, 2018). The surgery can decrease hypertension to manageable levels and can often reduce reliance on medications (Spittal & Fruhbeck, 2018).

Many patients experience weight recidivism across the long-term due to postsurgical challenges. These include expectations regarding diet and weight loss, levels of engagement on the part of medical personnel, challenges when accessing social support, perceptions of bariatric surgery prior to and postsurgical intervention, levels of support, efforts on the part of medical personnel to address comorbidities, and efforts on

the part of the bariatric patient to follow strict guidelines (DeGara & Karmali, 2014; Karfopoulou, Anastasiou, Avgeraki, Kosmidis, & Yannakoulia,, 2016; Moore & Cooper, 2016;Trainer & Benjamin, 2017).

Weight loss through bariatric surgery is comprised of more than simply obtaining the surgery and losing the weight. Research within the field of obesity and bariatric surgery is important to promote positive social change for bariatric patients through the identification of maladaptive behaviors that continue to manifest and of how to best treat these during the immediate follow up procedures for the bariatric patient, and for presurgical and long-term follow up. However, researchers have yet to identify which additional medical (biological), psychological, and social complications are identified as persisting and developing for patients following bariatric surgery as presented within online bariatric surgery support forums (Sharman et al., 2015).

Medical Benefits and Complications

Although there are many benefits of bariatric surgery, such as reductions medical complications such as hypertension, high cholesterol, sleep apnea, and diabetes (Spittal & Fruhbeck, 2018), there are also complications. Two classifications of complications following bariatric surgery include acute and chronic conditions. Acute complications following bariatric surgery occur within 6 months of surgical intervention and consist of bleeding, pain, and blood clots (Mayo Clinic, 2018). Chronic complications manifest 6 months following surgery and can persist long-term (Mayo Clinic, 2018). Chronic physical complications include initial failure to lose, food intolerance, sleeve dilation, dyspepsia, gastroesophageal reflux, stomach obstruction, abscess, stomach ulcers, nausea,

gall stones, need for nutritional supplements, weight regain, permanency, nonresolution of chronic conditions such as diabetes and hypertension, sagging skin, hernia, malnutrition, and abdominal adhesions (Monkhouse, Morgan, & Norton, 2009).

Psychological Benefits and Complications

Psychological problems in obese patients that may impact success after surgery include depression, anxiety, body dysmorphia, binge eating, and addiction transfer (Kubik, Gill, Laffin, & Karmali, 2013; Monkhouse et al., 2009). Postsurgical presence of psychological complications in bariatric patients could inhibit long-term success when not addressed. Postsurgery, there is an initial decrease in depression for most patients (Collins & Bentz, 2009; Kubik et al., 2013). However, latent depression can result in a 5% increase in weight within 1-month postsurgery (American Psychological Association, 2014). Anxiety increases the intensity of hunger (American Psychological Association, 2014; Hjordis, Gunnar, & Daisy, 1989). Body dysmorphia and body dissatisfaction are classified as extreme anxiety over a real or imagined physical flaw (American Psychological Association, 2014). Body dysmorphia and dissatisfaction often develop postsurgery, stemming from changes in biological structure (Larkin & Martin, 2017). Body dysmorphia and dissatisfaction impact the ability for formerly obese persons to view their slimmer makeup positively. Binge eating disorder is present within 8% of bariatric patients (Guarda, 2015). Binge eating is classified within the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5) as a major mental health disorder and affects the ability to adequately regulate food intake (American Psychological Association, 2014). Addiction transfer, also known as cross addiction,

occurs following bariatric surgery when patients trade compulsive eating disorders, such as binge eating disorder, for other compulsive behaviors (Broadwater, 2016). Obesity is strongly correlated with the presence of one or more psychological disorders that contribute to intense weight gain.

Social Benefits and Complications

Social support engagement may be a protective factor against biological and psychological issues but needs additional research to identify social complications that follow bariatric surgery. Social issues postsurgery include positive and negative outcomes, including increased social attention and extroversion, but also potential embarrassment of surgical intervention and speaking to others about their weight loss (Naslund et al., 2017).

Gap in Literature

Research is significantly limited within the bariatric surgery field in understanding issues identified in online social support systems that reduce biological, psychological, and social problems and contribute to potential weight recidivism (Sharman et al., 2015). Access to online social support presents pseudoanonymity to aid the patient in identifying struggles experienced. Research in this area provides insight into potential treatment recommendations following bariatric surgery.

This research aids in filling a gap by understanding additional issues, which are presented and discussed by bariatric patient's postsurgery within an online bariatric forum due to increased pseudoanonymity. To my knowledge, none of this existing rich data has been studied with the purpose identified in this research. Issues identified can

assist in understanding how individualized, postsurgery care, increases long-term success rates.

Statement of the Problem

Approximately, 33% of all bariatric patients experience weight recidivism, and this results in weight regain of 50% of initial weight lost (Bosworth, 2017). Failure rates in long-term weight loss, at the 10-year mark, are reported to vary from 25 to 70% (Bosworth, 2017). Long-term weight recidivism for the bariatric patient is addressed by knowing what areas patients are identifying as problematic postsurgery. Past researchers have identified biological, psychological, and social issues related to weight regain; however, potential issues are presented through discussions within online bariatric forums due to the pseudoanonymity experienced, allowing for potential disinhibition of responses (Kaslow et al., 2007; Rosenbaum & White, 2016). Latent medical/biological, psychological, and social issues inhibit success post bariatric surgery (Kaslow et al., 2007; Rosenbaum & White, 2016). Bariatric patients must acclimate to adaptations in dietary restrictions and treat potential comorbidities of biopsychosocial factors following surgery to prevent weight recidivism (Sheets et al., 2015). Prevalence of postoperative biopsychosocial factors on long-term success rates for bariatric patients is currently unknown (Sheets et al., 2015). Identifying biopsychosocial factors that contribute to weight regain for persons undergoing bariatric surgery is essential as many patients struggle to understand issues following surgical intervention and issues contributing to weight regain.

Online support systems identify issues that decrease long-term success rates for bariatric patients (Mayo Clinic, 2018). Bariatric surgery patients are now using online social support forums to post their struggles and complications following surgery. An online search for "online support group for bariatric surgery" resulted in over 4 million results (Google, 10/17/2018). Open, online social support forums are increasing in prevalence within the weight loss and bariatric community and are a suggested resource following surgery (Ogle, Park, Damhorst, & Bradley, 2016). Social support groups provide a collaborative meeting place for persons within the bariatric community to seek assistance for emotional, practical, and inspiring support for preexisting and developing biological, psychological, and social comorbidities from peers and medical providers (Mayo Clinic, 2018). Using the online social forum as a source for real-time qualitative data gives additional insight to medical/biological, psychological, and social issues within the bariatric community that are difficult for patients to discuss in person. These sources also help avoid the problem of retrospective recall because posts can be retrieved from the past and one can see a timeline of struggles and success for each individual. Research in this area offers prevalent insights into the struggles of bariatric patients following surgical intervention. Research in the area of biopsychosocial implications is essential to patients and practitioners in development of individualized treatment to assist in long-term weight reduction.

Purpose

In this generic qualitative research study, I sought to increase a comprehensive understanding of medical/biological, psychological, and social issues that are experienced

following surgery and whether additional issues are presented, within an anonymous online bariatric support forum.

Theoretical Framework

The biopsychosocial (BPS) model of health served as the theoretical framework for this study. The BPS model is rooted in the approach towards treating an individual based on the identification of biological, psychological, and social factors that contribute to their health and disease (Kaslow et al., 2007). The BPS approach allows the researcher to view how physical disorders have a reciprocal relationship with biological, psychological, and social factors (Kaslow et al., 2007). The BPS approach led to increased understanding of identified issues that bariatric patients experience, which can lead to a more integrative holistic approach to bariatric treatment.

Biological, psychological, and social comorbidities by themselves do not cause obesity, but they may lead persons to overeat, which leads to obesity. Needs of bariatric patients should include treatment for biological, psychological, and social complications following surgery. Using the BPS model of health within this research provided a deeper understanding of areas that need greater emphasis to potentially decrease weight recidivism.

Research Questions

1. Research Question (RQ)1: For patients who engage in online social support to discuss their journey, what do their posts reveal about their physical complications following surgery?

2. RQ2: For patients who engage in online social support to discuss their journey, what do their posts reveal about their psychological complications following surgery?
3. RQ3: For patients who engage in online social support to discuss their journey, what do their posts reveal about social complications following surgery?
4. RQ4: For patients who engage in online social support to discuss their journey, what are the experiences of postsurgery bariatric patients in terms of additional challenges, struggles, and successes as shared in online support forums?

Social Implications

The number of overweight people in the United States continues to climb. In this study, I identified issues that manifest following bariatric surgery and can affect long-term weight loss maintenance. Implications for positive social change consist of effective identification of comorbid conditions and issues of bariatric surgery that can assist in developing effective treatment modalities pre- and post- operative. There are many BPS comorbidities that exist along with obesity in many bariatric surgery patients (National Institute on Health, 2014). In this study, I identified the BPS needs of bariatric surgery patients. This can lead to social change by motivating exploration of options for prevention or reduction of BPS comorbidities to treatable levels, thus stabilizing long-term weight loss.

Assumptions

Bariatric surgery may improve overall health for patients, but it does not cure all preexisting biological, psychological, and social issues that persist following surgical

intervention. Based on this theory, I assumed that preexisting comorbidities within the biological, psychological, and social areas were prevalent. I assumed that active participation within online forums can identify BPS factors through analysis of archival data. I also assumed that pseudoanonymity increases the patient ability to safely report issues without bias or inhibitions. Furthermore, I assumed that persons engaging in online support for biological, psychological, and social issues have reported honest and candid responses within the forum, including their demographic information and that BariatricPal forum files yielded a representative sample of bariatric surgery patients.

Limitations

Identifying limitations within research is essential to understanding foresight into this study. The first limitation of this study is I did not measure fluctuations in biological, psychological, and social issues across the lifespan of involvement within online social support systems. This study could also have been limited by my ability to accurately assess personal stories reported across time. Patients self-report is measured across the length of time spent since inception of the forum; therefore, this could have posed limitations on the patients' ability to accurately report additional issues. This limitation in data collection led to an additional limitation of the study, which is its ability to be generalized. Further data collection and analysis may be required in future studies to view weight variability within the thematic areas that are identified here. Because predictions cannot be made on participant duration within the forum, the limitation can result in participation reduction through dropout or failure to adequately follow through with engaging in online social support.

Significance

Long-term success in the reduction of weight is one area in which bariatric patients seek solution to resolve years of obesity. Identification of postsurgery challenges aids in understanding what deficits are present within the bariatric intervention process and can lead to strategies to reduce or eliminate these challenges. The number of overweight people in the United States continues to climb (Ogden, Carroll, Fryar, & Flegal, 2015). Implications for positive social change consist of effective identification of key factors that can result in success or failure for long-term bariatric patients as evidenced through access to online social support systems. It can also assist in developing effective holistic individualized treatment plans for patients both pre- and post-operative bariatric surgery.

Operational Definitions

Abdominal adhesions: Internal scars that form in the abdomen following surgery (Mayo Clinic, 2018).

Abscess: Occurs when a gastric leak develops following bariatric surgery and results in infection within the abdomen (Kassir, Piqueres, & Blanc, 2014).

Bariatric: Branch of medicine that encompasses the causes, prevention, and treatment of obesity (National Institute on Health, 2014).

Bariatric mortality: Improvement in the rate of death due to bariatric surgical intervention (Adams et al., 2007).

Binge eating disorder: Also known and referred to here as "binging." The Diagnostic Statistical Manual, Version 5, described binge eating disorder as having two

main qualifiers of eating large amounts of food in a small time and minimal control, three or more qualifying symptoms listed within the criterion, distress, and occurring 2 days a week for 6 months, and does not involve additional behaviors associated with anorexia nervosa or bulimia nervosa (American Psychological Association, 2014).

Biopsychosocial model of health: Biological, psychological, and social factors that play a reciprocal role in health and illness that guide real world applications and action within healthcare (Engell, 1977).

Body dysmorphia/dissatisfaction: Body dysmorphia and body dissatisfaction are classified as extreme anxiety over a real or imagined physical flaw (American Psychological Association, 2014).

Body mass index: Statistical measurement of weight scaled according to height (National Institute on Health, 2014).

Comorbidity: The presence of additional factors or diseases that a patient might have in addition to the primary disease (Blackwood, 2004; Mitchell et al., 2015).

Depressive disorder: The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (American Psychological Association, 2014) described major depressive disorder as a minimum of five symptoms, listed within the criterion, present during a 2-week period; depressed mood or loss of interest or pleasure must be one of the symptoms present (American Psychological Association, 2014).

Diabetes: Disease that involves the body's inability to produce or respond to insulin production (Mayo Clinic, 2018).

Dyspepsia: Indigestion or upset stomach (Mayo Clinic, 2018).

Failure to lose: Inability to lose approximately 60 to 80% of excess weight.

Food intolerance: Inability to process specific foods following surgery; this can result in vomiting and diarrhea.

Gall stones: Hardened deposits of digestive fluid that harden to form within the gall bladder (Mayo Clinic, 2018).

Gastroesophageal reflux: Occurs when stomach acid flows back into mouth and esophagus (Mayo Clinic, 2018).

Generalized anxiety: The American Psychological Association (2014) described generalized anxiety disorder as anxiety or worry, in excess, that is dominantly present for a minimum of 6 months, excessively difficult to control, with a minimum of three qualifying symptoms, and does not qualify as a different Axis I disorder. The symptoms cause debilitating distress or impairment and are not directly related to manifested physiological effects of substances or medical conditions (American Psychological Association, 2014).

Hernia: Bodily organ or fatty tissue migrates through an area in the muscle wall (Mayo Clinic, 2018).

Hypertension: High blood pressure greater than 130/80 for multiple readings (Mayo Clinic, 2018).

Long term: Defined for purposes within this research as 5 or more years postbariatric surgery.

Malnutrition: Lack of adequate nutrition due to changes in diet or inability to process foods appropriately (Mayo Clinic, 2018).

Nausea: The feeling that a person may vomit and can be triggered by inappropriate diet following bariatric surgery (Mayo Clinic, 2018).

Need for nutritional supplements: Vitamins taken postsurgery due to the body's inability to absorb nutrients efficiently (Mayo Clinic, 2018).

Obesity: Excessive body weight that is identified as having a BMI of greater than 30 (National Institute on Health, 2014).

Online support group: Defined for purposes of this research as an internet forum used to engage in support for biological, psychological, and social issues. BariatricPal is the identified online social support group designated for research data analysis.

Permanency: Bariatric surgery procedures that are not reversible (Wee, Hamel,& Apovian , 2013).

Pseudo-anonymity: Defined for purposes of this research as a protective barrier used by patients through engagement within online social support to ease potential stressors that could arise through face-to-face interaction. This results in lowered inhibitions due to lack of personal engagement by using "screen names" to present alias.

Sagging skin: Result of rapid weight loss where skin's elasticity does not have the ability to adjust to loss of weight (Mayo Clinic, 2018).

Short term: Defined for purposes within this research as less than 5 years postbariatric surgery.

Sleeve dilation: Enlargement of the gastric sleeve following surgery (Malli, Sioulas, Emmanouil, Dimitriadis, & Triantafyllou, 2016).

Stomach obstruction: Occurs when obstructions occur due to lack of adhesions forming following surgery and results in displacement of small bowel and formation of hernias (Capella, Iannace, & Capella, 2006).

Stomach ulcers: Sores that develop within the stomach lining (Mayo Clinic, 2018).

Weight discrimination: The action of discrimination based on a person being overweight, obese, or morbidly obese (Davis & Bowman, 2015).

Weight regain: Increase in weight following lowest weight achieved following bariatric surgery (Maleckas, Gudaityte, Petereit, Venclauskas, & Velickiene, 2016).

Weight recidivism: Weight gain following bariatric surgery that is significant enough to potentially result in bariatric surgery revision (de Gara & Karmali, 2014).

Weight related oppression: Perceived prejudice or stigma as a result of excessive body weight (Bowman, 2013).

Summary

Bariatric surgery is an effective tool for weight loss for persons who are classified as morbidly obese. Thousands of bariatric procedures are performed annually; however, there are complications that can arise postsurgery that can result in weight recidivism. Biological, psychological, and social issues are viewed as contributing factors to success rates of bariatric patients across the long term. Research is significantly limited within the bariatric surgery field in understanding issues that can pose barriers to success, which have been identified in online social support systems. The study presented here can aid in further understanding of additional postsurgical BPS issues that arise for bariatric patients

that inhibit success. Online social support forums present pseudo-anonymity, which encourages sharing among patients who may not share in more traditional settings due to perceived stigma. The use of online social support forums is increasing within the bariatric community for patients as a method to post their struggles and complications following surgery. In this study, I identified additional medical/biological, psychological, and social issues that are experienced following surgery, which I examined within an anonymous online social support forum. The BPS model of health served as the theoretical framework for the study. This study addressed the research questions aimed at understanding patients who engage in online social support and what their posts reveal about physical, psychological, social, and additional issues that arise following surgery. This research can aid in social change through the identification of areas patients identify as problematic for themselves during the recovery process, and I explored options for the prevention or reduction of BPS complications to treatable levels to assist in stabilization of weight loss. A review of literature is included in Chapter 2, the research methodology is addressed in Chapter 3, the results are included in Chapter 4, and the discussion, conclusions, and recommendations are addressed in Chapter 5.

Chapter 2: Literature Review

Introduction

Obesity is currently an epidemic in the United States, with one third of Americans diagnosed as obese (National Institute on Health, 2014; Ogden et al., 2015). One treatment for morbid obesity that results in rapid and dramatic weight loss is bariatric surgery. Bariatric surgery interventions have shown significant improvements in biologically based comorbidities such as diabetes, hypertension, and chronic pain (Spittal & Fruhbeck, 2018). In addition, bariatric surgery helps patients form relationships and engage in social settings as they feel increasing confidence (Whiteman, 2017). Bariatric surgery also assists persons within initial reduction in major psychologically based comorbidities such as depression and anxiety (Kubik et al., 2013).

However, weight recidivism among bariatric surgery patients is of great concern as approximately 50% experience weight regain at approximately 50% of initial weight lost (Karmali et al., 2013). The ability for persons to care for themselves appropriately after surgery is of concern due to the need for strict adherence to dietary restrictions (American Society for Metabolic and Bariatric Surgery, 2018; Friedman et al., 2005; Greenberg, Perna, Kaplan, & Sullivan, 2005). Bariatric patients may struggle to adjust to biological, psychological, and social changes that follow dramatic weight loss, which may be the cause of the weight recidivism.

This chapter contains a review of research related to the study presented here. The review includes different areas related to obesity and bariatric surgery and justifies the need to examine patients' reported postsurgery challenges with weight recidivism.

Literature Search

I conducted the literature search for this study primarily using Walden Library resources, including EBSCO Host, psychINFO, psychARTICLES, Google Scholar, and PubMed. Search terms included, but were not limited to, *bariatric surgery, obesity, biological complications, psychological complications, social complications, outcomes, qualitative research,* and *archival data.*

Bariatric Surgery Procedures

There are several bariatric surgery procedures. Typically, patients must meet certain requirements to be eligible for the procedure, including the following: failed attempts to lose weight through diet and exercise, BMI of 40 or greater, or a BMI of 35 with one or more health-related issues (i.e., Type 2 diabetes, high blood pressure, sleep apnea; Mayo Clinic, 2018). Following initial qualifiers, potential surgical candidates must also undergo additional biological, nutritional, and psychological testing prior to approval (Mayo Clinic, 2018).

Jejunoileal Bypass Method

Bariatric surgery was first developed in 1954 through the technique of jejunoileal bypass (Faria, 2017; Hydock, 2005). This technique, first performed on animals, involved separating a larger portion of the upper small intestine and joining it to an area of the lower small intestine, just before the large intestine, which conclusively involved bypassing a large segment of the small intestine (Faria, 2017; Hydock, 2005). Problems that occurred with this form of bariatric surgery included malabsorption of essential vitamins, minerals, carbohydrates, fats, and proteins, which caused the colon wall to

become irritated and resulted in diarrhea (Faria, 2017; Hydock, 2005). Due to these and other complications, such as osteoporosis and osteomalacia, jejunoileal bypass was only performed during the 1950s and 1960s and is no longer recommended (Faria, 2017; Hydock, 2005).

Roux-en-Y Gastric Bypass Method

Developed in 1966, the Roux-en-Y gastric bypass method of bariatric surgery is the most prevalent with surgeons (Faria, 2017; Hydock, 2005). This procedure involves division of the stomach into two separate portions with surgical staples or sutures, minimizing the stomach to only hold a content maximum of 1 to 2 ounces (Hydock, 2005). Next, the small intestine is shortened and subsequently bypasses the majority of the remaining small intestine and is connected at the jejunum, which ultimately connects the remaining small stomach with the jejunum (Hydock, 2005). Farther down, the dissected portion of the small intestine and stomach is reconnected to a portion of the duodenum and remaining proximal jejunum so food can mix with bile and pancreatic fluids to complete digestion (Hydock, 2005).

The Roux-en-Y gastric bypass method, though categorized as the standard for bariatric surgery, also has its complications. Deficiencies in nutritional gains, such as calcium, iron and vitamin B are the typical result (Hydock, 2005; Siddique & Feuerstein, 2014). Dumping syndrome is also found within Roux-en-Y gastric bypass patients due to the rapid processing of food into the small intestine, which calls upon the body to expel more water within the small intestine, resulting in abdominal cramps, nausea, and diarrhea (Hydock, 2005; Siddique & Feuerstein, 2014). Also, consumption of foods

loaded with sugar can contribute to dumping syndrome (Hydock, 2005; Siddique & Feuerstein, 2014).

The short-term success of Roux-en-Y gastric bypass is drastic, with approximately 50% of expected weight loss occurring within the first year, and the remaining 20 to 30% occurring by the second year after the operation (Kendrick & Dakin, 2006; Mayo Clinic, 2018). Of bariatric patients undergoing the Roux-en-Y gastric bypass procedure, approximately 74% sustained an expected weight loss of 20% or more (Ayloo, 2018; Kendrick & Dakin, 2006).

Biliopancreatic Diversion Method

Currently, biliopancreatic diversion is considered the most powerful method of bariatric surgery (Hydock, 2005; Mayo Clinic, 2018). This procedure involves the removal of approximately 65 to 75% of the stomach (Hydock, 2005; Mayo Clinic, 2018). The intestines are then rerouted to limit 60% usage to only carrying bile and digestive juices, not food (Hydock, 2005; Mayo Clinic, 2018). This method allows approximately 30% of food intake to be ingested, with the majority of the food processed to remain intact and pass through the digestive system unaffected (Hydock, 2005; Mayo Clinic, 2018). This method is highly effective, but it does involve some side effects of nutritional and vitamin deficiencies, in addition to potential complications within the liver, bone, anemia, protein, and lactose digestion systems (Hydock, 2005). With success rates of greater than 70% of excess weight being lost and maintained in the long term, the biliopancreatic diversion procedure is considered the gold standard for bariatric surgery procedures in resulting drastic and stabilization of weight loss (Kendrick & Dakin, 2006).

Vertical-Banded Gastroplasty Method

Vertical-banded gastroplasty involves a series of modifications to the stomach; the inventor of the method, Dr. Edward E. Mason, found that the portion of the stomach that was less likely to stretch contained the least amount of curvature (Hydock, 2005; Mayo Clinic, 2018). Therefore, the method involves a vertical segment of the stomach being created by dissection and stapling to form a pouch (Hydock, 2005; Mayo Clinic, 2018). The pouch created from the stomach only holds 14cc of content; at the time of surgery, saline is used to accurately measure content size in order to pinpoint exact measurements of stapling and dissection (Hydock, 2005; Mayo Clinic, 2018). The last modification to the digestive system involves placement of a polypropylene band near the lowest position of the vertical section of the stomach pouch to prevent stretching (Hydock, 2005; Mayo Clinic, 2018). Complications with this method include leaking along the staple lines, band erosion, postoperative stenosis, which causes narrowing of the vertical banded portion of the stomach, and abscess and pouch enlargement; these complications often result from a patient's attempt to overeat or inability to properly chew food resulting in large portions blocking the route (Hydock, 2005; Mayo Clinic, 2018).

Long-term success rates for this procedure yield poor results (Kendrick & Dakin, 2006; Mayo Clinic, 2018). Initial results are comparable to those of Roux-en-Y gastric bypass, but in the long term, vertical banded gastroplasty has failed to provide patients with sustained weight loss (Kendrick & Dakin, 2006; Mayo Clinic, 2018). Due to the

poor success rates, most bariatric surgeons have abandoned this procedure (Kendrick & Dakin, 2006; Mayo Clinic, 2018).

Vertical Sleeve Gastrectomy Method

The vertical sleeve gastrectomy method, or gastric sleeve, was created as a modification from the vertical banded gastroplasty. Gastric sleeve treats bariatric surgery patients with a BMI greater than 40 (Mayo Clinic, 2018). The method involves laparoscopic procedure where the surgeon staples the pouch of the stomach, vertically, removing 80% of the larger portion of the stomach, and the procedure is completed within 1 to 2 hours (Mayo Clinic, 2018). Complications of this procedure include excessive bleeding, infection, adverse reaction to anesthesia, blood clots, lung/breathing problems, and leaks from the staple line. Long-term complication can include gastrointestinal obstructions, hernia, gastroesophageal reflux, hypoglycemia, malnutrition, and vomiting (Mayo Clinic, 2018).

Long-term success for the vertical sleeve gastrectomy method results in up to 60%of excessive weight lost and a reduction in biological comorbidities such as high blood pressure, cholesterol, heart disease, sleep apnea, Type 2 diabetes, stroke, and infertility (Mayo Clinic, 2018). Vertical sleeve gastrectomy is now the most commonly performed bariatric surgery procedure consisting of 61.4% of all bariatric surgeries (American Society for Metabolic and Bariatric Surgery, 2018). The gastric sleeve procedure was the focus of this study.

Duodenal Switch Method

The duodenal switch method was created specifically to treat bariatric surgery patients with a BMI greater than 50 (Hydock, 2005; Mayo Clinic, 2018). The method involves division of the duodenum 1 cm below the stomach's pylorus sphincter (Hydock, 2005; Mayo Clinic, 2018). Next, the small intestine is reduced by 50 to 60% in length, with the lower end of the reduction being reconnected to the duodenum (Hydock, 2005; Mayo Clinic, 2018). This results in the new section of the digestive system from the remaining reduced section of the small intestine to the colon (Hydock, 2005). The remaining portion of the stomach, now reduced by approximately 75%, will reduce food intake to 4 to 8 ounces but allows stretching to occur so the bariatric patient can progressively advance towards eating a normal meal within the next 18 months (Hydock, 2005; Mayo Clinic, 2018). Complications of this procedure includes insufficient absorption of vitamins and protein, liver abnormalities and bone disease due to lessened absorption of calcium, potassium and iron deficiency, lactose intolerance, and increased frequency in bowel movements (Hydock, 2005; Mayo Clinic, 2018).

The duodenal switch method initially yields results similar to those of Roux-en-Y gastric bypass, and success rates exceed reported outcomes of adjustable gastric banding and Roux-en-Y gastric bypass when viewing expected weight loss across the long term (Kendrick & Dankin, 2006).

Adjustable Gastric Banding Method

Recent advancement in bariatric surgery has involved the creation of the adjustable gastric banding method. This method, first introduced in the early 1980s,

utilized a Dacron or Silastic band that was fitted around the stomach; however, in 1993, physicians introduced a modified silicone balloon that fit inside of the Silastic band to create a 15mL pouch that was similar to vertical banded gastroplasty method (Hydock, 2005; Mayo Clinic, 2018). This method, while similar to vertical banded gastroplasty, is successful by limiting the amount of food intake (Hydock, 2005; Mayo Clinic, 2018). The adjustable gastric band, as the name states, can vary the amount of food intake by adding or removing saline from the inflatable balloon (Hydock, 2005; Mayo Clinic, 2018).

The adjustable gastric banding method is used to reduce the operative risk and postoperative complications. However, complications with the adjustable gastric banding method are like that of any bariatric method. Complications include gastric bleeding and perforation, food intolerance, band slippage, pouch dilation and erosion, and dilation or herniation of the esophagus directly above where the band is placed (Hydock, 2005; Mayo Clinic, 2018). Though complications do arise, nutrients and vitamins are generally absorbed naturally, and invasive procedural complications are minimized due to the development of laparoscopic surgery designed to provide minimal invasion of the digestive system (Hydock, 2005; Mayo Clinic, 2018).

Adjustable gastric banding patients who follow up at the 3-year benchmark provide results that are similar to Roux-en-Y gastric bypass (Kendrick & Dankin, 2006). A prospective study, to be conducted at a 10-year benchmark, projects results yielding 28% of adjustable gastric banding patients sustaining expected weight loss of 20% or more (Kendrick & Dankin, 2006).

Laparoscopic Surgery

Laparoscopic techniques were first developed in the 1980s (American Society for Metabolic and Bariatric Surgery, 2018; Hydock, 2005). Laparoscopic technology has allowed bariatric surgeries of vertical banding, Roux-en-Y gastric bypass, biliopancreatic diversion, and adjustable gastric banding to be performed with just a few small incisions on the abdomen versus the open procedure, involving an incision of 4 to 7 inches depending upon sex of the patient (American Society for Metabolic and Bariatric Surgery, 2018; Hydock, 2005). Laparoscopic procedures for bariatric surgery also assist in minimizing risks to the patient (American Society for Metabolic and Bariatric Surgery, 2018; Hydock, 2005).

Summary of Bariatric Surgery Procedures

Bariatric surgery is constantly evolving towards minimally invasive procedures. New techniques have been developed but little data is available on their success rates. Physicians are now utilizing bariatric surgery advancements through endoscopic and laparoscopic technology (Food and Drug Administration, 2019; Hashiba, 2007). Limited data is available concerning new procedures developed and utilizing endoscopic technology, approved by the Food and Drug Administration (FDA), but these include gastric ballooning, gastric sleeving, gastric partitioning/banding, gastric emptying system and electronic stimulation system (Food and Drug Administration, 2019; Hashiba, 2007). Gastric ballooning, approved in 2015, is achieved by inserting either the OBEREA or Reshape integrated dual balloon system into the stomach to occupy space within the stomach to limit food intake (Food and Drug Administration, 2019). Gastric sleeving,

performed surgically, utilizes removal of a portion of the stomach to reduce its overall size to limit food intake (Food and Drug Administration, 2019). Gastric partitioning/banding, approved in 2007, is performed surgically by inserting the LapBand around the upper portion of the stomach to limit food intake, and is adjustable by inserting sterile water into the band to reduce the size of the stomach (Food and Drug Administration, 2019). A gastric emptying system, AspireAssist, was approved in 2016, and assists obese patients through removing approximately 30% of calories consumed through a draining port, inserted surgically, which exits outside of the abdomen (Food and Drug Administration, 2019). Finally, an electronic stimulation device, MAESTRO, was developed and approved in 2015, and works by sending intermittent electronic pulses to the vagus nerve, which is responsible for sending signals to the brain that the patient is full (Food and Drug Administration, 2019).

Bariatric surgery procedures have evolved since the 1950s from a highly invasive procedure accompanied by a large amount of physiological risks to endoscopic and laparoscopic surgery methods. With these, bariatric patients experience minimal scaring and post-operative complications.

Biological Benefits and Risks of Bariatric Surgery Outcomes

Obesity is strongly correlated with increased morbidity and mortality through its impact on conditions that can negatively affect health and life expectancy (Sjorstrom et al., 2004). Benefits of bariatric surgery have the potential to positively affect the overall quality of life for patients undergoing a procedure (Buchwald et al., 2004; Everson et al., 2004; Mayo Clinic, 2018; Sjostrom et al., 2004). Risks are also evident across the long-

term when a person undergoes bariatric surgery (Kubik et al., 2013; Mayo Clinic, 2018). Benefits and risks of bariatric surgery can affect how a person experiences an overall quality of life.

Because of its success as a weight loss approach, benefits of bariatric surgery abound. In addition to the reduction in weight, bariatric surgery can result in reductions in migraines, asthma, non-alcoholic fatty liver disease, gastroesophageal reflux disease, metabolic syndrome, polycystic ovarian syndrome, venostasis, gout, degenerative joint disease, hypertension, hypertriglyceridemia, cholesterol, sleep apnea, hyperuricemia, and diabetes (Heinberg, 2015).

However, risks are also prevalent. Risks immediately following bariatric surgery include excessive bleeding, infection, adverse reaction to anesthesia, blood clots, lung complications, gastrointestinal leaks, and death, though this is rare (Mayo Clinic, 2018). Long-term risks also persist within the bariatric community and these include: bowel obstruction, dumping syndrome, gall stones, hernias, hypoglycemia, malnutrition, hematological disorders such as copper and iron deficiency, stomach perforation, ulcers, vomiting, and death (Chen et al., 2013; Mayo Clinic, 2018; Snowdon-Carr, 2016). The study reported here sought to understand what additional biological issues manifest post-surgical intervention that are shared by individuals in the anonymous online forum MyBariatricPal.

Psychological Benefits and Risks of Bariatric Surgery Outcomes

Benefits of bariatric surgery on bariatric patients result in experiencing a "euphoric" or "hopeful" feeling following bariatric surgery which increases motivation

and a sense mental health (Blackwood, 2004; Guilliford et al., 2016). Studies suggest that persons with higher physical and mental well-being and overall quality of life (Dawes et. al., 2016; Kubik et al., 2013; Litz et al., 2017), and less psychopathology and disturbed eating (Dawes et al., 2016), experience greater success with bariatric surgery compared to those diagnosed with depression, anxiety, mood disorders and low self-esteem across the short-term. However, psychological disorders can affect bariatric patients over the long-term.

Major psychological comorbidities linked to benefits and risks of bariatric surgery include depression, anxiety, body dysmorphia, binge eating, addiction transfer and suicide (Dawes et al., 2016; Kubik et al., 2013). One study found that bariatric patients with a prior diagnosis of a mental health disorder were readmitted at a rate of 34% greater within 30 days following bariatric surgery than those without a diagnosed mental health disorder (Litz et al., 2017). Long-term success for the bariatric patient can be achieved only through strict adherence to permanent lifestyle changes to diet and exercise, which may be difficult for patients who have relied on food to cope with stressors (Heinberg, 2015). Effective diagnosis of psychological disorders prior to bariatric surgery can be essential in understanding the underlying determinant of body weight stabilization or increase (Heinberg, 2015; Snowdon-Carr, 2016).

There are conflicting findings regarding psychological conditions and weight recidivism. Co-morbid psychological conditions prior to bariatric surgery may result in body weight variability across the long-term (Heinberg, 2015; Rodriguez et al., 2017). Current studies show that cognitive impairments such as psychological disorders may be

partially reversible, but all support the conclusion that patients that present with a psychological disorder are found to have strong associations with decreased mentalization (Aarts et al., 2014; Alosco et al., 2015). Decreased mentalization is defined by Aarts et al (2014) as the inability to understand behaviors that are reflected in thoughts and feelings. Mentalization is a social construct which refers to the process in which we make sense of other persons and our own mental states (Bateman & Fongy, 2010). However, recent studies have found that 2 years following surgery, bariatric patients with psychological disorders achieved comparable results to patients without mental illness (Mitchell, 2017). The study reported here sought to understand what additional psychological issues manifest post-surgical intervention that are shared by individuals in the anonymous online forum MyBariatricPal.

Depression

The American Psychological Association (2014) defines major depressive disorder as a minimum of 5 symptoms, listed within the criterion, present during a 2-week period; depressed mood or loss of interest or pleasure must be one of the symptoms present (American Psychological Association, 2014). Depression affects mental and physical well-being, impairs self-esteem, is significantly associated with eating related psychopathologies (Aarts et al., 2014; Mama et al., 2015), and has variable levels (American Psychological Association, 2014). Depression is prevalent among patients seeking bariatric surgery and within one study, thirty six percent of patients seeking bariatric surgery met qualifying factors for clinical depression (Booth et al., 2015).

Depression has been studied within bariatric patients as a comorbidity that could affect weight loss results. During short-term or initial weight loss, motivation increases and symptoms of depression decrease (Guilliford et al., 2016). Within the initial post-operative years, persons with depression were able to achieve moderate results in reduction of clinical depression (Booth et al., 2015). Even though subjective health status was improved after bariatric surgery, persons with depression prior to surgery had significantly lower levels of physical and emotional well-being at the 1-year follow up. (Aarts et al., 2014; Alosco et al., 2015). Across the long-term, approximately seventy five percent of patients diagnosed prior to surgery will be clinically depressed (Guilliford et al., 2016). It is not only depression that returns to baseline levels. Depression is associated with increased food intake leading to post-surgical weight regain (Pizato et al., 2017; Wardle, Waller, & Rapoport, 2001).

Adapting to debilitating psychosocial consequences (i.e. depression) from a life long battle with obesity in bariatric surgery patients is evident, but post-surgical concerns include patient's inability to adjust to changes and have prevalence as high as 47% experiencing weigh regain (Dymek, le Grange, Neven, & Alverdy, 2002; Pizato et al., 2017). These findings have implications for the need to understand levels and complications of depression presented and how it correlates with weight recidivism.

Some bariatric patients do not experience weight recidivism following bariatric surgery. Preoperative depression did not affect long-term body mass index in one study (Gill et al., 2019). While a previous study stated 47% of depressed patients experience regain, this statement also deduces that 53% do not experience recidivism (Dymek, le

Grange, Neven, & Alverdy, 2002; Pizato et al., 2017). This offers additional support to the present study where I examined whether patients report that depression has an impact on long-term success rates.

Anxiety Disorder

The American Psychological Association (2014) defines Generalized Anxiety Disorder as anxiety or worry, in excess, that is dominantly present for a minimum of 6 months, excessively difficult to control, with a minimum of 3 qualifying symptoms, does not qualify as a different Axis I disorder, the symptoms cause debilitating distress or impairment, and is not directly related to manifested physiological effects of substances or medical conditions (American Psychological Association, 2014). Anxiety disorder results in an inability to regulate emotions in a healthy manner, thus leading to maladaptive behaviors and development of additional physical and mental disorders (Aarts et al., 2014).

Obesity has been linked with anxiety disorder. (Aarts et al., 2014; Simon et al., 2006). Excessive eating, leading to obesity, is correlated with depression, but greater correlation occurs with anxiety. Initial reduction of anxiety symptoms is experienced which results in weight loss, however this appears to be temporary. (Harvard Medical School, 2004; Pizato et al., 2017). Research suggests there is a complex relationship within the area of anxiety as it relates to quality of life following bariatric surgery as results are often conflicting and may or may not indicate a relationship to weight recidivism.

A study conducted by Karlsson (2007) found short-term reduction of anxiety was noted at the one-year benchmark, but a significant relapse was noticed across the long-term. Additional studies found high prevalence of anxiety disorder within bariatric patients stating an initial improvement to anxiety disorder (Sockalingham et al., 2017; Yen, Huang, & Tai, 2014; Zwann et al., 2011). The authors also suggest that anxiety may also be reduced across the long-term for persons diagnosed prior to bariatric surgery, however no statistically significant data was presented to support this statement (Sockalingham, et al., 2017; Yen, Huang, and Tai, 2014). A recent meta-analysis by Gill et al. (2019), found an overall reduction of the severity of symptoms related to anxiety disorder at the 2-year follow-up. This review also found that bariatric patients with anxiety disorder may show marked improvement in severity of symptoms across time (Gill et al., 2019). Ten-year improvements, of mental health status were small for anxiety disorder in bariatric surgery patients diagnosed prior to treatment (Karlsson et al., 2007; Zwann et al., 2011).

Anxiety can result in developing maladaptive behaviors prior to bariatric surgery, leading to continued prevalence of anxiety disorder across the long-term. Long-term prevalence of comorbidities of anxiety disorder and obesity was the focus of one study in which long-term success rates of bariatric patients was reduced due to poor adherence to dietary recommendations and inability to manage stress and anxiety (Aarts et al., 2014; Zwann et al., 2011). Another study found that 15% of bariatric patients presenting with anxiety disorder are unable to benefit significantly from bariatric surgery due to maladaptive behaviors (Aarts et al., 2017).

Significant concerns in anxiety prior to bariatric surgery may have the potential to impact patients thought patterns, interpersonal behavior, and mental capabilities for change. Bariatric patients high in anxiety proneness had a significant tendency to experience hunger more often and with greater intensity and results in emotional stress and excessive eating which leads to poorer weight loss outcomes within the bariatric population (Devlin et al., 2016; Ivezaj, Barnes, Cooper, & Grilo, 2018). Authors also state that there is a belief that as persons with comorbidities of anxiety look towards bariatric treatment, the body will resist, hunger will return, and maladaptive behaviors, such as excessive eating, will be followed with greater depression and anxiety, post bariatric interventions (Devlin et al., 2016; English et al., 2018; Harvard Mental Health Letter, 2004; Himes et al., 2015).

In contrast to the findings reported above that show anxiety might negatively impact weight loss and maintenance, others find no impact. One study by Gill et al. (2019), stated preoperative diagnosis of anxiety does not predict post-operative body mass index (Gill et al., 2019). This study followed 1509 patients 24 months following bariatric surgery and found no significant effect of anxiety on weight recidivism (Gill et al., 2019). Another study stated that persons diagnosed with anxiety disorder do not lose less weight than those without psychological comorbidities, however the authors emphasize that additional research is needed across the long-term to understand populations at risk (Timofte et al., 2018). Anxiety disorder within bariatric patients is monitored less than depressive disorder, however, clinically significant anxiety, prior to surgery, is found to be represented at approximately forty-four percent of the population

seeking bariatric surgery intervention (Edwards-Hampton & Wedin, 2015). The authors state that while data is often conflicting for anxiety and bariatric patients, additional research is needed to assist in understanding maladaptive behaviors related to anxiety to improve weight loss surgical outcomes (Edwards-Hampton & Wedin, 2015; Gill et al., 2019; Timofte et al., 2018).

Suicide and Self-Harm

Suicide attempts are a concern among post-bariatric surgery individuals. A study by Backman et al., (2016) concluded that those that underwent bariatric surgery are 2.85 times more likely to make a suicide attempt and Bhatti et al. (2016) noted that intentional self-harm, which includes suicide attempts, rose to 50% following bariatric surgery. Prior mental health disorder diagnosis was prevalent within 93% of patients who engaged in self-harm behaviors within the study by Bhatti et al. (2016). Studies have yet to identify current numbers of bariatric patients with suicidal ideations or non-lethal attempts but should not be minimized but potential manifestation during analysis of data within social support groups.

Social Benefits and Risks of Bariatric Surgery Outcomes

Social issues can arise that could affect long-term success rates for those that undergo bariatric surgery. Weight loss progress can be impeded through lack of appropriate social support systems that are set up to encourage healthy diet and exercise patterns following surgery (Rodriguez-Hurtado et al., 2017). Social aspects of bariatric surgery have not been studied, in depth, within the field of bariatrics. This section examined studies that address modes of social support in bariatric surgery.

Benefits of social support have been positively related to overall health. Social support is viewed as essential by mental health professionals for increased success rates post bariatric surgery (Ogle et al., 2016). Bariatric patients can address personal areas of concern in social support groups with reduced fear of judgement. Areas of support identified as essential by Ogle et al (2016) include emotional/affective, informational, instrumental, and companionship. Social networks are one area that directly influences obesity rates (Lent et al., 2016). Extreme physical transformations can lead to emotional/psychological changes that can affect social functioning and social networks. Weight gain or loss has been found to be dependent upon identification within social networks (Leahey et al., 2011). Research should focus on identifying societal and environmental changes for bariatric surgery patients that can increase long-term success rates (Christakis & Fowler, 2007; Rodriguez-Hurtado et al., 2017).

Social support groups, in general, do not provide targeted support to meet the needs of the bariatric patient. The most effective groups are those led by a moderator that specializes in bariatric outcomes, and provides emotional, practical, and inspiring levels of support (Mayo Clinic, 2018). Support by health professionals throughout the entire surgical experience to aid patients in making educated decisions about their surgical treatment was strongly encouraged within several studies (Lent et al., 2016; Ogle et al., 2016; Sharman et al., 2015). Social support groups frequently encouraged include multidisciplinary teams, family, and peer support groups.

Multidisciplinary Team Support

Multidisciplinary bariatric treatment teams are a strong source of support for bariatric patients. Treatment teams utilize support from the surgical team, mental health professionals, and nutritionists (Sharman et al., 2017). These groups assist bariatric patients in adjusting to post-surgical process that involves a significant lifestyle change following surgical intervention (Sharman et al., 2017). Surgical centers link patients to identified professionals. Surgical staff support patients through providing support for issues that arise following surgery. Psychological support was identified in one study as the most often needed, but overlooked, aspect of post-surgical interventions (Sharman et al., 2017). Leibl, Barnason, and Hudson (2016) support the idea of counseling and psychological support to address behavioral modifications and diagnosed psychological disorders during all phases of bariatric surgery. Multidisciplinary bariatric teams include mental health professionals which are viewed as essential component within bariatric surgery centers (Heinberg & Coughlin, 2015). Nutritionists assist the patient with developing a healthy diet and exercise routine to assist in reduction of weight recidivism (Sharman et al., 2017). Detection of comorbidities, prior to surgery, and the provision of effective interventions assists bariatric patients in understanding the potential causes for their reactive behaviors which can lead to their obesity and reduce weight recidivism across the long-term.

Family Support

Research shows that treatment of obesity should be approached through family-based interventions to target the home environment to promote positive behavioral

changes (Lent et al., 2016). Family members often live with comorbidities that are similar to the bariatric patient (Lent et al., 2016). A family support group assists the bariatric patient by addressing the immediate family. This can help to address the family's environmental triggers and sedentary behavior by incorporating dietary and physical activity changes to encourage healthy behavior (Lent et al., 2016).

Peer Support Systems

Peer support, both in person and online, is another area in which bariatric patients are strongly recommended to engage. Peer support assists the patient through structured meetings that are designed to identify specific needs of the patient. Positive peer support systems identify interpersonal, environmental, and behavioral change experiences of others that are engaged in the weight loss journey (Liebl, Barnason, & Brage, 2016). Peer support systems also assist the patient through offering new perspectives on negative attitudes and influences to help in development of desired behavior and placing health needs as a priority (Liebl, Barnason, & Brage, 2016).

Bariatric patients should identify support groups that address relevant issues such as dietary adherence, lifestyle changes, challenges and successes that pertain to bariatric surgery. Support systems should address the various phases of bariatric surgery (Liebl, Barnason, & Brage, 2016). Patients can find social support through groups within their surgical center, Facebook forums, and public online support forums such as MyBariatricPal and American Bariatrics. Many support groups have been developed to assist in treating obesity and welcome those who have undergone bariatric surgery, including: Overeaters Anonymous, Food Addicts Anonymous, Food Addicts in

Recovery, and Alcoholics Anonymous (National Council on Alcoholism and Drug Dependence, 2019). The study reported here sought to understand what additional social issues manifest post-surgical intervention that are shared by individuals in the anonymous online forum MyBariatricPal.

Online Support Forums

Online support forums for bariatric surgery patients have grown in prevalence over the past several years and when utilized correctly, can lead to increased long-term weight loss success rates (Reifegerste, Wasgien, & Hagen, 2017). Current examples of online forums include BariatricPal (www.bariatricpal.com), Facebook support groups (www.facebook.com) and American Bariatrics (https://www.americanbariatrics.org). Online support forums provide pseudo-anonymity for the bariatric patient which could allow for increased understanding of issues presented through the ability to disclose personal struggles without inhibition, as opposed to face-to-face meetings at a surgical center support (Reifegerste, Wasgien, & Hagen, 2017). Online support forums provide person to person support, are typically moderated by a physician, provide interactive tools to support maintenance, and offer the latest in research and education to assist in long-term management following bariatric surgery (Reifegerste, Wasgien, & Hagen, 2017). These forums serve to make up for social support lacking in the various areas identified above.

Online support forums provide bariatric patients with support for biological, psychological, and social needs. Many forums provide ease of navigation for patients to search for a range of health and biological issues (Reifegerste, Wasgien, & Hagen, 2017).

Forums provide an anonymous exchange of information and social support, including impediments and positive progress (Reifegerste, Wasgien, & Hagen, 2017). This level of support is essential to the bariatric patient as it allows for active dialogue with other patients who can be sympathetic to the specific successes and challenges that each patient may experience. Gathering data within an online forum led to a greater and comprehensive understanding of BPS issues following bariatric surgery.

Anonymous online support forums are one area where additional research is needed to understand the depth of potential issues that arise post-bariatric surgery. I collected data from online social support forum, which has yet to be used as a source of information about the experiences of bariatric patients' post-surgery. In this study, I used www.bariatricpal.com which counts 354,560 bariatric patient participants, has 27 sections, 395,952 topics, and 4,688,995 replies to postings.

Summary

Despite health benefits across the short term, research indicates that increased recurrence of biological, psychological, and social issues post-surgery can impact weight loss success rates across the long-term. Biological, psychological, and social quality of life declines at the 6 and 10-year benchmarks post-surgical intervention, but onset has been identified as early as one-year. Additional research is needed within this area to analyze BPS predictors and their impact on long-term quality of life. Online bariatric social support forums provide pseudo-anonymity which may present additional issues because of the potentially reduced inhibition. The forum, www.bariatricpal.com, provides access to the thoughts and feelings of post-surgery patients and aided in understanding

the causes of weight regain. This research study identified potential implications for patients across the long-term through presentation of issues within the forums.

This research gained a more robust understanding of BPS comorbidities presented, post-surgical intervention, within an anonymous online support forum that may not be offered by patients in other research methodologies.

Chapter 3 presents the process of the research study. There is adequate information in the area of depression and anxiety, in combination with bariatric treatment, to justify research concerning the effects of BPS issues within online support forums. Chapter 3 presents the research design, participants, measures, and procedures of this study.

Chapter 3: Research Method

Introduction

In Chapters 1 and 2, I outlined the history of bariatric surgery, the biological, psychological, and social benefits and risks of bariatric surgery, and the theoretical foundations to explain why someone would seek out and engage in the bariatric surgery process. In the literature review, I also highlighted that persons engaging in bariatric surgery use online social support systems as the Internet is less invasive and easily accessible.

Obesity has reached epidemic proportions, with 64% of American adults being overweight and 30% of these diagnosed as obese (Mayo Clinic, 2018). The prevalence of bariatric surgeries grew from 158,000 surgeries in 2011 to 228,000 in 2017 (Mattar, 2018). In this chapter, I outline the qualitative method and design chosen to assist in understanding experiences for those who engage in online social support systems and their reasons for engagement. Research in this area predominately focuses on a short-term time frame. However, there is a need for more in-depth research on the effects of biological, psychological, and social issues on long-term weight management. Past research studies have shown that there is a need to understand the long-term implications that BPS factors can have when they are not properly identified (Guilliford et al., 2016; Leahey et al., 2015; Mitchell, 2017).

Purpose of the Study

I sought to increase a comprehensive understanding of medical/biological, psychological, and social issues that are experienced following surgery and if additional issues are presented within an anonymous online bariatric support forum.

I explored biological, psychological, and social issues that were presented through the online social support site BariatricPal.com. The results of the study reported here indicate that biological, psychological, and social factors are persistent and related to long term weight management. Substantial support for improved treatment prior to and postoperative of bariatric surgery increases overall success for bariatric surgery patients

Research Methodology

Generic qualitative methodology was used for thematic analysis of online archival data within BariatricPal.com, and the observational technique allowed for exploration of themes presented. Archived comments posted within the related bariatric surgical procedures on BariatricPal were chosen for analysis based on the prominent nature of users, currently at 354,560 patients (see Bariatricpal.com, 2019). Online social support forums presented an area for access to research data currently not used within this population. The timeframe used for analysis of the archival data was from June 30, 2015 to June 30, 2017. This allowed me to view issues presented across a 2-year time frame within the online archival data. The 2-year time frame was essential as most patients experience regain at the 2-year mark. The qualitative approach provided examination of reasons behavior exists within the targeted population. Themes and patterns presented within the online forums were selected for observation.

Research Design

This study was qualitative in nature, focusing on analysis of archival data. Relevant data were gathered using the observational method. Reasons why patients engage in online social platforms are currently unknown due to limited research within the area. The observational technique provided insight on areas users are seeking additional information following bariatric surgery.

Online Observation

Archival data consisted of unsolicited and unedited messages posted. Posted messages on online support systems, specifically www.BariatricPal.com, were analyzed. BariatricPal is a public forum, thus observing archival postings did not violate privacy issues of persons using this online social outlet. Archived information is organized within the online site through discussion threads. Discussion threads are a useful tool that encourage dialogue among the users within the selected search criterion. Users are free to express their biological, psychological, and social issues and receive feedback from other users who are experiencing similar difficulties. I consulted with Walden University's Internal Review Board (IRB) to clarify both significance of the study and ethical concerns related to this type of study, and official permission from IRB was obtained before commencing data collection. Archival data were gathered from the online support forum, www.BariatricPal.com. Discussion threads using the terms *challenges, successes, experiences, weight regain, gastric sleeve, physical and medical complications, psychological complications, depression, anxiety, suicide,* and *social support* were included for historical data analysis. Responses to the original post were included for

historical data analysis. Historical data that fell outside of the selected time frame, June 30, 2015 to June 30, 2017, were excluded from data analysis. Original posts and responses from individuals within the forum strands were analyzed for context and themes to answer the research questions.

Benefits and Risks

Additionally, data gathered assisted in understanding benefits and risks following bariatric surgery that may be related to weight recidivism. Coding included elements of the messages posted and responses to the messages from both peers and health care professionals. The observational method focused on understanding complications, following the identified bariatric surgical procedures, which may contribute to weight recidivism. Through this research, I intended to uncover reasons why individuals are experiencing difficulties through their ability to anonymously share personal information within an online bariatric forum. Archived information displayed within the posts is public and permanent, allowing me to gather data thematic elements and analytical purposes.

Participants of the Study

Archival data present information from a historical perspective, allowing the researcher to identify contextual and thematic trends. Archival data preserve information for analysis presented by patients within the online forum. Data were selected from archival information within the online support forum https://www.bariatricpal.com. This site provided opportunities to collect substantial and quality data on the basis of (a) its focus on the topic of bariatric surgery, (b) the frequency of postings to the overall site, (c)

the large number of patients, (d) the frequency of member interactions, and (e) the ability to narrow patients by selection categories, which was conducted by information presented by the patients within the online forums and gathered based on search terms selected.

Ethical Consideration of Participants

I was the primary researcher for this study and used archival data from an online bariatric support forum, BariatricPal.com. The BariatricPal.com online support group has unrestricted membership, allowing for observation throughout the archival data presented within discussion board threads. The members of this group share information, including sensitive data, voluntarily and have no obligations or restrictions other than to post to discussion threads based on their experiences following bariatric surgery.

Ensuring the privacy of patients within the online support forum included encrypting identifying information and personal email, Facebook, twitter, snapchat, Instagram, and screen names. All measures were taken to ensure and preserve the patients within the discussion threads anonymity. The patients selected in this study were adults who posted identifying data, were of age, were in the public online social platform BariatricPal.com. There was no associated foreseen risk of harm as persons participating within the online forum are disclosing information within a public setting.

Qualitative Analysis

Qualitative content analysis was used within this study of archival data, which is the method of analyzing the manifestation of content in material, including recorded data, transcripts, and online archived information (Mayring, 2000). Coding categories were gathered directly from the content in which it was derived, allowing for summative and

thematic analysis (see Hsieh & Shannon, 2005). BariatricPal.com was the source of analysis that I used to obtain data and then to identify codes and themes as they emerged. Qualitative analysis consisted procedurally of three parts: (a) retrieval of archival data posted within the online support forum, BariatricPal, and downloading forum threads to my computer, (b) organization of archival messages into folders for content analysis, and (c) content analysis of archival data threads using ethnography through document analysis.

Archived messages were limited to specific dates within the online support groups to obtain concise data within specific support groups of weight regain for the gastric sleeve procedure. This method allowed for ease of retrieval of all messages posted by patients within each forum, within the selected time frame, and I downloaded the discussion threads to a personal computer.

The downloaded archival discussion posts were organized for the purpose of qualitative content analysis. Archival message data were organized using three steps: retrieval, organization, and identification of folders. Data were downloaded from BariatricPal.com discussion message threads within the selected timeframe and groups selected. Organization included creating folders with the selected search terms of online thread discussions on gastric sleeve, medical/biological, psychological, depression, anxiety, suicide, additional issues, and social support. Lastly, message threads downloaded were organized within each folder, named, and saved as a text file within a Microsoft Word and Excel document.

For content analysis, the archived discussion thread data were downloaded from BariatricPal and placed into Word documents for ease of entry to Dedoose. Coding of content was facilitated by organization within Microsoft Word. Five steps were used for content analysis of the archived discussion threads: database search, database creation, data item selection, coding, and reporting. The database search was conducted to identify threads that contained key search words by downloading discussion threads. Database creation contained all archived message data relevant to the study within the selected timeframe. Archived data item selection was read, and I selected data relevant to the study were highlighted through the use of the qualitative data analysis software, Dedoose. Selected data items included (a) symptoms and behaviors by the patients and (b) participant interpretation of symptoms and behaviors reported within the discussion threads. Coding key words of challenges, medical/biological complications, psychological complications, depression, anxiety, suicide, and social support was conducted and assigned for analysis. I identified the selection of key terms for coding. Symptoms, events, behaviors, and personal reflections selected for coding were based on similarity in meaning within the same code.

Analysis Approach

Selecting archival data to be analyzed consisted of two potential approaches. The first strategy consists of selecting archives of data of all messages posted within BariatricPal with random selection of individual messages within the archive. This approach allows for generalizability and representativeness of the patients and their posts

within the online support group, BariatricPal. This poses a disadvantage of additional posts being submitted beyond the timeframe of study completion.

The second approach chosen for analysis was utilized for this study. This consisted of selection of a section of archived messages within a limited time frame. Archived messages are arranged in discussion threads, and selection of this approach presented a non-randomized selection process to preserve content structure within the discussion thread forums. This approach also allowed for completion within the time frame selected.

Research Questions

1. RQ1: For patients who engage in online social support to discuss their journey, what do their posts reveal about their physical complications following surgery?
2. RQ2: For patients who engage in online social support to discuss their journey, what do their posts reveal about their psychological complications following surgery?
3. RQ3: For patients who engage in online social support to discuss their journey, what do their posts reveal about social complications following surgery?
4. RQ4: For patients who engage in online social support to discuss their journey, what are the experiences of postsurgery bariatric patients in terms of additional challenges, struggles, and successes as shared in online support forums?

Procedures

Selections of online social support discussion threads were chosen for analysis based on using key search terms. IRB approval, 09-30-19-0095571, was obtained on September 20, 2019. Archived discussion threads were returned following searching key terms were selected for content analysis. No interaction occurred between the researcher and individuals who have posted to the online archive. Naturalistic observation was utilized to gather data and was thematically coded for patients within the online archive, including any information gathered from responses from followers of the discussion thread.

Data Selection

Archival data was unsolicited, and messages were unedited from the discussion thread post exchange for persons selected within the online support forum BariatricPal. All archival data was submitted to Microsoft Word documents, and Dedoose, for organization, storage, and retrieval. A database was created to save files relative to this study. Archived data was gathered through online retrieval and downloading of message data within the selected time frame. Archived data was organized into folders and saved into files to prepare for content analysis. Content analysis was conducted with the use of Microsoft Word, and Dedoose, to associate codes with textual data retrieved.

Data Analysis

Archival data, stored within an online bariatric support forum, was analyzed in this study. Archived messages are arranged in discussion threads. Individuals who are 2-years post-surgery were selected. Post bariatric surgery status was determined by

information provided from individuals as they post their starting weight, surgery weight and date of procedure, and goal weight. Most patients lose excess body weight within the first year post bariatric surgery. At two years post-surgery weight regain typically begins (Maleckas et al., 2016). Therefore, selecting individuals at this time point increased probability that they were reporting BPS challenges associated with weight regain.

Data was organized and coded by the researcher employing Saldana's initial, eclectic, and axial methods, looking for overall themes within the discussion threads related to key terms selected and report of weight recidivism. Each discussion thread created a transcript reviewed by the researcher to assist in answering the original research questions of what is posted about their experiences following bariatric surgery.

During the first cycle of coding, I utilized Saldana's (2012) initial coding method. I highlighted frequently used words and provided reference for understanding biological, psychological, and social issues that arise following bariatric surgery. This provided elemental methodology to assist in basic understanding of the data (Saldana, 2012). Identifying statements or key terms further assisted in understanding participant's experiences. Eclectic coding was used between the first and second cycles to develop themes within the data for further analysis (Saldana, 2012). Themes were coded for patients reporting specific issues within forum of gastric sleeve. During the second cycle of coding, I used Salanda's (2012) method of axial coding to group the data into smaller a number of codes from first cycle. This allowed the dominant themes to emerge from the data providing clarity of the bariatric patient experiences.

Verification of Findings

Foundations of qualitative content analysis was the basis of the approach for this proposed research. Credibility, transferability, usefulness, and analyzability of the content of text analysis encompasses qualitative research and total quality framework (Roller & Lavrakas, 2015). Findings were verified by printing hard copies of the transcripts from BariatricPal.com, noting information disclosed on each thread, and report of current status within the bariatric surgery journey. Hard copies of the transcripts will be provided to the committee chair and member upon request.

Credibility of the data retrieved was validated through the individual postings of the bariatric surgery journey within the archived discussion threads. Transferability of the data retrieved was achieved through BariatricPal.com containing information across numerous demographic settings and environments. Usefulness of the data incorporated objective analysis applicable to the bariatric community, including those with mental illness, and best outcomes for patients as presented within the data. Careful documentation of the data was employed through checking and rechecking procedures through the analysis process.

The researcher in this study is a qualified mental health provider through the Commonwealth of Virginia and a Social Psychologist (PhD Candidate), who is currently working within a local community service board counseling at risk youth within a local high school. At this time, the researcher is not directly involved in any active treatment of individuals who are engaged in the bariatric surgery process. Peer reviewed articles,

books, and scholarly websites were utilized for this study, and observational accounts of data presented on BariatricPal.com was used for this research.

Summary

An observational approach was used through the internet website BariatricPal.com for qualitative content analysis of data. Each discussion thread retrieved within the search parameters sought to achieve a thorough understanding of the perspectives of persons within the website and their biological, psychological, and social issues related to bariatric surgery. The data retrieved was transcribed into themes for analysis. Patients selected for the study were chosen based on established search criteria within BariatricPal.com and response comments posted were analyzed for thematic purposes.

Chapter 4: Results

Introduction

The purpose of this qualitative, observational study was to understand the biological, psychological, and social issues reported within an online support forum for postbariatric surgery individuals. With the use of the designated date range, June 30, 2015 to June 30, 2017, the research questions were as follows:

RQ1: For patients who engage in online social support to discuss their journey, what do their posts reveal about their physical complications following surgery?

RQ2: For patients who engage in online social support to discuss their journey, what do their posts reveal about their psychological complications following surgery?

RQ3: For patients who engage in online social support to discuss their journey, what do their posts reveal about social complications following surgery?

RQ4: For patients who engage in online social support to discuss their journey, what are the experiences of postsurgery bariatric patients in terms of additional challenges, struggles, and successes as shared in online support forums?

In this chapter, I present and discuss findings in relation to the four research questions. This chapter also includes discussion of the online research setting, types of data collected including themes that emerged from analysis, and the trustworthiness of the data. In Chapter 5, I discuss the findings in detail.

Setting

After obtaining IRB approval, transcripts of discussion threads were downloaded from www.bariatricpal.com, for analysis. Www.bariatricpal.com is a public, online, social support forum for persons who are seeking support throughout the bariatric surgery process. The forum uses a search area in which the user can narrow results based on preferences. For this study, I selected the area of gastric sleeve surgery with a date range of June 30, 2015 through June 30, 2017 to ensure at least 2 years had passed since the surgeries. The site boards consist of major topic discussion threads within which there are typically numerous posts and replies to the posts. Threads were selected when their content matched the topics: challenges, medical/biological, psychological, depression, anxiety, suicide, or social support.

BariatricPal.com is an online public form; therefore, accessing the discussion threads did not violate any privacy issues of the individuals posting. To ensure anonymity, all personal identifiers were stripped from the transcripts. No interactions occurred between the individuals posting and myself. This study was strictly observational.

Data Collection

This study was a qualitative observational study, using discussion thread posts in the archival database of www.bariatricpal.com as my data source. I performed a concise search within the website under the gastric sleeve group, used each individual search term, limited data presented to the timeframe chosen, and read the discussion threads in the order they were presented, selecting the first 20 nonrepetitive threads for analysis. I

eliminated search results from further analysis when they referenced “medical doctor.” I saved discussion thread posts to Microsoft Word documents after stripping the data of all individual identifiers.

Searching only within the gastric sleeve forum, with a date range of June 30, 2015 to June 30, 2017, yielded a large number of threads for each of the following search terms: *challenges* (1,725 threads), *medical/biological* (2,068 threads), *psychological* (188 threads), *depression* (1,005 threads), *anxiety* (627 threads), *suicide* (49 threads), and *social support* (4,655 threads). Using a convenience method, I selected the first 20 threads from each search term, eliminating repetitive threads. Suicide yielded only 10 posts for analysis due to repetition of information. A selection total of 130 discussion threads was used for analysis. Each thread was placed into a Microsoft Word document, and I assigned alpha-numerical values to each of the discussion threads to protect the individual’s expectancy of privacy and confidentiality when posting to www.bariatricpal.com. I also stripped the discussion threads of all identifying information to further protect the privacy of the persons posting.

Data Analysis

After completing downloads of all transcripts from www.baraitricpal.com and placing them into Microsoft Word documents, I used Saldana’s (2012) methods of initial, eclectic, and axial coding within the following data analysis strategy:

1. I entered each transcript into the qualitative analysis program, Dedoose, to begin coding the collected data.

2. I defined codes by reading each script and highlighting applicable keywords and phrases used by the individual posts. This allowed me to develop *Figure 1,* which created a base for deeper analysis within the coding process.

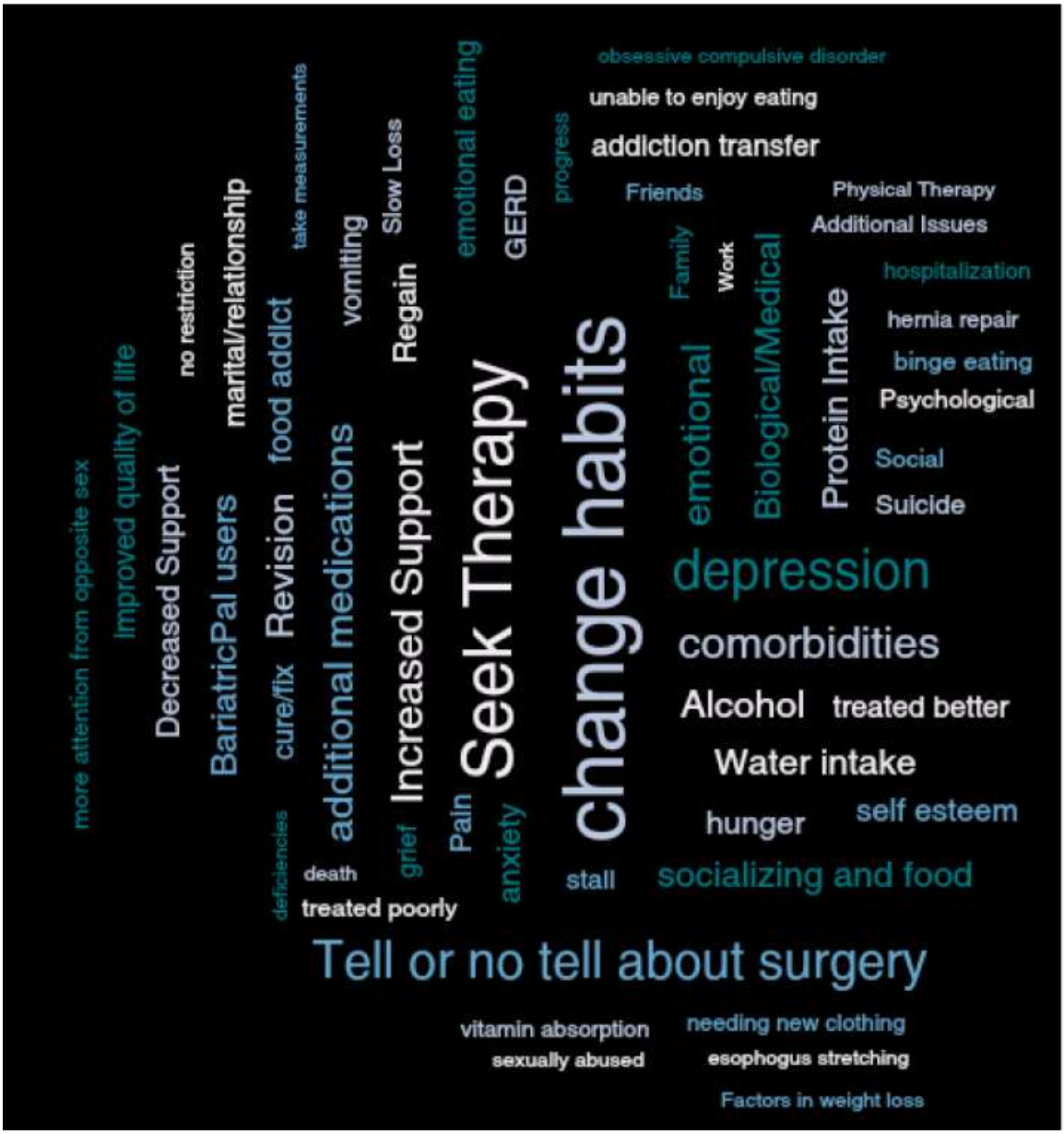

Figure 1. Packed word cloud.

3. After I viewed the packed word cloud, I used Dedoose to search for recurring themes by using the analyze function. Within the analyze function, I could then view the results under a qualitative chart function with a subcategory of code application.

The code application feature clearly and concisely places data within the identified codes and provides total selections from the data. Code application also allowed me the ability to select excerpts of the text within the transcripts for clarification in analysis. Codes I created within Dedoose data analysis software were used to identify recurring themes to assist in answering all original research questions. Themes are presented in the Results section of this chapter.

The following codes are listed with explanations extracted from the collected data:

Code 1: Biological. I assigned the code of biological when patients described their journey post gastric sleeve, and I assigned subcodes within the data as patients reported multiple issues: GERD, pain, revision, medication, comorbidities, deficiencies, hernia repair, hospitalization, hunger, no restriction, progress, take measurements, vitamin absorption, and vomiting. Comorbidities were present throughout all search criterion and alluded to preexisting and postgastric sleeve diagnosed biological and psychological disorders. The code of biological became a thematic code in the transcripts.

Code 2: Psychological. I assigned the code of psychological when patients described their journey postgastric sleeve. I also assigned subcodes of issues discussed among patients: seeking therapy, addiction transfer, anxiety, binge eating, changing

habits, cure/fix, depression, emotional and emotional eating, food addict, grief, obsessive compulsive disorder, self-esteem, and sexual abuse. The subcode of depression as a cause for postgastric sleeve surgery struggle was referenced by numerous individuals and became thematic in the transcripts. A subcode of seeking therapy was present within patients who expressed challenges in coping with changes during post gastric sleeve surgery and became thematic in the transcripts.

Code 3: Social. I assigned the code of social when patients described their journey post gastric sleeve with social issues and I also assigned sub-codes through analysis of the data as patients discussed: alcohol, decreased support, increased support, BariatricPal support, family support, friend support, work support, quality of life, marital/relationship issues, attention, socializing and food, treated better, treated poorly, and unable to enjoy eating. The code of social became a thematic code in the transcripts.

Code 4: Challenges, successes, and experiences (additional issues). I assigned the code of additional issues when patients described additional issues experienced through their journey post gastric sleeve surgery. I also assigned sub-codes of physical therapy, protein intake, tell or no tell about bariatric surgery, water intake, death, needing new clothing, suicide, stall, weight regain, and slow loss.

Code 5: Depression. I assigned the code of depression as a cause for post gastric sleeve surgery struggle due to reference by numerous individuals. Individuals posting identified struggles with depression both pre-existing and developing post bariatric surgery. .

Code 6: Anxiety. I assigned the code of anxiety as a cause for post gastric sleeve surgery struggle due to reference by numerous individuals. Individuals posting identified struggles with anxiety both prior to and post bariatric surgery.

Code 7: Suicide. I assigned the code of suicide was identified by several posters and included personal experiences with suicidal ideations and knowledge of others who either died by suicide or attempted suicide. I eliminated numerous threads from the "anxiety" group due to reaching saturation. Data within the "anxiety" search presented repeating information already retrieved.

Evidence of Trustworthiness

Credibility

Credibility is established with the use of validation strategies previously noted in Chapter 3. The purpose of this observational study was an exploration of persons sharing their personal experiences utilizing a public online forum. The intent of the persons posting their experiences appears to assist other individuals as they progress through their weight loss journey following gastric sleeve surgery, providing educational information, and to support persons who required a place to communicate their struggles and successes. The data available on bariatricpal.com was publicly available for analysis and is considered credible. To further ensure credibility, first, each transcript was downloaded and placed into a Microsoft Word document. Secondly, I stripped the transcripts of identifying information, and assigned each transcript an identifiable alpha numeric code denoting separation of transcripts. Thirdly, I saved each transcript into individual files stored in two locations, local computer database and Dedoose. The fourth step was to

ensure each transcript was successfully uploaded into Dedoose data analysis software. This process allowed for robust descriptions of the patients experiences, in their natural state, allowing for me to assign codes to the data through reading of each transcript. This strategy of data collection preserves the original data and utilizes the triangulation method as the data consists of comparing people with different perspectives. I checked in with my dissertation research methodologist and peers for support and advice during the research process.

Transferability

Transferability refers to the level that the results can be transferred from one population to another, or among one or more settings. This research study utilized the observational approach within www.bariatricpal.com, mining for information within the posts that was available for collection and analysis. All attempts were made to derive concise material for analysis. It was discovered that www.bariatricpal.com is a fluid social platform that encompasses the magnitude of struggles and successes experienced by persons undergoing bariatric surgery for assistance in weight loss. The platform of www.bariatricpal.com provided rich data for review. The ability to gather information within established search criterion and limit results to a specific timeframe increased the richness of data analyzed for this study by providing a concise set of transcripts, from numerous patients worldwide, revealing relevant experiences within the bariatric population. The platform of www.bariatricpal.com is used by bariatric patients, worldwide, thus lending to increased transferability. This method can be utilized in other social platforms. Though www.bariatricpal.com is an ever-changing environment, the

information placed within this digital setting serves as a social archival database available for future analysis for qualitative and quantitative studies.

Confirmability

Confirmability was established by documenting of how data was checked and rechecked. The data was first selected by identifying the individuals that met the selected surgical intervention of gastric sleeve and timeframe of two years post-surgical intervention. Transcripts were then downloaded into individual files containing participant experiences. Each transcript was read multiple times and coded to assist with answering the research questions. The inception of this study results from the researcher's experience with family members and friends who have prior experience with bariatric surgery.

Results

Data analysis was performed through a detailed search, within an archival transcript utilizing the online social support forum, www.bariatricpal.com. Through data analysis of www.bariatricpal.com transcripts, I identified the following ten themes, presented by highest to lowest thematic presence:

1. Continued poor habits following gastric sleeve surgery
2. Seeking therapy
3. Hiding bariatric surgical intervention
4. Factors in weight loss
5. Comorbidities of gastric sleeve surgery
6. Revision from prior surgery to gastric sleeve

7. Essential support needs
8. Feeling increased emotional presence
9. Social treatment within the weight loss journey
10. Self harm and suicidal presence.

Findings/Themes

The original research questions posed for analysis and understanding of issues of gastric sleeve surgery are presented below, along with the dominant themes for each one. Dominant themes are explored in detail later in the Chapter:

RQ1: For patients who engage in online social support to discuss their journey, what do their posts reveal about their physical complications following surgery?

The most common biological/physical complications I identified included comorbidities, additional medications, revision, hunger, vomiting, pain, GERD, progress, no restriction, and hernia repair. The two dominant themes were 1) comorbidities of gastric sleeve surgery, and 2) revision from prior surgery to gastric sleeve. Each theme related to original posts by individuals utilizing www.bariatricpal.com.

For the first theme, data presented concerned that while many health-related comorbidities are often resolved post-surgery, additional biological comorbidities continue to persist. Biological challenges led to latent complications upon the body that continued or presented after bariatric intervention.

The second dominant theme within the data revealed revision from prior surgery to gastric sleeve. This theme was represented through experiences posted by bariatric

patients having previously undergone LapBand surgery, the surgery failing, and undergoing revision to gastric sleeve to further assist with weight reduction.

RQ2: For patients who engage in online social support to discuss their journey, what do their posts reveal about their psychological complications following surgery?

The most common psychological complications I identified included changing habits, seeking therapy, depression, emotional issues, food addiction, anxiety, self-esteem, cure/fix, and addiction transfer. Transcripts revealed several themes related to psychological complications post gastric sleeve surgery. The three dominant themes were 1) continued poor habits following gastric sleeve surgery, 2) seeking therapy, and 3) feeling increased emotional presence. This suggests that patients who are not psychologically stable prior to bariatric surgery may experience significant difficulties post-surgery with psychological diagnoses.

The first dominant theme revealed continued poor habits following gastric sleeve surgery. Patients within the forums discussed their struggles with food addiction, binge eating, not adhering to dietary restrictions, and poor nutritional choices.

The second dominant theme revealed the need for patients to increase seeking therapy to assist with psychological complications and mental health diagnoses. Patients with the forums discussed and explored mental health struggles. Patients expressed feelings of depression, anxiety, bi-polar disorder, addiction transfer, obsessive compulsive disorder, binge eating disorder, and grief/loss.

The third dominant theme revealed participant expression of feeling increased emotional presence. Emotional presence was expressed by patients as the inability to

control emotions, negative feelings, symptoms of mental health diagnoses, and overwhelming feelings of regret having undergone gastric sleeve surgery.

RQ3: For patients who engage in online social support to discuss their journey, what do their posts reveal about social complications following surgery?

The most common social complications I identified included alcohol consumption, decreased support, socializing and food, marital/relationship issues, and being treated poorly. Transcripts revealed themes related to social complications post gastric sleeve surgery. The two dominant themes were 1) essential support needs and 2) social treatment within the bariatric surgery journey. These thematic areas were represented within the data.

The first dominant theme revealed essential support needs of gastric sleeve patients. Bariatric patients expressed within their posts their needs for support from family, friends, bariatric support groups, and the medical community.

The second dominant theme revealed patients expression of their social treatment within the bariatric surgery journey. Bariatric patients exposed complications experienced both prior to and post gastric sleeve surgery that were problematic for them when navigating the weight loss journey.

RQ4: For patients who engage in online social support to discuss their journey, what are the experiences of postsurgery bariatric patients in terms of additional challenges, struggles, and successes as shared in online support forums?

Additional challenges, struggles, and successes following gastric sleeve surgery included topics related to the participant journey: tell or not tell about surgery, water and

protein intake, suicide, self-harm, stall, regain, slow loss, and grief. I identified three themes related to what their posts revealed about their shared experience within the online support forum 1) disclosure of bariatric surgical intervention, 2) factors in weight loss, and 3) self-harm/suicidal presence.

In the first dominant theme gastric sleeve patients explored their struggles to disclose whether or not they underwent bariatric surgery to other. Feelings expressed in their decision of disclosure included feelings of shame in not being able to lose weight through diet and exercise, feelings of confidentiality as to their personal journey, and lack of positive support from others.

In the second dominant theme slow loss, stall, or regain was stated by numerous posters. This is a significant concern within the bariatric surgery field as patients experience struggles, weight recidivism is likely to occur. Patients expressed key factors in their ability to successfully lose and maintain weight loss.

In the third dominant theme self-harm included feelings towards food that caused patients to sabotage their current progress, regret of bariatric surgery, and inability to manage maladaptive thought patterns that stemmed from underlying, untreated, psychological disorders.

Themes

Transcripts obtained from BariatricPal resulted in ten overarching themes through qualitative data analysis. The ten themes derived are presented below, in order based on the highest to lowest number of times the theme appears within the data, with examples selected from the transcripts.

Theme 1: Continued Poor Habits Following Gastric Sleeve Surgery

The most prevalent theme within the data reveals that many individuals continue to engage in poor habits following gastric sleeve surgery. These habits include areas of emotional eating, food addiction, binge eating, and not adhering to post-surgical dietary recommendations. Transcript GS-D17 demonstrated the continued poor habits theme through the post referring to

> All of you are thinking you are deprived because you have made food events a large part of your lives and now it has to change. It just has to or you will not succeed. I am not trying to be negative here, but these changes need to be permanent or you will gain weight back.

Transcript GS-C18 reported

> Just go into it with the understand that as that initial honeymoon period weight loss starts to slow down it will become more challenging to lose and you won't lose as quickly, but as long as you maintain good behaviors as far as food and exercise you should have a good shot of getting well past that 50-70%. Stalls are also normal, and you may have change things up from time to time, the important thing is to not get frustrated and slip back into old bad habits.

Theme 2: Seeking Therapy

The second most prevalent theme within the data reveals that many individuals continue to display symptoms of mental illness that were diagnosed either prior to surgery or post-surgical intervention and report the need to seek out therapeutic intervention. The theme of seeking therapy was demonstrated through numerous posts,

including. GS-D17 stating: “I have actually gone and met with a therapist just to help with my food attachment issues”

According to GS-P19

> It is important to realize that bariatric surgery does not solve pre-existing mental health issues. You may lose the weight, but the baggage will still remain. I suspect that is why there is so much emphasis on the motives for undergoing the operation, by having a psych evaluation prior to being accepted as a candidate for surgery. It is also why there is great emphasis within the program to seek psychological help if needed.

Theme 3: Hiding Bariatric Surgical Intervention

The third most prevalent theme within the data reveals that many individuals do not reveal that they underwent gastric sleeve as a method to assist in weight reduction. Hiding bariatric intervention meant that individuals felt either shame in undergoing bariatric surgery, did not feel it was necessary to disclose their weight loss intervention or they discussed it within their postings or responses. Some of the most frequently listed reasons included that their decision was personal, fear of shaming, embarrassment of inability to lose weight through conventional diet and exercise, and lack of support from family and friends. This theme was described by patients struggling to tell or not tell others they underwent bariatric surgery. This theme was demonstrated by GS-S6 stating

> I felt like everyone was watching me push food around my plate and her husband noticed that I barely ate. He figured I didn't like my food. Then I disappeared to the bathroom because I had so much gas and my sister got worried. Girls night

> out, more of the same, I couldn't eat, had horrible pain, guess I didn't chew enough and eat slow enough. It was horrible. Oh well, [I] guess eventually I will just tell everyone or get over the shame so I don't have to come up w excuses. Why should I feel ashamed? I made a choice for my health!

GS-M17 shared, “The people I specifically told ahead of surgery are: my spouse, our three best friends, my in-laws, my family. I wasn't planning on telling anyone else simply because it's none of their business. All have been supportive.”

Theme 4: Factors in Weight Loss

Complications with weight recidivism became a prevalent theme within the data analyzed. Slow loss or regain manifested as a theme throughout the data with many persons describing biological, psychological, and social issues that led to complications with weight recidivism. This was demonstrated GS-C10, posting “I've lost 90 lbs. total but have not lost a pound in the last 4 months.” This theme was further demonstrated by GS-D15 stating

> I am five years postop from a gastric sleeve procedure. My starting weight was 310 pounds I got down to 170 and looked great in my eyes. I have gone the absolute wrong way! I have gained like half the weight back.

Patients experienced additional difficulty maintaining weight through biological issues as expressed by GS-M3, “2 years out, no weight loss, no restriction or appetite loss. My metabolism is totally destroyed and I can no longer lose weight with diet and exercise despite losing 62 pounds on my own prior to surgery.”

Patients experiencing psychological and social issues expressed difficulty in maintaining weight loss as described by GS-Si3

> A heavy depression set in early this year. Work stress, marital issues, financial issues etc..... I got so depressed I tried to take my life twice!! I am blessed I survived twice I know this. After hospital stays to get better they put me on meds including abilify which is notorious for weight gain. I've gained 40lbs in 4 months and have been as high as 216 for a low a few months ago of 171. Depression is setting in as I went thru hell to get to that 171 now I'm obese again. Had to buy bigger clothes each month. I'm shocked with the sleeve how much I can eat now. The meds slow the metabolism and make it to where I'm not even aware how much I am eating.

Theme 5: Comorbidities of Gastric Sleeve Surgery

Comorbidities of gastric sleeve surgery were described throughout the data and were expressed by patients experiencing additional biological and psychological issues. Transcript GS-P16 demonstrated additional comorbidities theme through their reference

> I was on depression medication and blood pressure medication, had severe sleep apnea and was a miserable human being who made many excuses to not go to events because (although I would have never admitted it to anyone) I was afraid of the sitting accommodations, how people would look at me, what I would wear, etc.

GS-D14 revealed the need for additional medications following gastric sleeve surgery, stating,

I take bp meds, Dexilant and Vitamins," and according to GS-M6:

> I asked my surgeon why so many people say they can take them with no problem. He replied people may "think" they're not having problems, but often the PPIs disguise the erosion that's really happening and some others who don't take PPIs can't feel the problems because of the reduced stomach. It may take years for the problems to become obvious and by then it's a mess or too late. I'm erring on the side of caution and following ABS guidelines. No NSAIDS for me.

In addition, GS-M16 revealed, "New diagnosis of Type 2 Diabetes and Hypertension," and GS-M8 stated "replace my knees" and GS-M10 reported "back pain and fear from an injury and a circulatory condition that was developing."

Theme 6: Revision From Prior Surgery to Gastric Sleeve

Revision from a prior surgery, such as Lap-Band, was found to be thematic throughout the data as patients described their weight loss journey. Many patients identified struggles with failure in previously attempted bariatric surgery. This experience required revision to the gastric sleeve procedure. This issue was described by GS-C17

> One thing I will mention... as an ex bander... you will find you can fit a little more food/fluids than virgin sleevers... as we have less sensation in our esophagus because of the band.... so it's important that we measure out food until we can adjust to reading the full signals.

Additional bariatric revision was also described by GS-M9, "I revised in 2011 after 10 tough years banded" and GS-M15

> Lap band was performed 10 years ago and started giving me problems about four months ago. Surgeon opened up the band and I went up to 280 pounds. After the gastric sleeve and removal of the lap band in one procedure, I have lost 25 pounds since my highest weight recording in the surgeon's office.

Theme 7: Essential Support Needs

Social support complications manifested throughout the data analyzed. Social complications yielded less results overall decreased overall support, struggles with socializing and food, marital/relationship issues, and being treated poorly by others. Socializing and food was demonstrated by GS-S11 through their post stating, “I realized how much of my socializing involved eating out at restaurants after I got the surgery. Almost every time I went out, it was to eat. No other activity.”

Marital and relationship problems were posted by GS-C20 stating

> It is hard right now for BOTH of us. I feel the need to talk through what I have going on and share with my wife while also being very careful to not make her feel bad. I find myself just bottling it up and that will not be good over the long term.

An increase in being treated poorly was demonstrated by GS-D8 stating

> I started at 340lbs and I now weight 262lbs. I've lost almost 80lbs. Weight has always been an issue in my life, but I'm feeling more depressed than I ever had in my life. I've suffered from depression for years and food was always my emotional outlet. Nothing ever comforted me as food has. This surgery has also

> really shown me how awful people are and how different people treat you. I'm struggling so much.

Decreased support was written by GS-D4

> When I first had my operation [I] also had no energy. In fact I could fall asleep while talking. Now that [I'm] two [years] out I am dealing with relationship issues. Also the emotional roller coaster has put me on a slippery slope of some regain unfortunately. But luckily, I saved all that info that my [doctor] gave me before surgery. I read that all and decided that I had this operation for me I can't allow emotional distress to screw up my outcome. I just wish I was doing this with someone. Because I have no support system. I am always told I took the easy way out. Hearing that makes me cringe. Good luck to everyone who hasn't had their surgery yet just remember you are doing this for you.

Theme 8: Feeling Increased Emotional Presence

Common psychological complications also revealed a consistent theme within the data through feelings of increased emotional presence. Patients experienced issues with mental illness including depression, emotional issues, food addiction, regain, anxiety, self-esteem, cure/fix, and addiction transfer. Mental health diagnoses presented, within the data, include depression, anxiety, binge eating disorder, obsessive compulsive disorder, and bipolar disorder. Psychological complication of depression was demonstrated by GS-D4 by posting

> Currently I am really depressed and despondent, I don't really take good care of myself, I have very little energy and don't care much about doing much. And I

> think a big part of it is my absolute lifelong struggle with weight and not being able to ever get anywhere.

GS-P19 expressed, “I have met so many weight loss surgery patients who are on anti-depressants, yet depression is a contraindication for weight loss surgery!”

GS-D3 reported feelings of anxiety following gastric sleeve

> Food was how I always dealt with stress, anxiety, etc. pre-surgery, and I still haven't found an adequate replacement for it post-surgery. Don't get me wrong, exercise helps, but food was convenient and I need something in the moment. What does everyone think? How do you all handle in the moment stress and anxiety?

GS-Si1 described feelings of increased emotions following gastric sleeve surgery through their post stating

> I never once thought i would have these emotions. Every night my mind just goes over and over silly things, and the same things, regrets, my life is forever changed, permanently changed, health issues (if any come up) eating tiny portions in public making me self-conscious. Ashamed and more.

A concerning report of transfer addiction from food to alcohol was displayed by GS-D9 stating, “I realized my drinking was getting excessive. Particularly when I woke up with my hands shaking. It was quickly going from drinking after working out, to wanting to take nips to quiet the nerves during the day.” GS-S9 statement expressed issues with emotions, alcohol, and food addiction, “A few people have transfer addictions to alcohol since they are no longer using food to deal with those feelings.”

Theme 9: Social Treatment Within the Weight Loss Journey

This theme revealed that gastric sleeve patients experienced increased support by posting about their issues on www.bariatricpal.com, in the areas of peer support, validation, and education on post-surgical complications, than within traditional settings. Bariatric patients also reported poor treatment, increased support from family, friends, and www.bariatricpal.com users, marital and relationship issues, and difficulties with socializing and food.

An increase in being treated poorly was demonstrated by GS-D8 stating

> I started at 340lbs and I now weight 262lbs. I've lost almost 80lbs. Weight has always been an issue in my life, but I'm feeling more depressed than I ever had in my life. I've suffered from depression for years and food was always my emotional outlet. Nothing ever comforted me as food has. This surgery has also really shown me how awful people are and how different people treat you. I'm struggling so much."

Increased support was experienced through social support from family and friends by GS-S1 reporting, "I wish I could have trusted how loving and amazing my friends and family would be." Increase in support from www.bariatricpal.com users as demonstrated by a post from GS-C7 stating, "Thanks for all of your support. I really love getting on this site and seeking out advice." Marital and relationship issues following gastric sleeve surgery was expressed through GS-C20

> It is hard right now for BOTH of us. I feel the need to talk through what I have going on and share with my wife while also being very careful to not make her

> feel bad. I find myself just bottling it up and that will not be good over the long term.

Finally, socializing and food became evident throughout the data. BariatricPal users reported increased difficulty in navigating new restrictions, as expressed by GS-S11 stating, “I realized how much of my socializing involved eating out at restaurants after I got the surgery. Almost every time I went out, it was to eat. No other activity.”

Theme 10: Self-Harm and Suicidal Presence

Another area which presented as a theme throughout the data includes suicidal presence. Suicidal presence was described throughout the data by both patients who were struggling with suicidal ideations, attempted suicide, or knew someone struggling with suicide. Several posts also discussed struggles following bariatric surgery that led to knowledge of one death by suicide. Suicidal presence within the data was demonstrated by GS-SI2, posting

> Finally on Monday, I took myself because I felt such deep comfort after I had my plan figured out. I knew I couldn't do it to my family. But that's how deep the pain was and I didn't have food to bury it.”

GS-Si2 reported suicidal ideations resulting in hospitalization

> I was very suicidal two weeks ago and admitted myself to the hospital. It's never a solution. You need to forgive yourself for this relapse and move forward. There will be moments where you fail but there will many more moments where you succeed, that's the human condition.

One death from suicide was reported within the data by GS-S3

My best friend's new boyfriend's wife had bariatric surgery in 2015. She drank a fair amount/fairly often before surgery and, according to mutual friends, became depressed after surgery/weight loss and kept drinking at the same rate. He came home from work one day and found her dead. The coroner's report listed it as a result of alcohol consumption.

Summary

The purpose of this generic qualitative observational study was to understand the biological, psychological, and social complications following gastric sleeve surgery and any additional challenges, struggles, and successes as reported by patients engaging in the public online support forum of www.bariatricpal.com. The four research questions focused on exploring what patients were posting about their bariatric surgery journeys on a public social support forum and revealed what issues or incidents they were experiencing.

After IRB approval was obtained, and transcripts were downloaded from www.bariatricpal.com, the analysis of data began in order to understand patients reasons for posting within the online social support forum. The transcripts revealed a wide range of experiences from common biological, psychological, and social issues to reasons for not disclosing that patients underwent bariatric surgery. Posts revealed that the need to engage in social support to obtain peer support, validation, and education on post-surgical complications. The responses revealed that patients posted their experiences to assist in pseudo-anonymity, based on self-generated screen names concealing true identity, due to sensitivity in some of the issues they were experiencing including coping with mental

illness, self-expression of their successes, positive engagement with peers, as an alternative to traditional peer support groups, familial conflict and support, and to reduce overall perception of non-compliance with post-surgical weight loss plan. All themes revealed that gastric sleeve patients experienced increased support by posting about their issues on www.bariatricpal.com, in the areas of peer support, validation, and education on post-surgical complications, than within traditional settings. The following themes were identified within the transcript posts downloaded from www.bariatricpal.com.

The ten most prevalent themes addressed areas for bariatric patients in continued poor habits following gastric sleeve surgery, seeking therapy, hiding bariatric surgical intervention, factors in weight loss, comorbidities of gastric sleeve surgery, revision from prior surgery to gastric sleeve, essential support needs, feeling increased emotional presence, social treatment following surgery, and self-harm and suicidal presence. This chapter outlined the original research questions and results of the present study. Relevant themes were also presented in this chapter that were obtained from the original transcripts downloaded from www.bariatricpal.com. Transcripts were coded and themes were identified through utilizing Dedoose for data analysis through analysis in qualitative charts of code application. Code application allowed me to have concise coding within each transcript and provided clear results within the data to reveal themes. In Chapter 5, thematic findings, limitations, recommendations, implications, and conclusions are discussed.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The present study was conducted to observe what individuals posted within a public online social support forum about their biological, psychological, and social complications following gastric sleeve surgery and additional challenges, struggles, and successes within their weight loss journeys. Using a generic qualitative observational design, I sought to obtain a clearer and concise understanding of the research questions and increased knowledge about issues faced by bariatric patients postsurgery. Findings add to the existing body of research previously addressed in Chapter 2.

During coding of the downloaded transcripts, several prominent themes were identified in the process of data analysis. The highest number of post results within the data analyzed were posts showing an inability to change habits following gastric sleeve surgery, seeking therapy postsurgical intervention, and hiding bariatric surgical intervention. Patients shared numerous posts discussing their inability to change their habits postsurgery, and many of these patients also struggled with weight regain or slow loss due to a lack of making appropriate changes to poor habits developed prior to surgery. The responses for seeking therapy included the need for further education regarding preexisting mental illness, coping with grief and loss of food, and development of depression and anxiety following surgery due to the inability to manage maladaptive thought patterns that led to binge eating postsurgery. Reasons for hiding bariatric surgery intervention were not always the same, ranging from personal decisions to hide, shame of not being able to lose weight with conventional diet and exercise, and fear of being

treated poorly by others. The posts revealed that individuals who engage in bariatric surgery to aid in weight loss do not often feel validated in their decision within familial or social circles and often sought acceptance within the online public social support forum. Stories were posted on www.bariatricpal.com to receive support and education on complications experienced post gastric sleeve intervention. Patients engaging in the online social support forum often expressed gratitude towards other patients for assisting them through encouragement and guiding them to seek therapy to aid in understanding complications. The ability to disclose sensitive information, in a pseudoanonymous manner, may have alleviated the discomfort felt in traditional peer support group and medical appointments. Many posters expressed a fear of shaming within traditional settings. In addition, as with many public forums, www.bariatricpal.com was not exempt from "trolling" behavior, and some posts revealed shaming and condescending remarks by some patients. These negative comments were removed by site administrators, and positive support was encouraged throughout posts, which appears to assist in alleviation in shame displayed by persons experiencing internal conflicts in their choice of weight loss method.

Interpretation of the Findings

The transcripts revealed10 themes across the posting by individuals who used online social support to discuss their weight loss journeys following gastric sleeve surgery: continued poor habits following gastric sleeve surgery, seeking therapy, hiding bariatric surgery, factors in weight loss, comorbidities of gastric sleeve surgery, revision from prior surgery to gastric sleeve, essential support needs, feeling increased emotional

presence, social treatment following surgery, and self-harm and suicidal presence. The three most prominent themes were continued poor habits following gastric sleeve surgery, seeking therapy, and hiding bariatric intervention.

Theme 1: Continued Poor Gabits Following Gastric Sleeve Surgery

Theme 1 emerged from content within the posts describing BariatricPal users engaged in continued poor habits following gastric sleeve surgery. This resulted in patients experiencing weight recidivism and inconsistencies in weight management due to lack of self-control when faced with how to implement healthy practices into postbariatric surgery life. Likewise, post writers reported continued poor dietary choices and reverting to excessive eating habits once they no longer felt restriction from the gastric sleeve procedure. Many patients described their struggles with overeating causing significant distress that increased reported feelings that gastric sleeve intervention was not successful.

BaritaricPal users also described their bariatric journey during the initial months as encouraging; however, when the weight began to slow, many patients expressed difficulty in feeling successful. Patients reported maintaining good behaviors and habits as integral, yet difficult to maintain across the long term. Like the study presented here, Lawson, LeCates, Ivezaj, Lydecker, & Grilo (2020) found that patients disclosed that they did not anticipate how drastic bariatric surgery would change their lifestyle and struggled with loss-of-control eating following bariatric surgery. Their patients discussed difficulty in making changes that would persist and improve quality of life, reporting they struggled with consistency in their diet and exercise plans, and Lawson et al. reported that

internalized weight bias was significantly associated with increases in eating disorders and psychosocial difficulties. However, while many past research studies have addressed benefits of biological comorbidity resolution following bariatric intervention, patients within the research study presented here report continued struggles with additional issues as weight loss begins to slow. Lawson et al.'s study supported this research study in understanding that bariatric patients are often struggling from food choices and controlled eating, which leads to poor decision making, unless the patient makes conscious efforts throughout the bariatric journey to effectively retrain the brain to consume smaller quantities.

Theme 2: Seeking Therapy

Theme 2 emerged from BariatricPal users posting within the online forum describing their specific mental health concerns that led to the need to seek therapy to address issues that arose. Throughout the data, it was revealed that many bariatric patients experience mental health barriers that need further treatment postsurgical intervention through counseling and psychiatric care. Many posts reported no presurgical counseling and felt that a thorough assessment and mental health counseling should be conducted prior to bariatric treatment to address psychological comorbidities that may impede expected long-term success rates. BariatricPal users were satisfied with initial weight loss results but felt continued psychological support through counseling modalities would improve overall quality of life. Likewise, reports of medication to stabilize psychological diagnoses was a significant concern as posts revealed a lack of education on absorption rates and metabolism of medication to treat mental health issues

among post writers. Recent studies within the field of psychiatry stress the importance of continued medication compliance and therapy to assist persons struggling with mental health disorders in successful management (Sockalingam et al., 2019).

Cognitive behavioral therapy (CBT) to address mental health needs, postbariatric surgery was the focus of two recent studies that align with the study reported here. Telephone-based CBT leads to significant reductions in the binge eating scale, emotional eating scale, patient health questionnaire, and generalized anxiety disorder scale across a 1-year timeframe (Sockalingam et al., 2019). Mental health struggles including binge eating disorder, depression, anxiety, and bipolar disorder were reported in many of the posts examined in the present study. Patients posting within BariatricPal reported that increased therapeutic support was a significant need following gastric sleeve surgery. The study presented here aligned with Sockalingam et al. (2019) by emphasizing the expressed need for continued mental health support to assist bariatric patients with symptom management, psychological distress, and weight recidivism before and after surgery.

A 4-year study was conducted by Hjelmesaeth, Rosenvinge, Gade, and Friborg (2019) on the effects of CBT therapy on eating, symptoms, and weight loss following bariatric surgery. This study assisted my research by identifying the need for patients with symptoms of depression to receive psychological treatment before and after surgery. Mental health treatment throughout the bariatric journey could lead to a lower mean BMI before and 4 years after bariatric surgery. Long-term effects of CBT therapy on bariatric surgery are currently unknown; however, this study supports reported data by

BariatricPal users as they identified the need for continued mental health interventions to assist in increasing success rates for patients. Bariatric surgery does not resolve psychological disorders, and appropriate therapeutic treatments can assist the patient in reduction of mental health issues.

Theme 3: Hiding Bariatric Surgical Intervention

Theme 3 emerged from BariatricPal users describing their personal struggles with hiding bariatric surgical intervention. The data revealed that many bariatric patients struggle with whether to disclose their personal weight loss journey due to perceived stigmas and lack of support from family, friends, and colleagues. Many patients assumed the position that this is a personal decision and did not want to experience bias and stigma towards bariatric surgery.

Patients posting within the online forum reported the need to hide their bariatric interventions to avoid harassment. Additionally, patients struggled with social interactions that involved food due to undesirable responses from others. Hancock, Jackson, and Johnson (2018) found that social stigmas continue to persist about bariatric surgery intervention. No significant difference in long-term weight loss for bariatric patients was found, but Hancock et al. identified the need for practitioners to respect each patient's decision about disclosure without bias. My study aligns with research by Hancock, Jackson, & Johnson (2018) as many post writers reported significant levels of discrimination and criticism by disclosing bariatric surgery for weight reduction. BariatricPal users also stated they were concerned with how they are perceived, and many reported low support within the familial unit, workplace environment, and

community. Due to low support for bariatric intervention, many felt stigmatized and chose to not disclose their bariatric journey to others to avoid negative interactions with others.

Posts also revealed a significant struggle to navigate continued social stigmas projected onto them by others. Post writers who disclosed their bariatric intervention to others and received negative reactions often reported lower levels of satisfaction with their weight loss outcomes. Rubino, Puhl, & Cummings (2020) found that weight-related stigma predicted worse dietary adherence and can cause physical and psychological harm following substantial weight loss for bariatric surgery patients. Rubino, Puhl & Cummings (2020) study aligned with my research as post writers reported feeling that weight related stigmas can inhibit long-term weight loss success rates. Patients do not often recognize that unhealthy connections to food undermines basic human and social rights (Rubino, Puhl, & Cummings, 2020). Post writers within the gastric sleeve forum reported increased issues with pain resulting from eating, appropriate serving sizes, and increased anxiety resulting from making excuses for their behavior. Commonly, most post writers were cognizant of weight loss stigmas but reported that effective education and accessible support systems to address this issue were not readily available.

Theme 4: Factors in Weight Loss

Theme 4 emerged from posts where BariatricPal users described their personal struggles with factors contributing to weight recidivism. Many bariatric patients struggled with biological, psychological, and social issues that inhibit weight loss. These issues included hypertension, depression and anxiety, and lack of positive support systems.

BariatricPal users within my study reported initial positive results but across the long-term struggled with weight recidivism due to biological issues such as no weight loss, no restriction, slow metabolism, psychological issues including needing medication management, and social concerns of interactions with others. Research conducted by Cadena-Obando et al. (2020) on predictive factors for successful weight loss after bariatric surgery reported similar results, specifically that unsuccessful surgeries were associated with older age of patients, hypertension, abdominal surgery, depression and anxiety, and unemployment.

Significant issues in the identification of factors influencing weight loss were a source of multiple discussion board entries as patients struggled with navigation of pre- and post-bariatric issues that could have negative effective long-term success. Schafer et al. (2017) identified prebariatric subtypes of patients with issues of self-control, emotional dysregulation, and disinhibited eating behaviors as factors in weight recidivism.

Theme 5: Comorbidities of Gastric Sleeve Surgery

Theme 5 emerged from post writers describing their personal struggles with comorbidities following gastric sleeve surgery. Comorbidities experienced by BariatricPal users included biological, psychological, and social issues and were reported across all posts. Biological issues experienced are often resolved by bariatric surgery intervention; however, post writers reported years of strain on the physical body that resulted in new manifestations of biological, psychological, and social comorbidities.

BariatricPal users continued to identify BPS comorbidities that have an impact on weight loss expectations and progress. Biological comorbidities following bariatric surgery, across the long-term, were explored by Lager et al. in 2018. Similar to the research presented here, Lager et al. found that bariatric surgery assisted in the reduction of the prevalence of diabetes and total cholesterol, and remission of hypertension was found at the 4-year postsurgical mark; however, expected weight loss for gastric sleeve patients was reportedly lower than Roux-en-y. BariatricPal users also struggled with psychological well-being following bariatric surgery. Post writers reported multiple incidences of depression across numerous online support forum posts. Post writers emphasized the need for postsurgery psychological counseling and reported a higher quality of life for those who engaged in counseling across the bariatric journey. This finding is supported by research conducted by Risanto and Caltabiano (2019), who stated that psychological counseling following bariatric surgery is beneficial in reducing biological, psychological, and social issues resulting in significant higher mental well-being reported.

Theme 6: Revision From Prior Surgery to Gastric Sleeve

Theme 6 emerged from BariatricPal users describing their experiences with revision from a prior surgery to gastric sleeve. Many post writers experienced difficulty with the LapBand procedure and revised to the vertical sleeve gastrectomy. Throughout the data, many post writers experienced the need for revision from the LapBand surgery and chose gastric sleeve revision due to increased biological complications. Once gastric

sleeve was performed, only a small number of patients reported difficulties with gastric sleeve.

BariatricPal users reported high numbers of revision from prior bariatric surgical procedures and concern for additional bariatric surgery interventions in the future. Post writers reported challenges from prior surgery in extinction of food restriction, reading of full signals during a meal, and intense regain upon removal of LapBand. Posts reported increased feelings of satisfaction following revision to gastric sleeve. Similar to the study presented here, a meta-analysis conducted by Han et al., in 2020, yielded similar results by identifying gastric sleeve patients experiencing fewer postoperative biological complications and reoperation rates than bariatric patients who underwent alternative procedures. The authors also conclude that superior results of post-operative complications, but did not yield greater results in reduction of managing pre-operative conditions compared to Roux-en-y (Han et al., 2020).

Failed bariatric procedures was reported by many BariatricPal users. Posts stated that many bariatric patients sought surgical intervention to assist in increasing overall quality of life, but found their previous interventions failing. This led to weight recidivism and multiple attempts at adjusting poor habits to reduce weight gain. BariatricPal users reported adjustment to issues due to biological complications such as loss of sensation within the esophagus due to LapBand. Laparoscopic revision of failed bariatric procedures was the focus of research conducted by Frantzides, Alexander, and Frantzides (2019). The current research study reported here aligns with the results concluded within the mentioned study by identifying reasons for revision are often varied

and result in greater weight loss when the surgery is performed to address malabsorption issues, rather than the desire to experience gastric restriction (Frantzides, Alexander, & Frantzides, 2019).

Theme 7: Essential Support Needs

Theme 7 emerged from BariatricPal user posts describing their essential support needs following gastric sleeve surgery. Throughout the data it was revealed that bariatric patients required essential support from family, friends, work, and online social support forums. Although most patients commented that family support was essential, data suggests that support from the medical community was often perceived as negative.

The study presented here identifies that bariatric surgery patients experienced biological, psychological, and social stressors and increased difficulties in adjusting to post-bariatric requirements. Social stressors reported by BariatricPal users include lack of support from family members, divorce, increased depression, loss of energy, and the ability to engage in activities they once found pleasurable. Some post writers also reported no support system within the home and community environments. A study by Atwood, Friedman, Meisner, and Cassin (2018) evaluated the exchange of social support within online bariatric surgery discussions and found the majority of messages provided factual and emotional support needed for the post-bariatric patient. Social support was reported as an essential need by BariatricPal users seeking factual information, coping strategies for difficulties post-surgical intervention, encouragement for adherence to surgical guidelines, and weight loss expectancies. Addressing the individualistic needs of each BariatricPal user within the online forum reported increased understanding of

compliance and a decrease in weight recidivism through social support encouraging change. Reduced feelings of fear and isolation were also reported by BariatricPal users through engagement within the online social support forum and assisted the user in increasing feelings of normalcy.

Shared decision making and support from families was reported by BariatricPal users within this study. A study conducted in 2020 by Coulman, MacKichan, Blazeby, Donovan, & Owen-Smith, describes the essential need of families within the bariatric journey on improved success rates. The authors found that families played an essential role in providing a high level of social support for patients by following a healthy diet and engagement in physical activity (Coulman et al., 2020). Increased familial support and shared decision making throughout the bariatric surgery journey, for BariatricPal users, encouraged positive behavior changes, and resulted in reported healthier family units.

Theme 8: Feeling Increased Emotional Presence

Theme 8 emerged as BariatricPal users described an increase in emotional presence following gastric sleeve surgery. The data suggested that post writers are experiencing continued difficulty with mental health disorders, unregulated emotions, and inability to control emotions related to hormonal changes from the gastric sleeve procedure.

Challenges were reported by BariatricPal users experiencing difficulty with emotional regulation. Online support forum posts found patients reported increased depressive and despondent behaviors, stress, anxiety, and an increase in unexplained

emotions such as regret, change, permanent changes from the surgery on the body, and transfer addiction. Weight loss success was reported as significantly impacted by post writers who have increased emotional presence throughout the bariatric journey. A longitudinal analysis was performed over seven years to understand and examine emotions and their role in weight change (Lavender et al., 2020). Dispositional tendencies of patients of emotional dysregulation, affect intensity, positive and negative urgency, effortful control, and reward sensitivity were significant associations with weight recidivism (Lavender et al., 2020). Psychological factors on weight loss after bariatric surgery was identified by BariatricPal users. Post writers reported the need for continued education on psychological disorders and increased mental health support to assist in weight recidivism.

Theme 9: Social Treatment Following Surgery

Theme 9 emerged from BariatricPal patients describing their issues, challenges, and successes with social treatment following gastric sleeve surgery. Post writers frequently reported varying types of interactions, including, poor treatment, positive attention, and varying levels of ability to engage in social activities with confidence.

Post writers reported high levels of being treated poorly by others, discrimination within the community and workplace, and regret in feelings of trust and support from family and friends. BariatricPal users also reported finding that appropriate social support systems were essential throughout the entire weight loss journey to mitigate negative feelings. Post writers stressed that online social support forms were essential to weight loss progress by collaboration with others who understand their individual biological,

psychological, and social challenges and successes. Like the study presented here, satisfaction with health care providers and social relationships was the focus of research to further understand greater depth of the bariatric experience as the majority of studies are focused on health related outcomes (Stangl et al., 2019). BariatricPal users felt continued discrimination and reported feeling "they took the easy way" with undergoing bariatric surgery. Post writers reported within the online forum felt they were able to be more physically active, happier, increased sex drive, and desire to engage in social settings when they experienced positive interactions.

Theme 10: Self-Harm and Suicidal Presence

Theme 10 emerged from post writers describing their issues with suicidal ideations, self-harm behaviors, and self-sabotaging behaviors that led to increased suicidal presence. BariatricPal users frequently explored the inability to overcome suicidal ideations and feelings of self-sabotage that led to self-harm behaviors such as addiction transfer, with alcoholism the primary concern. Like the study presented here, the risk of suicide and self-harm increases following bariatric surgery, finding 2.7/1000 engaging in a suicide event, and 17/1000 engaging in self-harm/suicide attempt event (Castaneda, Popov, Wander, & Thompson, 2019). Many BariatricPal users reported improvement in BPS functioning following surgery, however for some, increased psychiatric disorders leading to hospitalization and self-harm behaviors of substance abuse were elevated.

Limitations of the Study

Limitations includes the trustworthiness of posts that arose from this generic qualitative observational study. Due to the nature of the posts being placed on the public online social support forum www.bariatricpal.com, I could not verify the data gathered because I had no interaction with the patients. Transcripts were analyzed to gain insight through observation of the posts. It was assumed that each participant was being truthful in their posts. I placed alpha-numeric codes to each transcript, as directed by the IRB, to assist in combating the need for informed consent and to protect the identity of each poster. Concern of trustworthiness assumes that each post was placed on www.bariatricpal.com willingly and truthfully. Another limitation is assumed based on my inability to ask additional questions to understand motive and depth of context. Additional questions, through interviews, would have aided in the depth of knowledge, clarity, and understanding of the individual journeys posted to the site. Reliance on the truthful nature of each post and transcript has been the focus of past qualitative research, however, by utilizing archival online social support data, I have been able to provide connections to the BPS issues, challenges, and successes through the data in the above sections. The nature of the archival data required me to conduct data collection solely based on information posted on www.bariatricpal.com and assume truthful nature of postings within the transcripts. Adherence to IRB approval and guidelines was vital as the identities of the posters was stripped from all downloaded transcripts to protect potential protected populations as many patients disclosed personal struggles with mental illness.

Recommendations

The findings from this study provide insight into the overall biological, psychological, social, and additional challenges, barriers, and successes of gastric sleeve patients engaging in an online social support forum. The study utilized a qualitative approach to develop deeper understanding and capture the experiences of the patients using their own words through their questions, responses, and statements. This study used the patients own words to preserve clarity. There are strengths and limitations of qualitative research. One limitation, as mentioned in the previous section, is the issue of trustworthiness. Trustworthiness of the posts that arose using and online social support forum are unable to be verified, as it utilized archival data. Future research needs to address social support forums and lack of credibility. This research suggests is necessary to engage all entities of the health care team. The impact on each participant and reasons for posting revealing details about their weight loss journey does provide acquisition of knowledge for the patients, however it should not replace recommended health care plans. By engaging in online social support forums, patients are able to present pseudo-anonymity therefore there is concern in the true truthful nature of their engagement and statements.

The findings of this study also present recommendations for future research in the area of follow-up with patients to ask additional questions. Future research should address validity of postings by linking with patients for verification of posts. Future research should also address increasing follow-up and interview questions to gain additional knowledge and indicators of a patients overall readiness to engage in invasive

measures of bariatric surgery. Follow up questions should include the ability to change and maintain positive habits, mental health diagnoses, understanding of potential stigmas and lack of support that may occur from bariatric surgery.

Implications

Implications of this study are significant to social change. Individual transcripts that describe the overall experience of gastric sleeve patients are an opportunity to understand and inform bariatric patients on the challenges, successes, and additional issues that could arise from surgical intervention. Continued supportive practices should be in place to produce proactive interventions. As each participant experience is different, tracking each patient would provide additional monitoring of progress, understanding and setting health attainable goals, acknowledgement of success, proactive interventions for challenges, and linking patients to supportive resources to assist with any additional issues that may arise. By engaging in a proactive approach, and increased monitoring of patients, resources specific to their individualized weight loss journeys should be made readily available to meet their complex needs. Practice implications need to address and encourage bariatric patients to engage in increased awareness of potential issues that may arise due to disconnection from their health care team. While participation within online social support forums provides pseudo-anonymity, it creates a false sense of security and decreases perceived needed support from valid sources who are qualified to assist the patient in their weight loss journey. Increased weight loss success rates could be improved if weight related stigmas are addressed throughout the bariatric weight loss journey. Understanding essential support needs of gastric sleeve patients is also necessary

for the medical community to encourage post-bariatric intervention. Requiring pre and post-surgical psychological support is essential to assist in developing coping strategies for maladaptive behaviors which could improve long term outcomes if person centered treatment is the focus. Comprehensive treatment following surgery has implications towards understanding additional factors that could influence long-term outcomes of weight loss for patients. The findings of this study could assist health care professionals by identifying positive social constructs that would benefit and support patients across the long-term by responding effectively to understand poor health care outcomes. This research has informed the researcher that it is necessary to connect bariatric patients to communities that provide appropriate support.

Conclusion

The purpose of this study was to understand the lived experiences of persons engaging in online social support and what their posts reveal about biological, psychological, social, and additional issues. The data collected from the study revealed ten themes. Overall, engagement in online social support forums provides bariatric patients access to support systems otherwise difficult to attend in traditional "brick and mortar" settings. This system of data collection, as well as the support that the online forums offer, are particularly important as we see the medical industry using online platforms to connect with patients. This study has added to further understanding of areas that need addressing concerning stigmas and continued issues that impact individuals throughout their journey. Bariatric patients should be aware of habits that may developed prior to surgery and implement therapy and practices to reduce reverting to negative

coping mechanisms for strong emotions. Patients should actively seek out therapy when barriers are experienced. Patients should be self-aware of potential barriers to support from traditional social support systems by understanding that not all support will be positive during their disclosure of weight loss interventions. When bariatric patients feel successes, the research study presented here suggests that they are more likely to be supportive to one another in a group setting such as an online social support forum. When faced with issues, the patients rely on online social support forums, in addition to their health care team, to obtain knowledge and suggestions on how to proceed with their treatment to encourage positive progress towards weight loss reduction, decrease weight recidivism, and increase overall quality of life.

References

Aarts, E., Dogan, K., Koehestanie, P., Aufenacker, T., Jansen, I., & Berends, F. (2014). Long-term results after laparoscopic gastric banding: A mean 14 year follow-up study. *Surgery for Obesity and Related Diseases, 10*(4), 633 –640.

Adams, T., Gress, R., Smith, S., Halverson, C., Simper, S., Rosamond, W.… Hunt, S. (2007). Long-term mortality after gastric bypass surgery. *New England Journal of Medicine, 357,* 753-761. doi:10.1056/NEJMoa066603

Alosco, M., Spitznagel, M., Strain, G., Devlin, M., Cohen, R., Crosby, R., & Gunstad, J. (2015). Pre-operative history of depression and cognitive changes in bariatric surgery patients. *Psychology, Health & Medicine*, *20*(7), 802–813.doi:10.1080/13548506.2014.959531

American Psychiatric Association. (2014). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

American Society for Metabolic and Bariatric Surgery. (2018). Benefits of bariatric surgery. Retrieved from: https://asmbs.org/patients/benefits-of-bariatric-surgery

Atwood, M. E., Friedman, A., Meisner, B. A., & Cassin, S. E. (2018). The exchange of social support on online bariatric surgery discussion forums: A mixed-methods content analysis. *Health Communication*, *33*(5), 628–635. doi:10.1080/10410236.2017.1289437

Backman, O., Stockheld, D., Rasmussen, F., Naslund, E., & Marsk, R. (2016). Alcohol and substance abuse, depression, and suicide after Roux-en-Y gastric bypass surgery. *British Journal of Surgery, 103*(10), 1336-1342.

Bateman, A., & Fonagy, P. (2010). Mentalization based treatment for borderline personality disorder. *World psychiatry: Official Journal of the World Psychiatric Association)*, *9*(1), 11–15.

Bennett, K., & Stevens, R. (1996). Weight anxiety in older women. *European Eating Disorders Review, 1,* 32-39.

Bhatti, J., Nathens, A., Thiruchelvam, D., Grantcharov, T., Goldstein, B., & Redelmeier, D. (2016). Self-harm emergencies after bariatric surgery: a population-based cohort study. *Journal of American Medical Association Surgery. 151*(3), 226–232. doi:10.1001/jamasurg.2015.3414

Blackwood, H. (2004). Obesity: A rapidly expanding challenge. *Nursing Management, 35,* 27-36.

Booth, H., Khan, O., Prevost, A., Reddy, M., Charlton, J., & Gulliford, M. (2015). Impact of bariatric surgery on clinical depression. Interrupted time series study with matched controls. *Journal of Affective Disorders, 174,* 644-649.

Bosworth, T. (2017). Weight recidivism after bariatric surgery: What constitutes failure? *Obesity Week, November 2017.*

Bowman, S. (2013). *Examining experiences of weight-related oppression in a bariatric sample: A qualitative exploration*. Retrieved from https://cardinalscholar.bsu.edu/handle/123456789/197781?show=full

Broadwater, K. (2016). Transfer addiction following bariatric surgery. *Obesity Action Coalition.* Retrieved from https://www.obesityaction.org/community/news/bariatric-surgery/transfer-addiction-following-bariatric-surgery/

Buchwald, H., Avidor, Y., Braunwald, E., Jensen, M., Pories, W., Fahrbach, K., & Schoelles, K. (2004). Bariatric surgery a systematic review and meta-analysis. *Journal of the American Medical Association, 292,* 1724-1737.

Capella, R., Iannace, V., & Capella, J. (2006). Bowel obstruction after open and laparoscopic gastric bypass surgery for morbid obesity. *Journal of the American College of Surgeons. 203*(3), 328-335.

Castaneda, D., Popov, V. B., Wander, P., & Thompson, C. C. (2019). Risk of suicide and self-harm is increased after bariatric surgery—A systematic review and meta-analysis. *Obesity Surgery*, *29*(1), 322.

Centers for Disease Control and Prevention. (2017). Defining adult overweight and obesity. Retrieved from https://www.cdc.gov/obesity/adult/defining.html

Chen, M., Krishnamurthy, A., Mohamed, A., & Green, R. (2013). Hematological disorders following gastric bypass surgery: Emerging concepts of the interplay between nutritional deficiency and inflammation. *BioMed Research International*, *2013*, 205467. doi:10.1155/2013/205467

Christakis, N., & Fowler, J. (2007). The spread of obesity in a large social network over 32 years. *New England Journal of Medicine. 357*(4), 370-379.

Collins, J., & Bentz, J. (2009). Behavioral and psychological factors of obesity. *Journal of Lancaster General Hospital. 4*(4), 124.

Coulman, K. D., MacKichan, F., Blazeby, J. M., Donovan, J. L., & Owen-Smith, A. (2020). Patients' experiences of life after bariatric surgery and follow-up care: A qualitative study. *BMJ Open*, *10*(2), e035013. doi:10.1136/bmjopen-2019-035013

Davis, H., & Bowman, S. (2015). Examining experiences of weight-related oppression in a bariatric sample: A qualitative exploration. *Translational Issues in Psychological Science, 1*(3), 271–286.

Dawes, A., Maggard-Gibbons, M., & Maher A. (2016). Mental health conditions among patients seeking and undergoing bariatric surgery: A meta-analysis. *Journal of American Medical Association, 315*(2), 150–163. doi:10.1001/jama.2015.18118

De Gara, C. & Karmali, S. (2014). The anatomy of a weight Recidivism and revision bariatric surgical clinic. *Gastroenterology Research and Practice*, *721095*. doi:10.1155/2014/721095

Devlin, M., King, W., Kalarchian, M., White, G., Marcus, M., Garcia, L., Yanovski, S., & Mitchell, J. (2016). Eating pathology and experience and weight loss in a prospective study of bariatric surgery patients: 3-year follow-up. *International Journal of Eating Disorders, 49(12).* 1058-1067.

Diego Cadena-Obando, Claudia Ramírez-Rentería, Aldo Ferreira-Hermosillo, Alejandra Albarrán-Sanchez, Ernesto Sosa-Eroza, Mario Molina-Ayala, & Etual Espinosa-Cárdenas. (2020). Are there really any predictive factors for a successful weight loss after bariatric surgery? *BMC Endocrine Disorders*, *20*(1), 1–8. https://doi-

org.ezp.waldenulibrary.org/10.1186/s12902-020-0499-4

Dymek, M., le Grange, D., Neven, K. & Alverdy, J. (2002). Quality of life after gastric bypass surgery: a cross-sectional study. *Obesity Research, 10, 1135-1142.*

Edwards-Hampton, S., & Wedin, S. (2015). Preoperative psychological assessment of patients seeking weight-loss surgery: identifying challenges and solutions. *Psychology research and behavior management*, *8*, 263–272. doi:10.2147/PRBM.S69132

Engel, G. L. (1977). The need for a new medical model: a challenge for biomedicine. Science, 196(4286), 129-136.

English, W., DeMaria, E., Brethauer, S., Mattar, S., Rosenthal, R., & Morton, J. (2018). American society for metabolic and bariatric surgery estimation of metabolic and bariatric surgeries performed in the United States in 2016. *Surgery for Obesity and Related Diseases, 14(3),* 259-263.

Everson, G., Kelsberg, G., & Nashelsky, J. (2004). How effective is gastric bypass for weight loss? *The Journal of Family Practice, 53, 914-918.*

Faria, G. (2017). A brief history of bariatric surgery. *Porto Biomedical Journal*. 10.1016/j.pbj.2017.01.008.

Food and Drug Administration. (2019). Obesity treatment devices. Retrieved from: https://www.fda.gov/medical-devices/products-and-medical-procedures/obesity-treatment-devices.

Frantzides, C. T., Alexander, B., & Frantzides, A. T. (2019). Laparoscopic Revision of

Failed Bariatric Procedures. *JSLS: Journal of the Society of Laparoendoscopic Surgeons*, *23*(1). https://doi-org.ezp.waldenulibrary.org/10.4293/JSLS.2018.00074

Friedman, K., Reichmann, S., Costanzo, P., Zelli, A., Ashmore, J. & Musante, G. (2005). Weight stigmatization and ideological beliefs: relation to psychological functioning in obese adults. *Obesity Research, 13, 907-916.*

Gill, H., Kang, S., Lee, Y., Rosenblat, J., & Brietzke, E. (2019). The long- term effect of bariatric surgery on depression and anxiety. J Affect Disord 246:886-894.

Greenberg, I., Perna, F., Kaplan, M., & Sullivan, M. (2005). Behavioral and psychological factors in the assessment and treatment of obesity surgery patients. *Obesity Research, 13, 244-249.*

Groven, K.S., Råheim, M., & Engelsrud, G.H. (2015). Changing Bodies, Changing Habits: Women's Experiences of Interval Training Following Gastric Bypass Surgery. *Health Care for Women International, 36*, 276 - 302.

Guarda, A. (2015). Bariatric surgery and eating disorders. *Hopkins Brain Wise: Psychiatry Newsletter. Winter 2015.*

Gulliford, M., Charlton, J., Booth, H., Fildes, A. , Khan, O., Reddy, M., Ashworth, M., Littlejohns, P., Prevost, A., & Rudisill, C. (2016). Costs and outcomes of increasing access to bariatric surgery for obesity: cohort study and cost-effectiveness analysis using electronic health records. Southampton (UK): NIHR Journals Library. PubMed PMID: 27253004.

Han, Y., Jia, Y., Wang, H., Cao, L., & Zhao, Y. (2020). Comparative analysis of weight loss and resolution of comorbidities between laparoscopic sleeve gastrectomy and Roux-en-Y gastric bypass: A systematic review and meta-analysis based on 18 studies. *International Journal of Surgery*, *76*, 101–110. https://doi-org.ezp.waldenulibrary.org/10.1016/j.ijsu.2020.02.035

Hancock, J., Jackson, S., & Johnson, A. B. (2018). The Long-Term Psychological Impact of Disclosing (Or Not) Laparoscopic Adjustable Gastric Banding Surgery. *BARIATRIC SURGICAL PRACTICE AND PATIENT CARE*. https://doi-org.ezp.waldenulibrary.org/10.1089/bari.2017.0045

Harvard Medical School. (2004). Is obesity a mental health issue? *Harvard Mental Health Letter, 21, 1-4.*

Harvard Medical School. (2008). Psychological aspects of bariatric surgery. *Harvard Mental Health Letter, 24, 1-3.*

Hashiba, K. (2007). Endoscopic bariatric procedures and devices. *Gastrointestinal Endoscopy Clinics of North America, 17, 545-557.*

Heinberg, L. & Coughlin, J. (2015). The role of behavioral health in bariatric surgery. *Minimally Invasive Bariatric Surgery.* 83-92. doi: 10.1007/978-1-4939-1637-58

Himes, S., Grothe, K., Clark, M., Swain, J., Collazo-Clavell, M., & Sarr, M. (2015). Stop regain: a pilot psychological intervention for bariatric patients experiencing weight regain. *Obesity Surgery, 25(5),* 922-927.

Hjelmesæth, J., Rosenvinge, J. H., Gade, H., & Friborg, O. (2019). Effects of Cognitive

Behavioral Therapy on Eating Behaviors, Affective Symptoms, and Weight Loss After Bariatric Surgery: a Randomized Clinical Trial. *Obesity Surgery*, *29*(1), 61–69. https://doi-org.ezp.waldenulibrary.org/10.1007/s11695-018-3471

Hjordis, B., Gunnar, E., & Daisy, S. (1989). Personality traits related to eating behavior and weight loss in a group of severely obese patients. *International Journal of Eating Disorders, 8, 315-323.*

Hsieh, H. & Shannon, S. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research. 15*, 1277-88. Doi:10.1177/1049732305276687.

Hydock, C. (2005). A brief overview of bariatric surgical procedures currently being used to treat the obese patient. *Critical Care Nursing Quarterly, 28, 217-226.*

Ivezaj, B., Barnes, R., Cooper, Z., & Grilo, C. (2018). Loss of control eating after bariatric/sleeve gastrectomy surgery: Similar to binge-eating disorder despite differences in quantities. *General Hospital Psychiatry, 54,* 25-30.

Karlsson, J., Taft, C., Ryden, A., Sjostrom, L., & Sullivan, M. (2007). Ten-year trends in health-related quality of life after surgical and conventional treatment for severe obesity: the SOS intervention study. *International Journal of Obesity, 31, 1248-1261.*

Karfopoulou, E., Anastasiou, C. A., Avgeraki, E., Kosmidis, M. H., & Yannakoulia, M. (2016). The role of social support in weight loss maintenance: Results from the MedWeight study. *Journal Of Behavioral Medicine*, *39*(3), 511-518. doi:10.1007/s10865-016-9717-y

Karmali, S., Brar, B., Shi, X., Sharma, A., de Gara, C., & Birch, D. (2013). Weight

recidivism post-bariatric surgery: a systematic review. *Obesity Surgery. 23 (11).* Doi:10.1007/s11695-013-1070-4.

Kaslow, N., Bollini, A., Druss, B., Gleuckaur, R., Goldfrank, L., Kelleher, K., La Greca, A., Varela, R., Wang, S., Weinreb, L., & Zeltzer, L. (2007). Health care for the whole person: research update. *Professional Psychology, 38, 278-289.*

Kassir, R., Kendrick, M., & Dakin, G. (2006). Surgical approaches to obesity. *Mayo Clinic Proceedings, 81, S18-S24.*

Kassir, R., Piqueres, S., & Blanc, P. (2014). Abscess after sleeve gastrectomy: conservative treatment by endoscopic dilation. *Surgery for obesity and related diseases: official journal of the American Society for Bariatric Surgery*, *10*(6), e67–e69. https://doi.org/10.1016/j.soard.2014.05.019

Kendrick, M. L., & Dakin, G. F. (2006). Surgical approaches to obesity. *Mayo Clinic proceedings*, *81*(10 Suppl), S18–S24. https://doi.org/10.1016/s0025-6196(11)61177-4

Kovacs, Z., Valentin, J. B., & Nielsen, R. E. (2017). Risk of psychiatric disorders, self-harm behaviour and service use associated with bariatric surgery. *Acta Psychiatrica Scandinavica*, *135*(2), 149–158. https://doi-org.ezp.waldenulibrary.org/10.1111/acps.12669

Kubik, J., Gill, R., Laffin, M., & Karmali, S. (2013). The impact of bariatric surgery on psychological health. *Journal of Obesity.* doi: 10.1155/2013/837989

Lager, C. J., Esfandiari, N. H., Luo, Y., Subauste, A. R., Kraftson, A. T., Brown, M. B., Varban, O. A., Meral, R., Cassidy, R. B., Nay, C. K., Lockwood, A. L., Bellers,

D., Buda, C. M., & Oral, E. A. (2018). Metabolic Parameters, Weight Loss, and Comorbidities 4 Years After Roux-en-Y Gastric Bypass and Sleeve Gastrectomy. *OBESITY SURGERY*, *28*(11), 3415–3423. https://doi-org.ezp.waldenulibrary.org/10.1007/s11695-018-3346-1

Lai, C., Aceto, P., Petrucci, I., Castelnuovo, G., Callari, C., Giustacchini, P., Sollazzi, L., Mingrone, G., Bellantone, R., & Raffaelli, M. (2019). The influence of preoperative psychological factors on weight loss after bariatric surgery: A preliminary report. *Journal of Health Psychology*, *24*(4), 518–525. https://doi-org.ezp.waldenulibrary.org/10.1177/1359105316677750

Larkin, D. & Martin, C. (2017). Does body dysmorphic disorder have implications for bariatric surgery? *Metabolism and Pathophysiology of Bariatric Surgery.* 605-611.

Lavender, J. M., King, W. C., Kalarchian, M. A., Devlin, M. J., Hinerman, A., Gunstad, J., Marcus, M. D., & Mitchell, J. E. (2020). Examining emotion-, personality-, and reward-related dispositional tendencies in relation to eating pathology and weight change over seven years in the Longitudinal Assessment of Bariatric Surgery (LABS) study. *Journal of Psychiatric Research*, *120*, 124–130. https://doi-org.ezp.waldenulibrary.org/10.1016/j.jpsychires.2019.10.014

Lawson, J. L., LeCates, A., Ivezaj, V., Lydecker, J., & Grilo, C. M. (2020). Internalized weight bias and loss-of-control eating following bariatric surgery. *Eating Disorders*, 1–14. https://doi-org.ezp.waldenulibrary.org/10.1080/10640266.2020.1731920

Leahey, T., LaRose, J., Fava, J. & Wing, R. R. (2011), Social influences are associated with BMI and weight loss intentions in young adults. *Obesity, 19*, 1157-1162. doi:10.1038/oby.2010.301

Lent, M., Bailey-Davis, L., Irving, B., Wood, G., Cook, A., Hirsch, A., Franceschelli-Hosterman, J. (2016). Bariatric surgery patients and their families: health, physical activity, and social support. *Obesity Surgery*, *26*(12), 2981–2988. doi:10.1007/s11695-016-2228-7

Liebl, L., Barnason, S. and Hudson, D. (2016), Awakening: a qualitative study on maintaining weight loss after bariatric surgery. *Journal of Clinical Nursing, 25*: 951-961. doi:10.1111/jocn.13129

Litz, M., Rigby, A., Rogers, A., Leslie, D., & Hollenbeak, C. (2017). The impact of mental health disorders on 30-day readmission after bariatric surgery. *Journal of the American Society for Metabolic and Bariatric Surgery. 14(3).* 325-331.

Maleckas, A., Gudaitytė, R., Petereit, R., Venclauskas, L., & Veličkienė, D. (2016). Weight regain after gastric bypass: etiology and treatment options. *Gland surgery*, *5*(6), 617–624. doi:10.21037/gs.2016.12.02

Malli, C., Sioulas, A., Emmanouil, T., Dimitriadis, G., & Triantafyllou, K. (2016). Endoscopy after bariatric surgery. *Annals of gastroenterology*, *29*(3), 249–257. doi:10.20524/aog.2016.0034

Mama, S., Schembre, S., O'Connor, D., Kaplan, C., Bode, S., & Lee, R. (2015). Effectiveness of lifestyle interventions to reduce binge eating symptoms in African American and Hispanic women. *Appetite*, *95*, 269–274.

doi:10.1016/j.appet.2015.07.015

Mattar, S. (2018). Bariatric surgery: prevalence and treatment. *American Society for Metabolic and Bariatric Surgery.* Retrieved from: https://asmbs.org/app/uploads/2018/09/5-bariatric-surgery-samer-matter.pdf

Mayo Clinic. (2018). Bariatric surgery. Retrieved from: https://www.mayoclinic.org/tests-procedures/bariatric-surgery/about/pac-20394258

Mayring, P. (2000). Qualitative content analysis. *Qualitative Social Research 1(2),* 20.

Mitchell, J. (2017). Mental illness and bariatric surgery. *Obesity, 25*, 819-819. doi:10.1002/oby.21834

Mitchell, J., King, W., Courcoulas, A., Dakin, G., Elder, K., Engel, S., Flum, D., Kalarchian, M., Kendelwal, S., Pender, J., Pories, W., & Wolfe, B. (2015). Eating behavior and eating disorders in adults before bariatric surgery. *International Journal of Eating Disorders. 8(2):215-22*. doi: 10.1002/eat.22275

Monkhouse, S., Norton, J., & Norton, S. (2009). Complications of bariatric surgery: presentation and emergency management – a review. *Annals of the Royal College of Surgeons of England. 91(4):280-6*. doi: 10.1308/003588409X392072

Moore, D. D., & Cooper, C. E. (2016). Life after bariatric surgery: Perceptions of male patients and their intimate relationships. *Journal Of Marital And Family Therapy*, *42*(3), 495-508. doi:10.1111/jmft.12155

Naslund, J. A., Whiteman, K. L., McHugo, G. J., Aschbrenner, K. A., Marsch, L. A., & Bartels, S. J. (2017). Lifestyle interventions for weight loss among overweight

and obese adults with serious mental illness: A systematic review and meta-analysis. *General hospital psychiatry*, *47*, 83–102. doi:10.1016/j.genhosppsych.2017.04.003

National Council on Alcoholism and Drug Dependence. (2019). Using curriculum-based support groups to mitigate ACEs. Retrieved from: https://www.ncadd.org/index.php/about-ncadd/events-awards/download/78_3dfe7863d5539dfe727d37ccf1dd984a

National Institute on Health. (2014). Overweight and obesity statistics. Retrieved from: https://www.niddk.nih.gov/health-information/health-statistics/overweight-obesity.

National Institute of Mental Health (2017). *Obesity*. Retrieved March 20, 2017, from http://www.nimh.nih.gov/health/topics/obesity/index.shtml.

Ogden, C., Carroll, M., Fryar, C., & Flegal, K. (2015). Prevalence of obesity among adults and youth. *NCHS Data Brief. 219.* Retrieved from: https://www.cdc.gov/nchs/data/databriefs/db219.pdf

Ogle, J. P., Park, J., Damhorst, M. L., & Bradley, L. A. (2016). Social support for women who have undergone bariatric surgery. *Qualitative Health Research*, *26*(2), 176-193. doi:10.1177/1049732315570132

Palmer, Doris A.; Kronenfeld, J. (2014). Satisfaction with appearance and social relationships following bariatric surgery. *Conference Papers -- American Sociological Association.* p1-19.

Piqueres, S., & Blanc, P. (2014). Abscess after sleeve gastrectomy: conservative

treatment by endoscopic dilation. *Journal of the American Society for Metabolic and Bariatric Surgery. 10(6).* 67-69.

Pizato, N., Botelho, P., Gonçalves, V., Dutra, E., & de Carvalho, K. (2017). Effect of Grazing Behavior on Weight Regain Post-Bariatric Surgery: A Systematic Review. *Nutrients*, *9*(12), 1322. doi:10.3390/nu9121322.

PR Newswire. (2014, January 29). Weight Loss Procedures Disprove the "Lack of Willpower" Myth. *PR Newswire US*.

Raves, D. M., Brewis, A., Trainer, S., Han, S. Y., & Wutich, A. (2016). Bariatric Surgery Patients' Perceptions of Weight-Related Stigma in Healthcare Settings Impair Post-surgery Dietary Adherence. *Frontiers in psychology*, *7*, 1497. https://doi.org/10.3389/fpsyg.2016.01497

Reifegerste, D., Wasgien, K., & Hagen, L. (2017). Online social support for obese adults: exploring the role of forum activity. *International Journal of Medical Informatics, 101,* 1-8.

Ristanto, A., & Caltabiano, M. L. (2019). Psychological Support and Well-being in Post-Bariatric Surgery Patients. *Obesity surgery*, *29*(2), 739–743. https://doi.org/10.1007/s11695-018-3599-8

Rodriguez-Hurtado, J., Ferrer-Marquez, M., Fontalba-Navas, A., García-Torrecillas, J., & Olvera-Porcel, M. (2017). Influence of psychological variables in morbidly obese patients undergoing bariatric surgery after 24 months of evolution. *Cirugia Espanola*. 95(7):378-384. doi: 10.1016/j.ciresp.2017.06.002. Epub 2017 Jul 24. English, Spanish. PubMed PMID: 28750780.

Roller, M. & Lavrakas, P. (2015). Applied qualitative research design: a total quality framework approach. New York: Guilford Press.

Rosenbaum, D. & White, K. (2016). Understanding the complexity of biopsychosocial factors in the public health epidemic of overweight and obesity. *Health Psychology Open, January-June.* 1-4.

Rubino, F., Puhl, R., Cummings D., (2020). Joint international consensus statement for ending stigma of obesity. Nat Med. DOI:10.1038/s41591-020-0803-x.

Saldaňa, J. (2012). The coding manual for qualitative researchers (2nd ed.). Thousand Oaks, CA: Sage.

Schäfer, L., Hübner, C., Carus, T., Herbig, B., Seyfried, F., Kaiser, S., Schütz, T., Dietrich, A., & Hilbert, A. (2017). Identifying prebariatric subtypes based on temperament traits, emotion dysregulation, and disinhibited eating: A latent profile analysis. *The International Journal of Eating Disorders*, *50*(10), 1172–1182. https://doi-org.ezp.waldenulibrary.org/10.1002/eat.22760

Sharman, M., Hensher, M., Wilkinson, S., Williams, D., Palmer, A., Venn, A., & Ezzy, D. (2015). What are the support experiences and needs of patients who have received bariatric surgery? *Health Expectations: An International Journal Of Public Participation In Health Care & Health Policy*, doi:10.1111/hex.12423

Sheets, C., Peat, C., Berg, K., White, E., Bocchieri-Ricciardi, L., Chen, E., & Mitchell J. (2015). Post-operative psychosocial predictors of outcome in bariatric surgery. *Obesity Surgery. 25(2).* 330-45. doi: 10.1007/s11695-014-1490-9.

Siddique, S. & Feuerstein J. (2014). Gastrointestinal complications of Roux-en-Y gastric

bypass surgery. *OA Minim Invasive Surg*. 2(1).

Simon, G., von Korff, M., Saunders, K., Miglioretti, D., Crane, P., van Belle, G., Kessler, R. (2006). Association between obesity and psychiatric disorders in the U.S. adult population. *Archives of General Psychiatry, 63, 824-830.*

Snowdon□Carr, V. (2016). Using psychological approaches for working with obesity and

type 2 diabetes. *Practical Diabetes. 33.* 248-252. doi:10.1002/pdi.2045

Sockalingam, S., Cassin, S., Wnuk, S., Du, C., Jackson, T., Hawa, R., & Parikh, S. (2017). A Pilot Study on Telephone Cognitive Behavioral Therapy for Patients Six-Months Post-Bariatric Surgery. *Obesity surgery*, *27*(3), 670–675. doi:10.1007/s11695-016-2322-x

Spittal, M., & Fruhbeck, G. (2018). Bariatric surgery: many benefits but emerging risks. *Lancet Diabetes Endocrinology,* 6(3):161-163. doi: 10.1016/S2213-8587(17)30435-7.

Stangl, A., Earnshaw, V., Logie, C., van Brakel, W., C Simbayi, L., Barré, I., & Dovidio, J. (2019). The Health Stigma and Discrimination Framework: a global, crosscutting framework to inform research, intervention development, and policy on health-related stigmas. *BMC medicine*, *17*(1), 31. https://doi.org/10.1186/s12916-019-1271-3

Timofte, D., Ilescu, D., Hainarosie, R., Pantea Stoian, A., & Voncanu, V. (2018). Laparoscopic sleeve gastrectomy is associated with reduced depressive symptoms: a one-year follow-up study. *Review of Research and Social*

Integration, 61, 147-154.

Trainer, S., & Benjamin, T. (2017). Elective surgery to save my life: rethinking the 'choice' in bariatric surgery. *Journal Of Advanced Nursing*, *73*(4), 894-904. doi:10.1111/jan.13193

Trainer, S., Brewis, A., Wutich, A. (2017) Not 'Taking the Easy Way Out: Reframing bariatric surgery from low-effort weight loss to hard work, *Anthropology & Medicine, 24:1*, 96-110, doi: 10.1080/13648470.2016.1249339

U.S. Department of Health and Human Services, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases. (2017). *Overweight and Obesity Statistics.* Retrieved from: https://www.niddk.nih.gov/health-information/health-statistics/overweight-obesity

Valderas, J., Starfield, B., Sibbald, B., Salisbury, C., & Roland, M. (2009). Defining comorbidity: implications for understanding health and health services. *Annals of Family Medicing. 2009 Jul-Aug;7(4):357-63.* doi: 10.1370/afm.983.

Wardle, J., Waller, J., and Rapoport L. (2001). Body dissatisfaction and binge eating in obese women: the role of restraint and depression. *Obesity Research, 9, 778-787.*

Wee C., Hamel M., & Apovian C. (2013). Expectations for Weight Loss and Willingness to Accept Risk Among Patients Seeking Weight Loss Surgery. *Journal of the American Medical Association.* 148(3). 264–271. doi:10.1001/jamasurg.2013.1048

Whiteman, H. (2017). Weight gain on the rise but fewer adults attempting weight loss. *Journal of American Medical Association. March 2017.* Retrieved from:

https://www.medicalnewstoday.com/articles/316228.php

Yen, Y., Huang, C., & Tai, C. (2014). Psychiatric aspects of bariatric surgery. *Current Opinions on Psychiatry, 27(5).* 374-379.

Zwann, M., Enderle, J., Wagner, S., Mulhans, B., Ditzen, B., Gefeller, O., Mitchell, J., & Muller, A. (2011). Anxiety and depression in bariatric surgery patients: a prospective follow-up study using structured clinical reviews. *Journal of Affective Disorders, 133(1-2).* 61-68.